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The influence of the beliefs of Italian and Spanish managers in their engagement in sustainability reporting

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Abstract
The EU legislature, through the approval of the Non-financial Information Directive, has made a decisive step towards a mandatory regime for Sustainability Reporting as an essential condition to promote sustainable behavior across European countries. This paper aims at examing the impact of managers' beliefs and attitudes on NFI mandatory reporting practices through the Theory of Planned Behavior. We test whether managers' attitudes, subjective norms, and perceived behavioral control impact the quality of sustainability reports in Spain and Italy. We built a reflective-formative hierarchical component PLS-SEM model, tested in a survey of 104 Italian (56.73%) and Spanish (43.27%) managers, that combines different latent variables and their relationships, which confirms all our hypotheses. This cross-country analysis is motivated by some differences between Italy and Spain in their cultural orientation and in the area non-financial reporting. To measure Non-financial Information, we crafted a Sustainability Reporting Quality Index for the same companies of the surveyed managers, that combines several reporting features of disclosure quality. We also consider whether other external factors, such as governance characteristics, social influence, and sustainable education, affect managers' intention to engage in Sustainability Reporting. The results reveal that our model, along with sustainable education and social influence explain more than 56% of the intention to engage in Sustainability Reporting. This indicates that the latter latent variable is well predicted, confirming the relevance of managers' beliefs in driving quality Sustainability Reporting practices. Our findings may specifically help business managers and decision-makers to identify the factors that are likely to influence sustainability reporting in Italy and Spain and contribute to develop efficient sustainable reporting strategies by decision-makers.

Keywords Planned behavior · Sustainability reporting · Quality disclosure · PLS-SEM · Multigroup analysis

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1 Introduction

The EU through the approval of the Non-financial Information (NFI) Directive 2014/95/EU has made a decisive step towards a mandatory regime to enhance companies' sustainable behavior. A large body of studies has examined the consequences of these new regulations on companies' disclosures practices and their real effects, documenting weak impacts on the firm's Corporate Social Responsibility (CSR) policies. On the other hand, other relevant studies suggest that personal beliefs and attitudes towards CSR are relevant drivers of CSR disclosures practices (e.g. [1, 2]). However, even if there is awareness about the relevance of these behavioral factors in shaping CSR practices, there is a paucity of empirical evidence on managers' personal beliefs about CSR after the adoption of EU Directive on Non-financial reporting [3]. This paper aims to fulfil this gap by examining the impact of managers' beliefs and attitudes on NFI mandatory reporting practices. To this end, we use the *Theory of Planned Behavior* (hereafter the TPB) to assess to which extent managers' beliefs, attitudes and perceptions impact on sustainability reporting's quality of a sample of Spanish and Italian companies.

Our evidence is based on 104 questionnaires submitted to CSR managers from Spanish and Italian companies. The questionnaire used has been developed integrating Thoradeniya et al. [2] framework with further questions related to the above three more external variables.

The paper is organized as follows. Section 2 describes the theoretical framework. The development of research hypotheses is presented in Sect. 3, whereas in Sect. 4 the research design is detailed. Specifically, we illustrated how we developed an original coding system to measure the quality of sustainability disclosure, and the multivariate analysis statistical technique used to build and test our proposed model (Partial Least Squares Structural Equation Modeling, PLS-SEM). The results are illustrated in Sect. 5 and the cross-country analysis in Sect. 6. Conclusions, discussions and implications follow in Sect. 7.

2 Theoretical framework

This study makes use of the TPB to investigate how managers' beliefs influence Sustainability Reporting (SR) practices. Namely, the TPB model states that individual's behavior is determined by three *constructs* that are *antecedents* to the intention to undertake the behavior: (i) individuals' attitudes toward the behavior; (ii) their subjective norms; and (iii) perceived behavior control.

Individual's attitudes toward the behavior define whether a person consider a specific behavior favourable or unfavourable [4]. According to many scholars, the strength of the individuals' attitude is what explains behavior best [5, 6]. Subjective norms refer to other people's expectations and to the subsequent social pressure perceived by the individual [7]. The last construct, the perceived behavioral controls, refers to individuals' beliefs of easiness or difficultness in performing the conduct, depending on the resources and opportunities available in order to perform the behavior [8, 9]. A further characteristic of the TPB is its focus on the subject's beliefs, as the main determinants of attitudes, subjective norms and perceived behavioral controls. In short, according to the TPB, it is possible to identify three typologies of subjective beliefs:

i. *Behavioral Beliefs*: the beliefs about the perceived probability that the target behavior produces a certain result (outcome), a result that can be positive or negative.

ii. *Normative Beliefs*: the beliefs about how others will react to a specific behavior. They create the perception of having to adapt to the expectations of others. Normative beliefs, combined with motivations to adapt to other people's expectations, form the Subjective Norms.

iii. *Control Beliefs*: the beliefs regarding factors that can ease, or prevent, the performance of the behavior. Control beliefs are different from the actual control that the individual possesses. Actual behavioral control refers to the actual skills, abilities and tools and other possessed prerequisites, needed to produce a certain result or action. On

the contrary, control beliefs indicate the subject's reflection on his or her ability to perform a certain behavior. These beliefs form the Perceived Behavioral Control [8].

Applying the TPB to sustainability is relevant to distinguish between the CFO's and CEO's attitudes toward sustainability because of the differences in their role.

According to Cronqvist and Yu [10] and Jiraporn and Chintrakarn [11], CEOs play a significant influence in a company's decisions about sustainability practices. They make decisions based on different, invisible reasons [12]. According to Boone et al. [13], CEOs' instrumental, relational, and moral motives appear to be determined by their social values.

CEOs' engagement in sustainability initiatives is motivated by a combination of relationship and instrumental based factors. In addition to moral incentives that go beyond true self-fulfillment, these factors seek to maximize CEO's own utility function through money, job security, and reputation [12].

On the other hand, CFOs have a distinct role in company management compared to CEOs. In addition to playing a crucial role in the creation of company development strategies and major business choices, CFOs manage internal control, accounting, and corporate finance [14]. Different studies have demonstrated that CFOs have a major impact on a company's accounting policies and instruments [15, 16], quality of internal control [17, 18], accounting information quality [19, 20], financing costs [21, 22], tax policy [23], social responsibility [24] and other areas.

The apparent reluctance of CFOs to participate in SR, according to Wilmshurst and Frost [25], may be a result of their perception of the practice as well as their insufficient grasp of their roles in sustainable development. For example, it has been suggested that some accountants believe SR is only a way to obtain corporate legitimacy [26], and that it is also a technique outside of their scope [25]. Therefore, it is important to comprehend how CFOs view sustainability in order to forecast how much they and their firms will engage in it. It has also been discovered that business managers' and decision-makers' attitudes and views have a major influence on information disclosure, including SR [2, 25–27].

Kwakye et al. [3] found that the personal attitude of accountants towards Sustainability Accounting & Reporting (SAR) do not affect the company's intention to engage in SAR in a significant way. Hence, a company is more likely to engage in SR when it has the much-needed resources to spend in it and when stakeholders put pressure and demand for such information, regardless of the propensity of accountants towards SR. Regardless of an accountant's position on SAR, stakeholder pressure for this information and the resources available to supply it could prompt management to engage in SR in order to protect its legitimacy from these stakeholders' threats.

2.1 Experimental setting

Building on the premise that national context influences firms' sustainability reporting (e.g. [28–30]), this study examines managers' attitudes, subjective norms and perceived behaviour controls towards non-financial reporting in two main countries interested in the effects of the Directive 2014/95/EU: Italy and Spain [31]2. There are different reasons that justify the choice of this experimental setting. Although Italy and Spain share the same legal (code law) and enforcement system, they show some differences in their cultural orientation, as defined by Hofstede' culture dimensions [32], and are characterised by different national reporting practices relating to sustainability disclosure.

More specifically, the two countries highlight similarities in terms of power distance, and uncertainty avoidance, whereas they differ as the Italian culture appears to be more masculine, individualistic and long term oriented than Spain culture, that is more indulgent. Furthermore, Italy and Spain show remarkable differences in their experience in the area non-financial reporting [33]. The Spanish legislature has adopted different regulation aiming at promoting non-financial reporting among large companies before the adaption of the Directive (e.g., the 2008 Consejo Estatal de la Responsabilidad Social Empresarial, CERSE, and the 2011 Spanish Sustainable Economic Law, SEL). These national initiatives have led to a strong CSR reporting practices and expertise among practitioners involved in provision of sustainable reports. Differently, the Italian legislature has not provided any national requirement for non-financial reporting, encouraging only the disclosure of environmental and employees matters ex-Directive 2003/51/EC, as implemented by the Italian Legislative Decree 32/20027, without providing any guidelines on how to report this and other non-financial information [34]. Several studies, examining the reporting practices of Italian companies before the Directive, show a low commitment to disclose non-financial information (e.g. [35, 36]); whereas other papers, comparing Italian and Spanish reporting patterns, after the implementation of the

NF Directive, find that companies operating in environments with a strong tradition in sustainability reporting outperform those operating in less CSR developed contexts [33]. The extant literature confirms also that context specific factors, managers' experience, skills and knowledge influence their perceptions and attitudes toward sustainability reporting [3].

3 Hypotheses development

Following the TPB, we built a model on managerial involvement and quality of sustainability reporting based on manager's beliefs, intention to engage in SR and other control variables. Managers' beliefs on the pros and cons of SR produce a favourable or unfavourable attitude toward SR. Also, managers' beliefs on stakeholders needs and their expectation form subjective norms. On the other hand, the extent to which stakeholders' pressure may impact on SR and control beliefs, give rise to perceived managers' control in preparing sustainable reports. As TPB and accounting literature confirm that managers' beliefs form attitude, subjective norms, and perceived behavioral controls [2], we assume a direct formative relationship between managers' beliefs and their intention to prepare sustainability reports. Thus, we posit the following hypothesis:

H1: *There is a positive relationship between managers' behavioral/control/normative beliefs and their intention to engage in SR.*

After testing the role of managers' beliefs as antecedent of the intention to engage in SR, we consider the relationship between the latter and sustainability reporting practices, to test whether the intention to engage translate into a sustainable behavior resulting in a more transparent disclosure. Thus, we posit the following hypothesis:

H2: *Intention to engage in SR has a positive impact on Sustainability Reporting.*

SDG 4 Sustainable Development Goal on quality education recognises Education for Sustainable Development (ESD) as a key enabler of all other SDGs [37]. According to UNESCO [38], ESD is the key pathway for learners of all ages to understand that climate change, environmental degradation, loss of biodiversity, poverty and inequality are all interconnected challenges for humanity. Education can be also transformative for managers, allowing them to make informed decisions with respect to firm's CSR activities [39]. Drawing on these claims, we assume that personal education and the social context (e.g., family, friends and colleagues) have a positive influence on managers' intention to engage in CSR. Thus, we hypothesise that:

H3: *Sustainable Education has a positive effect on Intention to engage in SR.*

H4: *Social influence helps generate Intention to engage in SR.*

Beyond these internal factors, the present study assumes that institutional ownership and board composition are two characteristics of corporate governance that influence the quality of SR. Managers of public companies with dispersed ownership will be less affected by non-financial long-term goals compared to companies with ownership held by institutional investors. A large body of studies find that the latter investors have preferences for firms with better social and environmental performance (e.g., [40, 41]) and hence have a specific interest on Environmental, Social and Governance (ESG) information. We expect that these institutional investors may influence managers' intention to report sustainability information, by enhancing the relevance of ESG in their reporting practices [42].

The other aspect of corporate governance affecting sustainability performance and disclosure is the composition of the board (e.g. [43, 44]). It is argued that independent non-executive directors are more inclined towards sustainable activities as they are less aligned with the management and more focused in enhancing their reputation and prestige [45, 46]. These reputational incentives may lead non-executive directors to boost SR, and consequently, the firm's reputation in the market. Thus, we posit the following hypothesis:

H5: *Corporate governance has influence on Sustainability Reporting.*

As said before, national culture and expertise in non-financial reporting is a further variable that may influence managers' intention to engage in sustainability reporting (e.g. [41, 43]). The rationale for this relation may be explained based on the normative isomorphism, the pressure for companies to conform to 'legitimated professional practices' to reach greater legitimacy [47]. As documented by several studies (e.g. [33]), countries with strong CSR tradition and CSR expertise, are expected to be more subject to normative pressure, stemming from professional norms and social expectation. Following this evidence, we test whether the different levels of CSR culture of Italy and Spain have a moderating effect on the managers' intention to engage in SR, therefore we posit the following hypothesis:

H6: *Different types of cultures will affect the Intention to engage in SR across countries***.**

Figure 1 shows graphically the research model and hypotheses proposed in this research.

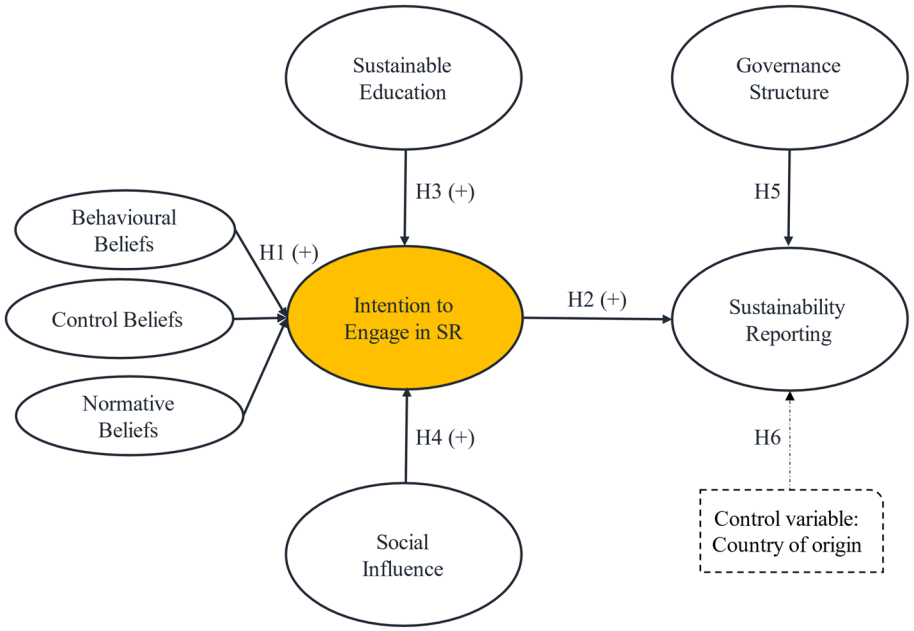

Fig. 1 Managers' Sustainable Behavior path model in Italy and Spain (MSB.IS)

4 Data and research methodology

4.1 Data collection

For the data collection process, an online questionnaire was developed using Google Forms. A seven-point Likert-type scale was used, ranging from 1 = "I strongly disagree" to 7 = "I strongly agree".

Personal details, including basic information about the participant and their position job, as well as main company characteristics, were collected. Then, 46 items for measuring the constructs were presented. The items were coded regarding the specific constructor they referred to and they were categorized according to the following: Behavioral beliefs (BEHV_BLFS, 11 items), Normative beliefs (NORM_BLFS, 9 items), Control beliefs (CONT-BLFS, 11 items), Sustainability education (SUST-EDU, 5 items), Social influence (SCO_INFL, 5 items) and Governance structure (GOV_STRUCT, 5 items).

During the sample period, from November 2018 to July 2020, the link to the questionnaires was sent to the companies by e-mail and they were filled in online. A total of 116 surveys were collected and 104 were finally considered for the analysis carried out. Based on the data collected, 56.73% of the questionnaires were provide by Italian managers (n = 59) and 43.27% by Spanish managers (n = 45). A total of 77 companies were privately owned (74.04%) and the rest, 27 (25.96%), publicly owned. Moreover, 61.54% (n = 64) were categorized as non-financial companies, and 38.46% (n = 40) as financial companies. The vast majority of the managers surveyed indicated the Corporate Social Responsibility as their main area of interest (58.65%, n = 61). Other (16.35%, n = 17), Financial reporting (10.58%, n = 11), Compliance (5.77%, n = 6), Investor relations (4.81%, n = 5) and Audit (3.85%, n = 4) were also selected. Considering the survey respondents, 47.47% were female (n = 47) and 52.53% were male (n = 52). Most of the managers interviewed were between 30 and 50 years old (59.62%, n = 62), 31.73% were more than 50 years old (n = 33) and the smallest percentage was under 30 years old (8.65%, n = 9). Regarding their job position, most participants were Middle Managers (57.29%, n = 55), General Director (16.67%, n = 16), Chairman (4.17%, n = 4), CEO/CFO (4.17%, n = 4), Entrepreneur (2.08%, n = 2) and others (15.63%, n = 15),).

4.2 Sustainability reporting quality measurement

A large body of accounting studies focuses on the quality of non-financial reporting, often defined in terms of how much information can clearly present the firms' performance to investors and other stakeholders [48]. Building on

Beattie et al. [49] seminal study, different frameworks have been proposed to measure the quality of disclosure. The underlying assumption is that quality is a *multifaceted* concept, that depends both on the quantity of information reported and on the topic and attributes of disclosure. In relation to sustainability reporting, Papa et al. [50] identify different approaches proposed in the literature. A first methodology treated CSR disclosure quality in terms of monetary, quantitative, and qualitative characteristics [51–53]. Other studies examined whether the disclosure was descriptive, vague, or immaterial [54, 55]; or, in the light of the qualitative characteristics indicated by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) conceptual framework: relevance, comparability, verifiability, clarity and neutrality [56]. The above methodologies mainly rely on manual classification and coding of sustainability reports to capture the disclosure quality.

An alternative approach does not consider the content and the attributes of sustainability reports; instead the existence of specific reporting practices is regarded as the prevailing signal of disclosure quality [57, 58].

Building on Al-Shaer [57] study, we use a transparency index consisting of several elements: (i) type of reporting framework; (ii) existence of a board-level sustainability committee; (iii) executive compensation linked to CSR/sustainability targets; (iv) external assurance of SR; (v) integration of SDGs/Global Compact in SR; and (vi) analysis of material topics.

The first element reflects the Global Reporting Initiative (GRI) framework application level, which measures the level of compliance with its guidelines. The score for this element is from 0 to 3. A point is awarded if SR is prepared using: (i) GRI standards; (ii) GRI Comprehensive option; (iii) GRI sectors standards.

As the level of compliance with the GRI guidelines does not always reflect an increase in the quality of reporting [59], yet disclosure quality can be also measured using ad hoc corporate reporting practices. To this end, our second item considers the establishment of a board-level sustainability committee. Michelon & Parbonetti [46] argue that the latter committee can foster and widen stakeholders' engagement, improving consequently the range of sustainability disclosures (e.g., product safety, charitable contribution and environmental health). A binary system (1 if present/0 otherwise) has been used to score this element.

The third coding element regards the executive compensation system. Executives' efforts towards on sustainability issues are likely to be enhanced by linking their compensation to sustainability targets. By doing so, it is expected that executives' would be more accountable for any irresponsible behavior [60, 61]. Furthermore, this compensation system should enhance the reliability of non-financial information and consequently the quality of sustainability reports [58, 62, 63]. This item has also been scored using a binary system.

A further reporting practice enhancing disclosure quality is the assurance provided by a third-party. This practice enhances the reliability of sustainability reports, as it ratifies that the report content (e.g., the boundaries of materiality and the engagement process) is not misstated [58, 63, 64]. The scoring scale for this item is from 0 to 2. A point is awarded if SR is assured by; (i) a third party; (ii) one of the Big Four auditors (PricewaterhouseCoopers (PwC), KPMG, Ernst & Young (EY), and Deloitte).

Disclosure quality is also related to the clarity of the information presented, which should be understandable and accessible. We deem that transparency of sustainability report is enhanced if it includes an appendix that links company's material themes to specific SDGs. Similarly, the presence of an appendix connecting Global Compact Principles with corporate management systems and GRI standards enhances the readiness of firms' commitment to Global Compact guidelines. The scoring for this element is from 0 to 2. A point is awarded if the SR includes: (i) an appendix connecting material themes to SDGs; (ii) a table showing the activities carried out to meet the Global Compact Principles.

Our last transparency element refers to the presentation of material topics. A thorough analysis of materiality should include the list of material topics and the explanation of the process followed to identify the most relevant environmental and social priorities. We deem that the presence of a materiality matrix and the description of stakeholder engagement processes are key elements to present firms' material topics. The scoring of this element is from 0 to 3. A point is awarded if the sustainability report includes: (i) a list of material topics; (ii) a materiality matrix; iii) a description of stakeholder engagements process.

The coding of the above elements made it possible to build a Sustainability Reporting Quality Index (SRQI), computed as the ratio of the sum of firm's scores in each dimension, with the overall maximum score (15). Appendix I shows the devised template for the measurement of this transparency index for the Italian company Atlantia [65].

4.3 PLS Analysis

A database with 104 observations was used for the empirical PLS-SEM analysis. Initially, to determine the minimum size of the sample, we applied the heuristic "ten times rule" [66, 67]. The greatest amount of arrows (5), which point to a single

construct is given in the structural model in "Intention to Engage in SR". Hence, as the heuristic "rule of thumb" [66] holds, $5 \times 10 = 50$ represents the minimum number of required observations. As an alternative, according to Cohen's recommendations [68] for an analysis of multiple regression OLS, 58–70 observations would be required to detect R^2 values around 0.25, with 10% or 5% significance levels, and 80% statistical power. Furthermore, according to Nitzl´s guidelines [69], a minimum of 75 to 92 observations would be needed to find an effect size of 0.15 with the same characteristics. In another proposal, Green [70] recommends a range of 89 to 91 observations, for the identical levels of significance and statistical power. Moreover, using GPower [71], it would require 55 observations given the same statistical attributes.

Consequently, taking all recommendations above as a proxy for sampling size, this study fully satisfied each of them.

This research displays a reflective-formative hierarchical component model (also known as HCM type II), which is composed of one second-order higher construct (HOC) and several lower constructs (LOCs). For the estimation of the second-order construct, we will follow the approach in two steps outlined by Hair et al. [72] and Van-Riel et al. [73].

Specifically, the HOC construct, labelled as "Intention to Engage in SR" is modelled as a formative second-order composite or Mode B. As for the constructs "Sustainable Education", "Social Influence", "Governance Structure" and "Sustainability Reporting", all of them are first-order constructs and they are considered as reflective types (LOCs).

4.4 Theoretical model estimation

First, a model based on theory was drawn up about the potential factors determining the "Intention to Engage in SR" and "Sustainability Reporting" by Italian and Spanish managers and firms. Figure 2 shows the exogenous and endogenous latent variables and their relationships, which are summarised in the Appendix II. The aim is to explain the last endogenous construct Sustainability Reporting (SR), using a PLS-SEM model initially across seven exogenous constructs: Behavioral Beliefs (B_BLFS), Normative Beliefs (N_BLFS) and Control beliefs (CONT_BLFS)—which will make up the second-order construct "Intention to Engage in SR"—, Sustainable Education (SUST_EDU), Social Influence (SOC_INFL), Governance

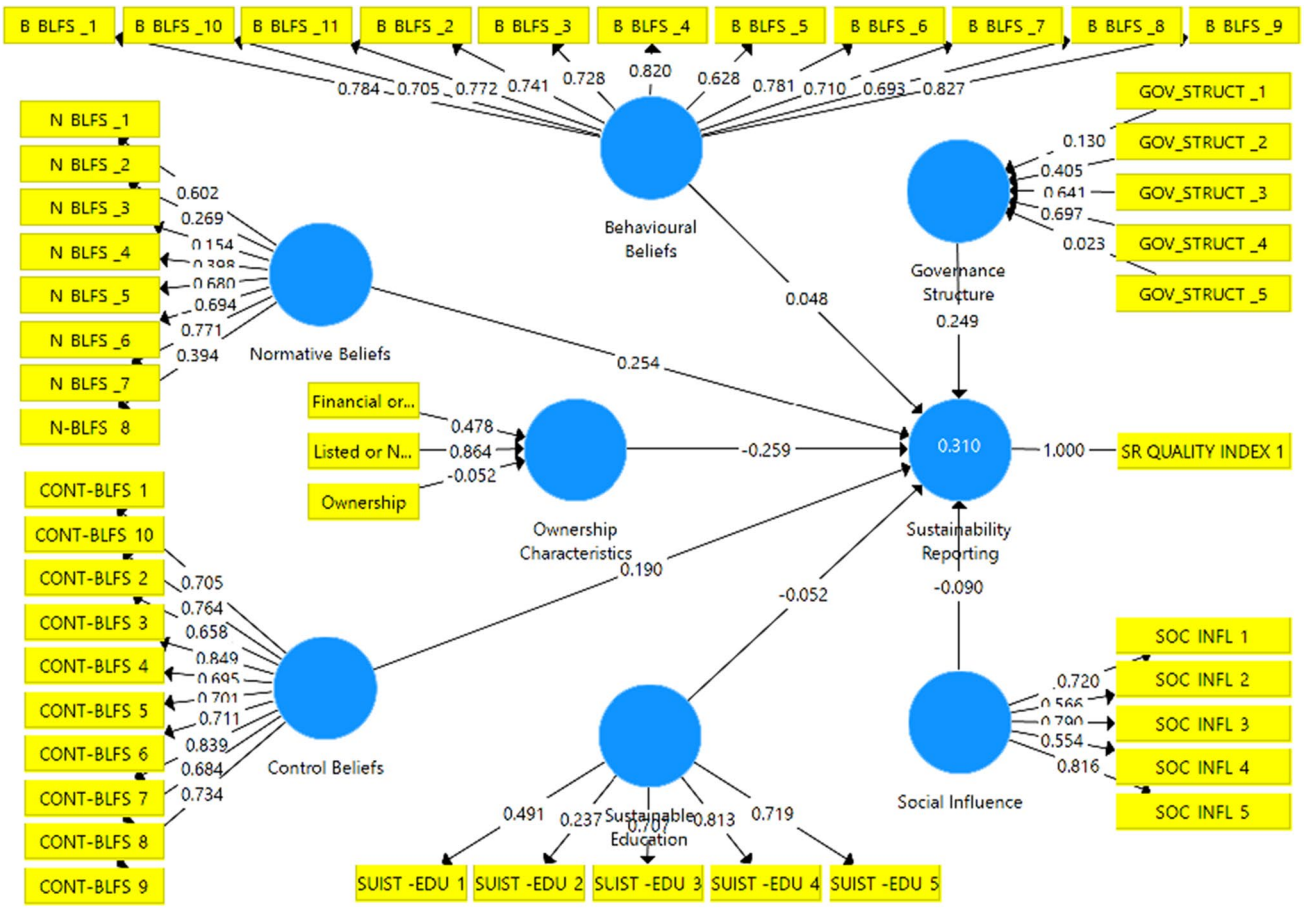

Fig. 2 Initial MSB.IS theoretical model and PLS-SEM first results

Structure (GOV_STRUCT), and Ownership Characteristics (OWN_CHARAC) (Gender, Age, Position Job, Main area of interest and Religion, for managers; and Country, Company-owned, Listed or Non-Listed, Financial or Non-Financial, for companies).

Initially, B_BLFS, N_BLFS, CONT_BLFS, SUST_EDU and SOC_INFL constructs were considered as reflective (Mode A), whereas GOV_STRUCT and OWN_CHARAC were modelled as formative (Mode B).

Following model building, the SmartPLS software [74] was first run, which provided three key outputs: the indicators outer loadings and weights, the path coefficients, and the constructs coefficients of determination (R^2).

5 Results

Once the research model was outlined, Henseler et al. [75] and Albort-Morant et al. [76] methodology was followed. Figure 2 shows the first results of our proposed initial MSB.IS path model, in which the explained variance (R^2) for the target construct "sustainability reporting" amounts to 31%.

The PLS algorithm went to convergence just after iteration 2, deemed to be very quick [77]. After obtaining the first outcomes, given the model's complexity, and in order to make further progress in a more parsimonious model, the PLS algorithm and bootstrapping procedure were repeatedly run, allowing several of the PLS-SEM results to be checked for statistical significance. After the first unscrambling of indicators and constructs, the option of some constructs being merged or deleted, and others changed to Mode A or Mode B was explored. On the other hand, deciding whether constructs are measured reflectively or formatively is a primary issue that can avoid misspecification of measurement models [78].

5.1 Evaluation of the global model fit

First, a bootstrapping procedure was carried out and the standardised root mean square residual (SRMR) was analysed to assess the overall fit of the model, where a value of 0.10, suggested by Henseler et al. [79], indicates a good fit, or a lower value of 0.08, as recommended by Hu and Bentler [80]. Two other measures proposed by Dijkstra and Henseler [81] were also used, namely the unweighted least squares discrepancy (d_{ULS}) and geodesic discrepancy (d_G). Table 1 shows an adequate fit of the overall model, as both results are below the 95% (HI95) and 99% (HI99).

5.2 "Mode A" measurement model assessment

Reliability and validity need to be assessed in Mode A (reflective) measurement models. Individual indicator-level reliability is measured through its normalised outer loadings which must be greater than the threshold of 0.7 [77], while at the construct level, composite reliability (ρc), consistent reliability (ρA), and the customary Cronbach's alpha are used, with thresholds between 0.70 and 0.90 for explanatory and confirmatory research. In terms of validity, there are two types, convergent and discriminant validity. Regarding the first one, it is usually measured through the Average Variance Extracted (AVE), whose value must be above the threshold of 0.5 [82]. Regarding the latter, it is often measured with the Fornell-Larcker [82]criterion and the heterotrait–monotrait (HTMT) ratio. For the last one, the values must be less than 0.85 or 0.90 [83]. Table 2 and 3 show the reliability and validity results of reflective measurement models revealing evidence of validity and reliability according to Hair et al. [77, 84] and Ringle et al. [74], where only NORM_BLFS indicators have a Cronbach's Alpha slightly below 0.7 (0.683).

A second way to estimate HTMT is by bootstrapping to assess the bias-corrected confidence interval and check whether HTMT is significantly different from 1 (($HTMT_{inference}$). This confidence interval enables us to test the null

Table 1 Global model fit measures

Criterion	Value	HI95	HI99
SRMR	0.085	0.142	0.194
d_{USL}	5.088	14.165	26.526
d_G	2.095	2.817	3.258

Standardised root mean squared residual (SRMR), unweighted least squares discrepancy (d_{USL}), geodesic discrepancy (d_G), booatstrap-based 95% percentile (HI95), bootstrap-based 99% percentile (HI99)

Table 2 Results for reflective measurement models

Constructs/Indicators	Outer loadings	Cronbach's alpha	Composite reliability rho (ρA)	AVE
Intention to Engage in SR (second-order, composite mode B)				
Behavioral Beliefs (first-order mode A)				
B-BLFS _1	0.791	0.919	0.946	0.574
B-BLFS _2	0.743			
B-BLFS _3	0.725			
B-BLFS _4	0.827			
B-BLFS _6	0.778			
B-BLFS _7	0.712			
B-BLFS _8	0.697			
B-BLFS _9	0.828			
B-BLFS _10	0.699			
B-BLFS _11	0.762			
Control Beliefs (first-order mode A)				
CONT-BLFS_1	0.705	0.913	0.922	0.543
CONT-BLFS_2	0.658			
CONT-BLFS_3	0.849			
CONT-BLFS_4	0.695			
CONT-BLFS_5	0.701			
CONT-BLFS_6	0.711			
CONT-BLFS_7	0.839			
CONT-BLFS_8	0.684			
CONT-BLFS_9	0.734			
CONT-BLFS_10	0.764			
Normative Beliefs (first-order mode A)				
N-BLFS _1	0.634	0.683	0.706	0.512
N-BLFS _5	0.692			
N-BLFS _6	0.748			
N-BLFS _7	0.779			
Social Influence (first-order mode A)				
SOC_INFL_1	0.712	0.731	0.768	0.646
SOC_INFL_3	0.822			
SOC_INFL_5	0.870			
Sustainable Education (first-order mode A)				
SUST -EDU_1	0.603	0.702	0.713	0.530
SUST -EDU_3	0.760			
SUST -EDU_4	0.795			
SUST -EDU_5	0.740			

Table 3 Discriminant validity (Fornell–Larcker criterion and heterotrait–monotrait ratio, HTMT)

	BEHV_ BLFS	CONT-BLFS	NORM_ BLFS	SOC_INFL	SR	SUST_EDU
BEHV_BLFS	**0.758**	*0.751*	*0.755*	*0.526*	*0.234*	*0.683*
CONT-BLFS	0.691	**0.737**	*0.611*	*0.678*	*0.195*	*0.746*
NORM_BLFS	0.589	0.505	**0.715**	*0.568*	*0.393*	*0.759*
SOC_INFL	0.410	0.529	0.399	**0.804**	*0.136*	*0.705*
SR	0.251	0.254	0.334	0.120	**1.000**	0.167
SUST_EDU	0.531	0.567	0.533	0.487	0.144	**0.728**

Values below the diagonal are correlations between factors

Values above the diagonal in italics: ratio HTMT ≤ 0.85 criterion

Values in bold are the square root of the AVE of each construct

Table 4 Discriminant validity (HTMT): confidence interval bias corrected

Constructs	Original sample	Bias	2.5%	97.5%
CONT-BLFS → BEHV_BLFS	0.751	0.753	0.583	0.888
NORM_BLFS → BEHV_BLFS	0.755	0.763	0.626	0.899
NORM_BLFS → CONT-BLFS	0.611	0.630	0.502	0.760
SOC_INFL → BEHV_BLFS	0.526	0.535	0.380	0.692
SOC_INFL → CONT-BLFS	0.678	0.682	0.537	0.814
SOC_INFL → NORM_BLFS	0.568	0.581	0.409	0.768
SR → BEHV_BLFS	0.234	0.241	0.108	0.391
SR → CONT-BLFS	0.195	0.220	0.110	0.370
SR → NORM_BLFS	0.393	0.396	0.239	0.558
SR → SOC_INFL	0.136	0.166	0.048	0.340
SUST_EDU → BEHV_BLFS	0.683	0.692	0.533	0.838
SUST_EDU → CONT-BLFS	0.746	0.754	0.623	0.892
SUST_EDU → NORM_BLFS	0.759	0.771	0.598	0.940
SUST_EDU → SOC_INFL	0.705	0.708	0.568	0.838
SUST_EDU → SR	0.167	0.196	0.077	0.349

hypothesis (H_0: HTMT ≥ 1) and the alternative hypothesis (H_1: HTMT < 1). When value 1 is out of confidence interval, the constructs differ [85]. Table 4 shows satisfying discriminant validity results through the $HTMT_{inference}$. Consequently, our reflective measurement models prove reliability, and both convergent and discriminant validity.

5.3 "Mode B" measurement model assessment

Formative or Mode B measurement models were assessed by examining convergent validity, possible multicollinearity and both the significance and relevance of their outer weights [84]. To support the design of the GOV_STRUCT and OWN_CHARAC as formative constructs, it is needed to check that there are no problems of collinearity between the indicators, which requires the analysis of the Variance Inflation Factor (VIF). To avoid collinearity problems, Diamantopoulos and Siguaw [86] suggest VIF values at or below 3.3, or even less than 3 as proposed by Hair et al. [87]. In our case, since all VIFs are below the threshold value of 3, ranging between 1.001 and 1.005, all of them meet this criterion, so there are no problems of multicollinearity among the formative indicators.

On the other hand, Table 5 shows, through a bootstrapping procedure, the relevance and significance of the formative constructs indicators, and both their external weights and loadings. The first ones, also called regression weights, are indicative of the relative contribution of an item to a given construct. They are intended to be significantly different from 0. The second ones, also called correlation weights, represent its absolute contribution.

Based on the guidelines recommended by Hair et al. [77], to decide whether to keep or remove items in the formative constructs, GOV_STRUCT _3, Financial or Non-Financial Company, and Listed or Non-Listed must be maintained as they show significant regression weights, in addition to GOV_STRUCT _4, because although it is not significant, its outer

Table 5 Significance and relevance of path coefficients (outer weights and outer loadings)

Formative constructs	Indicators	Outer weights (Outer loadings)	*t*-value	*p*-value	95% BCa confidence interval	Significant ($p < 0.05$)?
GOV_STRUCT	GOV_STRUCT _3	– 0.643 (– 0.663)	0.987	0.162	[– 0.829; – 0.10]	Yes
	GOV_STRUCT _4	0.749 (0.766)	1.099	0.136	[– 0.676; 0.984]	No
OWN_CHARAC	Financial or Non-Financial Company	0.478 (0.504)	2.457	0.007	[0.150; 0.785]	Yes
	Listed or Non Listed	0.864 (0.879)	6.851	0.000	[0.627; 0.992]	Yes
	Ownership	– 0.0052 (0.013)	0.262	0.397	[– 0.388; 0.266]	No

Bias-Corrected and Accelerated (BCa) bootstrap confidence intervals for 10,000 sub-samples, no sign changes, and one-tailed test

loading is greater than 0.50. Only Ownership does not satisfy this criterion, as its outer loading is lower than 0.5 and is also statistically insignificant. Hence, it should be removed from the OWN_CHARAC construct.

Since these two constructs do not show very strong values for their indicators, it will be worth reconsidering whether or not to retain them when estimating the Hierarchical Component Model (HCM).

5.4 Applying the disjoint two-stage approach for the hierarchical component model

For the above reason, from this point on, the procedure was carried out following the Two-Stage Approach [72]. In a first step, it was evaluated the first-order model where the lower-order constructs (LOCs), "Behavioral Beliefs", Control beliefs" and "Normative Beliefs" are handled as subdimensions of a more general "Intention to Engage in SR" construct and they are operationalized as Mode A. After establishing validity and reliability, the second step was to assess the higher-order construct (HOC) "Intention to Engage in SR" as a formative type. Based on theory, that is, from a measurement theory perspective, BEHV_BLFS, CONT-BLFS and NORM_BLFS determine "Intention to Engage in SR", thereby implying the use of a reflective-formative HCM type since each of the LOCs is measured reflectively. Therefore, this type of HCM is Type II: Reflective-Formative. Of the two-stage approaches available, both embedded and disjoint two-stage approaches, we will apply the second one [75, 88, 89]. In a first phase, the overall model is drawn, including the first-order dimensions with their respective indicators. In the following, these dimensions will act in the model just like the second-order construct that they represent. That is, they will receive as many arrows or structural paths as would reach the multidimensional construct, and they are going to as many paths towards those variables which the second-order construct becomes a predictor variable (Fig. 3). Then, we run the PLS algorithm and obtain the latent variable scores of the dimensions or first-order constructs (LOCs scores).

The second phase then uses the scores of LOCs as indicators in the measurement model of HOC. We link the higher-order variable within the nomological net and run the PLS algorithm again (Fig. 4). We can create second-order constructs with reflective relationships (superordinate) and second-order constructs with formative

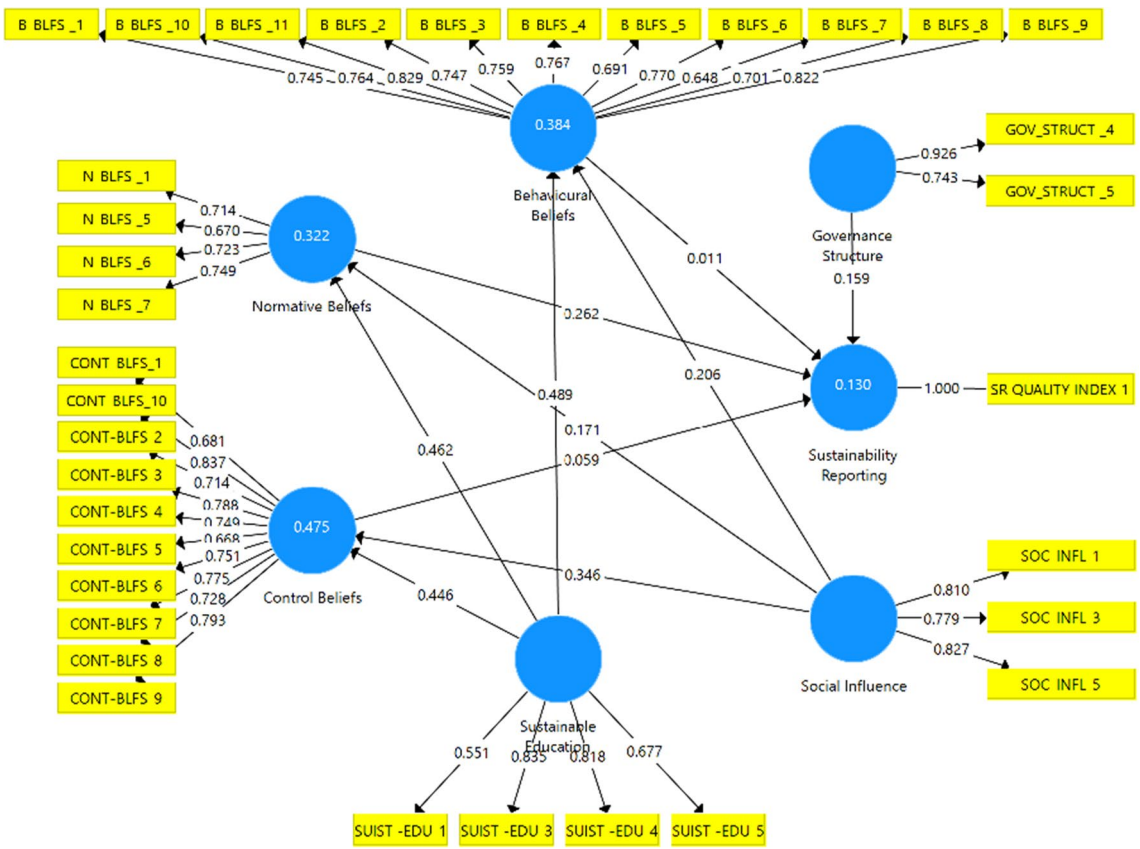

Fig. 3 First stage of the disjoint two-stage approach: Estimated MSB.IS model with lower-order constructs (LOCs)

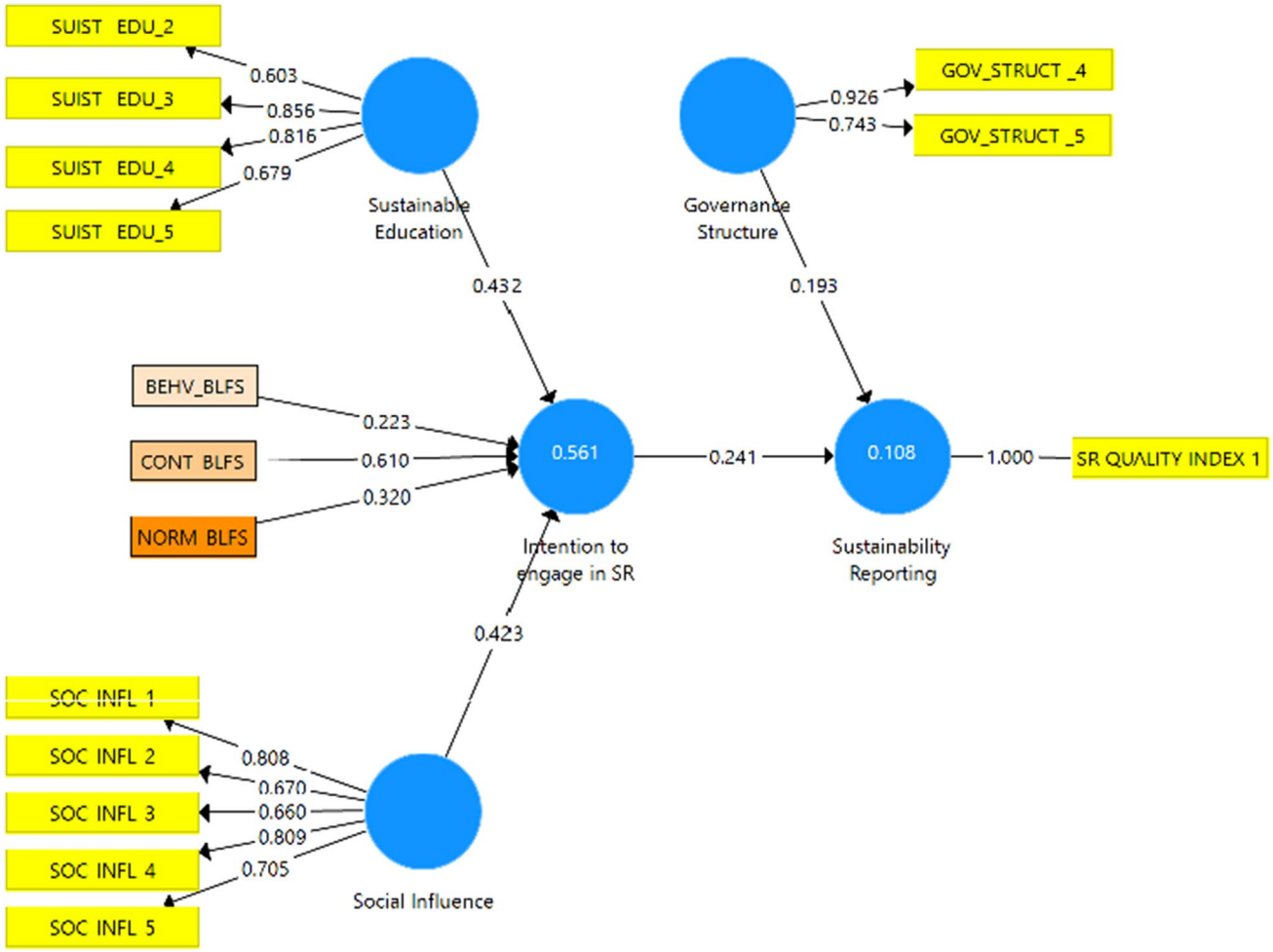

Fig. 4 Second stage of the disjoint two-stage approach: Estimated MSB.IS HCM model with second-order composite (HOC)

relationships (aggregate). Finally, the assessment of the HOC "Intention to engage in SR" measurement model, should draw on the well-established criteria for reflective measurement model assessment [72].

As in the earlier section, if the convergence algorithm reaches completion sooner than the specified maximum iteration number, the solution is then considered to be stable, as in our case, where the stop criterion is quickly achieved at iteration 13 [77].

5.5 Reassessment of the Measurement Models

To reassess measurement models in Mode A (GOV_STRUCT, SOC_INFL and SUST_EDU), their reliability and validity have to be checked. This implies applying again the same criteria used in Sect. 5.2, as shown in Table 6, where not every construct meets the minimum threshold values. For instance, SOC_INFL_2, SOC_INFL_3, SUST_EDU_2 and SUST_EDU_5 indicators have weaker loadings (l) and indicators of reliability (l^2), but they will be maintained on the consideration of their contribution to the content´s validity [77].

Regarding the assessment of the discriminant validity, HTMT values are shown in Table 7, which are below 0.90 [83] or 0.80 [84]. Moreover, given that all HTMT confidence intervals do not contain the value 1, discriminant validity exists.

To reassess Mode B measurement model (Intention to engage in SR), firstly, it is needed to assess collinearity at the indicator level. For this end, the variance inflation factor (VIF) is used. As we have seen in Sect. 5.3, a value of 3 [87] or 3.3 [86] or more, denotes a problem of collinearity. In this case, all VIF values are under the threshold, demonstrating that collinearity is not a major problem. Therefore, there is not a collinearity problem among the

Table 6 Results Summary for Mode A Measurement Models

Latent variables	Indicators	Internal consistency reliability		Convergent validity			Discriminant validity
		Cronbach's alpha	Composite reliability	Loadings	Indicator reliability	AVE	HTMT confidence interval does not include 1
		0.60–0.90	0.60–0.90	> 0.70	> 0.50	> 0.50	
GOV_STRUCT	GOV_STRUCT_4	0.607	0.825	0.926	0.857	0.705	Yes
	GOV_STRUCT_5			0.743	0.552		
SOC_INFL	SOC_INFL_1	0.782	0.852	0.808	0.653	0.538	Yes
	SOC_INFL_2			0.670	0.449		
	SOC_INFL_3			0.660	0.436		
	SOC_INFL_4			0.809	0.654		
	SOC_INFL_5			0.705	0.497		
SUST_EDU	SUST_EDU_2	0.736	0.831	0.603	0.364	0.556	Yes
	SUST_EDU_3			0.856	0.733		
	SUST_EDU_4			0.816	0.666		
	SUST_EDU_5			0.679	0.461		

LOCs (BEHV_BLFS, CONT_BLFS and NORM_BLFS) of the reflective-formative HCM "Intention to Engage in SR". Table 8 shows the bootstrap analysis results for the path coefficients of this HCM, where it is seeking regression weights significantly different from zero. According to the recommendations by Hair et al. [77] to maintain or remove the formative indicators, CONT_BLFS and NORM_BLFS are both retained as they are significant regression weights, as along with BEHV_BLFS, albeit it is only statistically significant at 10%, it shows outer loadings higher than 0.50. Moreover, its outer loading is also significant, with a *t*-value of 14.702 and a *p*-value of 0.000 (95% BCa Confidence interval: [0.735; 0.923]). So, we may therefore consider that hypothesis H1 is supported.

Table 7 Discriminant validity (heterotrait–monotrait ratio, HTMT)

	GOV_STRUCT	SOC_INFL	SR	SUST_EDU
GOV_STRUCT				
SOC_INFL	0.152 [0.085; 0.158]			
SR	0.274 [0.097; 0.493]	0.119 [0.038; 0.190]		
SUST_EDU	0.250 [0.112; 0.312]	0.691 [0.537; 0.809]	0.158 [0.053; 0.257]	

The values in brackets represent the 95% bias-corrected and accelerated confidence interval of the HTMT values obtained by running the bootstrapping Routine with 10,000 samples in SmartPLS

Table 8 Significance and relevance of path coefficients (outer weights and outer loadings)

Formative constructs	Indicators	Outer weights (Outer loadings)	*t*-value	*p*-value	95% BCa Confidence intervals	Support H1? Significant ($p < 0.05$)?
INTENTION TO ENGAGE IN SR	BEHV_BLFS	0.223 (0.841)	1.637	0.048	[-0.030; 0.428]	Yes**
	CONT_BLFS	0.610 (0.929)	4.529	0.000	[0.382; 0.829]	Yes***
	NORM_BLFS	0.320 (0.766)	2.915	0.002	[0.150; 0.512]	Yes***

BCa Bias Corrected and Accelerated Bootstrap

* $t(0.10, 4999 = 1.28)$, ** $t(0.05,4999 = 1.65)$, *** $t(0.01,4999 = 2.33)$. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, one-tailed test

5.6 Structural model assessment (hypothesis testing)

The next step consists of assessing the structural model [90]. However, before doing so, it is needed to check for collinearity problems among the latent variables. Collinearity of the structural model is evaluated just like the measurement models (i.e. the VIF is applied). Again, VIF values are all below the 3-value threshold [87]. Thus, no collinearity issues are present in the structural model.

The decisive assessment criteria for the structural model are, in this order, the algebraic sign, the size and the significance of the path coefficients, the coefficient of determination (R^2), and the effect size f^2.

As far as the algebraic sign is concerned, Fig. 4 shows that all signs are positive, indicating a straight relationship among them. The highest relative importance between latent variables with a positive effect on the "Sustainability Reporting" (SR) is, in order of importance, the "Intention to Engage in SR", followed by the "Governance Structure" (GOV_STRUCT). Concerning the exogenous constructs that influence the "Intention to Engage in SR", the greatest importance is "Control Beliefs" (CONT_BLFS), followed by the "Sustainable Education" (SUST_EDU), "Social Influence" (SOC_INFL), and "Normative beliefs" (NORM_BLFS). "Behavioral Beliefs" (BEHV_BLFS) would also occupy the fifth and last rank in this classification.

Regarding the significance of path coefficients and to evaluate if these relationships are really meaningful, the same procedure as Mode B measurement model (Intention to engage in SR) is followed. By carrying out a bootstrapping procedure, the values of the *t* and *p* statistics were obtained and matched with their empirical values to determine the statistical significance of the hypothesised relationships. These determine statistical significance. With this in mind, the results are all within the one-tailed test's critical values at the 5% significance level. We also analysed confidence intervals that help us test whether a path coefficient is significantly different from zero, as an additional means of assessing significance (Table 9).

Next, the coefficients of determination (R^2) of the endogenous constructs are analysed. Whereas some authors consider that a sufficient R^2 should be higher than 0.1 [77, 91], the specific R^2, in order to be valid, will be determined by the model and the area of study. R^2 values can usually be classified as substantial, moderate and weak, respectively, depending on whether their value is 0.75, 0.5 or 0.25 [92, 93]. To prevent bias due to an excess number of exogenous latent variables, the adjusted coefficient of determination (R^2adj) is often used as well. "Intention to engage in SR" has a R^2 value of 0.561, the highest value, that can be rated as moderate, whereas "Sustainability reporting" (SR) with 0.108, is quite weak. The R^2adj values do not differ much from the previous ones (0.552 and 0.091 each).

To determine the impact of leaving out an endogenous construct on the model, we use the effect size f^2 [76, 77, 94–96]. f^2 values greater than 0.35, 0.15 or 0.02 are regarded respectively as large, medium or small effects [97]. Results for effect size f^2 are shown in Table 10. For instance, the greatest effect size is SUST_EDU on "Intention to engage in SR" (0.303), followed by SOC_INFL on "Intention to engage in SR" (0.291), which are close to large effects, and "Intention to engage in SR" on SR (0.064) and GOV_STRUCT on SR (0.041), which are between small and medium-sized effects.

The decomposition of the variance explained in Table 11 indicates the degree of contribution of each latent variable to the target construct "Sustainability Report" (SR), in which we found that the variable with greatest influence on the SR by the companies, is the impact of the "Intention to Engage in SR" as a result of manager´s sustainable behavior, followed by the "Governance Structure". It is important to highlight that the "Intention to Engage in SR" has the greatest influence with 6.46% of R^2, representing a 59.6% of the total variance explained by this proposed MSB. IS hierarchical component model.

Table 9 Significance Testing Results of the Structural Model Path Coefficients

	Path Coefficients	*t*-value	*p*-value	95% BCa Confidence intervals	Significance Levels	Support Significant ($p < 0.05$)?
GOV_STRUCT → SR	0.193	2.081	0.019	[0.025; 0.314]	**	Yes (H5)
INTENTION TO ENGAGE IN SR → SR	0.241	2.378	0.009	[0.054; 0.389]	***	Yes (H2)
SOC_INFL → INTENTION TO ENGAGE IN SR	0.423	4.694	0.000	[0.264; 0.562]	***	Yes (H4)
SUST_EDU → INTENTION TO ENGAGE IN SR	0.432	4.958	0.000	[0.282; 0.570]	***	Yes (H3)

BCa Bias Corrected and Accelerated Bootstrap

* $t(0.10, 4999 = 1.28)$, ** $t(0.05, 4999 = 1.65)$, *** $t(0.01, 4999 = 2.33)$. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, one-tailed test

Table 10 f^2 Effect Sizes

	GOV_STRUCT	INTENTION TO ENGAGE IN SR	SOC_INFL	SR	SUST_EDU
GOV_STRUCT	–	–	–	0.041	–
INTENTION TO ENGAGE IN SR	–	–	–	0.064	–
SOC_INFL	–	0.291	–	–	–
SR	–	–	–	–	–
SUST_EDU	–	0.303	–	–	–

Table 11 Decomposition of the explained variance of the endogenous latent variable SR

Latent Variable	Path coefficients	Correlation	R^2
GOV_STRUCT	0.193	0.227	4.38%
INTENTION TO ENGAGE IN SR	0.241	0.268	6.46%
Total R^2			10.84%

6 Country of origin as an influencing variable

Once the final model was obtained, the variable "country of origin" was also considered in it, in order to analyse if such variable really influences "Sustainability reporting" for both sub-samples and moreover, testing the hypotheses exposed in previous sections (Fig. 5).

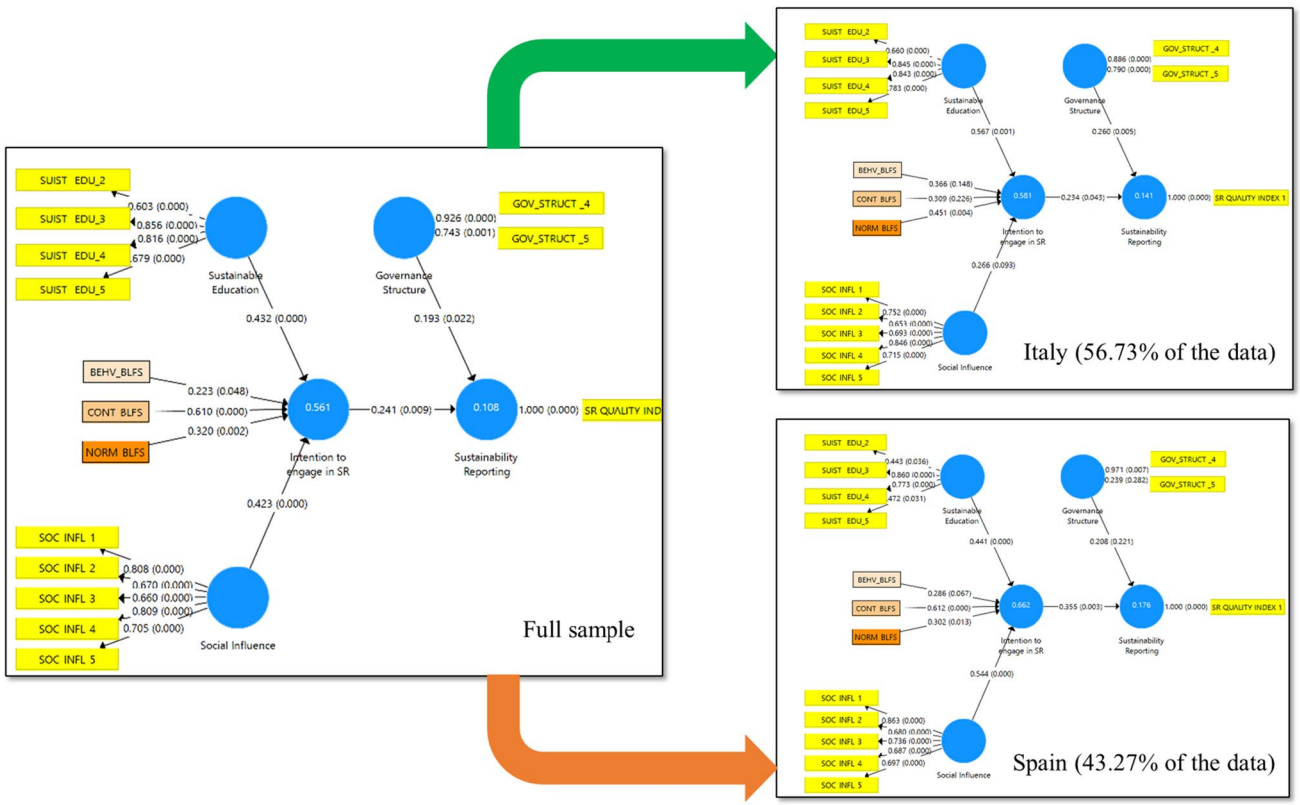

Fig. 5 Country of origin in the proposed PLS-SEM path model

6.1 Measurement invariance: the MICOM procedure

For the sake of making a comparison regarding the country of origin and carrying out a multi-group analysis, MICOM (Measurement Invariance of Composite Models) procedure was conducted. The aim was to verify if the differences between the sub-samples considered was a result of the observed heterogeneity in the measurement models or in the structural model [98].

In such procedure, based on Hair et al. [84], three phases could be identified: configural invariance (1), compositional invariance (2), and equality of composite mean values and variances (3).

Initially, regarding the configural invariance, Italian and Spanish models are identical, in terms of indicators, data treatment and algorithm setting, thus establishes configural invariance. Additionally, the MICOM procedure (phase 2) also sets that compositional invariance exists, because correlation values are higher than the percentile (5%) and the *p*-values are above 0.05. By establishing configural invariance and compositional invariance, partial measurement invariance is also demonstrated.

Table 12 Measurement model invariance: the MICOM procedure

MICOM Step 1: Configural invariance				
Configural invariance established across groups? Yes				
MICOM Step 2: Compositional invariance				
Composite	Original Correlation *c*	5% Quantile of the empirical distribution of c_u	*p*-value	Compositional invariance established?
GOV_STRUCT	0.755	0.372	0.152	Yes
INTENTION TO ENGAGE IN SR	0.975	0.895	0.536	Yes
SOC_INFL	0.990	0.969	0.360	Yes
SR	1.000	1.000	0.448	Yes
SUST_EDU	0.978	0.967	0.165	Yes

MICOM Step 3a: Equality of composites' mean values				
Composite	Difference of the composite´s mean value (=0)	95% Confidence interval	*p*-value	Equal mean values?
GOV_STRUCT	0.143	[– 0.381; 0,385]	0.485	Yes
INTENTION TO ENGAGE IN SR	0.020	[– 0.393; 0.386]	0.919	Yes
SOC_INFL	– 0.385	[– 0.396; 0.390]	0.053	Yes
SR	0.712	[– 0.396, 0,390]	0.000	No
SUST_EDU	– 0.299	[– 0.376, 0,395]	0.132	Yes

MICOM Step 3b: Equality of composites' variance values				
Composite	Logarithm of the composite´s variance value (=0)	95% Confidence interval	*p*-value	Equal variances?
GOV_STRUCT	– 0.424	[– 0.406; 0.458]	0.049	No
INTENTION TO ENGAGE IN SR	0.284	[– 0.463; 0.526]	0.258	Yes
SOC_INFL	0.326	[– 0.507; 0.557]	0.221	Yes
SR	– 0.113	[– 0.432; 0.489]	0.622	Yes
SUST_EDU	0.648	[– 0.671; 0.662]	0.059	Yes

Moreover, the equality of composite mean values (phase 3a) and variances (phase 3b) should be analysed. Table 12 shows that almost of all them are fulfilled, due to the fact that the difference is close to zero in both cases, the 95% confidence intervals contain zero, and the *p*-values are greater than 0.05. But only one, for SR, the originally reported difference in mean values of the constructs scores (0.712) is not included within the corresponding confidence interval of -0.396 and + 0.390. Hence, it cannot be confirmed that full measurement invariance exists, only partial invariance. In this situation, according to Hair et al. [72], when partial measurement invariance is verified for each latent variable in the PLS path model, researchers can compare the path coefficients through multigroup analysis but pooling of data would not be feasible.

6.2 Multigroup analysis

After carrying out the MICOM procedure, a multi-group analysis was also conducted. For that, a permutation-based analysis and the PLS-MGA were developed [99]. In order to analyse if significant differences could be identified regarding the country of origin, the following available parametric and non-parametric approaches will be used: Permutation test, PLS-MGA, Parametric test, and Welch-Satterthwaite *t*-test.

Table 13 shows the results of the multi-group analysis in our MSB.IS model. Consequently, no relevant differences between PLS models for Italy and Spain were identified, since the null hypothesis could not be rejected. In other words, regarding the structural model relationships between both sub-samples, they are not significantly different, so the country of origin is not a moderating variable and does not have influence on Sustainability Reporting by Italian or Spanish managers. Therefore, although slight differences between the two groups of managers may be discernible, they are not significant, and hypothesis H6 cannot be supported. That is, different types of cultures do not affect the Intention to engage in SR across countries.

Table 13 Multi-group analysis

Permutation test results		
	Path Coefficients Difference [GROUP_Italy (1.0)—GROUP_Spain (2.0)]	*p*-values
GOV_STRUCT → SR	0.052	0.767
INTENTION TO ENGAGE IN SR → SR	− 0.121	0.569
SOC_INFL → INTENTION TO ENGAGE IN SR	− 0.278	0.129
SUST_EDU → INTENTION TO ENGAGE IN SR	0.126	0.494
PLS-MGA results		
GOV_STRUCT → SR	0.052	0.473
INTENTION TO ENGAGE IN SR → SR	− 0.121	0.258
SOC_INFL → INTENTION TO ENGAGE IN SR	− 0.278	0.109
SUST_EDU → INTENTION TO ENGAGE IN SR	0.126	0.262

Parametric PLS multigroup test results			
	Path Coefficients Difference [GROUP_Italy (1.0)—GROUP_Spain (2.0)]	*t*-values	*p*-values
GOV_STRUCT → SR	0.052	0.201	0.421
INTENTION TO ENGAGE IN SR → SR	− 0.121	0.629	0.265
SOC_INFL → INTENTION TO ENGAGE IN SR	− 0.278	1.124	0.132
SUST_EDU → INTENTION TO ENGAGE IN SR	0.126	0.541	0.295
Welch-Satterthwaite t-test results			
GOV_STRUCT → SR	0.052	0.183	0.428
INTENTION TO ENGAGE IN SR → SR	− 0.121	0.647	0.260
SOC_INFL → INTENTION TO ENGAGE IN SR	− 0.278	1.234	0.111
SUST_EDU → INTENTION TO ENGAGE IN SR	0.126	0.577	0.283

7 Conclusion, discussion, and implications

This paper aimed to analyse the way the sustainable managers' beliefs influence the quality of corporate sustainability reporting, taking into account other factors that may also impact on it, and to determine whether the country-of-origin could be considered a moderating variable using Partial Least Squares Structural Equation Modelling (PLS-SEM).

Previous studies have raised concerns about the TPB model in explaining the behavior of individuals, highlighting the need to also include external variables that may affect individuals' perceptions and beliefs. This study goes beyond previous research based on the TPB. We also consider if other external factors, such as governance characteristics, social influence, and education, affect the managers' intention to engage in SR. The EU legislature, through the approval of the NFI Directive has made a decisive step towards a mandatory regime for sustainability reporting.

To investigate the quality of sustainability reporting, we opt for using Sustainability Reporting Quality Index (SRQI), computed as the ratio of the sum of firm scores in different dimensions, with the overall maximum score of 15.

At the beginning, seven variables were considered taking into account previous studies: the manager's features and capabilities (age, gender, country, position job, main area of interest, religion, etc.), the ownership characteristics of the company (private or public, listed or non-listed, financial or non-financial), managers' behavioral beliefs (what benefits they believe that sustainability reporting could involve to their own company, etc.), managers' normative beliefs (internal and external pressures by various stakeholders relevant to the firm's business, influencing the intention the managers have to get involved in sustainability reporting), managers' control beliefs (the commitment to sustainability reporting depending on managers' understanding, regarding the availability of skills, resources and experience required), sustainable education and social influence (how the education and the social context in which individuals have grown influence managers' behavior), and the governance structure of the companies (the rate of shares owns by the largest shareholder, the rate of shares held by shareholders which own less than 2%, the ultimate controlling agent in the company, etc.). Since the whole indicators regarding such variables were similar, no relevant differences were initially identified between Italian and Spanish managers.

For further investigating the connection between these exogenous latent variables and the endogenous latent ones, a second analysis based on Partial Least Squares Structural Equation Modeling (PLS-SEM) was carried out in order to draw up the measurement models of exogenous variables. As for these seven latent variables, "ownership characteristics" was removed from the MSB.IS initial model, due to the fact that it did not fulfill the requirements, and the measurement model of the variable "Governance Structure" was switched from Mode B to Mode A. Additionally, various indicators were also excluded from the initial model in order to obtain a final one that complied with the whole requirements.

As for the first hypothesis postulated about the connection between "Behavioral-Control-Normative Beliefs" and the intention to engage in sustainability reporting, it is noted that this hypothesis was met. The connection is statistically significant for the whole sample as well as for the Spanish sub-sample, but not for the Italian sub-sample, where only the variable "Normative Beliefs" is significant. This first findings reveal that, in Italy, managers' engagement in sustainability reporting is mainly a consequence of stakeholders pressures, whereas in Spain managers' attitude towards SR is also influenced by the benefits expected and by the availability of skills, resources and experience required to carry out sustainability policies [1].

Overall, the PLS analysis reveals that the TPB model, along with the Education and the Social Influence, explain 56 percent of the intention to participate in Sustainability Reporting. This indicates that the latter latent variable is well predicted via our MSB.IS path model, confirming the relevance of managers' beliefs in driving Sustainability Reporting practices.

The second hypothesis, which relates the "Intention to Engage in SR" to "Sustainability Reporting", is verified, due to the fact that said connection was identified for the considered sub-samples (specifically, 95% for Italian companies and 99% for Spanish companies) and also for the entire sample itself. Thus, the intention to engage in sustainability reporting is stronger for Spanish managers than for Italian.

The hypothesis regarding the relationship between "Sustainable Education" and "Intention to Engage in SR" is also confirmed at 99% for Italian and Spanish managers, as well as for the entire sample.

Fourth, the postulated connection between the "Social influence" and "Intention to Engage in SR" was verified, due to the fact that such relation is relevant for the full sample and for country sub-samples, with the only difference that it was less for Italian managers (at 90%).

The fifth hypothesis, which relates the "Governance Structure" to "Sustainability Reporting", is also validated, due to the fact that the relationship was relevant for the entire dataset and for the Italian sub-samples but not for the Spanish sub-sample. Thus, the "Governance Structure" is not meaningful for Spanish managers.

Finally, despite the differences found in the models between the two sub-samples considered, the multigroup analysis supports the conclusion that, in terms of the relations of the structural model between them, there are no significant differences between Italian and Spanish managers. That is, no relevant differences between them were found out, which involves that the country of origin is not a moderating variable regarding the "Intention to Engage in SR" and their level of "Sustainability Reporting". Our understanding of the latter findings is that Italy and Spain share similar Latin cultural roots and education that influence in the same way managers' behaviors. Finally, as they pointed out, the "Sustainable Education" is the factor that most affects Italian managers, whereas "Social Influence" is the most relevant for Spanish. Furthermore, for the full sample in the MSB.IS model considering all managers, such factor was the most relevant one.

Our findings may specifically help business managers and decision-makers identify the factors that are likely to influence sustainability reporting in Italy and Spain through our proposed MSB.IS model in the context of PLS-SEM. Altogether, they can help regulators, supervisors, and policymakers in terms of achieving sustainable reporting targets. Further research may be necessary to develop efficient sustainable reporting strategies aimed at overcoming the boundaries identified in this study (e.g., clarifying CEOs and CFOs roles on sustainable development within organizations or addressing the differences in engagement in sustainability reporting practices by gender).

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Data availability All figures, appendixes and tables of results are public and deposited in the following Figshare repository: https://doi.org/10.6084/m9.figshare.24025032.v1. Raw data for dataset is not publicly available in order to preserve individuals' privacy under the European General Data Protection Regulation, but they will be available on request to the corresponding author under a DUA (Data Use Agreement). In this case, data will be anonymised and the claimant must undertake to use them only for the purposes of the agreement.

Declarations

Ethics approval and consent to participate Author are committed with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.This study consisted of a questionnaire-based survey of managers, as well as an analysis of the sustainability reports disclosed by their companies in the sample. Participants freely consented to participate in the survey by completing the questionnaire. This study did not require ethical approval from any national, autonomous or local Ethics Committees.

Competing interests Authors declare to have no competing interests.

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