Testing social and environmental disclosure-reputation relationship: a longitudinal two-way analysis

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The final, definitive version of this paper has been published in Sustainability Accounting, Management and Policy Journal. DOI: http://dx.doi.org/10.1108/SAMPJ-11-2019-0409. Please cite the published version.

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Abstract:

Purpose: This paper reviews sustainability reporting understood as any type of social and environmental disclosures (SED) in its relationship with corporate reputation within the most reputed companies in Spain according to MERCO Business Monitor Ranking (2014-2016).

Design/methodology/approach: To shed light on the relationship reputation-SED, two alternative models were tested, thought the use of Structural Equation Model (SEM) and Partial Least Squares (PLS), with longitudinal data.

Findings: Both models supported the hypotheses although the model linking reputation to SED was slightly better, questioning the use of SED by reputation leader companies.

Research limitations/implications: Our paper study the linkage, sign and causality, between reputation and SED by introducing two alternative models. SED and reputation are receiving considerable attention into the business scope, although their relationship is not agreed by previous literature. There are contradictory evidences that lead us to question the sense of this relation.

Practical implications: Our contribution will be of interest to managers in terms of the value of this type of reporting from a strategic point of view. If reputation favours this type of disclosures, these will be issues to be taken into account in order to obtain a better competitive advantage through market differentiation.

Social implications: The results will be of interest for future studies and actions aimed at regulating the improvement of this type of reporting in the hands of academics and practitioners but also investors and regulators.

Originality/value: This study is an advance in the description of the SED-reputation relationship and contributes to this new line of research with new insights. Another contribution is the way to understand sustainability reporting. This paper analyses SED from the twofold point of view of the quantity of information and, the existing references about its quality, and adding the lag effect between both variables.

1. INTRODUCTION

Nowadays, the importance of corporate reputation and its management is unquestionable. The prediction of Fombrun and Shanley (1990:233) is still fully valid if possible "firms compete for reputational status". Companies are concerned about building a good reputation through so-called Reputation Management by understanding it as responsible for a set of potential advantages, among them a formula for a better corporate performance (Reputation Institute, 2019).

By other way, an important body of study within reputation literature focuses on the relationship between reputation and voluntary disclosure policy. It is discussed by researchers in this field that a relevant, comprehensive and timely non-financial disclosure policy could have the ultimate effect of enhancing corporate reputation. It can be considered as a non-financial predictor of reputation under the Fombrun and Shanley (1990)'s terminology. Specifically, the relationship focuses on social reporting, i.e., so-called social and environmental disclosures (SED[2]). However, problems of causality arise in this SED-reputation relationship, so the results seem to admit that reputation drives disclosure while disclosure affects reputation. That is, reputation can be a non-financial predictor of SED. Brammer and Pavellin (2006, 2008) raise this question as still open and Brooks and Oikonomou (2018) confirm such evidence in a recent literature review paper as well as the effect of delay between such surveys and their effect on reputation (Armitage and Marston, 2006). Longitudinal studies are therefore required to solve such problems.

Our study starts from the contradictory results in the SED-reputation relationship trying to advance it through the incorporation of two aspects that have not been taken into account in a combined way and that we consider fundamental in their explanation. Firstly, we introduce the quality of sustainability reporting as well as its quantity in our methodological design. Because revealing with quality is not the same as revealing with quality, incorporating both dimensions into a unique measure provides a more accurate view of the first study variable, SED. In the same vein, Beretta and Bozzolan (2004:266) contended "the quantity of disclosure is not a satisfactory proxy for the quality of disclosure". Second, we propose to incorporate the delayed effects of disclosure on reputation as well as the other way around. That is, the effects of reputation as a way to encourage future SED or vice versa. Previous studies have studied the existing relationship between both variables without taking into account that the decision to disclose, in one case, or that the better corporate reputation, in another case, would make sense later, never taking both variables in the same period. De la Fuente and Quevedo (2003:161) refer to the "lag with which reputation affects value creation and vice versa". Also Fombrum (1996) warned that a long-term horizon is necessary in the study of reputation. Its character as an intangible asset explains the foregoing.

In addition, the difficulty of measuring corporate reputation (as the main intangible asset) leads us to justify the role of different reputation rankings as multidimensional, multi-stakeholders and dynamics measures (generally every calendar year). Among them, we must highlight the Fortune ranking, at an international level, which since its inception continues to be the most used, the ranking prepared by the Reputation Institute, the Global RepTrak® 100, as well as the growing boom of the MERCO Corporate Reputation Monitor for the Spanish and the Iberoamerican scope.

With this background, our paper study the linkage, sign and sense of direction, between reputation and SED by introducing two alternative models: Model A in which SED causes corporate reputation and Model B where corporate reputation is the cause of SED. That

[2] Also Corporate Social Responsibility Disclosures (CSRD) or sustainability reporting

is a novelty with respect to previous studies concerned exclusively with corroborating the sense of this relationship. After reviewing the reduced number of papers involved in studying SED-reputation causality, Castilla and Ruiz (2019) conclude that most of them justify that reputation is positively associated with higher levels of disclosure but it is unclear the sense of this relationship. For authors such as De la Cuesta and Valor (2011), Costa et al. (2014), Luna and Fernández (2010), Michelon (2011) and Dyduch and Krasodomska (2017) reputation favours SED. In an opposite way, other researchers have raised that SED improve reputation (Axjonow 2018, Pérez and García-De los Salmones 2015; Baraibar-Diez and Luna 2018). That is, there is a positive relationship between these variables, regardless of their role as cause or consequence, respectively. This justifies the incorporation of Model A and Model B.

In addition, both models are tested in Spanish reputation leaders included in the MERCO Corporate Reputation Business Monitor (MERCO ranking hereinafter) from 2014 to 2016. Our study covers an important research gap because our target population has not been covered until date. Mainly large listed companies have captured the attention of empirical research in this topic.

Another contribution is the way to understand sustainability reporting. This paper analyses SED from the twofold point of view of the quantity of information and, the existing references about its quality. While SED empirical literature is considerable from a quantitative point of view, it does not reach very high levels of information about the quality of disclosure. Among authors concerned with quantitative SED analysis, research objectives have focused on the nature and frequency of these disclosures, their patterns and trends, and the relationships between them and certain structural variables including size, industry and profitability, as examples. However, some researchers highlighted the need for further research in terms of SED quality. In that sense, some authors analyze their relevance and reliability as fundamental requirements to conclude about their presence. On other occasions, quality is associated with the data and details offered for items included in SED, the more breakdowns and detail the higher the quality. In general, the vast majority of authors consider that quality tends to be deficient (De Villiers and Van Staden, 2006). What is obvious, following Toms (2002:264) "that the volume of disclosure alone is not in itself a sufficient condition for the creation of reputation",

In summary, this study is an advance in identifying not only the sense but also the direction of causality between SED and reputation, taking into account the necessary time delay in the effects that both variables could produce and also the quantitative and qualitative nature of these disclosures, a "new imagining" in Deegan (2017)'s opinion[3]. All the above contributes to this line of research with new insights that will be of interest to the following audiences.

-The results will be of interest for future studies and actions aimed at regulating the improvement of this reporting in the hands of academics and practitioners but also investors and regulators. We must indicate that the accounting regulatory environment is at a time of concern about non-financial information that companies are voluntarily disclosing. We find ourselves for this reason in a context where the debate about harmonization and the fit of non-financial information is analysed both at the international level and more closely at the European Union (EU) level. At European level, Directive 2014/95/EU of the European Parliament and of the Council (October 22, 2014) has already made necessary to standardize the way of reporting on social and ethical aspects for companies with more than 500 employees by making such content

[3] See "New imaginings" by Deegan (2017:71) understood as "works where authors suggest new (different) ways of accounting for social and environmental issues".

mandatory. Therefore, the expected results may favour the preparation of future regulations in this field.

-Our contribution will also be of interest to managers in terms of the value of this type of reporting from a strategic point of view. We agree with García-Sánchez et al. (2018) when the state that corporate reporting is costly and time-consuming activity for the companies and the need for manager to ensure its utility for stakeholders. In fact, corporate reputation is changing the role of communicator's managers. If reputation favours or conditions this type of disclosure, these will be issues to be taken into account in order to obtain a better competitive advantage through market differentiation.

The structure of this paper is described below. This introductory section is followed by Section 2, dedicated to a review of the most relevant literature on SED-reputation relationship (its sense and its causality). Next, the methodological design is presented in Section 3. A fourth section is devoted to the main results obtained. Section 5 will discuss the main implications of our evidences over previous studies on this topic. Finally, the main conclusions drawn from our research, limitations and future lines of research are given in Section 6.

2. STATE OF THE ART AND RESEARCH FRAMEWORK

Freeman (2012) pointed out some time ago the need for a new narrative on the current functioning of companies that incorporates their social commitment and correctly informs their stakeholders. Recently, the Reputation Institute (2019:9-10) conclude "more information does not mean better information… The most effective way to inform them will be by developing authentic messages, in a personalized format, for each unique stakeholder group". That is, the quality is as the same level than the quantity.

Among the different types of voluntary disclosures, those of a social and environmental nature, the so-called SED have a priority place. While it is true that the disclosure of environmental performance has been treated in the early stages to justify "the visibility of companies", in recent years and following Qiu et al. (2016) social reporting in an extended way even offers results that are more conclusive. According to these authors, there is a relationship between social disclosures and the price of a company's shares, where the increase in the company's reputation would result in different economic benefits including a higher market price (shares). In the same way, Brooks and Oikonomou (2018) concluded that the potential benefits associated with the disclosure of sustainability ranging from improving transparency, enhancing reputation and brand value, motivation of employees up to the support of the internal control processes of the firm. Above all, the improvement of reputation and corporate image stands out as the most relevant (Friedman and Miles 2001; Armitage and Marston 2008; Unerman 2008). In fact, Gray et al. (1988:8-9) consider reputation as one of the three themes in the middle ground of SR in the following terms "who assume that the purpose of CSR is to enhance corporate image…". Also for Cooper and Owen (2007:649) reputation "appears to provide a primary motivating factor for companies going down the SR path".

Likewise, corporate reputation and its management is an unquestionable task for companies. Herremans et al. (1993) already warned some time ago about the importance of a social reputation for companies and a better stock market returns and lower risk. According to Robinson et al. (2011), a firm's reputation for being committed to sustainability is an intangible resource that can increase the value of a firm's expected cash flows and/or reduce the variability of them. Also Costa et al. (2014) find that the information on sustainability is relevant for investors. Specifically, they have found that the net income of firms with reputation for sustainability has a higher valuation by the market when they compared to firms without this reputation (measured by the inclusion on the DJSI). It is for this reason that Friedman and Miles (2001:523) stated that "reputational risk, and hence how to manage environmental, ethical and social reputations, is on the core corporate governance agenda", a question which is fully valid today.

There are no exact formulas on how to improve and/or create corporate reputation by understanding it as a collective perception of different stakeholders (Castilla and Ruiz, 2019). The most that has been achieved is to identify behaviours with which their improvement seems to be linked. Among them, non-financial reporting stands out as a tool to manage reputation from the managerial point of view. However, defining SED and reputation's relationship has been a question unachieved and it involves answering two main questions: the characterization of the sing of the relationship (positive or negative) and the sense of causality (front and/or back). The academic contributions to clarify these points are so complex that even some authors use reputation rankings as a measure of SR (Galant and Cadez, 2017:680) "due to the lack of consensus and complexity of the concept (SR)".

On the one hand, there are a significant number of studies where SED are considered drivers of corporate reputation. It is justified that under a social disclosure strategy, companies will benefit from greater legitimacy and better relations with their stakeholders. In fact, from a normative point of view, Stakeholder Theory and Legitimacy Theory have been the most used in an individual way, but also combining them into the explanation given by researchers. That is, that SED would be a predictor of corporate reputation. In addition, more recently, some studies have focus on the inverse role, SED as a consequence. From this point of view, companies will use their reputation to justify the degree with which they perform SED. In this way, the level of reputation will be an incentive to make social and environmental disclosures, using SED as a way to maintain its reputation level achieved. Dienes et al. (2016) found that one driver of sustainability reporting is the visibility of the company, which indirectly justifies the reduced role of small companies in this type of disclosure (a demanded future line of research). See table 1 for an overall vision of empirical papers dealing with this relationship.

INSERT TABLE 1

Our study proposes to test both questions: sign and causality of the SED-reputation relationship, with the implementation of a double conceptual model: Model A and Model B although comparatively the number of studies of the first option is higher being the major stream.

As a key point, SED is defined as a construct composed of two dimensions: quantity and quality, as theoretically researched in a previous study (Castilla and Ruiz, 2018). Recent regulatory developments suggest that the future of non-financial reporting, where SED is included as a priority item, must comply with the following fundamental principles: meaningful, faithful, balanced and comprehensible, complete, strategic and prospective information, aimed at interested parties, coherent and systematic (European Commission, 2017). Sincerity, transparency and consistency are the trinomial proposed by Halderen and Riel (2006) to develop a communication strategy that has impact on corporate reputation. All of the above leads us to justify that SED, within the framework of non-financial information, must meet two requirements that encompass all the recommendations outlined: provide sufficient information (quantity) and with sufficient guarantees (quality). It is for this reason that in our hypotheses development, both dimensions will be taken into account in an individual way.

With regard to the problem of causality, causes or drivers and consequences of corporate reputation has been an issue from different perspectives, something that constitutes a contemporary research gap, as Money et al. (2017) stated. In this line, after a review of the literature from the past decade these authors propose a framework for future researchers in which both perspectives were integrated in a Causes-Consequences Model for Reputation. This conceptual idea has been taken into account in our methodological design. We understand that the SED can be both, the cause and the consequence of corporate reputation, hence the double perspective with which we approach the analysis of their relationship: SED-reputation or reputation-SED, being this another highlight note of our study because to date we have not found any paper or research that combines both possibilities in a single empirical analysis.

We now come to justify the development of hypotheses of the conceptual models we propose.

2.1. SED-Reputation hypotheses

Researchers' efforts have been devoted to put into value SED. However, for Moura-Leite and Padgett (2014) little is known about de impact that social actions have on reputation. As one of the most relevant contents into non-financial information, SED are considered as responsible of the increase/creation of a better reputation between companies, that is, as drivers of reputation. In a seminal paper, Kurucz et al. (2008:90) consider reputation and legitimacy as one of the four business cases for SR[4] including the following frames: licence to operate, social impact hypothesis, cause-related marketing, and socially responsible investing. All this competitive advantages are derived from sustainability reporting.

Many recent and relevant studies have found a direct and positive relationship between SED and reputation. For instance, Casimiro and Coelho (2016) propose a model of drivers and consequences for cooperative reputation where communication is a driver that justifies its value as a way to engage stakeholders. Costa et al. (2014) provide evidence that sustainability reporting is a way used by the companies to signal their reputation to stakeholders improving the market value at the same time. A question corroborated in shopping center by Sardinha et al. (2011) who found a positive evolution of social reporting practices in improving reputation. Also Bayoud et al. (2012) found a positive relationship between SED and organizational performance in terms of financial performance and corporate reputation but it is not corroborated in terms of employee commitment. Cho et al. (2012), for the case of environmental reporting, find that SED is positively related to the environmental reputation and the inclusion and permanence of companies in the Dow Jones Sustainability Index (DJSI) In the same line, Aldaz et al. (2015) also conclude about the role of anti-corruption information to improve corporate reputation. Other authors such as Mahoney et al. (2013) find that SED create value through reputation, in fact companies that produce stand-alone reports generally have higher SR scores, and decide using them to improve their image (green washing instead signaling). Acknowledging the power of stakeholders, Moura-Leite and Padgett (2014) state that different stakeholder groups affect the SED-reputation relationship. Institutional stakeholders are more responsible than technical for corporate reputation. Axjonow et al. (2018) found that stand-alone SR reports do not influence to corporate reputation among non-professional stakeholders being the opposite for professional

[4] Cost and risk reduction, competitive advantage, reputation and legitimacy, and synergistic value creation.

stakeholders. Focused on consumers, and derived from the SR's potential for the creation of intangible assets, Saeidi et al. (2015) found that better reputation and others competitive advantages are obtained via consumer satisfaction after engaging SR by companies. Recently, Arora and Lodhia (2016) showed the BP case to explore how SED are used to manage corporate reputation. In their conclusions, it was observed an increase of the information provided by the company to justify how to amend the environmental disaster.

However, as Toms (2002:264) states, "the volume of disclosure alone is not in itself a sufficient condition for the creation of reputation". At this respect, Michelon et al. (2015:61) found in 112 UK companies the absence of association between SED and its quality, concluding that this is explained by the concerns of companies to use SED "as a tool to manage image, rather than to substantive improvement in the accountability process ". In this sense, Toms (2002) included quality signalling it as the way to test the relationship between disclosures of environmental policies in annual reports and the creation of environmental reputation. These results validated to positive sense for this relationship for a sample of UK companies. At the Spanish level, Odriozola and Baraibar-Diez (2017) confirm that the quality of the sustainability reports increases the probability of a better reputation, understanding that the former will follow some standard and that information will be verified. Also, Pérez et al. (2017) found that the reporting-reputation link depends on the intensity of reporting to specific stakeholders, that is, it is not enough to disclose a lot of information but that stakeholders should be valued for their power, legitimacy and urgency. For Baraibar-Diez and Luna (2018) it is a specific type of non-financial information and the companies should reach their stakeholders adapting their communication to relevant, understandable and timely social information.

By these reasons, the following hypotheses are considered into a **Model A** in which SED are the causes of a better corporate reputation:

H1a: SED Quality has a direct, positive and significant impact on reputation.

H2a: SED Quantity has a direct, positive and significant impact on reputation.

2.2. Reputation-SED hypotheses

As we have commented, causality problems are also raised in this SED-reputation relationship, so the results seem to admit that reputation leads to disclose at the same time that disclose affects reputation. According to Michelon (2001) it is necessary to analyze the role played by reputation as a determinant of sustainability disclosure. This is for Brammer and Pavellin (2006, 2008) a still open question that Brooks and Oikonomou (2018) also stated in a recent literature review paper.

A first hypothesis that we consider is to analyze if the companies that have better reputation disclose more social information. Bebbington et al. (2008:354) propose a case study, Shell, in which the role of reputation risk management in order to explain SED is corroborated in a positive way. In the opinion of these authors, while the relation SED-reputation is plausible "what is less clear is if (and if so, how) the link between reputation risk management and CSR reporting is operationalized". According to Neville et al. (2005:1191) corporate reputation was directly related to SR, in fact, "reputation has received increased attention by scholar as an important construct for the study of CSR". For Kansal et al. (2014:220) non-financial variables and social reputation also determine the communication of social efforts. Among its arguments, they justify that high-reputed companies “need to make disclosures to assure the public of their continuous provision of socially desirable ends and they are not deviating from the high standards established in the past”. Michelon (2011) carries out other well-known study in this topic. She considers that corporate reputation is a determinant of sustainability disclosures in an empirical study on companies selected from the DJSI and others from a control group. Her results show that sustainability disclosures are driven by reputation in terms of engagement to stakeholders and by the average visibility of the company. However, it is surprising that among its findings the disclosure of sustainability is not supported by the relationship with financial performance. In a Spanish context, Luna and Fernández (2010) found that the social reporting policy is significantly related to the visibility factor, measured by the company's size or reputation.

Rather less developed is the study of the role of corporate reputation as driver of the SED but introducing quality as a consideration. One example is carried out by Dyduch and Krasodomska (2017) confirming the hypothesis as only the belonging of the company to Respect Index Portfolio, as one of the two variables used to measure the reputation is verified. These authors consider not only for quantity but also for quality through a scale of 0 to 3 (ranging from 0 no presentation to 3 numerical presentation and narrative of the item). In the case of IBEX 35 Spanish companies, De la Cuesta and Valor (2011) found that those that have a higher level of reputational risk are those that have higher levels of disclosure, but also corporate reputation together with regulation are the main drivers for improving the quality of social, environmental and corporate governance information. In a previous study, these authors proposed that the quality of this information should find 4 criteria: relevance (materiality), comparability, reliability and accessibility (De la Cuesta and Valor, 2004).

All the above justify the creation of our **Model B** and it implies de following hypotheses:

H1b: Reputation has a direct, positive and significant impact on SED Quality

H2b: Reputation has a direct, positive and significant impact on SED Quantity

3. RESEARCH DESIGN AND METHOD

3.1 Designing causal models

The analysis of unobservable, complex variables such as reputation or SED over time as well as related causal relationships requires adequate methods. Research in management is adding sophisticated methods and techniques to approach the reality, to better understand, explain and transform the dynamic of business, and to improve the decision making in the company. That is the case of structural equation modelling (SEM), the method chosen for attending our goal.

SEM is a way to run multiple regressions between latent variables or unobservable variables -according to Rigdon (2012), constructs-, and Partial Least Squares (PLS), a variance-based technique with exploratory and predictive nature that achieves consistency at large (McDonald, 1996). To sum up, SEM-PLS, instead of classical regression analyses, incorporates constructs that are indirectly measured by indicators (Mooi and Sarstedt, 2011).

However, for PLS, the structural model has to be designed as a causal chain where there are no loops. That means that it is not statistically possible to test a SEM-PLS model with one direct and one reverse relationship between the same constructs, at the same time.

As we commented, our research objectives not only try to conclude about if SED improve reputation but also we analyze if any improvement on company reputation will provoke more and better disclosure of these types of disclosures. For this reason, we have chosen the SEM-PLS method, called “soft modelling” (Wold, 1980), considering the scarce knowledge and the no existence of a solid theory indicating the stronger relationship, which is first, or antecedent, and which is a consequence. The only possibility to test the best relationship between SED and reputation is designing two independent recursive models (no cycle) and later to compare results. That is what should be shown later.

According to Rigdon et al. (2011) and Rigdon (2012), PLS-SEM is the combination of factor analysis and multiple regression analysis, and it is used to analyse the structural relationship between latent variables or constructs (Hair et al., 2017; Roldán and Sánchez-Franco, 2012). PLS-SEM is a widespread multivariate analysis method that is used to estimate variance-based structural equation models. It has been recognized that PLS-SEM provides much value for causal inquiry in Social Sciences and offers extensive, scalable, and flexible causal-modelling capabilities for exploratory work (Lowry and Gaskin, 2014), as it is the case of our study. In our model, we used a composite-based PLS method, typically thought of as reflective measurement, that is equivalent to the use of correlation weights, which deliver better prediction on out-of-sample data (data not used in estimating model parameters).

After the previous brief review of the SEM background, this study analyses two alternative models with the same set of variables, items and technique but with a different design, trying to discover the best structural model to explain the cause-effect relationship between disclosures and reputation: **Model A** where SED impacts on reputation; and **Model B** where reputation impacts on SED.

Although PLS-SEM has become a quasi-standard statistical method in the Social Sciences (Hair et al., 2011), we have to acknowledge that with its increasing success, the critics lined up (Sarstedt et al., 2014). It is true that the PLS-SEM results usually are to some extent static, in that they usually build on cross-sectional data (Schubring et al., 2016). However, considering and assuming that correlation does not meant necessary causality, we have used longitudinal data for this study in line with recent advances on the field (Roemer, 2016).

SED data for the empirical analysis was collected for three consecutive years, 2014, 2015 and 2016. After gathering all the information related to SED for the three years, we considered the relative years for reputation as it is shown in Figure 1.

INSERT FIGURE 1

3.2 MEASURES

SED has been assessed according to a double dimension, in line with Castilla and Ruiz (2018): SED Quantity (SEDQuan) and SED Quality (SEDQual). SEDQuan includes all the SED offered by the company into the three formats analyzed (annual reports, sustainability reports and social reports) and the control of their respective extension via pages. Because a company can perform more than one type of format, these reports were not defined as exclusive. In addition, two aspects have been considered in SEDQual: the reliability and the relevance of the information offered. With respect to the first requirement, the use of an SR standard among the most recognized: Global Reporting Initiative, AA1000, Nations Global Pact and Integrated Reporting, as well as the SED assurance in line with previous studies. On the side of relevance, the integration of the SR in the strategy, in the organizational structure through a specific committee as well as the presence of awards or recognitions in terms of SR were introduced. Constructs, items and their acronyms are shown in Figure 2 as follows.

INSERT FIGURE 2

To analyse reputation, this study used the Corporate Reputation Business Monitor (MERCO ranking). This ranking offers a multidimensional vision in line with the focus of our research and has been used in previous studies such as those carried out by Fernández and Luna (2007), Pérez et al. (2017) and Baraibar-Diez and Luna (2018).

On the multi-dimensionality side, MERCO ranking includes 7 types of indicators: economic-financial results, quality of the commercial offer, talent, ethics and corporate responsibility, internationalization, innovation and management of corporate reputation (200 indicators in total). On the other hand, the stakeholders involved in its preparation are associated with the following categories: business professors, influencers and social media managers, consumer associations, trade unions, NGOs, government representatives, economic journalists and financial analysts.

4. RESULTS

First, the measurement model was tested. Later, the two structural models were analysed: Model A where SED impacts on reputation; and Model B where reputation impacts on SED. Results are showed as follows.

4.1. The measurement models

According to Chin (1998), a measurement model consists of a set of observed variables (indicators), which serve for respective measurement instrument of the latent variables (constructs). To evaluate the measurement model we started to analyze the individual reliability of the load of each item (λ). The typical level for the acceptance of an item as part of the construct under evaluation is 0.7 but values under 0.5 could be accepted in exploratory studies (Carmines and Zeller, 1979). According to this rule, SEDQual kept three indicators: AA1000, UNGLOBALP and ASSURANCE. SEDQuan also kept two indicators following the general rule: ANNREP and PGsANNREP.

To test the internal consistency of each construct in the model we calculated Cronbach coefficient alpha and composite reliability. Convergent validity was tested by the average variance extracted (AVE) and it is possible to affirm that constructs share more variance with their indicators than with other constructs of the model. Following Henseler et al. (2018), discriminant validity was tested by the classical Forner-Larcker criterion but also through the heterotrait-monotrait ratio (HTMT), which enables to verify that all the HTMT ratios for each pair of factors are <0.90**.** Table 2 and Table 3 show the results for the measurement model that have been positively considered having into consideration the exploratory nature of the study.

INSERT TABLE 2

INSERT TABLE 3

4.2. The structural models

The structural models A and B were tested and the statistical significance of the path coefficients were estimated based on a 5000-sample Bootstrapping test (Tenenhaus et al., 2005). According to Chin (1998), the crucial criterion for evaluating the structural model is the coefficient of determination (R^2) of the endogenous latent variables. The R^2 must be positive to be considered, above 0.2 or 0.5 for moderate and strong explanatory capacity respectively. Our endogenous constructs offer positive but weak values for R^2 in both models (R^2 REPUTATION = 0.036; R^2 SEDQual = 0.055; R^2 SEDQuan = 0.018).

However, the results presented in Table 4 show that all relationships were supported because all relationships were significant. Therefore, the evidence shows that models A and B are applicable in the context of the study, even that both have weak explanatory capacity.

INSERT TABLE 4

Regarding the measures of approximate adjustment of the models (Henseler et al., 2016) the values were obtained from the residual root mean square (Hu and Bentler, 1998) known as the SRMR. The SRMR measures the difference between the observed correlation matrix and the correlation matrix implied by each model. In our case, Model A and Model B presented the same value for this measure (SRMRa = SRMRb = 0.099) and we cannot compare each other.

The blindfolding procedure was used in respect to the predictive capacity of the model. To this end, part of the data for a given construct was omitted during the estimation of parameters and then what had been omitted was estimated using the estimation parameters (Tenenhaus et al., 2005). The potential predictive relevance of both models was studied through the Stone-Geisser test (Q^2) (Geisser, 1974; Stone, 1974). The values are fixed in three steps - 0.02, 0.15 and 0.35 - indicating small, medium and high predictive relevance. The test revealed that both models are lightly predictive since the values of Q^2 were all greater than 0.02 (Reputation Q_2 = 0.028; SEDQual Q_2 = 0.027; SEDQuan Q_2 = 0.012).

Finally, the Goodness of Fit (GoF) index was used for assessing the global validity of each model as suggested by Tenenhaus et al. (2005) and defended by other authors such as Vinzi et al. (2010) or Akter et al. (2011), between others. GoF index is defined as the geometric mean of the average communality and average R^2 for all endogenous constructs and is considered small (0.10), medium (0.25) or large (0.36). Following these baselines, in this study both models, A and B, were validated with small values. Model A presented a GoF index value of 0.17135, while Model B was 0.01724, a little bit higher.

5. DISCUSSION

Previous literature on the relationship SED-reputation is in an incipient state of research and for this reason the innovative efforts in improving and understanding it are justified. In this sense, our study breaks with the majority tendency of looking for a positive sign for the value of the SED in order to achieve a better reputation and organizes the complex puzzle that we find with respect to its advances. We propose to complete the fragmented literature found integrating the causality and the sign in this relationship but also fulfilling the measures of these variables (SED and reputation) with the use of constructs that cover all possible dimensions. In a more specific way, especially novel is to combine all the variables found in relation with the quantity and quality for the case of the SED and with different stakeholders and their perceptions using a multi-stakeholders and multidimensional ranking, such as MERCO.

In a more concrete way, our study completes the literature on SED variable in the following aspects.

-Firstly, SED has been approached mostly from a quantitative approach, analyzing what information was being disclosed to the detriment of its quality indications (SEDQuan and SEDQual). As a novelty in this paper, quality is analyzed in combination with the study of quantity by addressing the claims of authors such as Toms (2002) and Mahoney et al. (2013). This global dimension allows us to obtain a more accurate view of those studies that have only focused on the amount of information disclosed. There are already some studies that have bet on the quality of SED (Toms, 2002; De la Cuesta and Valor, 2011; Michelon et al., 2015; Dyduch and Krasodomska, 2017; Odriozola and Baraibar-Diez, 2017; Pérez et al., 2017). However, each contribution shares its own definition of quality and it is not coincident in all cases. Baraibar-Diez and Luna (2018:9) even call it transparency “availability of relevant, understandable and timely social information by the firm”, concluding about its mediating role between SR and reputation. In our view, following Leitoniene and Sapkauskiene (2015) and Castilla and Ruiz (2018), relevance and reliability, as accounting requirements for financial reporting, should have been also applied to non-financial information. That is the reason why both characteristics have been used to assess the SED quality.

-Secondly, we have used MERCO ranking to evaluate corporate reputation. This ranking is the most widely used measure of reputation in Spain and also incorporates two main attributes: multidimensionality and multi-stakeholders, which allow us to incorporate all the dimensions of an intangible asset as complex within our analysis. Following Baraibar-Diez and Luna (2018), it can be considered a benchmark tool for Spanish companies both in terms of evaluation and reputation management. This also makes this ranking a valid tool to select our population, which includes the 100 companies with the best reputation in Spain.

However, our main goal has been to shed light on the SED-reputation relationship due the inconclusive results found to date. In this regard, the main contributions can be summarized as follows.

On one hand, it has been widely studied that a thoughtful SED strategy leads to a better corporate reputation. In fact, the direction SED-reputation in the most corroborated and followed by researchers. Thus, among the main benefits of this type of disclosures is the reputational enhancement or in other terms: a better market value (Costa et al., 2014); the improvement of the organizational performance (Bayoud et al., 2012), a high level of consumer satisfaction (Saeidi et al., 2015) or better relationships with stakeholders (Moura-Leite and Padgett 2014; Axjonow et al. 2018).

On the other hand, some studies have suggested that this relationship can be understood in the contrary direction (Michelon, 2011; Pérez, 2015). That is, companies with high levels of reputation will be responsible for revealing more information that is social in order to maintain their status. For Bebbington et al. (2008) and De la Cuesta and Valor (2004) the reputation risk management justifies SED; for Kansal et al. (2014) are some non-financial variables and social reputation; Luna and Fernández (2010) state the visibility of a company as responsible; and Dyduch and Krasodomska (2017) found that the incorporation to Respect Index Portfolio is verified. In addition, Deegan (2010) commented some examples of this approach such as Tata Group, the Birla Group, Infosys and Wipro.

Taking into account both considerations about SED variables and reputation, Models A and B have been proposed. Our objective has been testing in the first one how SED affect the reputation of companies as well as model B, focused on consider SED as a cause to the detriment of analyzing its value as a consequence derived from a certain level of reputation. Both models potentially, and from the SEM-PLS point of view, could be valid to explain the link, although the adjustment values obtained by model B were slightly higher. This contribution relies on the novelty of our research setting. While reputation and SED have been largely analyzed in the literature, it is the first time to confront two alternative cause-effect models with longitudinal data.

Although model B is slightly better than model A, this finding could be interpreted as follows. As much reputed a company is, more oriented will be to disclosure social and environmental information to enhance its image as a responsible organization. Albeit it is true that without communication stakeholders cannot know the SR of a company and this fact cannot influence the improvement of its reputation. Keeping stakeholders informed in order to maintain the reputation achieved is also a plausible approach. In line with Michelon et al. (2015), disclosure practices could represent just symbolic actions intended to show commitment to corporate social responsibility and sustainability instead of the expected accountability with their stakeholders.

Finally, the lag between the possible effects of both variables has been incorporated into our study in response to the demands of the following authors: Armitage and Marston (2008) raised that perhaps it takes a longer time for the effects of a good reputation built up through extensive and objective voluntary disclosures, this implies to take a period instead of a year for this type of research; Fombrum (1996) already warned that a long-term horizon is necessary in the study of reputation; for Qiu et al. (2016:113) “as longer time series data become available, future research can revisit this issue”; and, recently, the Reputation Institute (2019) identifies reputation management as a long journey, not a project, not an initiative by this reason. In our study, the years analyzed have taken into account this possible lag and for this reason we consider that our contribution incorporates a necessary question in future empirical approaches to this relationship: the use of longitudinal data.

6. CONCLUSIONS

Contemporary debate on the SED-reputation relationship among academics, managers and practitioners has resulted in greater interest to amend the inconclusive findings until today. In order to create value thought a relevant contribution to the literature, we test our hypotheses about its sense and causality using a double vision that allow us to incorporate who is the dependent variable: SED or reputation and, also, what is the sign: positive or negative. In this sense, two conceptual models A and B have been proposed to address how is the relationship between both variables applied to the case of companies included in MERCO ranking.

Our empirical results corroborate the bidirectional nature of both variables, although betting slightly on the thrust of reputation when performing social disclosures. In addition, the positive sign of both models has been verified. All the above opens an important area of research to be taken into account in order to deepen this relationship being the first study to simultaneously analyze the role as non-financial predictor of both variables and using longitudinal data. There is still much to be done in the SED-reputation relationship. We agree with Joshi and Li (2016:8) “the widespread adoption of sustainability reporting in recent years has created new business opportunities for the accounting profession" and if we add to this its relationship with a currently relevant intangible such as the reputation, the opportunity for research is excellent.

However, we are aware that one of the limitations of our study is the sample analyzed; perhaps different results could be obtained when looking at other types of companies without so much interest in their image or corporate reputation. In addition, SED and reputation's measures have been justified in our paper but we are aware that it is not the only way to assess them. In addition, SED and reputation's measures have been justified in our paper according to the specialized literature available but we are aware that other measures are also possible. Future new efforts should be made to approach these constructs and continue deeping on the relationship between them.

7. REFERENCES

Akter, S., D'Ambra, J. & Ray, P. (2011) *An evaluation of PLS based complex models: the roles of power analysis, predictive relevance and GoF index*. Proceedings of the 17th Americas Conference on Information Systems (AMCIS2011) (pp. 1-7). Detroit, USA: Association for Information Systems.

Aldaz, M., Álvarez, I. and Calvo, J.A. (2015) "Non-financial reports, anti-corruption performance and corporate reputation". *Review of Business Management*, 17 (58): 1321-1340.

Armitage, S. and Marston, C. (2008) "Corporate disclosure, cost of capital and reputation: evidence from finance directors*". The British Accounting Review*, 40: 314-336.

Arora, M.P. and Lodhia, S. (2017) "The BP Gulf of Mexico oil spill: exploring the link between social and environmental disclosures and reputation risk management". *Journal of Cleaner Production*, 140: 1287-1297.

Axjonow, A., Ernstberger, J. and Pott, C. (2018) "The Impact of Corporate Social Responsibility Disclosure on Corporate Reputation: A Non-professional Stakeholder Perspective". *Journal Business Ethics*, 151: 429-450.

Baraibar-Diez, E. and Luna Sotorrío, L. (2018) "The mediating effect of transparency in the relationship between corporate social responsibility and corporate reputation". *Review of Business Management*, 20 (1): 5-21.

Bayoud, N. S., Kavanagh, M. and Slaughter, G. (2012) "Corporate Social Responsibility Disclosure and Corporate Reputation in Developing Countries: The Case of Libya". *Journal of Business and Policy Research*, 7(1): 131-160.

Bebbington, J., Larrinaga, C. and Moneva, J.M. (2008) "Corporate social reporting and reputation risk management". *Accounting, Auditing and Accountability Journal*, 21 (3): 337-361.

Beretta, S. and Bozzolan, S. (2004). "A framework for the analysis if firm risk communication". *The International Journal of Accounting*, 39(3): 265-288.

Bernardi, C. and Stark, A.W. (2018) "Environmental, social and governance disclosure, integrated reporting, and the accuracy of analyst forecasts". *The British Accounting Review,* 50(1): 16-31.

Brammer, S. and Pavelin, S. (2006) “Corporate Reputation and Social Performance: The Importance of Fit”. *Business Strategy and the Environment*, 43(3): 435-455.

Brammer, S. and Pavelin, S. (2008) “Factor Influencing the Quality of Corporate Environmental Disclosure”. *Business Strategy and the Environment*, 17(2): 120-136.

Brooks, C. and Oikonomou, L. (2018) “The effects of environmental, social and governance disclosures and performance on firm value: a review of the literature in Accounting and Finance”. *The British Accounting Review*, 50, 1-15.

Carmines, E.G. and Zeller, R. (1979) *Reliability and Validity Assessment*. Sage Publications: Newbury Park, CA, USA.

Casimiro, A.M. and Coelho, A. (2016) “The role of corporate reputation on co-operant’s behavior and organizational performance”. *Journal of Management Development*, 35 (1): 17-37.

Castilla Polo, F. and Ruiz Rodríguez, M.C. (2018) *Social and environmental disclosures in high reputation companies: a quantitative-qualitative index*. In: 40th Annual Congress of the European Accounting Association, Milan.

Castilla Polo, F. and Ruiz Rodríguez, M.C. (2019) *How can social and environmental disclosures affect corporate reputation in new and classic business models?.* In: 2nd Global Forum of Intellectual Capital, Lisboa.

Chester, R.N. and Woofter, J.K. (2005) *Non-Financial Disclosure and Strategic Planning: Sustainability Reporting for Good Corporate Governance*. Master’s Thesis. School of Engineering, Blekinge Institute of Technology, Karlskrona, Sweden.

Chin W. (1998) *The Partial Least Squares Approach to Structural Equation Modelling, modern Methods for Business Research*, G. Marcoulides (ed.), Erlbaum Associates

Chiu, T.K. and Wang, Y.H. (2015) “Determinants of Social Disclosure Quality in Taiwan: An Application of Stakeholders Theory”. *Journal of Business Ethics*, 129(2): 379-398.

Cho, C.H., Guidry, R.P., Hageman, A.M. and Patten, D.M. (2012) “Do actions speak louder than words? An empirical investigation of corporate environmental reputation”. *Accounting, Organizations and Society*, 37: 14-25.

Cooper, S.M. and Owen, D.L. (2007) “Corporate social reporting and stakeholder accountability: The missing link”. *Accounting, Organizations and Society*, 32 (7-8): 649-667.

Costa, I., Lawrence, J., Castelo, M. and Dias, J. (2014) “The value relevance of reputation for sustainability*”, Journal of Business Ethics*, 119: 17-28.

De la Cuesta, M. and Valor, C. (2004) “Fostering corporate social responsibility through public initiative: form the EU to the Spanish Case”, *Journal of Business Ethics*, 55(3): 229-275.

De la Cuesta, M. and Valor, C. (2011) “Evaluation of the environmental, social and governance information disclosed by Spanish listed companies”. *Social Responsibility Journal,* 9(2): 220-240.

De la Fuente, J.M. and Quevedo, E. (2003) “Empirical analysis of the relationship between corproate reputation and financial performance: a survey of the literature”. *Corporate Reputation Review*, 6 (2): 161-177.

Deegan, C. (2017) “Twenty five years of social and environmental accounting research within Critical Perspectives of Accounting: Hits, misses and ways forward”. *Critical Perspectives on Accounting*, 43: 65-87.

Dienes, D., Sassen, R. and Fischer, J. (2016) “What are the drivers of sustainability reporting? A systematic review”. *Sustainability Accounting*, 7 (2): 154-189.

Dyduch, J. and Krasodomska, J. (2017) “Determinants of Corporate Social Responsibility Disclosure: and empirical study of Polish Listed Companies”. *Sustainability*, 9:1-24.

European Commission (2017) *Guidelines on non-financial reporting (methodology for reporting non-financial information).* Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017XC0705(01)&from=ES (Accessed September, 2019).

Fernández, J.L. and Luna, L. (2007) “The creation of value thought corporate reputation”. *Journal of Business Ethics*, 76: 335-346.

Fombrun, C. (1996) *Reputation. Realizing value from the corporate image*. Harvard Business School Press, Boston, M.A.

Fombrun, C. and Shanley, M. (1990) “What's in a Name? Reputation Building and Corporate Strategy”. *Academy of Management Review*, 33 (2): 233-258.

Freeman, R. (2012) *Business management based on stakeholders and reputation.* In: Valores y ética para el siglo XXI, BBVA, Spain.

Friedman, A.L. and Miles, S (2001) “Socially responsible investment and corporate social and environmental reporting in the UK: an exploratory study*”. The British Accounting Review*, 33(3) 523-548.

Galant, A. and Cádez, S. (2017) “Corporate social responsibility and financial performance relationship: a review of measurement approaches”. *Economic Research-Ekonomska Istrazjvanja*, 30(1), 676-693.

García-Sánchez, I.M., Hussain, N., Martínez-Ferrero, J. and Ruiz-Barbadillo, E. (2018) “Impact of disclosure and assurance quality of corporate sustainability reports on access to finance”. *Corporate Social Responsibility and Environmental Management*, 1-17.

Gray, R., Owen, D. and Maunders, K. (1988) "Corporate Social Reporting: Emerging Trends in Accountability and the Social Contract". *Accounting, Auditing & Accountability Journal*, 1 (1): 6-20.

Hair, J. F., Hult, G.T.M., Ringle, C.M., and Sarstedt, M. (2017). *A primer on partial least squares structural equation modelling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: Sage.

Hair, J. F., Ringle, C. M., and Sarstedt, M. (2011) “PLS-SEM: Indeed a silver bullet”. *Journal of Marketing Theory and Practice*, 19 (2): 139–151.

Halderen, M.D. and Riel C.M. (2006) *Developing a corporate expressiveness model for managing favourable impressions among stakeholders*. In: Conference on Reputation, Image, Identity and Competitiveness, 10. New York.

Henseler, J., Hubona, G. and Ray, P.A. (2016) “Using PLS path modelling in new technology research: Updated guidelines”. *Industrial Management and Data Systems*, 116 (1): 2–20.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015) "A new criterion for assessing discriminant validity in variance-based structural equation modelling". *Journal of the Academy of Marketing Science*, 43(1): 115–135.

Herremans, I.M, Akathaporn, P. and McInnes, P. (1993) "An investigation of corporate social responsibility reputation and economic performance". *Accounting, Organizations and Society*, 18 (7/8): 587-604.

Hu, L.T. and Bentler, P.M. (1998) "Fit indices in covariance structure modelling: Sensitivity to under parameterized model misspecification". *Psychological Methods*, 3(4): 424-453.

Joshi, S. and Li, Y. (2016) "What Is Corporate Sustainability and How Do Firms Practice It?: A Management Accounting Research Perspective". *Journal of Management Accounting Research*, 28 (2): 1-11.

Kansal, M., Joshi, M. and Singh, G. (2014) "Determinants of corporate social responsibility disclosures: evidence from India". *Advances in Accounting*, 30: 217-229.

Kurucz, E.C., Colbert, B.A. and Wheeler, D. (2008) *The business case for Corporate Social Responsibility*. In: The Oxford Handbook on Corporate Social Responsibility, Oxford University Press, Oxford.

Leitoniene, S. and Sapkauskiene, A. (2015) "Quality of corporate social responsibility information". *Procedia, Social and Behavioural Sciences*, 213: 334-339.

Lowry, P.B., and Gaskin, J. (2014) *Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioural causal theory: When to choose it and how to use it*. IEEE Transactions on Professional Communication, 57(2): 123-146.

Luna, L. and Fernández, J.L. (2010) "Corporate Social Reporting for Different Audiences: The Case of Multinational Corporations in Spain". *Corporate Social Responsibility and Environmental Management*, 17(5): 272-283.

Mahoney, L.S., Thorne, L., Cecil, L. and LaGore, W. (2013) "A research note on standalone corporate social responsibility reports: Signaling or green washing? *Critical Perspectives on Accounting*, 24: 350-359.

Mathews, M.R. (1997) "Twenty-five years of social and environmental accounting research: is there a silver jubilee to celebrate?". *Accounting, Auditing & Accountability* Journal, 10(4): 481-531.

McDonald, R.P. (1996) "Path analysis with composite variables". *Multivariate Behavioural Research*, 31(2): 239–270.

Michelon, G. (2011) "Sustainability disclosure and reputation: a comparative study". *Corporate Management Review*, 14 (2): 79-96.

Michelon, G., Pilonato, S. and Ricerri, F. (2015) "SR reporting practices and the quality of disclosure: An empirical analysis*". Critical Perspectives on Accounting*, 33: 59-78.

Money, K., Saraeva, A., Garnelo-Gómez, I., Pain, S. and Hillenbrand, C. (2017) "Corporate reputation past and future: a review and integration of existing literature and a framework for future research". *Corporate Reputation Review*, 20: 193-211.

Mooi, E. and Sarstedt, M. (2011) *A Concise Guide to Market Research–The Process, Data, and Methods Using IMB SPSS Statistics*, Springer, Berlin and Heidelberg.

Moura-Leite, R. and Padgett, R. (2014) “The effect of corporate social actions on organizational reputation”. *Management Research Review*, 37 (2): 167-185.

Neville, B., Bell, S. and Menguc, B. (2005) “Corporate reputation, stakeholders and the social performance-financial performance relationship”. *European Journal of Marketing*, 39 (9/10): 1184-1198.

Odriozola, M. D. and Baraibar-Diez, E., (2017) “Is Corporate Reputation Associated with Quality of SR Reporting? Evidence from Spain”. *Corporate Social Responsibility and Environmental Management*, 24(2): 121-132.

Parker, L. D. (2005) “Social and environmental accountability research: a view from the commentary box”. *Accounting, Auditing & Accountability Journal*, 18(6), 842-860.

Pérez, A. (2015) “Corporate reputation and CSR reporting to stakeholders”. *Corporate Communications An International Journal,* 20(1): 11-29.

Pérez, A. and García-De los Salmones, M. M. (2015) “Corporate Reputation in The Spanish Context: An Interaction Between Reporting to Stakeholders and Industry”. Journal of Business Ethics, 129 (3): 733-743.

Pérez, A. and López-Gutiérrez, C., (2017) “An empirical analysis of the relationship between the information quality of SR reporting and reputation among publicly traded companies in Spain”. *Academia Revista Latinoamericana de Administración*, 30(1): 87-107.

Pérez, A., López, C. and García-De los Salmones, M. M. (2017) “An empirical exploration of the link between reporting to stakeholders and corporate social responsibility reputation in the Spanish context”. *Accounting, Auditing & Accountability Journal*, 30(3): 668-698.

Qiu, Y., Shaukat, A. and Tharyan, R., (2016) “Environmental and social disclosures: Link with corporate financial performance”. *The British Accounting Review*, 48(1): 102-116.

Reputation Institute (2019) *Reputation 2020: New trends driving reputation management.* Available at: https://www.reputationinstitute.com/sites/default/files/pdfs/Reputation-2020-Ten-Trends-Driving-Reputation-Management.pdf (Accessed September, 2019)

Rigdon, E.E. (2012) “Rethinking partial least squares path modelling: in praise of simple methods”. *Long Range Planning*, 45 (5): 341-358.

Rigdon, E.E., Ringle, C.M., Sarstedt, M., and Gudergan, S.P. (2011) “Assessing heterogeneity in customer satisfaction studies: Across industry similarities and within industry differences”. *Measurement and Research Methods in International Marketing*, 22: 169-194.

Robinson, M., Kleffner, A. and Bertels, S. (2011) “Signalling sustainability leadership: empirical evidence of the value of DJSI membership”. *Journal of Business Ethics*, 101: 493-505.

Roemer, E. (2016) “A tutorial on the use of PLS path modelling in longitudinal studies”. *Industrial Management & Data Systems*, 116(9): 1901-1921.

Roldán, J.L. and Sánchez-Franco, M.J. (2012) *Variance-based structural equation modeling: Guidelines for using partial least squares in information systems research*. In M. Mora, O. Gelman, A.L. Steenkamp, and M.Raisinghani (Eds.). Research methodologies, innovations and philosophies in software systems engineering and information systems (pp. 193–221). Hershey, PA: IGI Global.

Saedi, S., Sofian, S., Saedi, P., Parisa, S. and Alireza, S. (2015) "How does corporate social responsiility contribute to firm financial performance? The mediating role of competitive advantage, reputation and customer satisfaction". *Journal of Business Research*, 68: 341-350.

Salem, N., Kavanagh, M. and Slaughter, G. (2012) "An empirical study of the relationship between corporate social responsibility disclosure and organizational performance: evidence from Libya". *International Journal of Management and Marketing Research*, 5 (3): 69-82.

Sardinha, I. D., Rijnders, L. and Antunes, P. (2011) "Using corporate social responsibility benchmarking framework to identify and assess corporate social responsibility trends of real estate companies owing and developing shopping centres". *Journal of Cleaner Production*, 19: 1486-1493.

Sarstedt, M., Ringle, C.M., and Hair, J.F. (2014) "PLS-SEM: Looking Back and Moving Forward". *Long Range Planning*, 47(3): 132–137.

Schubring, S., Lorscheid, I., Meyer, M., and Ringle, C.M. (2016) "The PLS agent: Predictive modelling with PLS-SEM and agent-based simulation". *Journal of Business Research*, 69(10): 4604-4612

Tenenhaus, M., Vinzi, V., Chatelin, Y. and Lauro, C. (2005) "PLS path modelling". *Computational Statistics and Data Analysis*, 48 (1): 159–205.

Toms, J. S. (2002) "Firm resources, quality signals and the determinants of corporate environmental reputation: some UK evidence". *The British Accounting Review*, 34: 257-282.

Unerman, J. (2008) "Strategic reputation risk management and corporate social responsibility reporting". *Accounting, Auditing and Accountability Journal*, 21 (3): 362-364.

Vinzi, V. E., Trinchera, L., and Amato, S. (2010) *PLS path modelling: from foundations to recent developments and open issues for model assessment and improvement*. In Handbook of partial least squares (pp. 47-82). Springer, Berlin, Heidelberg.

Wold, H. (1980) "Soft modelling: intermediate between traditional model building and data analysis". *Mathematical Statistics*, 6: 333–346.

TABLES

Table 1: Some relevant academic contributions on SED-Reputation Relationship

Research topic	SED dimension[5]	Background
SED-reputation relationship **SED as a non-financial predictor**	*Quantitative dimension of SED*	• Armitage and Marston (2008) • Sardinha et al. (2011) • Bayoud et al. (2012) • Cho et al. (2012) • Salem et al. (2012) • Mahoney et al. (2013) • Costa et al. (2014) • Moura-Leite and Padgett (2014) • Aldaz et al. (2015) • Saeidi et al. (2015) • Casimiro and Coelho (2016) • Dienes et al. (2016) • Tetrault Sirsly and Lvina (2016) • Arora and Lodhia (2017) • Axjonov et al. (2018)
	Qualitative Dimension of SED	• Toms (2002) • Michelon et al. (2015) • Odriozola and Baraibar-Diez (2017) • Pérez et al. (2017) • Baraibar-Diez and Luna (2018)
Reputation-SED relationship **Reputation as a non-financial predictor**	*Quantitative dimension of SED*	• Neville et al. (2005) • Bebbington et al. (2008) • Luna and Fernández (2010) • Michelon (2011) • Kansal et al. (2014) • Schreck and Raithel (2018)
	Qualitative Dimension of SED	• De la Cuesta and Valor (2011) • Dyduch and Krasodomska (2017)

Source: Own

Table 2: SEDQuan: variable design

Id.	Variable analysed	Description
ANNREP	*Annual Report*	This variable included the presence or absence of annual reports in which issues related to SR and environment were addressed.
PGsANNREP	*Annual Report: pages*	This variable collects the number of pages dedicated to contents related to SR and the environment.
SOCREP	*Social Report*	In this variable, the presence or absence of specific SR and environmental reports that do not follow the GRI methodology were analysed.
PGsSOCREP	*Social Report: pages*	This variable collects the number of pages of these specific reports.
SUSREP	*Sustainability Report*	In this variable, the presence or absence of sustainability reports under the GRI methodology was studied.
PGsSUSREP	*Sustainability Report: pages*	This variable collects the number of pages of sustainability reports.

Source: Own

Table 3: SEDQual: variable design

Id.	Variable analysed	Description
GRI	*GRI*	Preparation of the sustainability report in accordance with the GRI recommendations.
UNGLOBALP	*UN Global Pact*	Adhering to the principles of the UN Global Compact.
AA1000	*AA1000*	Adoption of the standard developed by the Institute for Social and Ethical Accountability.
IFR	*IIFR*	Using the IIFR framework, the SR is also considered, being part of its content

[5] Quantitative dimension: refers to papers centered in what are the companies disclosing. By other way, qualitative dimension: include all the papers about how sustainability reporting is being carried out.

ICEA	*ICEA*	Specific standard for insurance companies.
VERIF	*Social assurance*	If the company has verified f all or part of its contents on SR
SRSTRAT	*SR Strategy*	Explicit SR reference within the business strategy in a broad sense or, specifically for certain aspects related to SR.
SRCOMM	*SR Committee*	Presence of a specific Committee for SR management in a broad sense within the organization chart
AWARDS	*SR awards*	The achievement of any award or mention related to their performance in SR in a broad or specific sense for certain actions.

Source: Own

Table 4: Individual and internal consistency

Constructs	Items	λ		Cronbach´s Alpha		Composite Reliability		AVE	
MODEL		**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Reputation	MERCORANK	1	1	1	1	1	1	1	1
SEDQual	AA1000	0.716	0.789	0.875	0.875	0.938	0.935	0.883	0.877
	ASSURANCE	0.738	0.802						
	UNGLOBALP	0.796	0.664						
SEDQuan	ANNREP	0.969	0.976	0.627	0.629	0.794	0.797	0.564	0.568
	PGsANNREP	0.900	0.896						

Source: Own

Table 5: Discriminant validity

Forner-Larcker criterion (HTMT)						
Constructs	**Reputation**		**SEDQual**		**SEDQuan**	
	Model A	**Model B**	**Model A**	**Model B**	**Model A**	**Model B**
Reputation	1 (1)	1 (1)				
SEDQual	1.144 (0.171)	0.235 (0.286)	0.751	0.754		
SEDQuan	0.126 (0.127)	0.134 (0.128)	0.012 (0.142)	-0.003 (0.143)	0.940	0.937

Source: Own

Table 6: Hypotheses testing

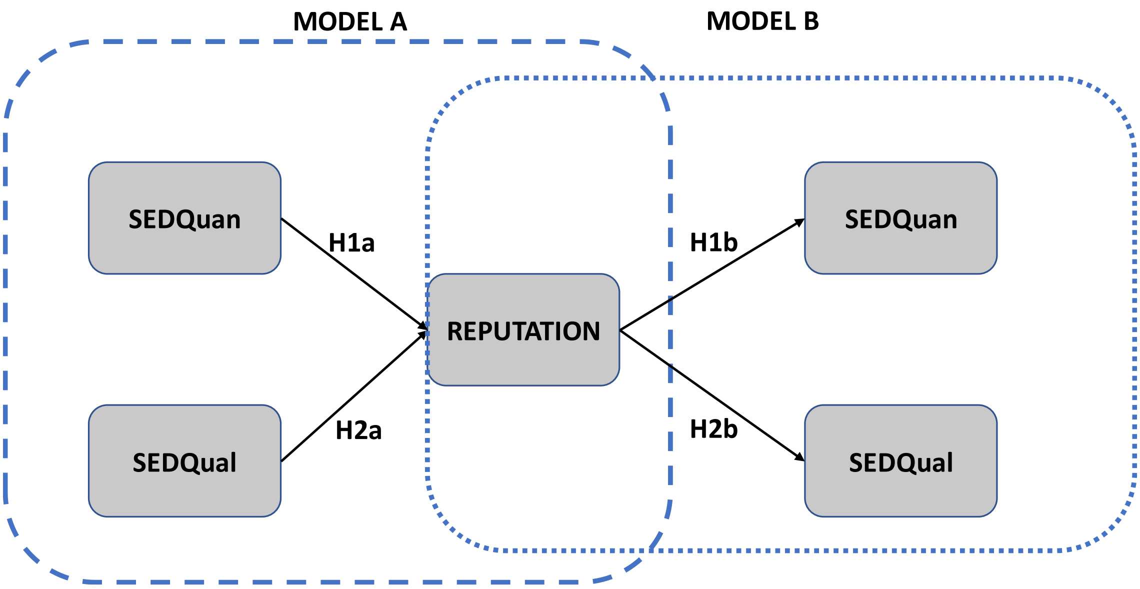
Hypothesis	Path	β	Confidence Intervals		T-Statistic
Model A			**2.5%**	**97.5%**	
H1a	SEDQual → Reputation	0.143	0.065	0.270	2.393**
H2a	SEDQuan→ Reputation	0.124	0.045	0.219	2.555**
Model B					
H1b	Reputation→SEDQual	0.235	0.147	0.344	4.628***
H2b	Reputation→SEDQuan	0.134	0.053	0.216	3.152***

Note: For N=5000 subsamples, for T-distribution (499) Student's in single queue: *p<0.05 (T (0.05;499) =1.64791345); **p<0.01(T (0.01;499) =2.333843952); ***p<0.001(T (0.001;499) =3.106644601).

Source: Own

FIGURES

Figure 1: Theoretical models proposed for SED-reputation relationship

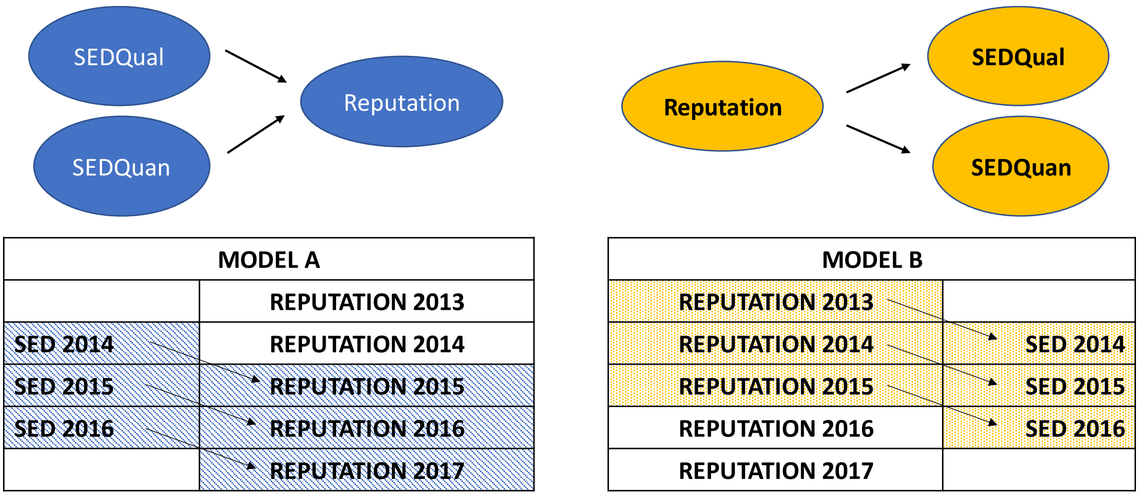


Source: Own

Figure 2: Population under study

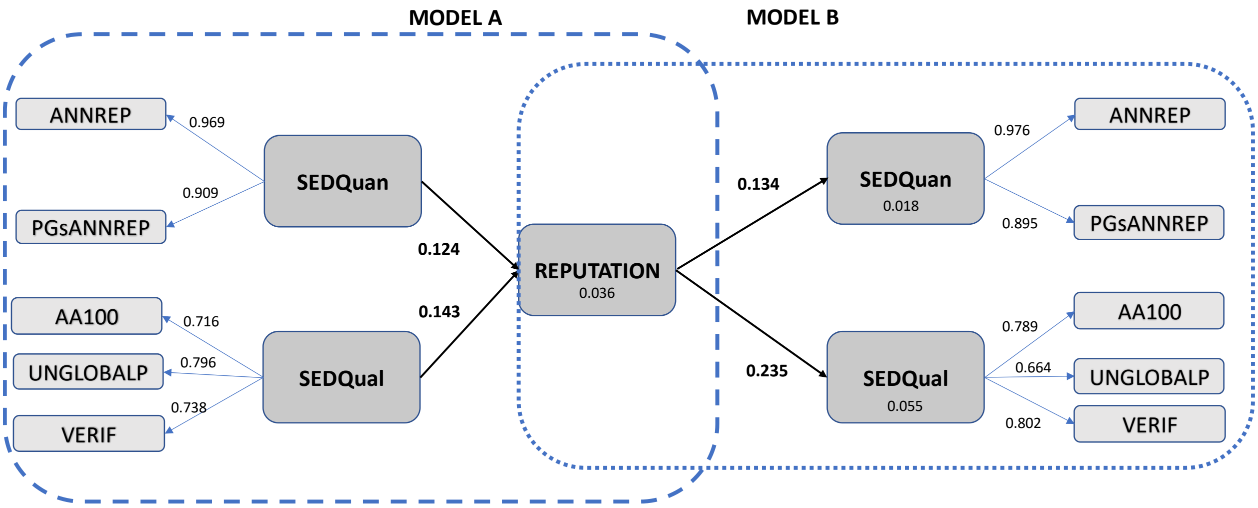
Source: file:///D:/Documents%20and%20Settings/Paqui/Mis%20documentos/Downloads/resultados-merco-empresas-es-2016%20(1).pdf (Accessed November 2019)

Figure 3: Model A and B



Source: Own

Figure 4: Structural models (PLS)



Source: Own