Review Article

Sustainability, corporate social responsibility, non-financial reporting and company performance: Relationships and mediating effects in Spanish small and medium sized enterprises

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ABSTRACT

Sustainability, Corporate Social Responsibility (CSR), and non-financial reporting and their relationships with company performance are burning topics. Although all these terms are familiar to companies, specifically large ones, most European companies are small and medium-sized enterprises (SMEs), and studies explicitly addressing SMEs are limited. For this reason, this paper aims to fill the existent gap in the literature concerning SMEs by analyzing the relationship between sustainability, CSR, non-financial information, and performance. The objective of this study is to analyze several aspects: (1) The influence of pressures, incentives, and barriers on sustainability, (2) The influence of sustainability, CSR, and non-financial disclosure on performance, and (3) The mediating effect of CSR and non-financial disclosure. For this purpose, there has been an e-mail survey to managers, financial directors, or administration managers of Spanish SMEs. In addition, a Partial Least Squares Structural Equation Modelling (PLS-SEM) model has been used on a final sample of 126 Spanish SMEs. The study's main outcome is that sustainability positively influences CSR and non-financial reporting in the case of SMEs. Therefore, regardless of the specific characteristics derived from the size of the company and the possible lack of resources, the results for SMEs align with those of large companies obtained by previous studies. This study has important academic/theoretical implications for SME managers and policymakers because implementing policies encouraging CSR practices and sustainability strategies will create a better society and positively impact SMEs' performance.

Contents

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1. Introduction

Europe is living a momentum of necessary process in achieving the goal of being the "greenest" continent of the world as it was established in its "Green Deal" strategy. Therefore, sustainability, Corporate Social Responsibility (CSR), and non-financial reporting are issues of discussion in Europe and worldwide. In addition, although it is something broadly studied, the relationship with company's performance is a critical point to solve when requiring companies to be sustainable, responsible, and to disclose this information.

"Sustainability is an ability to create and maintain the conditions of a delicate balance between human and business needs, to improve lifestyle & feeling of well-being and preserve natural resources & ecosystems. CSR is a corporate management approach that applies sustainability values in business to promote social welfare within a company and outside it, employs ethical business concepts, supports effective company's resource management and preservation of nature". And "non-financial reporting is a process of gathering and disclosing data on non-financial aspects of a company's performance, including environmental, social, employee and ethical matters, and defining measurements, indicators and sustainability goals based on the company's strategy" (Deloitte, 2015, p. 1).

It is claimed that sustainability is derived from Brundtland's report (Commission on Environment, 1987). It implies a sustainable development with its triple bottom line of sustainability's social, environmental, and economic strands. In comparison, CSR is viewed as one part of the sustainability goal (Baumgartner, 2008) as a social perspective in the company from the angle of stakeholders (Elmualim, 2017; Van Marrewijk, 2003). Hence, CSR policy is self-adopted to ensure that the company considers the public interest in its decision-making process (Elmualim, 2017). Moreover, another different step from practices and policies is to disclose them and make them public in non-financial/sustainability reporting.

The meaning of non-financial information and reporting is subject to debate. There has even been a name change by the European Commission from the first directive on non-financial reporting to the current proposal for a directive on corporate sustainability reporting. Therefore, the terms, non-financial and sustainability reporting can now coexist, but they refer to the same concept. According to Tarquinio and Posadas (2020), non-financial reporting refers to social and environmental reporting based on academics' perceptions. It is a broader term than CSR because it includes information on intellectual capital and information external to financial statements. The term non-financial reporting is subject to different interpretations (Tarquinio and Posadas, 2020) and is broader than the narrow CSR perspective and even depends on the social identity of different groups using all concepts related to sustainability (Krasodomska et al., 2020).

Although all these terms are not new for companies, especially large ones, most European companies are small and medium-sized enterprises (SMEs). SMEs are the majority of the European companies, and although they can be sustainable in their practices, they do not have enough capabilities to disclose this information. Hence, Europe is looking for a solution for SMEs that has to be proportionate and tailor-made (Reporting Lab, 2021).

The European Commission published on 21 April 2021 a new proposal for a Corporate Sustainability Reporting Directive (CSRD) in order to amend the previous directive on non-financial reporting dated 2014 (Non-Financial Reporting Directive, NFRD). According to the European Commission, a revision of the NFRD was necessary because "there is ample evidence, however, that the information that companies report is not sufficient. Reports often omit information that investors and other stakeholders think is important. Reported information can be hard to compare from company to company, and users of the information are often unsure whether they can trust it" (https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_1806). The new European Sustainability Reporting Standards (ESRS) are mentioned in the CSRD. The idea is to develop its own body of standards that will be mandatory in Europe from 2024. The standards will be set by the European Financial Reporting Advisory Group (EFRAG) (Commission, 2021). The first set of draft ESRS is out for public consultation with a deadline of 8 August 2022 (https://www.efrag.org/lab3#subtitle5) and, on 21 June 2022, there was a provisional political agreement between the European Council and the European Parliament to adopt the CSRD. After that, the CSRD has to go through the formal steps of the endorsement procedure and will enter into force 20 days after its publication in the Official Journal of the European Union (https://www.consilium.europa.eu/en/press/press-releases/2022/06/21/new-rules-on-sustainability-disclosure-provisional-agreement-between-council-and-european-parliament/?utm_source=dsms-auto&utm_medium=email&utm_campaign=New+rules+on+corporate+sustainability+reporting%3a+provisional+political+agreement+between+the+Council+and+the+European+Parliament). The CSRD has extended its scope of application to listed SMEs on regulated markets so that listed European SMEs will be the only ones obliged to publish sustainability reporting and will be able to opt for simpler and proportionate SME-tailored standards. However, many SMEs face requests for sustainability information, mainly from banks and the large companies they supply. It is, therefore, essential to analyze these changes and requirements because the new regulation is having a spill-over effect on SMEs (Commission, 2021).

So, we are in a relevant and dynamic momentum in the non-financial and sustainability reporting and the standard setting in this field. This momentum takes us to ask small and medium sized practitioners (SMPs) about these topics. We have surveyed all the Spanish SMPs included in the Spanish professional economists' organization, the Spanish General Council of Economists (CGE), because they are the principal and trusted advisors of SMEs and help them to prepare these reports and information. We have collected the opinion of economists included in CGE in 2021 to see, using structural equation models, how their perceptions are about CSR, sustainability, non-financial information and performance. Practitioners play a significant role in sustainability reporting of SMEs because they are closely linked and provide the advice to cope with this sustainability challenge. SMEs rely on their SMPs to prepare this type of information, as well as happen with financial information. Although there are historical data about large companies disclosing sustainability information it is not the same when the goal is SMEs; the background is scarce for the backbone of the European economy. There is still a significant research gap regarding the work of sustainability reporting practitioners (La Torre et al., 2020) and all the factors that can influence and affect company performance. "The revision of the Directive 95/2014/EU represents an opportunity for practitioners, think tanks and non-governmental organizations (NGOs) to share their ideas to be considered and possibly legitimised by European regulators… The main lesson learned about the Directive 2014/95/EU seems to be a need to rethink its contents to evolve from a one-size-fits-all approach to a more innovative view that encourages the adoption of alternative practices by practitioners and managers" (Pizzi et al., 2022, p. 554). SMEs are an essential part of the economy and have an impact on society and the environment (Reporting Lab, 2021). However, it is necessary to know their organizations, policies, performance, risks and those issues related to sustainability information because the background in this field for large companies is extensive. At the same time, SMEs are the most numerous European companies (Ortiz-Martínez and Marín-Hernández, 2021). For this reason, this paper aims to fill the existent gap in the literature by analyzing the relationship between sustainability, CSR, non-financial information, and performance through structural equation modelling based on the opinion of Spanish SMEs/SMPs. Although there are numerous studies in this field, they are based on large companies, and the research gap on SMEs is still large because studies that specifically address SMEs are limited (Khoja et al., 2022). Indeed, the sustainability catalysts in SMEs are less clear than for large companies (Ernst et al., 2022) because other

factors influence them, such as stakeholders' proximity (Lähdesmäki et al., 2019; Spence, 2016). Three core hypotheses are established as a departure point of the research. These core hypotheses are checked as a basis for advancing the following other hypotheses of the paper and are related to the significant influence of pressures, incentives, and barriers, on sustainability. Therefore, they are expected to be positive for pressures and incentives and negative for barriers. From these main hypotheses, a model is proposed to check the relationship and mediating effects of sustainability, CSR, Non-financial information, and performance in the field of SMEs.

Consequently, this article aims to contribute to this issue. Furthermore, the results and conclusions obtained have important theoretical, practical, and, on the other side, policy implications. The main theoretical implications of this study come from the lack of seminal works on sustainability for SMEs. Therefore, this paper looks to seed initial knowledge to extend a stream of research about sustainability for SMEs. Besides this, there are relevant policy implications at a time of profound changes in sustainability regulation. The results of this study will trigger future developments in how policymakers think about sustainability regulations and their effects on SMEs. Moreover, practical implications can be pointed out in the critical consequences that introducing sustainability practices in SMEs can have on the company and its advisers, the practitioners. Adopting a sustainable perspective is a challenge that implies changes and needs of resources, as well as good training and knowledge.

The paper is organized as follows: Next, we review the relevant literature and establish our previous hypotheses; then, we describe the methodology and models proposed; and lastly, we include a discussion of the results and the conclusions.

2. Literature review

As we have mentioned, currently is been done a vital effort to advise SMEs about voluntary disclosure of sustainability reporting. This task involves the leading vital players: the regulators (such as the European Commission); the principal advisor of the European Commission on the field of financial reporting that is also to be in charge of sustainability reporting (the European Financial Reporting Advisory Group, EFRAG); and the practitioners represented by their professional organizations (the International Federation of Accountants, IFAC; the European Federation of Accountants and Auditors for SMEs, EFAA for SMEs and Small and Medium Sized Enterprises United, SMEunited) (Ortiz-Martínez and Marín-Hernández, 2020). Although there is no extensive literature on sustainability reporting by SMEs, being a broad topic, several studies on sustainability and sustainability reporting can serve as a theoretical basis for this work. This lack of data on sustainability practices and reporting by SMEs is caused by the fact that they report voluntarily and are driven by other "drivers", such as pressures, incentives, and barriers, which lead them to cope with the burdens that sustainability reporting may at first sight imply. This indirect way of requiring sustainability information from SMEs is also called the "trickle-down" effect in financial reporting (Lang and Martin, 2017). SMEs play an important role in sustainability, and although they are not directly required, they are affected by this trickle-down effect from the value chain and requests from their stakeholders (Reporting Lab, 2021; Tomaževič et al., 2017).

Nevertheless, this "trickle down" effect is not only created by pressures; there are other drivers which influence sustainability (Ferenhof et al., 2014; Soundararajan et al., 2018). There can also be incentives that positively influence sustainability, for example, better access to financial resources (Ortiz-Martínez and Marín-Hernández, 2020). Sometimes the regulation can be an essential barrier to sustainability and hence it is needed proportionate regulation tailor-made for SMEs (Reporting Lab, 2021). Complexity in introducing sustainability practices in SMEs can have a meaningful negative impact (Hsu and Cheng, 2012). There are other barriers related to the lack of resources that cannot afford SMEs, considered in previous studies such by Cantele and

Zardini, who confirm that are different factors that enable and block sustainability in SMEs (Cantele and Zardini, 2020). SMEs have no resources, but it does not mean a lack of commitment to environmental improvements, as Cassells and Lewis (2011) prove when analyzing the relationship between environmental awareness, issues and adoption. Sometimes stakeholders can act as a trigger to increase environmental actions within the businesses, better than legislation (Gadenne et al., 2009). Employees' concerns can also be associated with implementing sustainability practices in SMEs (McKeiver and Gadenne, 2005). So, different factors can influence sustainability and have been checked using structural equation model such as in Revell et al. (2010).

Hence, SMEs' "level of voluntariness" in sustainability is shaped by pressures, incentives, and barriers (Hsu and Cheng, 2012; Kuppig et al., 2016). The previous background shows the positive influence of pressures and incentives such as a concept for trading of product life cycle (PLC) emission rights (Cerin and Karlson, 2002), ecological labelling practices (Grundey and Zaharia, 2008), environmental investments (Testa et al., 2016) or the adoption of environmental management accounting in the Australian water supply industry (Imtiaz Ferdous et al., 2019). However, there are also negative barriers to sustainability, such as access to industry-specific information, benchmark or reference cases (Stewart et al., 2016) or economic barriers and others that have to do with organization, for example, the lack of time and lack of staff or the investment cost (Trianni et al., 2017). Although an apparent positive effect of incentives can be assumed, it is not an automatic relationship, as shown in the area of employee behavior, due to the moderating effect of personal attitudes towards the company's sustainability activities (Condly, 2010; Huber and Hirsch, 2017). The sustainability catalysts in SMEs are less clear than for large companies (Ernst et al., 2022). The cause is that SMEs are strongly influenced by other factors, such as the feeling of social proximity to their stakeholders (Lähdesmäki et al., 2019; Spence, 2016). It makes necessary to test our first three hypotheses, which are the basis for advancing the following hypotheses of the paper. Based on this background on the topic, we establish these first three hypotheses:

H₁. Pressures have a positive and significant influence on sustainability.

H₂. Incentives have a positive and significant influence on sustainability.

H₃. Barriers have a negative and significant influence on sustainability.

Sustainability and CSR are not synonymous. Multiple terms exist and remain ambiguous (Tarquinio and Posadas, 2020). However, if the European Union has replaced non-financial reporting with sustainability reporting, we can deduce that both terms are equivalent. A further step is to disclose them. Sustainability is gaining momentum across Europe, and corporate sustainability reporting is mandatory for large entities. Sustainability is an umbrella term that includes CSR and environmental, social, and governance (ESG) reporting (Erkens et al., 2015; Tarquinio and Posadas, 2020).

There is a narrow link between sustainability and CSR that can justify the positive effect of sustainability on CSR. As Tureac et al. (2010) claim, CRS can be the microeconomic dimension of the macroeconomic concept of sustainability. Hence, the concept of CRS is integrated into the company's sustainable development policy. The holistic idea of sustainability can be found at the concrete level of the company in its CSR with all its different objectives (Tureac et al., 2010). CSR refers to the company's mechanisms to comply with the laws, ethical standards, and other international norms and frameworks. So, CSR is the tool to ensure that the company's practices positively impact all its stakeholders (Fontaine, 2013). Indeed, if there are new requirements for sustainability and reporting, they are going to affect CSR.

Moreover, the concept of sustainability enriched the definitions of CSR (Kleine and Von Hauff, 2009). There is a positive correlation

previously checked between sustainability and CSR because companies must be proactive and analyze the impacts and opportunities that the environment, in a broad sense, can provide (Topal et al., 2009). To cope with this challenge, companies must study how sustainability factors affect the company's different levels of management (Sánchez-Teba et al., 2021) and their CSR.

Therefore, a positive influence of sustainability practices on CSR is expected in the following hypothesis:

H₄. There is a positive and significant direct effect of sustainability on CSR.

At the same time, there is a strong relationship between sustainability practices and reporting, as it is currently stated by the European Commission when establishing the revision of the Non-Financial Reporting Directive as one goal of the European "Green Deal" because "the Green transformations affect what information the public needs from companies, and how companies provide it" (*Speech by Executive Vice-President Valdis Dombrovskis at the Eurofi Financial Forum| European Commission, 2020*). So, a positive influence of sustainability practices is expected in this reporting.

Most research on CSR and sustainability disclosure focuses primarily on agency theory (Jensen and Meckling, 1976), followed by stakeholder and legitimacy theory (Brammer and Pavelin, 2006). The reason for disclosing these practices is to seek legitimacy from stakeholders on the company's practices (Fatma et al., 2014; Zamil et al., 2021). However, due to the availability of CSR or sustainability information issued by companies, previous studies are based on large companies. This is because large companies have more powerful stakeholders who pressure to provide more information than their financial reports. Therefore, large companies have a significant relationship between these practices and disclosure (Albers and Günther, 2010; Reverte, 2009). Furthermore, the country influences non-financial disclosures, and in the case of a developed country, should be a positive effect of CSR on non-financial reporting (Momin and Parker, 2013). Internal and external legitimacy could trigger non-financial reporting to respond to all pressures (Hillman and Wan, 2005; Hine and Preuss, 2009; Sridhar, 2012). Indeed, the positive relationship between CSR and sustainability and non-financial information is caused by the need to send a sign of credibility to the markets (Brammer and Pavelin, 2006). In this sense, legitimacy theory supports a relationship between the disclosure of sustainability information and positive capital market impact (Haro de Rosario et al., 2011; Monteiro and Aibar-Guzmán, 2010; Schiehll and Kolahgar, 2021). Another argument to justify the link between sustainability practices and their reporting is the positive effect on company reputation (Guidry and Patten, 2010; Momin and Parker, 2013).

However, sometimes there is a gap between sustainability practices and their reporting in SMEs due to these previously mentioned barriers. Economic resources are one of the needs to issue sustainability information because the lack of resources is a handicap to translating practices into reporting (Cantele and Zardini, 2020). This is the basis of other theoretical approaches that claim a positive cost-benefit assessment to issue a company's sustainability information and hence influences the case of SMEs.

According to this background, we propose the following hypotheses:

H₅. There is a positive and significant direct effect of sustainability on non-financial information.

H₇. There is a positive and significant direct effect of CSR on non-financial information.

At the same time, another stream of studies addresses the relationship between sustainability (non-financial) performance and financial performance, mainly understood as profitability and a firm's value (Gompers et al., 2003; Klapper and Love, 2004). Although this relationship has been widely analyzed in the literature, there is no agreement on its sign (Marín-Hernández and Ortiz-Martínez, 2019). Some authors

conclude on positive relationships (Hassan and Halbouni, 2013), others on negative relationships (Boyle et al., 1997; Laari et al., 2018), and even on the absence of relationships (Aupperle et al., 1985). There are many studies on these relationships that classify other previous work using meta-analyses, such as Orlitzky et al. (2016) or Wang et al. (2015) or that review research on sustainability accounting and performance (Adams and Larrinaga, 2019).

The positive influence of CSR and sustainability on performance understood as a firm's value is based on the "win-win proposition" (Levy et al., 2010, p. 90) and also on signaling theory because this information increases transparency and the firm value (Abdulrahman Anam et al., 2011). They claim positive feedback between non-financial practices and the company's value in the market, mainly referring to listed companies. As listed companies go to capital markets to get financial resources and are under the public eye, it is worth adopting sustainable practices. In their cost-benefit assessment, there is a reduction of the cost of capital (Leuz and Verrecchia, 2000) that is considerably supported by all the background when greater disclosure and transparency (Botosan, 2006).

Authors like Gay (2019) obtain a favorable trade-off between business and sustainable development. The same positive relationship is obtained by other studies, although focused on specific and different sectors, such as agriculture (Piedra-Muñoz et al., 2016) and mainly for large listed companies.

In this background are pointed out the problems with the measurement of sustainability that can take to different results about this relationship (Galant and Cadez, 2017; McWilliams and Siegel, 2000). There are specific indicators of sustainability that can positively contribute to profitability or firm value and others in the opposite sense (Al-Malkawi and Pillai, 2018; Platonova et al., 2018), and even neutral ones (as an example of positive, negative and neutral influences depending on the Environment, Social and Governance (ESG) score can be referenced (Han et al., 2016)). The problems with the measurement of sustainability and the disposal of data can be coped with in the case of listed companies because they comply with the requirements of the stock markets' regulatory bodies. Hence, disclosure and performance are positively associated, bearing in mind this essential factor in determining greater dissemination of sustainability information (Cooke, 1989; Fathi, 2013; Hossain et al., 1995; Robb et al., 2001; Singhvi and Desai, 1971).

Therefore, there is an important gap in the study of the relationship between CSR and sustainability on performance regarding non-listed companies and SMEs, mainly due to the lack of databases with sustainability information (Zamil et al., 2021). However, as previously mentioned, there is a close link between CSR and sustainability, and they influence a company's performance, which takes us to propose the following hypotheses:

H₆. There is a positive and significant direct effect of sustainability on performance.

H₈. There is a positive and significant direct effect of CSR on performance.

Finally, if sustainability and CSR practices are disclosed in non-financial reporting, they also affect company performance. Through sustainability reporting and disclosure, companies now use digital platforms (Prasanna et al., 2019) to seek legitimacy from stakeholders on the practices they adopt in the corporate organization. Also, SMEs explain to stakeholders how they contribute to the three traditional pillars of sustainability (environmental, social, and economic) according to the "Triple Bottom Line" (TBL) concept. From this point of view, business performance goes beyond the financial aspect because it also includes the social and environmental aspects (Fauzi et al., 2010). This expanded concept of performance is supported by the three P's of the TBL concept: profit, people, and the planet (Fauzi et al., 2010). Therefore, non-financial reporting satisfies stakeholder interests; thus, the TBL concept

contributes to performance (Colbert and Kurucz, 2007). Different studies have empirically demonstrated the significant positive association between non-financial/sustainability reporting and performance in developed markets such as the US (Lo and Sheu, 2007), Canada (Berthelot et al., 2012), and Australia (Bachoo et al., 2013). Also, in the case of Turkey, Kuzey and Uyar (2017, p. 35) find a positive relationship which "means the endorsement of sustainability issues payback". Based on these previous studies, we establish our ninth hypothesis:

H₉. There is a positive and significant direct effect of non-financial information on performance.

A priori, the relationships between the four main variables in our model, may not all have clear direct relationships. Nevertheless, bearing in mind that all the variables are interconnected, and there can be indirect or mediating effects, we establish our last hypotheses in this sense. The background about mediating effects is mainly based on the stakeholder influence capacity (stakeholders theory) (Fatma et al., 2014). Stakeholders are classified into internal and external ones. Internal stakeholders are employees, management, and others inside the company; external stakeholders are clients, suppliers, or society in general, those outside the company (Karaye et al., 2014). Further analysis can be done by focusing the research on some specific aspects of some stakeholders, for example, organizational trust (Yu and Choi, 2014). All these different stakeholders are included in our CSR and sustainability variables. At the same time, they are also related to non-financial reporting and performance and so there can be any mediation effect between each other. Based on the above arguments, the present study makes the following hypotheses:

**H₁₀.** Non-financial information mediates the relationship between sustainability and performance.

H₁₁. CSR mediates the relationship between sustainability and performance.

H₁₂. Non-financial information mediates the relationship between CSR and performance.

H₁₃. CSR mediates the relationship between sustainability and non-financial information.

H₁₄. CSR and non-financial information mediate the relationship between sustainability and performance.

The proposed theoretical model is presented in Fig. 1.
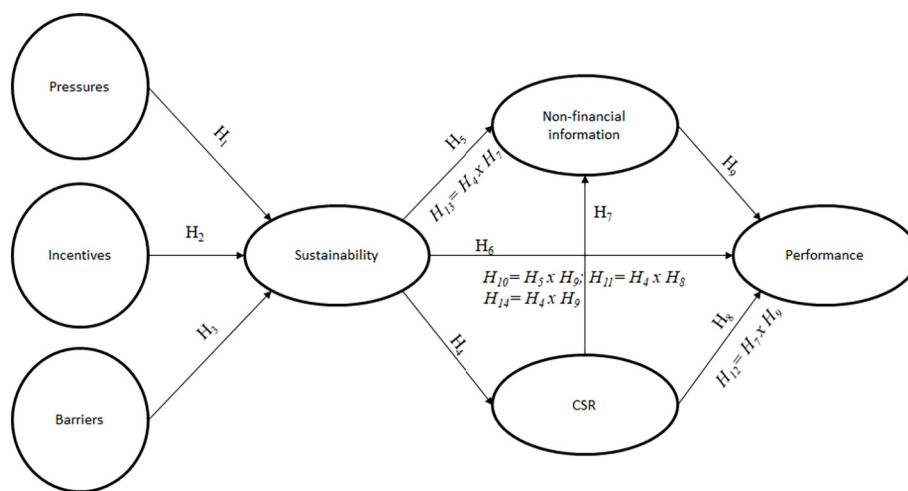
Therefore, all our hypotheses will be tested for the case of SMEs, as this paper aims to fill the gap in research on the relationships and mediating effects of sustainability, corporate social responsibility, non-financial reporting, and corporate performance, but specifically for SMEs. Suppose there is one factor that influences these relationships and effects. In that case, it is firm size, which is considered a corporate characteristic because despite being regulated and enforced to some extent, sustainability, in a broad sense, still depends on the decisions of firms (Adams, 2002). The gap is even more critical for SMEs because they are not obliged to publish sustainability reports in Europe. However, they suffer a more substantial indirect impact from the Non-Financial Reporting Directive (Zarzycka and Krasodomska, 2022). Therefore, our work checks these relationships and effects by adding knowledge in the SME field, a research objective that needs further development (Zarzycka and Krasodomska, 2022).

3. Methods

3.1. Sample and data collection

The data for this research were obtained through an e-mail survey of members of the Spanish Professional Accountancy Organization (PAO): General Council of Economists (CGE), which encompasses all economists in Spain (the questionnaire is included as Supplementary information). As the authors hold senior positions in the Spanish PAO, they have developed the questionnaire and participated in the data collection. In addition, the respondents occupy positions of particular relevance in the companies, such as managers and financial or administrative directors. Specifically, the overall population targeted by the survey were all economists who are members of the specialized body of the General Council of Economists EC-CGE, i.e., economist-accountants. This global population is close to 2000 professionals, with a presence throughout Spain.

Moreover, through the principles of simple random sampling, stratification of the population related to the company characteristics was carried out in order to establish the sample. This technique helps select samples smaller than the population and obtain a sample representing this target population (Parsons, 2017). Based on the information available on the structure of the population and the objectives pursued with the research, three strata related to companies were established, which are as follows:

• Size: micro enterprises (<9 workers), small enterprises (between 10 and 49 workers), medium enterprises (between 50 and 249 workers), and large enterprises (from 250 workers).

Fig. 1. Proposed model.
CSR: Corporate Social Responsibility.
Source: Authors.

- Sector: industry, construction, commerce, and services.
- Age: young (<10 years) and mature (10 years or more).

The submission of questionnaires was between April and May 2021. Before the survey was sent out, a pre-test was carried out to check its ease of understanding. To this end, the survey was sent to 10 trusted companies to receive feedback and correct any existing errors or ambiguities. After eliminating incomplete questionnaires, 126 valid responses were obtained. The distribution of the sample is presented in Table 1. Most of the SMEs in the sample are micro-enterprises (65.08 %). They operate mainly in the service sector (80.95 %) and are mature enterprises (81.75 % >10 years old). These detailed characteristics of the sample reflect the reality of companies in Spain and the European Union. Taking into account the latest official statistical data issued by the National Statistics Institute (INE) as of 1 January 2021 (https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736160707&menu=ultiDatos&idp=1254735576550), the majority of companies in Spain are micro-companies operating in the services sector, and almost half of them are mature. The same situation is observed at the European level (EU-27) when analyzing the data provided by Eurostat on 1 January 2019 (https://ec.europa.eu/eurostat/databrowser/view/SBS_SC_SCA_R2__custom_3067305/default/table?lang=en), where the percentage of micro-companies is even slightly higher than in Spain. Likewise, the presence of micro-companies in the services sector is also in the majority.

The survey was conducted anonymously, thereby reducing social acceptance bias (Fisher, 1993). As the fieldwork was carried out in a short period, it was not considered necessary to assess the possible existence of the nonresponse bias. However, common method bias may be a problem in this research as all data were obtained from a single source. For this reason, the variance inflation factors (VIF) were verified. The results presented in Table 4 reveal that all values are below 3.3. Thus, the common method variance is not relevant in this research (Joseph F. Hair et al., 2013). Finally, we have estimated the statistical power of the sample. For this purpose, a standard error of 0.05 and an effect size of 0.15 have been assumed (Cohen, 1988). Performing a post hoc analysis with the G*Power 3.1.9.2 software (Faul et al., 2007), the value obtained is 0.86. The results affirm that we can identify statistically significant relationships with this model and that those that are not statistically significant are not due to the sample size (Faul et al., 2007).

3.2. Variables

The proposed model comprises seven latent variables, all composed in reflective mode (The definition and composition of the variables used in the research can be found in the Supplementary information). A Likert scale of 1–5 was used to measure all variables. Pressure, barriers, and incentives were adapted from Cantele and Zardini (2020).

Table 1
Distribution of the sample.

	%
Size	
Micro companies (<9 employees)	65.08 %
Small companies (10–49 employees)	20.63 %
Medium companies (50–249 employees)	13.49 %
Big companies (>250 employees)	0.79 %
Sector	
Industry	14.29 %
Construction	2.38 %
Commerce	2.38 %
Services	80.95 %
Age	
Young <10 years	18.25 %
Mature >10 years	81.75 %

Source: Authors.

Pressures consisted of seven items to determine what pressures companies to increase their sustainability awareness. Five items measured incentives. We have determined what benefits companies expect from increasing their commitment to sustainability with these items. Barriers made up of ten items, although four have been discarded due to convergence and discriminant validity, seek to find out which aspects prevent or hinder companies from increasing their commitment to sustainability. Finally, sustainability has been created through 4 items based on previous literature (Ilyas et al., 2020) that measure the degree of commitment of company management teams to sustainability.

CSR has been divided into two, society and employees. Both variables have been adapted from previous literature (Caro and Salazar, 2019; Esparza Aguilar and Reyes Fong, 2019; Sinha et al., 2018) and have four and three items, respectively. Through these two constructs, we have tried to measure the degree of involvement of companies through CSR practices. In line with previous studies, such as García-Piqueres and García-Ramos (2020), Ikram et al. (2020), and Sinha et al. (2018), in our research, we have separated companies' actions to improve the environment in which they operate into two parts: commitment to stakeholders and environmental protection. We have measured companies' responses to their stakeholders in social matters through internal CSR (with their employees) and external CSR (with society). At the same time, companies' actions to protect the environment have been measured through the sustainability variable. Non-financial information comprises eleven items, covering aspects that companies must disclose according to Spanish legislation on non-financial information. Arvidsson (2011) and Hoffmann et al. (2018) have already used these items. Finally, a variable consisting of seven indicators has been used to measure the performance (financial and non-financial) of the companies analyzed. These items, adapted by the balanced scorecard (BSC) approach established by Kaplan and Norton (2005), have already been used by Ruiz-Palomo et al. (2019) and Úbeda-García et al. (2021). They have the advantage of using economic data, that by comparing companies with their competitors, they provide a better reflection of business success (Ruiz-Palomo et al., 2019).

Appendix shows the definition and composition of the variables used in the research.

3.3. Statistical procedure

Partial Least Squares Structural Equation Modelling (PLS-SEM) was selected to analyze the proposed model. According to Chin (1998b), PLS-SEM is recommended to explain and predict new phenomena and is an excellent technique to apply in a theory development such as this study (Castro and Roldán, 2013). Another feature that has led us to choose PLS-SEM is that it does not require a particular configuration in the indicators, and it operates well with small samples (Chin, 2010a). Moreover, according to Preacher and Hayes (2008), PLS-SEM is the most suitable approach to testing indirect and total effects. For these reasons, many current researches use this method, such as Aranda-Usón et al. (2019), García-Lopera et al. (2022), or Rucci et al. (2021).

Data were analyzed using SmartPLS 3.3.3 (Ringle et al., 2015). The proposed model was estimated in a double perspective, confirmatory, and predictive (Hair et al., 2020). The PLS-SEM model has been evaluated in four phases: measurement model, structural model, mediation analysis and predictive performance. In addition, we presented two importance-performance maps analysis.

Inspired by Ramírez-Orellana et al. (2021), Fig. 2 shows the overall research methodology flowchart.

4. Results and discussion

4.1. Measurement model evaluation

The lower order latent variables, being reflective, have been measured in terms of reliability and validity using the factor loadings,
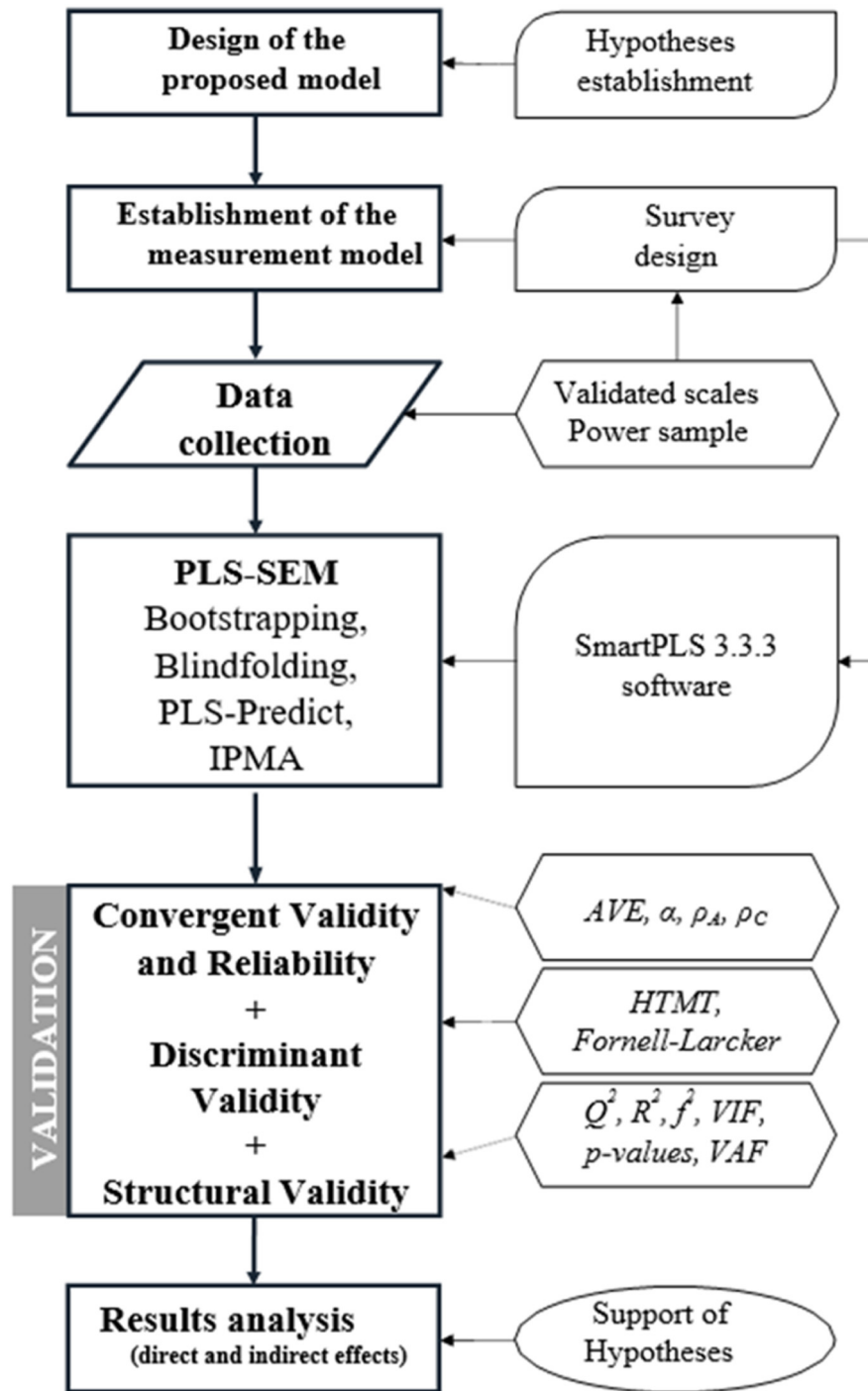
Fig. 2. Overall research methodology flowchart.
Source: Ramírez-Orellana et al. (2021).

Cronbach's Alpha, composite reliability (Chin, 2010a), the Dijkstra-Henseler rho ratio (Voorhees et al., 2016), and the average variance extracted (AVE). Finally, the formative, the higher-order construct CSR has been evaluated through the variance inflation factor to rule out collinearity problems and analyze the indicators' significance and relevance. The results are shown in Table 2. The non-parametric technique of 10,000 samples was used to evaluate the significance of these coefficients to obtain t-statistics and confidence intervals.

The results show that all the indicators that make up the reflective latent variables exceed the established minimum values of 0.7 (Hair et al., 2016), with the exception of 5-item loads. However, as these present load values are higher than 0.6, they can be accepted (Barclay et al.,

1995). The convergent validity has also been examined through the AVE. All the values exceed the threshold of 0.5 (Hair et al., 2016). Therefore, adequate reliability and convergent validity of the model have been demonstrated. The reliability of the formative higher-order construct has also been demonstrated by having significant weights or loadings and VIF values below 3 (Hair et al., 2016).

The discriminant validity has been assessed through the Fornell-Larcker criterion, the Heterotrait-monotrait (HTMT) criterion, and cross-loadings (not reported). The results are presented in Table 3. It can be seen how the correlations between each pair of constructs did not exceed the square root of the AVE of each construct, thus fulfilling the Fornell-Larcker criterion (Fornell and Larcker, 1981). Furthermore,

Table 2
Measurement model results.

Low-order constructs	Indicators	Mean	SD	Loading	t-Student[*]	Q^2	A	ρA	ρC	AVE
Pressure							0.848	0.899	0.877	0.507
	Pre_01	2.920	0.832	0.710	11.711					
	Pre_02	2.736	1.121	0.708	10.356					
	Pre_03	2.603	1.141	0.706	11.114					
	Pre_04	2.976	1.275	0.583	6.560					
	Pre_05	2.437	0.980	0.649	8.612					
	Pre_06	3.024	1.065	0.827	24.254					
	Pre_07	3.413	1.163	0.775	23.383					
Incentives							0.929	0.933	0.946	0.779
	Inc_01	3.349	1.150	0.858	33.727					
	Inc_02	3.532	1.166	0.930	63.122					
	Inc_03	3.984	1.113	0.846	23.488					
	Inc_04	3.168	1.139	0.869	31.294					
	Inc_05	3.603	1.120	0.906	42.070					
Barriers							0.774	0.825	0.842	0.517
	Bar_02	2.690	1.231	0.814	12.592					
	Bar_04	2.952	1.234	0.748	6.781					
	Bar_05	2.905	1.237	0.710	5.702					
	Bar_06	3.071	1.210	0.617	4.563					
	Bar_07	2.841	1.211	0.692	7.051					
Sustainability						0.343	0.868	0.881	0.909	0.715
	Sus_01	3.595	1.078	0.803	15.354	0.235				
	Sus_02	2.825	1.279	0.855	31.912	0.336				
	Sus_03	3.190	1.200	0.894	44.499	0.437				
	Sus_04	3.810	1.125	0.827	22.299	0.362				
CSR society						0.164	0.832	0.835	0.888	0.665
	Csrs_01	2.710	1.338	0.836	30.851	0.250				
	Csrs_02	2.218	1.145	0.787	17.123	0.151				
	Csrs_03	3.331	1.173	0.813	21.715	0.139				
	Csrs_04	3.250	1.264	0.825	19.039	0.117				
CSR employee						0.065	0.802	0.898	0.878	0.706
	Csre_01	3.721	1.078	0.850	10.700	0.027				
	Csre_02	3.459	1.222	0.898	12.226	0.119				
	Csre_03	4.033	1.126	0.768	5.705	0.050				
Non-financial information						0.152	0.979	0.981	0.981	0.824
	Non_01	1.317	1.829	0.895	30.421	0.131				
	Non_02	1.264	1.865	0.907	34.672	0.146				
	Non_03	1.447	1.857	0.884	23.469	0.089				
	Non_04	1.264	1.813	0.932	45.309	0.189				
	Non_05	1.089	1.643	0.924	43.501	0.201				
	Non_06	1.192	1.708	0.917	36.090	0.150				
	Non_07	1.176	1.700	0.933	38.488	0.128				
	Non_08	1.032	1.598	0.863	24.969	0.143				
	Non_09	1.168	1.712	0.857	21.547	0.163				
	Non_010	1.384	1.926	0.945	57.561	0.184				
	Non_011	1.152	1.786	0.925	42.707	0.142				
Performance						0.067	0.860	0.883	0.892	0.541
	Perf_01	3.825	0.735	0.700	9.705	0.062				
	Perf_02	3.579	0.858	0.790	14.848	0.063				
	Perf_03	4.016	0.713	0.779	13.604	0.078				
	Perf_04	4.008	0.877	0.631	6.590	0.025				
	Perf_05	3.357	0.801	0.699	8.836	0.036				
	Perf_06	3.143	0.861	0.764	12.671	0.067				
	Perf_07	3.341	0.856	0.773	12.043	0.138				

High-order constructs	Indicators	Weights	t-Student	VIF
CSR	CSR employee	0.166	0.567[*]	1.238
	CSR society	0.916[*]	0.989[*]	1.238

CSR: Corporate Social Responsibility; Significance and standard deviations (SD) performed by 10,000 repetitions Bootstrapping procedure; Q^2_B: cross-validated redundancies index performed by a 9-step distance-blindfolding procedure; A: average; α: Cronbach's alpha; ρ_A: Dijkstra–Henseler's composite reliability; ρ_C: Jöreskog's composite reliability; AVE: Average Variance Extracted; VIF: Variance inflation factors.
Source: Authors.
[*] All loadings are significant at a 0.001 level.

the results for the HTMT between every two constructs range from 0.150 to 0.676. Therefore, all values are below the maximum permissible value of 0.85 (Henseler et al., 2016). These results demonstrate the adequate validity of the model.

In addition, the blindfolding procedure (omission distance of 10) integrated into Smart PLS has been used to calculate the cross-validated redundancies Stone–Geisser Q^2 index. All results are over 0, which confirms the model's predictive relevance (Tenenhaus et al., 2005). Finally,

the model presents a Standardized Root Mean Square (SRMR) of 0.08, which means that it has an acceptable overall fit (Hu and Bentler, 1998).

4.2. Structural model assessment

The first thing to evaluate the structural model is to rule out multicollinearity problems. Table 4 and Fig. 3 show the results, which reveal that constructs VIF vary from 1.00 to 1.27, suggesting that collinearity is

Table 3
Discriminant validity.

		1	2	3	4	5	6	7	8
1	Pressures	**0.712**	*0.676*	*0.199*	*0.660*	*0.398*	*0.150*	*0.497*	*0.277*
2	Incentives	0.614	**0.882**	*0.328*	*0.565*	*0.434*	*0.210*	*0.389*	*0.181*
3	Barriers	−0.167	−0.291	**0.719**	*0.388*	*0.341*	*0.259*	*0.202*	*0.148*
4	Sustainability	0.662	0.514	−0.348	**0.846**	*0.581*	*0.386*	*0.391*	*0.337*
5	CSR society	0.375	0.383	−0.272	0.508	**0.815**	*0.531*	*0.425*	*0.396*
6	CSR employees	0.096	0.181	−0.206	0.331	0.442	**0.841**	*0.180*	*0.240*
7	Non-financial info	0.435	0.369	−0.174	0.375	0.387	0.156	**0.908**	*0.154*
8	Performance	0.227	0.161	−0.045	0.317	0.354	0.202	0.112	0.736

Fornell–Larcker criterion: square root of average variance extracted in diagonal (bold), Heterotrait-monotrait ratio over the diagonal (italics) and construct correlations below the diagonal. CSR: Corporate Social Responsibility.
Source: Authors.

not a problem in this research (Kock, 2015). Then, the structural model analysis continues, as Hair et al. (2019) established, with the analysis of the sign, magnitude, and statistical significance of the path coefficients. For this purpose, bootstrapping has been carried out with 10,000 samples (Streukens and Leroi-Werelds, 2016). Finally, the predictive power of the structural model is analyzed through the R2, and the effect size through the f2.

According to the results included in Table 4:

- Pressures positively and significantly influence sustainability (β = 0.560***), supporting H1. As obtained by Kuppig et al. (2016), it occurs with practices with lower implementation costs and shorter payoffs, as can be the adoption of social and environmental policies used by competitors or of environmental and social issues that affect the purchasing decisions of customers. Referred explicitly to SMEs, Vatamanescu et al. (2016) find that positive pressures related to sustainability are the customers' loyalty or other environmental issues. They also use structural equation modelling as a methodology.
- However, although incentives positively influence sustainability, this influence is not significant (β = 0.106ns), rejecting H2. The lack of significance may be due to other moderating effects of

personal attitudes and behavior (Condly, 2010; Huber and Hirsch, 2017). Another point of discussion about incentives for SMEs might be to be included in the value chain of a large company. It is mainly thought that large companies push SMEs to adopt sustainability because they are compulsorily required to report these practices, as the trickle-down effect is claimed (Lang and Martin, 2017). But, as analyzed by Bressanelli et al. (2019), using a multiple case study in the household appliance supply chain, it is not necessarily a great degree of vertical integration in the supply chain to implement circular economy practices.

- Barriers have a negative and significant impact on sustainability (β = 0.106***), supporting H3. This negative relationship is mainly based on the lack of all resources: time, human resources, and financial resources, among others, hence the economic barriers and others that have to do with the organization (Trianni et al., 2017) according to the composition of this variable (as provided in the Supplementary information). The significant impact found shows that counting on the resources to implement sustainability is essential and checked by some studies, such as the one by Langwell and Heaton (2016), who utilized semi-structured interviews in SMEs to study a specific resource, such as human resources, to implement

Table 4
Structural model and mediating assessment.

	Path	T-value	f^2	95CI		H	Supported
Direct effects					VIF		
Pressures → Sustainability	0.560	6.871***	0.393	[0.430; 0.627]	1.605	H1	Yes
Incentives → Sustainability	0.106	1.160	0.013	[−0.046; 0.252]	1.705	H2	No
Barriers → Sustainability	−0.223	3.551***	0.091	[−0.340; −0.139]	1.093	H3	Yes
Sustainability → CSR	0.526	8.537***	0.382	[0.425; 0.627]	1.000	H4	Yes
Sustainability → Non-financial info	0.243	2.608**	0.053	[0.085; 0.392]	1.382	H5	Yes
Sustainability → Performance	0.203	1.503	0.033	[−0.036; 0.410]	1.455	H6	No
CSR → Non-financial info	0.256	2913**	0.058	[0.110; 0.402]	1382	H7	Yes
CSR → Performance	0.271	2.128*	0.059	[0.070; 0.491]	1.463	H8	Yes
Non-financial info → Performance	−0.068	0.688	0.004	[−0.239; 0.085]	1.234	H9	No
Indirect effects					VAF		
Individual indirect effects							
Sustainability → Non-financial info → Performance	−0.017	0.643		[−0.061; 0.023]	−5.31 %	H10	No
Sustainability → CSR → Performance	0.143	1.996*		[0.037; 0.272]	44.69 %	H11	Yes
CSR → Non-financial info → Performance	−0.017	0.609		[−0.073; 0.020]	−6.69 %	H12	No
Sustainability → CSR → Non-financial info	0.134	2.683**		[0.057; 0.222]	35.54 %	H13	Yes
Sustainability → CSR → Non-financial info → Performance	−0.009	0.604		[−0.038; 0.011]	−2.81 %	H14	No
Global indirect effects							
CSR → Performance	−0.017	0.609		[−0.073; 0.020]	−6.69 %		
Sustainability → Non-financial info	0.134	2.683**		[0.057; 0.222]	35.54 %		
Sustainability → Performance	0.117	1.957*		[0.002; 0.260]	36.56 %		
Total effect							
CSR → Performance	0.254	1.962*					
Sustainability → Non-financial info	0.377	4.934***					
Sustainability → Performance	0.320	3.193**					

R^2 adjusted [99 % CI in brackets]: Sustainability: 0.503 [0.439; 0.626]; CSR: 0.227 [0.183; 0.394]; Non-financial information: 0.189 [0.104; 0.308]; Performance: 0.153 [0.098; 0. 304]. Blindfolding Q^2 index as shown in Table 4; Standardized path values reported. SD: Standard Deviation; f^2: size effect index; 95CI: 95 % Bias Corrected Confidence Interval; VIF: Inner model Variance Inflation Factors; VAF: Variance Accounted Formula × 100 represents the proportion mediated. Significance, standard deviations, 95 % bias-corrected CIs were performed by 10,000 repetitions Bootstrapping procedure; *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$. Only total effects that differ from direct effects are shown. CSR: Corporate Social Responsibility.
Source: Authors.
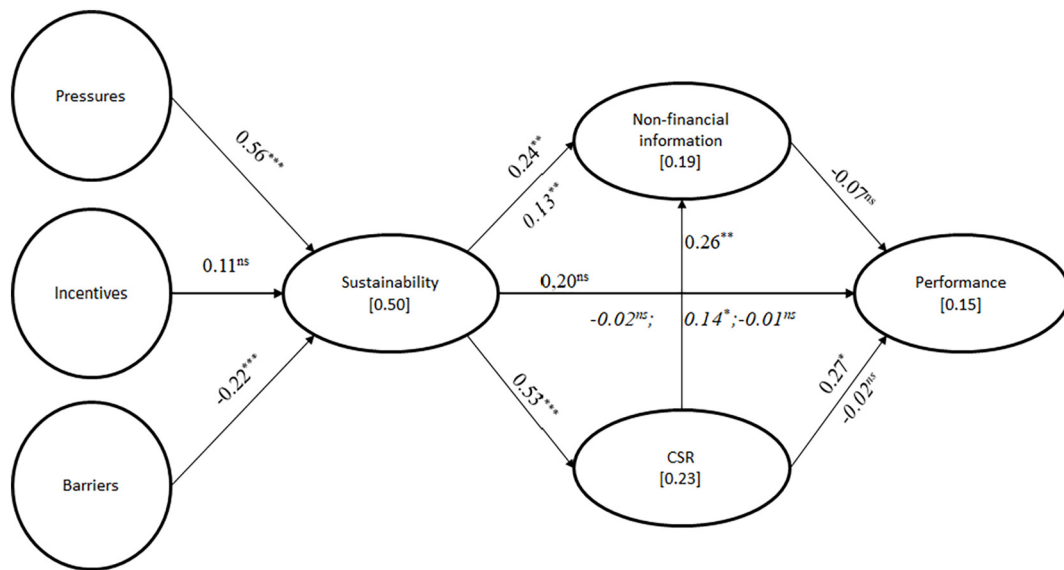
Fig. 3. Results.
*: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.001$; ns: non-significant. Indirect effects in italics.
CSR: Corporate Social Responsibility.
Source: Authors.

sustainability. For SMEs, which forms the majority of all businesses in developing and developed economies, it means a fundamental problem to count with the resources to be sustainable, even more problematic in the manufacturing sector as assessed by Prabawani (2013).

- The results also suggest that the direct effect of sustainability on CSR and non-financial information is positive and significant ($\beta = 0.526^{***}$ and $\beta = 0.243^{***}$, respectively), supporting H4 and H5. These results align with sustainability as an umbrella term that includes concepts such as CSR and ESG reporting (Erkens et al., 2015; Tarquinio and Posadas, 2020). The correlation with the disclosure of these practices in non-financial information is also tested in previous studies such as Hillman and Wan (2005); Hine and Preuss (2009), or Sridhar (2012) that support legitimacy theory. The validity of the legitimacy theory for SMEs is checked by Crossley et al. (2021), conducting semi-structured interviews with a sample of owners and managers of SMEs in the UK of different sizes and industries. They conclude that SMEs also want to improve their reputation and image within the market.

- However, the direct effect of sustainability on performance is not significant ($\beta = 0.203^{ns}$). Hence H6 is not supported. This lack of significant relationships is consistent with the no consensus in the literature on the association between sustainability, and firm performance (Orlitzky et al., 2016; Wang et al., 2015), caused mainly by the problems of measuring a concept such as sustainability (Galant and Cadez, 2017; McWilliams and Siegel, 2000). On the opposite side, there are pieces of evidence that check a relationship between sustainable internal environmental strategies and SMEs' performance, as with Khoja et al. (2022). However, the sample is not comparable to our Spanish SMEs because they are based on a survey completed by 49 SMEs in the Houston, Texas metropolitan area.

- H7 and H8 are supported since CSR positively and significantly affects non-financial information and performance ($\beta = 0.256^{***}$ and $\beta = 0.271^{***}$, respectively). As expected, according to legitimacy theory and institutional theory this leads to a positive effect of these practices on non-financial reporting and performance (Garcia-Castro et al., 2011; Momin and Parker, 2013; Ruf et al., 2001). The relationship between CSR and performance is also investigated by surveying in Portugal but specifically focused on employees and employee performance. There are intrinsic and extrinsic CSR and performance in

specific aspects of both variables (Story and Neves, 2015). In this same stream of research and using a survey of Chinese managers, Choi and Yu (2014) based their study on CSR practices on employees and concluded their positive impact on performance. Moreover, another study that surveys to technology companies located in Spanish Science and Technology parks shows that a CSR-oriented strategy significantly contributes to the company's performance (Bernal-Conesa et al., 2017). Another sector in Spain that has been proved this significant influence is the hotel industry and the survey as a methodology (Úbeda-García et al., 2021).

- Finally, H9 is not supported since the effect of non-financial information on performance is neither direct nor significant ($\beta = -0.068^{ns}$). Therefore, the ultimate relationship between disclosure of sustainability and CSR practices and performance has not been tested. Although it is argued that non-financial reporting satisfies stakeholder interests and thus contributes to performance (Colbert and Kurucz, 2007), in the case of SMEs, this link is not supported because they are close to their stakeholder and lack resources to disclose (Cantele and Zardini, 2020; Cassells and Lewis, 2011; Hsu and Cheng, 2012). However, some studies, such as Vatamanescu et al. (2016), obtain a relationship with performance as an innovate and quality approach to sustainability.

The predictive power of the structural model has been assessed through the R2 values of the endogenous variables. R2 indicates that the variance of an endogenous construct can be explained by its predictor variables in the model. The results are 0.503 for sustainability, 0.277 for CSR, 0.189 for non-financial information and 0.153 for performance. Considering that the values for R2 have to be >0.1 (Creixans-Tenas et al., 2019), the results show that the model has a good explanatory power, particularly for performance (Chin, 2010b).

Finally, we have analyzed the effect sizes (f^2). f^2 shows an independent construct's capacity to predict R2 in a dependent construct (Faraz et al., 2021). f^2 is calculated with the following formula established by Chin (1998a):

$$f^2 = \frac{R^2 \text{ included} - R^2 \text{ excluded}}{1 - R^2 \text{ included}}$$

According to Cohen (1988), values of 0.02, 0.15, and 0.35 indicate a weak, medium, or large effect, respectively. The results in Table 4 show that pressures significantly affect sustainability, and the latter has a large effect on CSR. Consequently, although SMEs are integrated into the world of sustainability voluntarily, independently of other indirect effects mentioned above, such as trickle-down, their sustainability behavior is conditioned by different pressures and incentives, as shown in different previous studies focusing on specific areas of sustainability (Cerin and Karlson, 2002; Grundey and Zaharia, 2008; Testa et al., 2016).

4.3. Mediation effect analysis

Indirect effects have been analyzed through a bootstrapping procedure (10,000 sub-samples). In addition, the variances accounted for (VAF) have been calculated. VAF determines the size of the indirect effect concerning the total effect (Hair et al., 2014). According to Hair (Hair et al., 2019), values should be between 20 % and 80 %.

The results show that CSR mediates the relationship between sustainability and performance ($\beta = 0.143^*$, VAF = 44.69 %). Since the direct effect is not significant, a complete mediation is suggested, supporting H11. The results also reveal that CSR mediates the relationship between sustainability and non-financial info ($\beta = 0.134^{***}$, VAF = 35.54 %). Since both direct and indirect effects are significant, and the proportion mediated is not prominent, a partial mediation is suggested, supporting H13. Thus, a mediating role of CSR is also evidenced in other studies (Afzali and Kim, 2021; Worokinasih and Zaini, 2020). Conversely, non-financial information does not mediate either the relationship between sustainability and performance or the relationship between CSR and performance, as the indirect effects are not significant ($\beta = -0.017^{ns}$ and $\beta = 0.609^{ns}$, respectively), rejecting H10 and H12. Likewise, CSR and non-financial information do not sequentially mediate the relationship between sustainability and performance since the indirect effects are not significant ($\beta = -0.009^{ns}$), rejecting H14. These results have to do with the discussed lack of resources of SMEs to disclose non-financial information considering that they are close to their stakeholders (Cantele and Zardini, 2020; Cassells and Lewis, 2011; Hsu and Cheng, 2012).

4.4. Evaluation of the predictive performance

PLS-SEM has also been used to assess the model's ability to predict future observations. Predictive validity shows that a set of measures of a particular variable can be used to predict the outcome of a future variable (Straub and Gefen, 2004). In order to assess the predictive capability of the model, the PLS-SEM predict algorithm with SmartPLS (Shmueli et al., 2019) has been applied through cross-validation with holdout samples (Evermann and Tate, 2016).

In order to test the predictive capability, we have run k-fold cross-validation, setting k = 7 subgroups, to achieve the minimum sample size of $N = 30$ for the holdout sample (Hair et al., 2020), including ten repetitions of the procedure. With this configuration, PLS-SEM predictive has been run (Calvo-Mora et al., 2020).

The findings reveal that all the Q2 values are above 0, confirming that the model offers adequate predictive performance (Felipe et al., 2017). In addition, when comparing the results of root mean squared error (RMSE) and mean absolute error (MAE) obtained with PLS-SEM and with a linear regression model (LM), the conclusion reached is similar.

In most cases, PLS-SEM results have a lower prognostication error and greater Q2. Therefore, the model has the power to predict values for further observations of sustainability, CSR, non-financial information, and performance through data other than those included in the model (Dolce et al., 2017). Hence, having tested the model's predictive validity, additional support for the model proposed in this research has been obtained (Felipe et al., 2017).
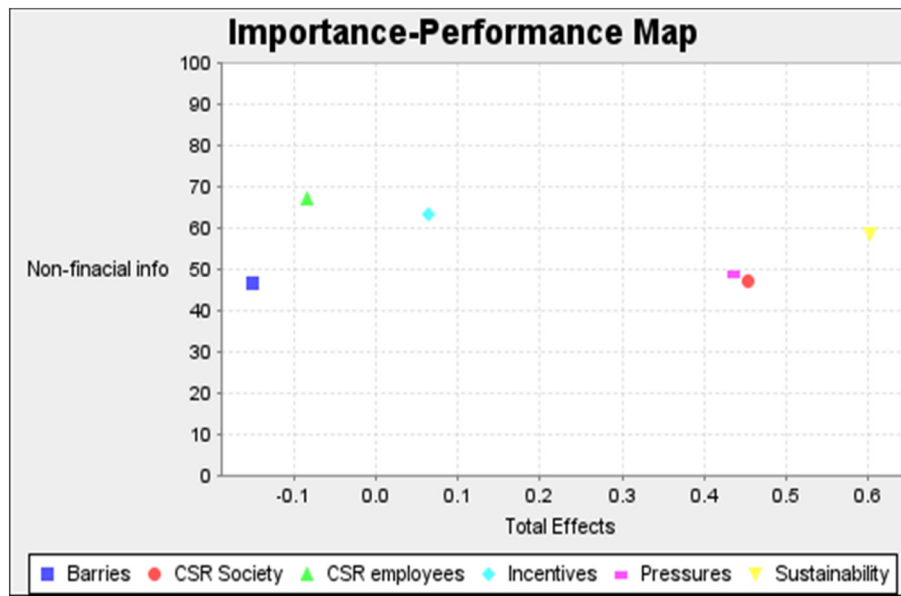
4.5. Importance-performance map analysis

The importance-performance map analysis (IPMA) helps to understand the performance of an exogenous construct in explaining an endogenous construct (Ringle and Sarstedt, 2016). This technique contrasts the total effects with the average values of the latent variables scores. In addition, the IPMA provides insight into the development of the target variables. The use of IPMA makes it possible to identify those particularly relevant variables in determining the target variable, suggesting which areas to focus on or which to improve.

IPMA can be used to discover which exogenous variables might improve an endogenous target variable. At the same time, IPMA also helps to know which variables are not relevant. Using SmartPLS, we have obtained the IPMA for non-financial information and performance. As seen in Figs. 4 and 5, both the non-financial information reported and the performance of companies can be enhanced through sustainability. These results confirm the vital role of sustainability practices in SMEs as a basis for positive feedback on non-financial reporting and performance (Colbert and Kurucz, 2007).

Hence, in line with previous studies (Reporting Lab, 2021; Tomaževič et al., 2017), the findings reveal that the more pressure companies receive from their stakeholders, the more their sustainability-oriented strategy increases. It also confirms previous studies (Cantele and Zardini, 2020; Cassells and Lewis, 2011; Hsu and Cheng, 2012) that indicate that barriers have a negative influence on companies' sustainability by making it more difficult for companies to implement a more sustainable strategy, mainly due to a lack of resources.

Moreover, it is essential to highlight that the positive influence of sustainability on CSR and non-financial disclosure has been demonstrated. Similarly, the positive influence of CSR on non-financial disclosure has also been checked, and the mediating effect of CSR on the relationship between sustainability and non-financial disclosure has been proved. All these results are in line with previous studies (Arshad et al., 2012; Masud et al., 2019; Ortiz-Martínez and Marín-Hernández, 2021). Sustainability and CSR practices by companies have to be disclosed to satisfy the public needs of information. Although it is necessary to cope with all the barriers that make the cost-benefit function negative, society and stakeholders' requirements push SMEs to report. According to the results of the last global sustainability survey by McKinsey and Company (2021), respondents show an optimistic point of view. Twenty-two percent of the respondents say that sustainability implies a significant or moderate costs increase. On the other hand, about one-third say sustainability in the company has minimal or no financial impact. Furthermore, nearly fourty percent expect sustainability creates modest or significant value in the next five years. Even there are industries where this positive expectation is more an assertion because they have to do with climate change. Although a sample of large companies may cause a bias. On the contrary, the results show that sustainability positively influences business performance, but only indirectly. By positively influencing CSR, it becomes an influential factor in performance, confirming previous studies (Garcia-Castro et al., 2011; Piedra-Muñoz et al., 2016; Ruf et al., 2001). Through the implementation of CSR practices, companies increase their reputation and stakeholders' trust, thus gaining substantial competitive advantages over their competitors (Santos-Jaén et al., 2021). CSR has a mediating role between sustainability and performance found in other studies (Afzali and Kim, 2021; Worokinasih and Zaini, 2020). However, this research has not corroborated the positive effect of non-financial disclosure on company performance, as argued by other authors, since SMEs lack of resources to disclose non-financial information considering that they are close to their stakeholders (Cantele and Zardini, 2020; Cassells and Lewis, 2011; Hsu and Cheng, 2012).

Fig. 4. Importance-performance map non-financial information graph.
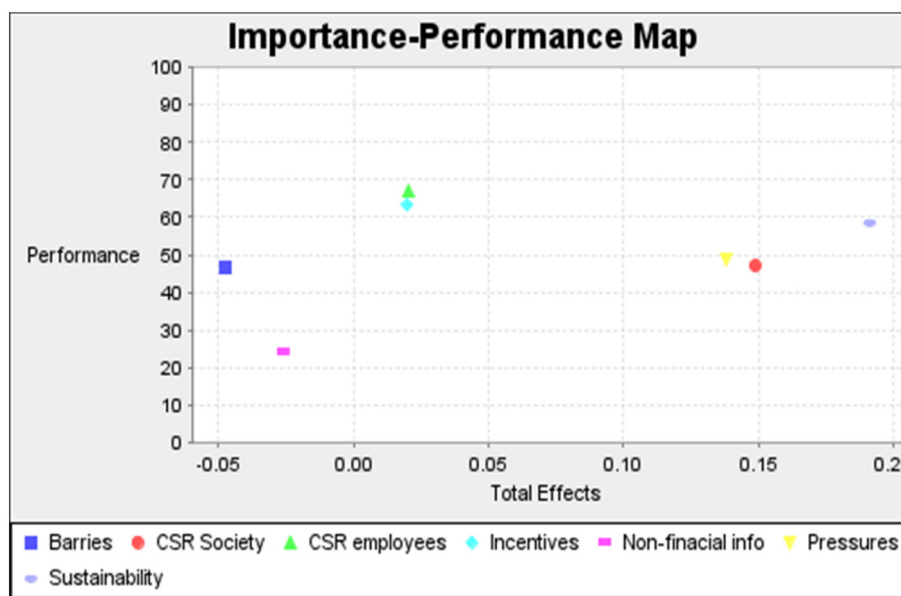CSR: Corporate Social Responsibility.
Source: Authors.

5. Conclusions

A key finding of this research is its essential contribution to theory, as it analyzes the effects on sustainability and, subsequently, the effect of sustainability on financial performance with a focus on Spanish SMEs. Another significant contribution is the analysis of the mediating effect of CSR and non-financial disclosure on the relationship between sustainability and performance. Although several studies on sustainability and sustainability reporting can serve as a theoretical basis for this work, there needs to be more extensive literature on sustainability reporting by SMEs because studies specifically addressing SMEs are limited (Khoja et al., 2022). Some previous studies, based on surveys and interviews, focus on specific aspects of these relationships, certain stakeholders' views,

sectors, countries, and areas. However, all of them share results coincident with the ones obtained in this study (Choi and Yu, 2014; Crossley et al., 2021; Khoja et al., 2022; Langwell and Heaton, 2016; Prabawani, 2013; Story and Neves, 2015; Úbeda-García et al., 2021).

This research's practical or managerial implications are that managers should increase CSR and sustainability practices and reporting to improve corporate performance. These practices can be an opportunity to assess management in all aspects of ESG and to use sustainability as an internal management tool. The management's positive influence on corporate performance is also checked by Choi and Yu (2014), but about one specific aspect of sustainability (human resources).

An essential phase of sustainability reporting is the materiality analysis, which involves taking stakeholders into account (EFAA for

Fig. 5. Importance-performance map graph.
CSR: Corporate Social Responsibility.
Source: Authors.

SMEs et al., 2021; Reporting Lab, 2021). Therefore, involving stakeholders is another step in translating sustainability into relevant solutions. It is also essential to assess all risks and impacts associated with the company's activity on social aspects and the environment and, from the opposite side, how the environmental and social aspects can influence the company (Reporting Lab, 2021). The influence of stakeholders, such as customers, is a determinant factor in sustainability, also explicitly in the case of SMEs (Vatamanescu et al., 2016).

Not only business but also academic/theoretical implications can be drawn from this study by pointing to the importance of the skills and knowledge of the key sustainability manager and practitioner. Managers and practitioners play a vital role in advising on sustainability, and in doing so, they need to be able to provide these sustainability services, which implies prior training. In this respect, academics and researchers must contribute to developing knowledge and training (EFAA for SMEs, 2021). Also, as theoretical implications drawn from the results obtained, the positive influence of sustainability on CSR and non-financial reporting exists in the case of SMEs. Therefore, regardless of the specific characteristics derived from the size of the company and the possible lack of resources, the results for SMEs are in line with those of large companies obtained by other previous studies (Arshad et al., 2012; Masud et al., 2019). Counting on the resources to be sustainable is even more problematic, depending on the SME sector (Prabawani, 2013). On the contrary, smaller firm size leads to an indirect influence of sustainability on business performance, as our results are inconsistent with previous research on large firms. The same is true for the positive effect of non-financial disclosure on company performance, although the evidence for large companies is also inconclusive.

In terms of public policies and policy implications, the results show that it is necessary and interesting to implement policies that encourage the implementation of CSR practices and the establishment of a sustainability-oriented strategy by companies. Sustainability is not only for the private sector, but the public sector has to lead by example. Moreover, it should also be noted that mandatory or non-mandatory reporting does not mean improved non-financial reporting and practices (Korca and Costa, 2020). Furthermore, it has to be borne in mind that whether or not mandatory reporting does not mean enhancing non-financial reporting (Korca and Costa, 2020).

In a momentum of great changes in sustainability regulation, the results of this study will trigger future developments in how policymakers think about sustainability regulations. There is feedback between reporting regulations and management practices, as the former will induce changes in the latter, but at the same time, company practices will influence policy actions (Zarzycka and Krasodomska, 2022). Therefore, policymakers must consider these results that come directly from the managers of enterprises, specifically, in this case, SMEs. Our results are derived from real data and are therefore helpful for policymakers to make decisions to avoid the risk of analyzing practices carried out solely to comply with external pressures, such as regulation, and not to be a sustainable business (Venturelli et al., 2021). Another relevant policy implication of this paper comes from a trickle-down effect on SMEs (Ottenstein et al., 2022). This effect implies that, although SMEs are not directly bound by sustainable regulation, they suffer indirectly from spill-over effects because large companies in the scope are demanding this information from SMEs in their value chain (Ottenstein et al., 2022). Hence, policymakers should be aware of these indirect consequences when developing new regulations and analyzing the results obtained from SMEs. Furthermore, finally, policymakers are challenged to address the fundamental issue of comparability of sustainability reporting, which has yet to be achieved (Venturelli et al., 2020). It is, therefore, essential to consider the factors influencing sustainability disclosure to make it an effective tool to stimulate real organizational change (Bebbington et al., 2012). The main recommendations to key stakeholders, such as SME managers and policymakers, obtained from the key findings are to promote CSR practices and engage in

sustainability as much as possible. From a long-term point of view, the assessment will be positive and not only due to direct and indirect effects. This optimistic view of CSR and sustainability is supported by the opinion of the company's managers (McKinsey and Company, 2021). So, the future strategy in the private and public sectors must be oriented towards sustainability and creating a better society.

This study is not without its limitations, which may lead to future lines of research. The sample consists only of Spanish SMEs, so the results may not be extrapolated to other countries or regions, as sustainability and CSR practices depend mainly on the extent on intrinsic aspects of each country, such as culture and legislation. For this reason, in future research, extending the sample to other countries or regions would be of interest, including more variables in the analysis. However, it is essential to highlight that the results obtained for Spain can be helpful in other comparable places where the structure of the productive framework and CSR policies and practices are similar. Another step to improve this work in further research is to extend the questionnaire to better measure some variables. A balance has to be struck between the needs of the researchers and the length of the questionnaires not to discourage respondents.

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Ethical approval

Not applicable.

Data availability

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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