

The value chain of undertakings under the European Sustainability Reporting Standards (ESRS): analysis of Listed Iberian SMEs

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Abstract

The institutional sustainability reporting background and prior research show that the problem to be addressed before the preparation of European Sustainability Reporting Standards for Small and Medium Sized Enterprises (LSME ESRS) by the EFRAG is the lack of knowledge about the value chain approach that the LSME should follow to address the proportionality need for SME while preserving the feasibility for large companies to provide a relevant information when reporting on their value chain. According to the EFRAG, a proportionate definition of LSME composing the value chain of the large reporting entities is needed before preparing a draft of specific standards. Therefore, this research intends to answer to the following questions: (1) which is the profile of LSME composing the value chain of undertakings and (2) which is the relationship between such profile and the current level of voluntary sustainability disclosures and other specific SME's characteristics. Therefore, the main objectives of this paper are (a) to analyse the level of voluntary sustainability disclosure of Iberian LSMEs by means of a content analysis, a voluntary disclosure index based on CSRD and ESRS disclosure requirements and architecture, and the qualitative characteristic of relevance (proxied by materiality) (Cross-cutting ESRS 2); (b) to identify its business relationship and value creation profile following the Holweg and Helo (2014) proposal of framework for defining a value chain architecture at the firm level; (c) and finally, to figure out which are the LSME's characteristics and the value chain profile determining the levels of voluntary sustainability disclosure.

The originality of this study relies on the fact that it explores for the first time the value chain and value creation profile of LSMEs and its relationship with the voluntary sustainability disclosures. Consequently, the findings could contribute to a deeper understanding of a proportionate definition of SMEs in the value chain of large undertaking to which the forthcoming ESRS will apply. Specifically, we expect to contribute to one of the four-steps SME test should be carried out: the preliminary assessment of businesses likely to be affected by the ESRS for being within the value chain of the undertakings. (European Commission, SME Test, 2021).

Keywords: *word:* Sustainability reporting; CSRD; ESRS; SMEs; Value chain; Value creation; Relevance; Materiality.

1. Introduction

Regarding the levels and the scope of sustainability reporting, there is a general agreement that sustainability reporting goes beyond the level of operations under control of the reporting entity itself, which is the traditional boundary defined in the case of financial reporting (EFRAG, PTF-NFRS Report, February 2021). As a matter of fact, with the proposed Corporate Sustainability Reporting Directive (CSRD), which intends to mandatory from 2023 to apply to the 2024 annual reports, the adverse impacts connected with the value chain should also be covered by the sustainability report given that major impacts of the activities carried out by a reporting entity may occur either in the value chain or through products and services. This is the indirect impact of the forthcoming European Sustainability Reporting Standards (ESRS) on the Small and Medium Sized Enterprises (SME) composing the value chain of large entities obliged to apply them. A transition period has been set for the indirect impact, during which flexibility would be granted to SMEs for the provision of information on value chains. Specifically, for the first three years of application of the CSRD, *“in the event that not all the necessary information about the business relationships and the supply chain is available, the undertaking shall include the information in its possession and a statement indicating that the business relationships and the undertakings in its value chain did not make the necessary information available.”* (EU Council, 2022). The disclosure requirements (DR) of the undertaking’s sustainability reporting related to the key features of its value chain are set out by the cross-cutting ESRS 2. Specifically, the principle to be followed under this DR is to provide an understanding of the value chain in which the undertaking operates, from the initial inputs into a product or service, in the upstream supply chain, to its downstream delivery to end users, including ultimate disposal, recycling or reuse for physical products. The disclosure shall include the following information: a description of the key stages and types of entities in the upstream and downstream value chain and of the types of entities involved; a description of the key resources the undertaking leverages in relation to the activities it carries out; and the characteristics of the undertaking’s relationship with end-users of products and services delivered by the value chain. The description of the value chain shall be granular enough to allow an understanding of where the material sustainability impacts, risks and opportunities, are located in the value chain in which the undertaking operates, as determined by the undertaking, in its materiality assessment process. (EFRAG, April 2022-ESRS2).

The importance of focusing on the key value chain of an undertaking is also highlighted in the ESRS 2. This standard defines relevance under the double materiality approach, impact materiality and financial materiality, related to the sustainability report. From an impact perspective, a sustainability matter is material if it is connected to actual or potential significant impacts by the undertaking on people or the environment over the short, medium- or long-term. This includes impacts directly caused or contributed to by the undertaking in its own operations, products or services and impacts which are otherwise directly linked to the undertaking’s upstream and downstream value chain, and not limited to contractual relationships (Cross-cutting ESRS 1, 49). Therefore, the undertakings are required to provide disclosure about overview of the methodologies (process) used to identify impacts on the environment and people connected with their own activities and value chain (other business relationships). Following the ESRS public consultation, held on 5th October 2022, the EFRAG Sustainability Reporting Board highlighted the importance of focusing on key value chain to evaluate the quality of the materiality assessment process.

In addition to such indirect impact, the sustainability reporting regulation will have a direct impact on SMEs by means of a specific and proportionate version of the ESRS which is being prepared by the European Financial Reporting Advisory Group (EFRAG) to be applied by European Listed SME (LSME) in the value chain of the reporting entity (actualizar con last meetings). In this scenario, the first challenge for the standard-setter (the EFRAG) when drafting the standards for LSME is to set definitions of value chain and SME based on the proportionality principle. The proportionate LSME ESRS will set a reference for undertakings (banks, insurance companies and large corporate clients) regarding the level of sustainability information that could reasonably be requested to SME suppliers and SME clients in their value chains (Corporate Sustainability Reporting Directive. The Future Landscape of Sustainability Reporting). On 27th January 2023, the EFRAG Listed SME (LSME) Community Workshop discussed the issue of the value chain approach that the LSME should follow to address the proportionality (art. 29c, CSRD) need while preserving the feasibility for large companies to provide a relevant information when reporting on their value chain. The approach was the following: (a) Simplified approach to the value chain focused on more information for direct suppliers and less information for others; (b) Reporting based on the materiality assessment results or outcome, that is to say, reporting on value chain for most relevant sustainability matters resulting from the materiality assessment process detailed in ESRS 2; (c) Focusing on value chain 'information cap', to provide data for large undertakings.

Therefore, both, materiality assessment process and materiality assessment outcome seem to play a pivotal role in the definition of the value chain of the undertaking. Nevertheless, prior research evidences that the low quality of reporting in some organisations is partly due to their limited knowledge about materiality, which is a concept regarded as a management opinion rather than a mechanical (Guix et al., 2019). Indeed, concerns about the subjectivity of materiality analysis are fuelled by findings that companies disclose only a small amount of information related to their materiality analysis and that disclosure of approaches to identify stakeholders and materially topics is limited (Edgley, 2014; Beske et al., 2019). Following Adams, et al. (2021), poor disclosure of the process of identifying stakeholders and engaging with them to identify material topics will continue while these disclosures are not mandatory and not externally assured.

Given this institutional background and once only limited systematic research is available on the challenges faced by SMEs in the sustainability transition (EC, 2022), the problem to be addressed before the preparation of LSME ESRS by the EFRAG is the lack of knowledge about the value chain approach that the LSME should follow to address the proportionality need for SME while preserving the feasibility for large companies to provide a relevant information when reporting on their value chain. According to the EFRAG, a proportionate definition of LSME composing the value chain of the large reporting entities is needed before preparing a draft of specific standards. Therefore, this research intends to answer to the following questions: (1) ¿which is the profile of LSME composing the value chain of undertakings and other specific SME's characteristics? (2) ¿what is the relationship between such profile and the current level of voluntary sustainability disclosures and other specific SME's characteristics?

To address these research questions, the main objectives of this paper are (a) to analyse the level of voluntary sustainability disclosure of Iberian LSMEs by means of a content analysis, a voluntary disclosure index based on CSRD and ESRS disclosure requirements and architecture, and the qualitative characteristic of relevance (proxied by materiality) (Cross-cutting ESRS 2); (b) to identify its business relationship and value creation profile following the Holweg and Helo (2014) proposal of framework for defining a value chain architecture at the firm level and other authors 'contributions related to value chain (Guangming and Weerawardena (2023), Cawsey and Rowley (2016), Habibi et al., (2015), Iankova et al. (2019), Koponen and Rytsy, (2020), Skare, M. et al. (2023), Edepe and Wang

(2022); Eduarsen et al., (2022), Dabić, M. et al. (2020), Hsieh, et al., (2012),...); (c) and finally, to figure out which are the LSME's characteristics and the value chain profile determining the levels of voluntary sustainability disclosure.

The originality of this study relies on the fact that it explores for the first time the value chain and value creation profile of LSMEs and its relationship to the voluntary sustainability disclosures. Consequently, the findings could contribute to a deeper understanding of and a proportionate definition of SMEs in the value chain of large undertaking to which the forthcoming ESRS will apply. Specifically, we expect to contribute to one of the four-steps SME test should be carried out: the preliminary assessment of businesses likely to be affected by the ESRS for being within the value chain of the undertakings. (European Commission, SME Test, 2021).

In relation with the structure of the research, the second section shows the hypothesis development based on a review of the literature and the institutional background regarding (a) the forthcoming sustainability reporting requirements for LSMEs and the double materiality perspective on the qualitative characteristic of relevance to justify the design of a measure of the level of voluntary sustainability disclosures in LSMEs, and (b) the indirect and direct impact of ESRS on the LSMEs and the need to apply the proportionality principle and a value chain definition for the preparation of specific LSMEs ESRS. The third section deals with the methodology, focusing on sample selection, variable design and measurement, as well as data collection and processing methodology. In the sections we present the research findings and the main contributions, together with the limitations of the study and proposals for future research.

2. Literature and development of hypotheses

2.1. The forthcoming sustainability reporting requirements for SMEs.

This section provides further information on CSRD and ESRS disclosure requirements and architecture. The disclosure and communication of sustainability or non – financial information related to environmental, social and governance factors have become a key determinant of business success in recent decades changing the business landscape, especially in large companies (Martins, et al., 2022). Especially, since the sustainability reporting has shifted, in Europe, from being a voluntary activity based on non-regulatory standards like GRI to a regulated activity for certain companies since the approval of the Non-Financial Reporting Directive in February 2013. The transposition into Spanish law of such Directive 2014/95/EU was achieved through the approval of the Law 11/2018 on Non-financial information and diversity. Nevertheless, although an increasingly number of companies are required to disclose information about sustainability, especially large firms, there are still many enterprises that have so far not published sustainability information, mainly SMEs. In addition, the different studies that have been carried out by researchers have provided inconsistent results regarding the relationship between the level of environmental disclosures and corporate environmental performance. (Clarkson et al., 2008).

In this scenario, the future landscape of sustainability reporting is being determined by collaborative efforts between European and international institutions, whose approaches to the concept of materiality as the determining principle of the qualitative characteristic of relevance in sustainability reporting are different. Specifically, at the international level, the IFRS Foundation primarily focuses on financial materiality, which is concerned with information's relevance to financial decision-making by the investors. On the other hand, the European level, the European Commission and EFRAG have adopted the double materiality perspective, focusing on both, financial materiality and impact materiality.

With reference to the EU Sustainable Finance package of measures, on 21 April 2021, the European Commission adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD), modified by 2022/2464 Directive, to improve the existing requirements of the NFRD 2013/34 and moving towards an inclusive economic and financial system, in accordance with the European Green Deal and the SDG.

The companies in scope would be all large companies with more than 250 employees and/or 40 million € of turnover and/or 20 million € of total assets and listed companies. These companies would report information of sustainability metrics and assurance over report in financial year 2024, for reports published in 2025. Listed SMEs get an extra 3 years to comply, being required to report as from 2026, with the option to opt out voluntarily until 2028, and will be able to report under a separate appropriate standard which is being developed by EFRAG in this moment¹. The SME standards will set a reference for undertakings (banks, insurance companies and large corporate clients) regarding the level of sustainability information that they could reasonably request from SME suppliers and clients in their value chains. The information should be reported in the management report, which is generally included in the annual report, and mandatory assurance by a third party would be required. There would be exemption for subsidiaries to publish sustainability reporting in their management report, if the sustainability reporting in the parent's consolidated management report complies with EU sustainability reporting standards.

To specify requirements of reporting obligations under CSRD, the European Financial Reporting Advisory Group (EFRAG), published a first draft of the ESRS in November 2022. These standards would help achieve harmonisation of sustainability reporting, while considering EU Taxonomy Regulation, Sustainable Finance Disclosure Regulation (SFDR) and existing international frameworks: Task Force on Climate-Related Financial Disclosures (TCFD), Sustainability Accounting Standards Board (SASB) and Global Reporting Initiative (GRI).

In relation with the architecture of the ESRS, this is based on a 3x3 structure: three reporting areas (sector-agnostic, sector-specific and entity-specific), three disclosure layers (strategy, governance and materiality assessment; implementation measures covering policies, targets, actions and actions plans, and allocation of resources; specific set of performance metrics for all materials topics), and three topics (ESG: environmental, social and governance). The sector-agnostic standards are composed of two cross-cutting standards (ESRS 1 General requirements and ESRS 2 General disclosures) and eleven topical standards (Environment - ESRS E1 Climate change, ESRS E2 Pollution, ESRS E3 Water and marine resources, ESRS E4 Biodiversity and ecosystems, ESRS E5 Resource use & circular economy- ; Social - ESRS S Own workforce, ESRS S2 Workers in the value chain, ESRS S3 Affected communities, ESRS S4 Consumers and end users-; Governance - ESRS G1 Business conduct-). Listed SMEs are required to report as from 2026, with the option to opt out voluntarily until 2028, and will be able to report under a separate appropriate standard which is being developed by EFRAG in this moment. In this study, we will design an index as a measure of the level of voluntary sustainability disclosures in LSMEs, whose indicators will be based on both, topical standards and the cross-cutting standards.

¹ Non-EU companies with substantial activity in the EU (with a turnover over €150m in the EU) that have at least one subsidiary (large or listed) or branch (net turnover of more than €40m) in the EU will also have to comply (EY, 2022, p. 5).

Focusing on the forthcoming sustainability reporting requirements for LSMEs, there are two key components of the overall framework of ESRS which should be highlighted. These are materiality approach, as part of the fundamental characteristic of relevance², and value chain approach. The following sections focus on these two components.

2.2. The double materiality perspective on the qualitative characteristic of relevance: A measure of the level of voluntary sustainability disclosures in LSMEs.

This section provides further information on the qualitative characteristic of relevance, proxied by the concept of materiality as defined in cross-cutting ESRS 2.

Materiality approach is necessary for undertakings to distinguish between material and not material Impacts, Risks and Opportunities (IRO). An undertaking may define the importance of ESG issues to its organisation, operations, and performance by performing a materiality assessment (Garst et al., 2022).

While information about material IROs need to be disclosed, including policies, actions, and targets related; only a brief explanation is necessary when disclosing about not material IROs. Where companies are unable to provide information on policies, actions and, targets because they have not adopted them, they should disclose this, and indicate the timeframe within which they expect to adopt them. Apart from this, there is mandatory information to be disclosed by undertakings regardless the outcome of their double materiality assessment³.

As for large companies, the CSRD establishes that the undertakings must include in their management reports the necessary information to comprehend the undertaking's impacts on sustainability matters, and to understand how sustainability matters affect the evolution, results, and the situation of the undertakings. "That is referred to as double materiality perspective in which the risks to the undertaking and the impacts of the undertaking each represent one materiality perspective." (EC, 2022, p. 24)

Therefore, the impact materiality is the entity's impact (I) on the economy, the environment, and people for the benefit of investors, employees, customers, suppliers and local communities (multiple stakeholders). A sustainability matter is material from an impact perspective if it is connected to significant impacts by the undertaking on people or the environment over the short-, medium- or long-term. This includes impacts directly caused or contributed to by the undertaking in its own operations, products or services and impacts which are otherwise directly linked to the undertaking's upstream and downstream value chain, and not limited to contractual relationships (cross-cutting ESRS 1, 49). As a result of the impact materiality of sustainability reporting, the financial materiality is identified as the impact of sustainability topics on the company's value for the benefit of investors (stakeholders) risks and opportunities (RO). There is a sequencing and a need to assess the interconnectivity between these 2 perspectives (GRI, 2021): The impact materiality of the company activities related to sustainability

² EFRAG (2022a) specifies the different qualitative characteristics of information when preparing the sustainability statements. These are the following: a) fundamental qualitative characteristics of information, like relevance and faithful representation; and b) enhancing qualitative characteristics of information, such as comparability, verifiability, and understandability.

³ These are the following: - ESRS 2 – General Disclosures. - EU Legislation datapoints (SFDR, EU Benchmarks, Pillar III, EU Climate Law...). - E1 – Climate change. - S1 – Own workforce DRs 1 to 9 for undertakings with at least 250 employees.

matters on environment and people (I) affects the financial materiality of such matters, in other words, it produces risk and opportunities (RO) for company performance.

Given the importance of both, topical ESRS and double materiality perspective of the qualitative characteristic of relevance in sustainability reporting (cross-cutting standards), we construct and original hand-collected index applying content analysis in accordance with Gerwnaski et.al (2021) which is a score of the voluntary sustainability disclosure (VSDI) in SMEs under CSRD and ESRS requirements, architecture and conceptual framework (specifically, the double materiality perspective of the qualitative characteristic of relevance). Therefore, it is composed of both topical indicators and materiality assessment indicators.

In addition to materiality, another key issue related to sustainability reporting is the value chain approach; in this sense, EFRAG (2022a) defines the concept value chain as it follows: Value chain is the full range of activities, resources and relationships related to the undertaking's business model(s) and the external environment in which it operates.

With the proposed CSRD, which intends to mandatory from 2023 to be applicable in 2024 large companies' annual reports, the adverse impacts connected with the value chain (indirect impact) should also be covered by the sustainability report since major impacts of the activities carried out by a reporting entity may occur in the value chain or through products and services (EFRAG. PTF-NFRS Report, February 2021). Indeed, a specific and proportionate version of the forthcoming ESRS is about to be prepared by the EFRAG to be applied, 3 years later than the ESRS, by European listed SMEs in the value chain of the reporting entity (direct impact). The first step for the standard-setter to prepare the draft standards for SMEs is a definition of value chain and SME based on the proportionality principle. Nevertheless, only limited systematic research is available on the challenges faced by SMEs in the sustainability transition. (*European Commission, annual report on European SMEs 2021/2022*). Therefore, the following sections focuses on this indirect impact of ESRS on the SMEs and the need for its value chain definition.

2.3. The impact of ESRS on the SMEs: the proportionality principle and the need of the value chain definition

The direct impact of ESRS on SME's and the proportionality principle.

Regarding the direct impact of ESRS on SMEs, the proportionality principle is a key aspect for the preparation of specific standards for small and medium entities. According to the proportionality principle, ESRS Standards "shall be proportionate and relevant to the scale and complexity of the activities, and to the capacities and characteristics of small and medium – sized undertakings." (EFRAG, 2022c, p. 3). SMEs that are not listed in an EU regulated market also have the chance of choosing to apply these proportionate standards on a voluntary basis (EC, 2022, p. 21). In this regard, it is important to know the definition of proportionality employed by EFRAG (2022d) which is stated as follows: "Proportionality is defined by what is available or accessible for the organisation at an affordable, reasonable, and feasible cost. Proportionality is also defined with respect to the effect each undertaking may have on sustainability related matters." (p. 9) "Sector-specific and SME-proportionate standards are still being developed and will be submitted for a separate public consultation as soon as possible" (EY, 2022). **Actualizar esto último** The application of the ESRS Standards is intended to affect around 1,100 SMEs of about 9,000 listed companies in EU (or about 4,000 domestic listed enterprises). (EFRAG, 2022d) The first set of Standards is expected to be adopted by the European Commission by June 2023. (EY, 2022) "An estimated of more than 50,000 companies in the EU will be required to publish sustainability information under ESRS." (EY, 2022, p. 1).

The indirect impact of ESRS on SME's and the need of a value chain definition.

The indirect impact of the forthcoming ESRS on the SMEs can be easily identify in the [Draft] ESRS 2 when the Disclosure Requirements related to the key features of the undertakings' value chain are defined by the EFRAG (EFRAG [Draft] ERSR 2). Specifically, the required description shall provide a high-level overview of the key features of the value chain participants indicating their relative contribution to the undertaking's performance and positions and explain how they contribute to the value creation of the undertaking. The undertaking shall describe the key characteristics of its business relationships with its suppliers, customers and distribution channels. The description of the value chain should be directly linked to the undertaking's material impacts, risks and opportunities. Focusing on the terms involved in these disclosure requirements, Business relationships are those relationships an undertaking has with business partners, entities in its value chain and any other non-State or State entity directly linked to its business operations, products or services. They include indirect business relationships in its value chain, beyond the first tier, and minority as well as majority shareholding positions in joint ventures or investments. The term Value chain is defined by the EFRAG as "the full range of activities or processes needed to create a product or service. This includes entities with which the undertaking has a direct or indirect business relationship, both upstream and downstream of its own activities, which either (a) supply products or services that contribute to the organisation's own products or services, or (b) receive products or services from the organisation" (EFRAG [Draft] ERSR 2).

SMEs are significant contributors to economic expansion despite the numerous challenges they face. (Epede and Wang, 2022). Given the fact that the indirect impact of sustainability reporting standards on the SMEs is the first challenge that these companies must face, we will try to provide the undertakings' value chain traceability by means of a content analysis methodology focused on the financial and non-financial reports and the webpages of this enterprises. Nevertheless, SME are typically sharing less information and are less active in conducting multi-tier supply chain management (Winter et al., 2023). These authors analyse the transformation of information sharing and multi-tier supply chain management (MSCM) from the perspective of small and medium-sized enterprises (SMEs) in the context of manufacturing SMEs in Austria and Germany Industry, and they find that mainly, SMEs aim to serve customer requests and to be able to fulfil their own production plan because SMEs do not consider so beneficial to conduct supply chain management (Arend and Wisner, 2005). Regarding the variables measuring the SMEs' value chain profile, and focusing on the type of customer, Guangming and Weerawardena (2023), enhance the B2B and B2C firms' different unique characteristics. They state that, compared with B2C, B2B firms usually have more complex products, fewer but larger customers, lasting business relationships, and high-value exchange, among other things (Cawsey and Rowley, 2016; Habibi et al., 2015). As such, B2B firms often have already developed close relationships with existing customers and understand customers' needs (Iankova et al., 2019; Koponen and Rytsy, 2020). Skare, M. et al. (2023) consider not only B2B and B2C companies but also B2G (business-to-government) when they quantifie the relationships between innovation activity and the outcomes of business-to-consumer (B2C), business-to-business (B2B), and business-to-government (B2G) e-commerce by companies and the economic development of EU member countries. They consider three variables for B2C, and other three variables for B2C-B2G depending on the size company (small, medium, or large). It is confirmed that a higher rate of innovation is associated with a higher rate of e-commerce, which, in turn, is associated with a higher rate of economic development in countries.

With reference to the internationalization process of SME's, Edepe and Wang (2022) highlight the importance of defining and ensuring the execution of their international expansion strategy, while

innovating and deciding the type of Global Value Chains (GVCs) they want to integrate given the fact that many factors seem to point to the fact that the integration of SMEs into GVCs, under some specific conditions, is for the benefit of those firms. The authors identify, among other opportunities, learning opportunities for SMEs from GVC linkages. Other positive outcomes for SMEs linked with the internationalization are improved performance and survival prospects (Eduarsen et al., 2022). The idea that only large multinational firms could participate in GVCs, while SMEs are bound to limit themselves to domestic operations, is quickly fading away because of decline in transport costs and other barriers over the past decades and technological advances in manufacturing, transportation and communications that have reconfigured global trade by enabling the fragmentation of production processes across borders, thereby facilitating the participation of SMEs in GVCs (Edepe and Wang, 2022; Dabić, M., 2020). Nevertheless, SMEs face several challenges and size-related barriers in their pursuit of international growth. An example is the lack of foreign market knowledge and experience, which can restrict their ability to recognize and exploit opportunities in foreign markets. Eduarsen et al., (2022) emphasize the significance of choosing alternative means for finding the resources they need for internationalization, such as institutional support or the affiliation with business group networks.

Dabić, M. et al. (2020) focused on previous literature about the pathways of SME internationalization and they find that there is a heterogeneous nature of SME and entrepreneurship within countries, which helps explain outcomes at firm level (e.g., financial and export performance) and country level (e.g., economic growth), as well as antecedents at the country level (e.g., certain aspects of cultural differences). Hsieh, et al., (2012) find that entrepreneurs' characteristics (international business experience, perception of foreign market opportunities, orientation towards differentiation and commitment to innovation strategies) influence different dimensions of SME internationalization speed.

Holweg and Helo (2014) propose a five-point framework for defining a value chain architecture at the firm level—which merges the financial “value chain” view with the operational “supply chain” considerations. The five fundamental decisions that define the value chain architecture are: (1) the nature of value provision (driven by the core competence of the firm), (2) the operational footprint decisions for manufacturing, sourcing and distribution, (3) the approach to risk management, (4) the order fulfillment strategy (and implicit in that, the type of product customization), and (5) the buffering strategy. Nevertheless, they conclude that the value chain architectural decisions change over time. They adapt to external or contextual changes in light with the evolving business strategy. The systematic and strategic processes behind value chain decisions need to combine both value creation and operational points of view, and it can only be described through a combination of qualitative and quantitative metrics.

Just as the previous authors contend in relation to their research, we posit that, in addition to the variables displayed in Table 1, we could have been consider a wide range of other variables in this study based on previous research. For example, Hsieh et al., (2019) consider that Innovation is a critical component of SME international business models. Entrepreneurs' commitment to innovation and the type of innovation pursued reflect their value-creation logics and therefore has important implications for the design of business models which could lead to rapid internationalization of their firm. It could be used a variable representing the Commitment with innovation (Yes/No) as a measure of the SMEs' propensity for rapid future internationalization. Nevertheless, in this first study we focus on a more direct measure of SME international business model, while in future research, we will assess the suitability of incorporating this variable to delve deeper into the definition of the value chain of SMEs. Another possible variable for using in future research could be the “Ecological Supply Chain Management (Ecological Supplier: YES/NO). Ecological supply chain management has also been adopted through green procurement (e.g., selecting suppliers that provide ecological materials and

services), ecodesign (e.g., designing products while ensuring the environmental consequences of the entire product life cycle are known prior to production and distribution), reverse logistics (i.e., moving products from the point of consumption back to company manufacturing sites for recycling, reuse, repair, or remanufacturing), and environmental collaboration with suppliers (e.g., through formal/informal collaborative activities aimed at improving or addressing environmental issues). Malesios, et al. (2021). Another variable could be the Utilization of information technology and information systems, which is paramount to achieve effective supply chain management and environmental sustainability (Camargo and Chiappetta, 2017). Nevertheless, we are aware of the difficulty of obtaining information about the value chain. FRAG (2022a) estimates that there are circumstances where the undertaking cannot gather information about the undertaking's upstream and downstream value chain. In these circumstances, the undertaking shall estimate the information to be reported by using all the reliable and justifiable information available to it, including sector – average data and other proxy sources. It is worth noting the effort that SMEs and other value chain entities that are not under the scope of the CSRD have to make on obtaining value chain information (EFRAG, 2022b). Despite these difficulties, given the importance of the value chain definition and the proportionality principle for the fair and useful preparation of the specific sustainability reporting standards, we design variables related to value chain profile of SMEs in the sample and to SMEs' characteristics. Section three focuses on the indicators and variables used in the study.

2.4. Hypotheses development completar

2.4.1. The level of voluntary sustainability disclosure of Iberian LSMEs

With reference to previous research on SME's environmental and social commitment, we have found that due to intense competition and lack of support from regulatory authorities and customers, SMEs often prioritize economic aspects and place less emphasis on environmental and social initiatives. This can lead to a significant negative impact on the overall sustainability performance of the specific industrial supply chain and, in turn, the entire region. Malesios et al. (2021) find that the research conducted on this issue reveals that the association between economic practices and environmental/social performance is currently underexplored. Furthermore, most of the research emphasizes the correlation between environmental and social practices with economic and environmental performance in small and medium-sized enterprises (SMEs). However, the aspect of social performance is largely missing (Warasthe et al., 2022; Camargo, P. and Chiappetta, 2017), which signifies a significant gap compared to larger companies. As shown in section three, our index is composed of three indicators measuring the level of environmental social and governance disclosures and one indicator of the materiality assessment process.

Hypothesis 1. The level of voluntary sustainability disclosures ([taking the total index](#)) of Iberian LSMEs is associated with a) its business relationship and value creation profile, b) the general nature disclosure requirements (DR) and c) the LSME's characteristics and accounting profile.

Se puede aplicar un cluster para ver, de manera general, qué variables en el ANOVA determinan la formación de grupos.

2.4.2. LSMEs' business relationships and value creation profile and (1) topical disclosures (environmental, social and governance) and (2) voluntary materiality assessment (process and outcome) disclosures.

Value provision involves the key decision of what the company want to focus on in terms of value creation, which its core competence is, that is to say, what it makes in-house versus what is outsources.

Hypothesis 2.1. LSMEs' voluntary topical (environmental, social and governance) and materiality assessment (a. process, b. outcome) disclosures are positively associated with a) supply chain internationalization, b) supplier type, c) supplier risk diversification, d) supplier size.

Hypothesis 2.2. LSMEs' voluntary topical (environmental, social and governance) and materiality assessment (a. process, b. outcome) disclosures are positively associated with a) customer internationalization, b) customer type, c) customer risk diversification, d) customer size.

2.4.3. LSMEs' General nature disclosure requirements and (1) topical disclosures (environmental, social and governance) and (2) voluntary materiality assessment and outcome.

Hypothesis 3. LSMEs' voluntary topical (environmental, social and governance) and materiality assessment (a. process, b. outcome) disclosures are positively associated with a) presentation option for the sustainability information (documental support), b) sector of activity/industry, c) environmental impact.

2.4.4. LSMEs' characteristics and accounting profile and (1) topical disclosures (environmental, social and governance) and (2) voluntary materiality assessment and outcome.

Hypothesis 4. LSMEs' voluntary topical (environmental, social and governance) and materiality assessment (a. process, b. outcome) disclosures are positively associated with a) Membership in a business group, b) the adoption of IFRS, and c) auditing by one of the Big 4.

Hypothesis 5. LSMEs' voluntary topical (environmental, social and governance) and materiality assessment (a. process, b. outcome) disclosures are positively associated with a) Size, b) the presence of female gender within the management team and employees, and c) the ROE and EBITDA.

Table 1. Hypothesis formulation

VARIABLES		SME_Topical Indicator	SME_MAss Indicator	SME_VS D Index
Value Chain Profile	Suppliers profile	H _{2,1}		H ₁
	Customers profile	H _{2,2}		
General Nature DR		H ₃		
SMEs Accounting profile		H ₄		
SMEs Characteristics		H ₅		

3. Methodology

3.1. Sampling, variables and data collection

As regards to sampling, companies were selected from the SABI database, according to size, based on the SME definition set by the EC Recommendation No 2003/361/EC together with the sustainability reporting requirements for SMEs in CSRD, once we evaluate how Iberian listed SMEs will be dealing with the voluntary sustainability reporting requirements given their value chain profile. According to the European Commission, to be classified as an SME an entity should have less than 250 employees, its annual turnover should not exceed EUR 50 million, and/or its annual balance sheet total does not exceed EUR 43 million. This same definition has been considered when referring to the CSRD. Despite CSRD requirements would apply to SMEs which are listed on EU regulated markets but not to SMEs listed on SME growth markets, we initially include both in the sample because it could be that a SME listed on a growth market of even a non-listed SME would report sustainability information on a voluntary basis, in response to a request for information disclosure received from other companies with whom it does business, such as a bank, an insurance company or a large corporate client. Therefore, the sample will be composed of Iberian LSME, that is Spanish and Portuguese entities within the SME category, following the Recommendation 2003/361/EC, and listed on both EU regulated markets and SME growth markets.

In this sense, we also need to highlight the importance of the direct and indirect effects that ESRS will have on Spanish and Portuguese listed SMEs. The headcount criterion is unquestionably one of the most important and must be enforced as the primary criterion, but in order to comprehend the true significance of a company, its performance, and its competitive position, a financial criterion must be introduced as a complementary criterion. Despite turnover is normally higher in commercial and distribution enterprises than, for instance, in the manufacturing sector, using it as the only financial criterion is not appropriate. So, this criterion should be linked with the balance sheet criterion which measures all the company's assets. Therefore, one of the two criteria can be exceeded (EC, 2003). At the same time, we need to focus on the importance that the proportionality principle and the undertakings' value chains have on this definition of SME. In this setting, it should be ensured that the information provided by businesses in accordance with sustainability reporting standards meets the needs of users and do not place a disproportionate burden in terms of effort and costs on the reporting undertakings and those who are indirectly impacted as part of the reporting undertakings' value chains (EC, 2022).

Attending to the Spanish companies in the sample, only Spanish listed companies that met the aforementioned requirements to be considered SMEs were selected. Moreover, only firms listed in specific stock exchanges from the SABI database were considered⁴. A list of 128 Spanish firms was initially obtained. Next, a manual review was conducted to ensure that data provided from the companies originally found in the database met the requirements listed above. Finally, the search resulted in a list of 90 Spanish listed SMEs which is available in the Appendix 1. A list of the enterprises excluded as not qualifying as SMEs can be found in the Appendix 2. According with the selected Spanish sample, most companies are located in the Spanish regions of Cataluña and Madrid and they are mainly dedicated to the IT sector and consulting services. Most of the firms take part of a group as a matrix; therefore, they present consolidated accounts. They are listed in SME growth markets like BME Growth, and their accounts have been prepared in accordance with the Spanish Accounting Regulation. Most of their headcount are made up of men and the average number of employees is

⁴ Barcelona Stock Exchange [XBAR]. - Madrid Stock Exchange [XMAD]. - Valencia Stock Exchange [XVAL]. - Bilbao Stock Exchange [XBIL]. - Euronext Access Paris [XMLI]. - Euronext Growth Paris [ALXP] - Euronext Paris [XPAR]. - Euronext Lisbon [XLIS]. - London Stock Exchange [XLON]. - Luxembourg Stock Exchange [XLUX]. - Mercado Alternativo Bursátil [MABX]. [Preguntar a Alberto por qué estas](#)

around. Most of the undertakings report general information in terms of governance, nonetheless less information in relation with the environment and society has been disclosed in their corporative website and the Notes. In addition, their value chains are formed by multiple international suppliers and national customers, in general. A major part of their shareholders as well as their lenders and creditors are national. (Comprobar esto y completar con otras variables definitorias de la muestra.)

Regarding the Portuguese companies in the sample, Redactar lo mismo para las portuguesas

Concerning the variables and methodology, based on the institutional sustainability reporting background and prior research, we design a set of variables to measure the level of disclosure on the voluntary sustainability information and on the value chain and other business relationships. We apply an accurate several-steps content analysis to the audit report, annual accounts, and the website of the selected sample. After identifying the existing clusters of SMEs according to the level of voluntary sustainability disclosure and disclosure of its value chain information we will provide evidence on the determinants of the identified clusters of SMEs based on the level of voluntary sustainability information disclosed. For these purposes, we construct an original hand-collected index, applying content analysis in accordance with Gerwnaski et.al (2021). The index is a score of the voluntary sustainability disclosure (VSDI) in SMEs under CSRD and ESRS disclosure requirements and architecture, and on the qualitative characteristic of relevance (materiality) (Cross-cutting ESRS 2). To an accurate variable design, the proposed index is initially composed of two indicators. The first indicator deals with the level of the voluntary sustainability disclosure about the topical issues and, therefore, it is composed of this three: (a) environmental factors; (b) social factors; and (c) governance factors. The first item, environmental factors (VEDI), includes information about climate change adaptation, water and marine resources, resource use and the circular economy, pollution, biodiversity, and ecosystems. The second item, Social factors (VSDI), includes information about equal opportunities for all, working conditions, respect for human rights, fundamental freedoms, democratic principles and standards. The third item, Governance factors (VGDI) includes information about the role of the enterprise's administrative, management of the enterprise, the management and quality of its relationships with business partners, and the enterprise's internal control and risk management systems. Following the ESRS architecture and based on the importance given to the materiality concept in the cross-cutting ESRS standards, the second indicator was added, a cross-cutting nature measuring the materiality assessment process. This second indicator, the materiality assessment indicator (SME_MASSI) is composed of two items related to the materiality assessment process and the materiality assessment outcome. We score the index through a content analysis. The index and its indicators let us determine different levels of sustainability disclosures in SMEs using the cluster analysis methodology. From that analysis we obtain the dependent variable(s) of the subsequent analysis, the regression analysis to find the determinants (explanatory variables) of the level of voluntary sustainability information disclosed by the Iberian LSME. To measure the business relationship and value creation profile, we analyse the level of disclosure on the value chain and other business relationship. Specifically, we use a set of variables to measure what each company wants to focus on in terms of value creation following the Holweg and Helo (2014) framework for defining the value chain architecture at the firm level. We use two types of variables: (a) related to suppliers and (b) related to customers. We exclude the variables related to other stakeholders and business relationships because suppliers and customers explain the strategy in value chain and the EFRAG has considered them as the main....(buscar). Finally, we consider, as control variables in the model, the LSMEs' characteristics and some general disclosure requirements (DR) of the sustainability reporting, like the presentation option for the sustainability statement and the sector of activity (Draft ESRS 2, 2022). Once we obtain different clusters of Iberian LSME regarding the level of VSD, we will obtain the dependent variable from this analysis. We will analyse the relationship between the level of VSD and

the value chain and other business relationships profile (explanatory variables) based on prior research Holweg and Helo (2014), and the level of VSD and the general nature disclosure requirements ESRS 2 (explanatory variables) and other SME's characteristics (control variables) by means of a regression. In total, the index can achieve a value between 0 and 14. The value of the indicator related to topical factors will be between 0 and 6 and the value of the indicator related to the materiality assessment will be between 0 and 8. The reason for giving greater weight to the indicator related to the second criterion is that materiality analysis determines the relevance of the disclosed information regarding social, environmental, and governance aspects (**citar aquí cross-cutting ESRS**).

3.2. Measures

Concerning the indicators and variables employed to analyse the information searched within the Annual Accounts, the Audit Report, the Management Report, the corporative website and the SABI database of the Spanish listed SMEs, an explanation of each of the variables and the indicators is provided below. Specifically, the index is made up of three indicators. One of them explains the amount of information searched within the Sustainability Reports related with the three main areas ESRS focus on, environmental, social and governance information. The other indicator deals with the level of information disclosed on the materiality assessment analysis, which is the first step to ensure that the disclosed information about environmental, social, and governance aspects meets the qualitative characteristic of relevance under the double materiality approach. In addition, eight different variables have been designed to explain the business relationships and value creation profile of the companies under study as well as some general nature disclosure requirements listed SMEs must comply with. In addition, several control variables have been introduced to account for the firms' characteristics. The list of indicators and variables of the index is shown in Table 1.

The voluntary sustainability disclosure index composition

Undertakings must disclose information about the environment, society, and governance according to the ESRS in their Sustainability Reports. The index is composed of two indicators: one of them, measures the detail of the information disclosed by the undertakings and are divided into SME_VEDI (Environment), SME_VSDI (Social), and SME_VGDI (Governance). It can take the values 0, ifand 1 if.... The other indicator measures de level of disclosures on the materiality assessment, distinguishing between the materiality assessment process and the materiality assessment outcome **completer con los valores.**

*The value chain profile **completar***

Secondly, the variables used to explain the business relationships and the value creation profile of the undertakings under study have been designed following the 1 We consider SMEs as undertakings because they are now potential undertakings that will be under the scope of application of the new ESRS in the future framework for the definition of the value chain architecture of a company by Holweg & Helo (2014).

Two different kinds of variables have been designated: a) Variables related to suppliers: - SUPP_Risk Diversification: it explains whether if the firm's value chain is made up of a single or multiple suppliers. - SUPP_Type: it distinguishes between local or global suppliers. - SUPP_Internaz: it specifies if suppliers are local, so the company do not import goods and services, European, or international. - SUPP_Size: it refers whether the suppliers are considered undertakings or not undertakings regarding

the CSRD. b) Variables related to customers: - CUST_Internal: it specifies if customers are local, so the company do not export goods and services, European, or international. - CUST_Type: it describes whether the firm's business model is a business-to-business model, business-to-consumer model, or if the company serves both groups. - CUST_Risk Diversification: it explains whether if the firm's value chain is composed of a single or multiple customers. - CUST_Size: it refers whether the customers are considered undertakings or not undertakings regarding the CSRD. c) Variables related to stakeholders and business relationships. - STAKE&OTHERS_Shareholders: it determines whether the firm's shareholders are national, European, or international. - STAKE&OTHERS_Lenders and creditors: it defines whether the undertaking's lenders and creditors are national, European, or international. d) Variables explaining some general disclosure requirements to be met by the undertakings: - Presentation option for sustainability information (Draft ESRS 2, 2022): it determines how the undertaking discloses its sustainability information. - Sector of activity/industry (Draft ESRS 2, 2022): it describes the sector of activity or industry the undertaking is active in. Several sectors of activity have been identified in this sample. Each sector variable can take one of the following values, a 0 if the undertaking does not take part of that sector and a 1 if it is indeed part of that sector.

The disclosure requirements (DR) completar

Thirdly, a set of control variables has been introduced in the index as follows: - In a group: it describes if the firm is the parent or a subsidiary of a group. - Consolidated information: it determines if the undertaking is required to disclose consolidated information or not. - Region: it specifies which region of Spain each company belongs to. Several regions have been identified for the sample. Each region variable may take a value of 0 if the undertaking is not located in that region.

The accounting profile completar

On the other hand, it will take a value of 1 if it is effectively located in that region. - Auditor: it refers whether the undertaking has been audited by a Big Four or not. - Accounting Rules: it describes if the undertaking follows the Spanish General Accounting Plan (SGAP) or the EU – IFRS. –

The firm's characteristics completar

Market where listed: it refers to which regulated market each company operates in, whether it is an SME growth market, European, or international market. - Capitalization (2021): this variable takes a value according to the capitalization of the undertaking. The values of the variable are different for the undertaking considering the quartile in which that value is located. - Volume (2021): this variable takes a value according to the volume of the undertaking in the stock market. The values of the variable are different for each undertaking considering the quartile in which that value is found. - Certification: it refers if an undertaking has been certified according to an ESG topic, it has several certifications related to ESG topics or has not been certified. - Signatory of any sustainability commitment or research project: it describes if the undertaking is committed to or participates in a project related with sustainability. - Managing Director: it explains whether the managing director of the firm is a man, or a woman. - Employee distribution by gender (2021): it specifies the distribution by gender of employees in percentages. - Size 2021 Nº Employees: it refers to the total number of employees during 2021. The values of the variable are different considering the quartile in which that value is located. 27 - Size Asset: it explains the total amount of assets for the undertaking. The variable is divided into quartiles according to the value it takes for each company. - Leverage: it describes the undertaking's leverage.

The variable is divided into quartiles according to the value it takes for each undertaking. - ROE: it details the undertaking's Return on Equity (ROE). The variable is divided into quartiles as the previous variables. - EBITDA: it refers to the undertaking's Earnings Before Interest Taxes Depreciation and Amortization. The variable is divided into quartiles. - Financial Year: it specifies whether the information is related to the financial year 2021 or to other previous years.

Table 1 provides details of the measurement of the variables used.

Table 1. Variables definition and values

VOLUNTARY SUSTAINABILITY DISCLOSURE INDEX (SME_VSDI) COMPOSITION - DEPENDENT (0 - 14)			
INDICATORS AND ITEMS	VALUE	REFEREN CE	SEARCH CRITERIA
Indicator 1. Topic-I (0-6)			
Item 1. VEDI	0: No; 1: General information; 2: Detailed information.	CSRD ESRS	Web & Notes
Item 2. VSDI	0: No; 1: General information; 2: Detailed information.	CSRD ESRS	Web & Notes
Item 3. VGDI	0: No; 1: General information; 2: Detailed information.	CSRD ESRS	Web & Notes
Indicator 2. MAss-I (0-8)			
Item 1. MAss-Process (0-4)			
MSect	0: No materiality section; 1: Materiality section included; 2: High importance of materiality with materiality section listed in the table of contents	CSRD ESRS	Web & Notes
MProcc	0: No Information disclosed about materiality determination process; 1: Identification process mentioned; 2: Process described in detail with stakeholder interaction	CSRD ESRS	Web & Notes
Item 2. MAss-Outcome (0-4)			
MMatrix	0: No materiality matrix; 1: materiality matrix presented; 2: materiality matrix ranked	CSRD ESRS	Web & Notes
Mitigat	0: No information; 1: Superficial Description of actions; 2: Detailed description	CSRD ESRS	Web & Notes

SME_VSDI: Voluntary Sustainability Disclosure Index

Topic-I: Topical Indicator

SME_VEDI: Voluntary Environmental Disclosure Item: Climate change adaptation, water and marine resources, resource use and the circular economy, pollution, biodiversity, and ecosystems.

SME_VSDI: Voluntary Social Disclosure Item: Equal opportunities for all, working conditions, respect for human rights, fundamental freedoms, democratic principles, and standards.

SME_VGDI: Voluntary Governance Disclosure Item: Information about the role of the enterprise's administrative, management of the enterprise, the management and quantity of its relationships with business partners and the enterprise's internal control and risk management systems).

MAss-I: Materiality Assessment Indicator:

MAss-Process: Materiality Assessment Process; MSect: Materiality section; MProcc: Materiality determination process.

MAss-Outcome: Materiality Assessment Outcome; MMatrix: Materiality matrix; Mitigat: Mitigation actions / initiatives.

BUSINESS RELATIONSHIPS AND VALUE CREATION PROFILE - EXPLANATORY			
VARIABLES	VALUE	REFERENCE	SEARCH CRITERIA
SUPP_Internaz	0: No import (national); 1: European; 2: International	Guangming and Weerawardena (2023); Cawsey and Rowley (2016); Habibi et al., (2015); Iankova et al., (2019); Koponen and Rytsy, (2020); Skare, M. et al. (2023); Winter (2023); Iranmanesh (2023)	DIM (BME Growth) or Notes or Web or SABI
SUPP_Type	0: Not a related party; 1: A related party	Holweg & Helo (2014)	
SUPP_Risk Diversification	0: Single supplier 1: Multiple suppliers.	Holweg & Helo (2014)	
SUPP_Size	0: Not undertaking; 1: Undertaking.	Holweg & Helo (2014)	
CUST_Internaz	0: No export. 1: European. 2: International.	Dabié (2020); Dasí (2015); Holweg & Helo (2014); Eduarsen et al. (2020)	
CUST_Model	0: B2C 1: B2B Comprobar orden valores de Alberto 2: Both/ BTG?	Edepe and Wang (2022); Eduarsen et al., (2022); Dabić, M. et al. (2020); Hsieh, et al., (2012); Skare (2023); Cao (2023).	
CUST_Risk Diversification	0: Single customer. 1: Multiple customers.	Hsieh (20219); Majocchi (2005)	
CUST_Size	0: Not undertaking. 1: Undertaking.	Holweg & Helo (2014)	
CUST_Type	0: Not a related party; 1: A related party		

GENERAL NATURE DISCLOSURE REQUIREMENTS (DR) - EXPLANATORY			
VARIABLES	VALUE	REFERENCE	SEARCH CRITERIA
Presentation option for sustainability information (Documental support).	0: No sustainability information. 1: General Sustainability section on the website. 2: ESG or Sustainability Report in a single (or several) separate section(s) of the management report	DR 2 – GR 1 (ESRS 2)	Web
Sector of activity/industry		DR 2 – GR 2 (ESRS 2)	SABI (NACE) codified with SRS SEC 1 Sector classification
Sector C	0: Rest; 1: C		
Sector F	0: Rest; 1: F		
Sector G	0: Rest; 1: G		
Sector H	0: Rest; 1: H		
Sector I	0: Rest; 1: I		
Sector J	0: Rest; 1: J		
Sector K	0: Rest; 1: K		
Sector M	0: Rest; 1: M		

Sector P	0: Rest; 1: P		
Sector Q	0: Rest; 1: Q		

FIRM'S ACCOUNTING PROFILE AND FIRM'S CHARACTERISTICS - CONTROL		
VARIABLES	VALUE	SEARCH CRITERIA
In a group	0: No. 1: Yes.	SABI hand
Consolidated information	0: No. 1: Yes.	SABI hand
Matrix or filial	0: No, it is a subsidiary/filial. 1: Yes, it is a parent/matrix.	SABI hand
Accounting rules	0: SGAP. 1: EU- IFRS.	Notes
Auditor	0: Not Big4 1: Not Big4	SABI
Region	Dummy codification by region	SABI
Market where listed	0: SME growth market (como MAB ⁵) 1: European markets. 2: International markets.	SABI hand & Web
Capitalization volume (2021)	Percentils	SABI hand & BME Growth & CNMV
Certification	0: Not certified; 1: Only a single E-S-G certification; 2: Multi – topic certifications.	Web/Sustainability Report
Signatory of any sustainability commitment or research project	0: No. 1: Yes.	Web/Sustainability Report
Managing director	0: Male; 1: Female; 2: Both at 50%	Annual Report and Corporate Governance Report
Employee distribution by gender	0: >50% Male; 1: >50% Female.	Notes or DIIM
Size 2021 Nº Employees	Percentils	Annual Report
Size Asset	Percentils	Annual Report
Leverage	Percentils	Annual Report (hand): L=PNC/PN
ROE	Percentils	Annual Report (hand): ROE=BN/PN
EBITDA	Percentils	Annual Report (hand) EBITDA=Operating Income – Operating expenses or Operating Result + Deprec + Acc
Financial Year	0: 2021/2022; 1: Before pandemic	Annual Report

We take the annual report for financial indicators to get the most recent year available.

SME_VSDI: Voluntary Sustainability Disclosure Index (Dependent); SME_VEDI: Voluntary Environmental Disclosure Index (Dependent); SME_VSDI: Voluntary Social Disclosure Index (Dependent); SME_VGDI:

⁵ MAB: Mercado Alternativo Bursátil

Voluntary Governance Disclosure Index (Dependent) BR_VCH: Business relationships and value creation profile (Explanatory): FIRM_CH: Firms 'characteristics (Control).

4. Findings

4.1. Test of hypotheses

4.2. Tests of robustness

5. Conclusions

5.1. Discussion

Contribution

This study has important implications for users, preparers, standard-setters, researchers, and policymakers. One of those contributions is the design of a Voluntary Sustainability Disclosure Index (VSDI) for SME, which is scored using a multiple-step content analysis. The VSDI offers substantial contributions on the three-fold dimension of the sustainability reporting highlighted in the CSRD: environmental, social, and governance. Moreover, it takes into consideration the qualitative characteristic of relevance under the materiality approach. The originality of this study relies on the fact that it explores for the first time the value chain and value creation profile of LSMEs and its relationship to the voluntary sustainability disclosures. Consequently, the findings could contribute to a deeper understanding of and a proportionate definition of SMEs in the value chain of large undertaking to which the forthcoming ESRS will apply. Specifically, we expect to contribute to one of the four-steps SME test should be carried out: the preliminary assessment of businesses likely to be affected by the ESRS for being within the value chain of the undertakings. (European Commission, SME Test, 2021). This will provide a better knowledge of the LSME profile needed of a greater consideration or investment by the governments and standard setters, what could prove to be very useful once SMEs are often part of supply chains and, thus, policies addressing large enterprises within these supply chains also impact SMEs. Finally, the EFRAG will be provided with evidence on how the Iberian LSMEs are disclosing sustainability information according to its business relationship and value creation profile. We expect this could be supportive for EGRAG given the fact that the first step for the standard-setter to prepare specific and proportionate LSME ESRS is to define the LSME composing the value chain of undertakings.

5.2. Limitations and avenues for future research

REFERENCES

Arend, Richard J., and Joel D. Wisner. (2005) "Small business and supply chain management: is there a fit?", Journal of Business Venturing 20 (3): 403-436.

Camargo, P. and Chiappetta, Ch.J. (2017), Information systems and sustainable supply chain management towards a more sustainable society: Where we are and where we are going, International Journal of Information Management, Volume 37, Issue 4, Pages 241-249.

Cawsey, T. and Rowley, J. (2016). Social media brand building strategies in B2B companies Marketing Intelligence & Planning, 34 (6) (2016), pp. 754-776.

Dabić, M., Maley, J., Dana, L.P., Novak, I., Pellegrini, M.M. and Caputo, A. (2020), Pathways of SME internationalization: a bibliometric and systematic review, *Small Bus Econ*, 55:705–725

Eduardsen, J., Marinova, S.T., Gonzalez-Loureiro, M. and Bozidar , V. (2022), Business group affiliation and SMEs' international sales intensity and diversification: A multi-country study, *International Business Review*, Volume 31, Issue 5.

Epede, M.B., Wang, D. (2022), Global value chain linkages: An integrative review of the opportunities and challenges for SMEs in developing countries, *International Business Review*, Volume 31, Issue 5, 101993

Guangming C. and Weerawardena, J. (2023) “Strategic use of social media in marketing and financial performance: The B2B SME context”, *Industrial Marketing Management*, Volume 111, May 2023, Pages 41-54. <https://doi.org/10.1016/j.indmarman.2023.03.007>

Habibi, F., Hamilton, C.A., Valos M.J. and Callaghan, M. (2012) E-marketing orientation and social media implementation in B2B marketing, *European Business Review*, 27 (6) (2015), pp. 638-655.

Malesios, Ch., De, D., Moursellas, A., Dey, P.K Evangelinos, K. (2021), Sustainability performance analysis of small and medium sized enterprises: Criteria, methods and framework, *Socio-Economic Planning Sciences*, Volume 75, June 2021, 100993

Hsieh, L., Childb, J., Naroozc, R., Elbannad, S., Karmowskae, J., Marinovaf, S., Puthuserryg, P., Tsaih, T. and Zhangh, Y. (2019), A multidimensional perspective of SME internationalization speed: The influence of entrepreneurial characteristics, *International Business Review*, 28, 268-283

Iankova, S., Davies, I., Archer-Brown, C. Marder, B. and Yau, A. (2019), A comparison of social media marketing between B2B, B2C and mixed business models, *Industrial Marketing Management*, 81 (2019), pp. 169-179

Koponen, J.P. and Rytsy, S. (2020), Social presence and e-commerce B2B chat functions, *European Journal of Marketing*, 54 (6) (2020), pp. 1205-1224

Skare, M., Gavurova, B. and Rigelsky, M. (2023), Innovation activity and the outcomes of B2C, B2B, and B2G E-Commerce in EU countries, *Journal of Business Research*, Volume 163, August 2023, 113874

Warasthe, R., Brandenburg, M. and Seuring, S. (2022), Sustainability, risk and performance in textile and apparel supply chains, *Cleaner Logistics and Supply Chain*, Volume 5, December 2022, 100069

Winter, M., Dopler, S., Müller, J.M. and Zeisler, A. (2023) “Information sharing and multi-tier supply chain management of SMEs in the context of Industry 4.0.”, 4th International Conference on Industry 4.0 and Smart Manufacturing. *Procedia Computer Science* 217 (2023) 1378–1385

References

Adams, C.A., Alhamood, A., He, X., Tian, J., Wang, L. and Wang, Y. (2021), “The Double Materiality Concept: Application and Issues”, published by the *Global Reporting Initiative*.

Beske, F.; Hustein, E.; Peter Lorson (2020), “Materiality analysis in sustainability and integrated reports”, *Sustainability Accounting, Management and Policy Journal*, Vol 11 No. 1, pp. 162-186, <https://doi.org/10.1108/SAMPJ-12- 2018-0343>.

Council of the European Union (2022), Committee of Permanent Representatives (Coreper), 16 February 2022.

Council of the European Union, General approach – proposal for a directive as regards corporate sustainability reporting (6292/22), 2022, Available at <https://data.consilium.europa.eu/doc/document/ST-6292-2022-INIT/en/pdf>.

Edgley et. al (2014), “The adoption of the materiality concept in social and environmental reporting assurance: A field study approach”, *The British Accounting Review* 47 (1) pp. 1-18.

EFRAG (2021). Proposals for a Relevant and Dynamic EU Sustainability Reporting Standard-setting. Final Report. European Reporting Lab (February 2021).

https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/210308-report-efrag-sustainability-reporting-standard-setting_en.pdf

EFRAG (April 2022). Exposure Draft ESR 2- General strategy, governance, and materiality assessment.

https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FE_D_ESRS_2.pdf

EFRAG (April 2022). Exposure Draft ESRS 1 – General principles.

https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2FE_D_ESRS_1.pdf

APPENDICES.

Appendix 1. Population of enterprises under study.

NO.	COMPANY NAME	ACTIVITY/INDUSTRY SECTOR (NACE REV. 2)
1.	1NKEMIA IUCT GROUP, SA	N.82.11 Combined office administrative service activities
2.	ADRIANO CARE SOCIMI, SA	Q.87.30 Residential care activities for the elderly and disabled

3.	AM LOCALES PROPERTY SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
4.	AP67 SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
5.	ARIMA REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
6.	ARRIENDA RENTAL PROPERTIES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
7.	ATOM HOTELES SOCIMI, SA	I.55.10 Hotels and similar accommodation
8.	AXON PARTNERS GROUP INVESTMENT, S.G.E.I.C., SA	K.66.30 Fund management activities
9.	AYCO GRUPO INMOBILIARIO, SA	F.41.10 Development of building projects
10	AZARIA RENTAL SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
11	BARCINO PROPERTY SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
12	BIOTECHNOLOGY ASSETS, SA	M.72.11 Research and experimental development on biotechnology
13	BODEGAS RIOJANAS, SA	C.11.02 Manufacture of wine from grape
14	CATENON, SA	N.78.10 Activities of employment placement agencies
15	CLERHP ESTRUCTURAS, SA	F.43.39 Other building completion and finishing
16	CLEVER GLOBAL, SA	J.62.01 Computer programming activities
17	COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, SA	M.69.20 Accounting, bookkeeping, and auditing activities

18.	DESARROLLOS ESPECIALES DE SISTEMAS DE ANCLAJE, SA	G.46.43 Wholesale of electrical household appliances
19.	ECOLUMBER, SA	G.46.31 Wholesale of fruit and vegetables
20.	ENERGIA, INNOVACION Y DESARROLLO FOTOVOLTAICO, SA	F.43.21 Electrical installation
21.	ENERSIDE ENERGY, SA	M.71.12 Engineering activities and related technical consultancy

22.	ENTRECAMPLOS CUATRO, SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
23.	EUROESPES, SA	Q.86.21 General medical practice activities
24.	FACEPHI BIOMETRIA, SA	J.62.09 Other information technology and computer service activities
25.	GALIL CAPITAL RE SPAIN SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
26.	GIGAS HOSTING, SA	J.61.90 Other telecommunications activities
27.	GRUPO ECOENER, SA	M.71.12 Engineering activities and related technical consultancy
28.	GRUPO ORTIZ PROPERTIES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
29.	HANNUN, SA	G.47.59 Retail sale of furniture, lighting equipment and other household articles in specialised stores
30.	HISPANOTELS INVERSIONES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
31.	IBERVALLES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
32.	INMOBILIARIA PARK ROSE IBEROAMERICANA SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
33.	INMOFAM 99 SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
34.	INNOVATIVE SOLUTIONS ECOSYSTEM, SA	K.64.20 Activities of holding undertakings
35.	INTERVALOR SICAV, SA	K.64.30 Trusts, funds, and similar financial entities
36.	INVERSIONES DOALCA SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
37.	JABA I INVERSIONES INMOBILIARIAS SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
38.	JUNGLE21, SA	M.73.11 Advertising agencies
39.	KALYANI, SICAV, SA	K.64.30 Trusts, funds, and similar financial entities
40.	LIBERTAS 7, SA	K.64.20 Activities of holding undertakings
41.	LLEIDANETWORKS SERVEIS TELEMATICS, SA	J.62.03 Computer facilities management activities
42.	LOGIS CONFORT SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
43.	MEDCOM TECH, SA	G.46.46 Wholesale of pharmaceutical goods

44	MEDIA INVESTMENT OPTIMIZATION, SA	K.64.20 Activities of holding undertakings
45	MERCAL INMUEBLES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
46	MERIDIA RE IV SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
47	MERIDIA REAL ESTATE III, SOCIMI, SA	K.66.12 Security and commodity contracts brokerage
48	MILLENIUM HOSPITALITY REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
49	MISTRAL PATRIMONIO INMOBILIARIO SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
50	MONDO TV STUDIOS, SA	J.59.11 Motion picture, video, and television programme production activities
51	MONTEBALITO, SA	F.41.10 Development of building projects
52	NETEX KNOWLEDGE FACTORY, SA	J.62.01 Computer programming activities
53	NEXTPOINT CAPITAL SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
54	NUMULAE GESTION DE SERVICIOS SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
55	NYESA VALORES CORPORACION, SA	K.64.20 Activities of holding undertakings
56	OLIMPO REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
57	OPDENERGY HOLDING, SA	K.64.20 Activities of holding undertakings
58	OPTIMUM III VALUE-ADDED RESIDENTIAL SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
59	PANGAEA ONCOLOGY, SA	M.72.11 Research and experimental development on biotechnology
60	PARLEM TELECOM COMPANYIA DE TELECOMUNICACIONES, SA	J.61.10 Wired telecommunications activities
61	PERSEPOLIS INVESTMENTS 1 SOCIMI, SA	I.55.20 Holiday and other short-stay accommodation

62	PLASTICOS COMPUESTOS, SA	C.20.16 Manufacture of plastics in primary forms
63	QUID PRO QUO ALQUILER SEGURO SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
64	QUONIA SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
65	RES GESTAE, SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
66	ROBOT, SA	C.26.11 Manufacture of electronic components
67	SAGAX REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
68	SAINT CROIX HOLDING IMMOBILIER SOCIMI, SA	K.64.20 Activities of holding undertakings
69	SAN BLAS CAPITAL, SL	K.64.99 Other financial service activities, except insurance and pension funding n.e.c
70	SCIENTIA SCHOOL, SA	P.85.20 Primary education
71	SERRANO 61 DESARROLLO SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
72	SOLUCIONES CUATROOCHENTA, SA	J.62.01 Computer programming activities
73	SUBSTRATE ARTIFICIAL INTELIGENCE, SA	P.85.59 Other education n.e.c.
74	TANDER INVERSIONES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
75	TECHNOMECA AEROSPACE, SA	K.66.12 Security and commodity contracts brokerage

76	TEMPORE PROPERTIES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
77	TIER 1 TECHNOLOGY, SA	J.62.09 Other information technology and computer service activities

78	TORIMBIA SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
79	TR HOTEL JARDIN DEL MAR, SA	I.55.10 Hotels and similar accommodation
80	TRAJANO IBERIA SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
81	UNION CATALANA DE VALORES, SA	K.64.99 Other financial service activities, except insurance and pension funding n.e.c
82	URBAN VIEW DEVELOPMENT SPAIN SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
83	URBAR INGENIEROS, SA	C.28.99 Manufacture of other special-purpose machinery n.e.c.
84	VANDOR REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
85	VBARE IBERIAN PROPERTIES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
86	VERACRUZ PROPERTIES SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
87	VITRUVIO REAL ESTATE SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
88	VIVENIO RESIDENCIAL SOCIMI, SA	L.68.20 Rental and operating of own or leased real estate
89	VYTRUS BIOTECH, SA	C.20.42 Manufacture of perfumes and toilet preparations
90	WHITENI RCAJAL SOCIMI, SA	L.68.10 Buying and selling of own real estate

Source: own elaboration from SABI database and ESRS SEC1 Sector classification standard.

Appendix 2. Sample of companies analysed.

COMPANY NAME	ACTIVITY/INDUSTRY SECTOR (NACE REV. 2)
BODEGAS RIOJANAS, SA	C.11.02 Manufacture of wine from grape
CLERHP ESTRUCTURAS, SA	F.43.39 Other building completion and finishing
COMPAÑIA ESPAÑOLA DE VIVIENDAS EN ALQUILER, SA	M.69.20 Accounting, bookkeeping, and auditing activities
ENERSIDE ENERGY, SA	M.71.12 Engineering activities and related technical consultancy
EUROESPES, SA	Q.86.21 General medical practice activities
FACEPHI BIOMETRIA, SA	J.62.09 Other information technology and computer service activities
GRUPO ECOENER, SA	M.71.12 Engineering activities and related technical consultancy
HANNUN, SA	G.47.59 Retail sale of furniture, lighting equipment and other household articles in specialised stores
LIBERTAS 7, SA	K.64.20 Activities of holding undertakings
LLEIDANETWORKS SERVEIS TELEMATICS, SA	J.62.03 Computer facilities management activities
MEDCOM TECH, SA	G.46.46 Wholesale of pharmaceutical goods
NETEX KNOWLEDGE FACTORY, SA	J.62.01 Computer programming activities
PANGAEA ONCOLOGY, SA	M.72.11 Research and experimental development on biotechnology
PARLEM TELECOM COMPANYIA DE TELECOMUNICACIONES, SA	J.61.10 Wired telecommunications activities
ROBOT, SA	C.26.11 Manufacture of electronic components
SCIENTIA SCHOOL, SA	P.85.20 Primary education
SUBSTRATE ARTIFICIAL INTELIGENCE, SA	P.85.59 Other education n.e.c.
TIER 1 TECHNOLOGY, SA	J.62.09 Other information technology and computer service activities
TR HOTEL JARDIN DEL MAR, SA	I.55.10 Hotels and similar accommodation
VYTRUS BIOTECH, SA	C.20.42 Manufacture of perfumes and toilet preparations

Source: own elaboration from SABI database and ESRS SEC1 Sector classification standard.

Appendix 3. Companies excluded during the research.

NO.	COMPANY NAME	REQUIREMENTS NOT MET
1.	AGILE CONTENT, SA	< 250 Employees
2.	AIRTIFFICIAL INTELLIGENCE STRUCTURES, SA	< 250 Employees
3.	AMCI HABITAT, SA	Dissolved
4.	ARTECHE, SA	< 250 Employees
5.	ATRYS HEALTH, SA	< 250 Employees
6.	CASTELLANA PROPERTIES SOCIMI, SA	< EUR 50M Turnover & < EUR 43M Annual Balance Sheet Total
7.	COMPAÑÍA LEVANTINA DE EDIFICACIÓN Y OBRAS PÚBLICAS, SA	< 250 Employees
8.	EBRO FOODS, SA	< 250 Employees
9.	EUROCONSULT ENGINEERING CONSULTING GROUP, SA	< 250 Employees
10	FERROVIAL, SA	< 250 Employees
11	GENERAL DE ALQUILER DE MAQUINARIA, SA	< 250 Employees
12	GRUPO EMPRESARIAL SAN JOSE, SA	< 250 Employees
13	GRUPO EZENTIS, SA	< 250 Employees
14	IBERPAPEL GESTIÓN, SA	< 250 Employees
15	IMAGINARIUM, SA	< 250 Employees
16	INCLAM, SA	Dissolved
17	INMOBILIARIA DEL SUR, SA	< EUR 50M Turnover & < EUR 43M Annual Balance Sheet Total
18	ISPD NETWORK, SA	< 250 Employees
19	KERAD 3 INVEST, SL	Dissolved
20	LAR ESPAÑA REAL ESTATE SOCIMI, SA	< EUR 50M Turnover & < EUR 43M Annual Balance Sheet Total
21	LLORENTE Y CUENCA, SA	< 250 Employees
22	MAKING SCIENCE GROUP, SA	< 250 Employees

23	MINERALES Y PRODUCTOS DERIVADOS, SA	< 250 Employees
24	NATURHOUSE HEALTH, SA	< 250 Employees
25	NBI BEARINGS EUROPE, SA	< 250 Employees
26	NUEVA EXPRESIÓN TEXTIL, SA	< 250 Employees
27	QUADPACK INDUSTRIES, SA	< 250 Employees
28	SECUOYA GRUPO DE COMUNICACIÓN, SA	< 250 Employees
29	SINGULAR PEOPLE, SA	< 250 Employees
30	SOLTEC POWER HOLDINGS, SA	< 250 Employees
31	SQUIRREL MEDIA, SA	< EUR 50M Turnover & < EUR 43M Annual Balance Sheet Total
32	TUBACEX, SA	< 250 Employees
33	TUBOS REUNIDOS, SA	< 250 Employees
34	UMBRELLA INVERSIONES SICAV, SA	Dissolved
35	URBAS GRUPO FINANCIERO, SA	< 250 Employees
36	VOCENTO, SA	< 250 Employees
37	VOUSSE CORP, SA	Dissolved
38	ZAMBAL SPAIN SOCIMI, SA	< EUR 50M Turnover & < EUR 43M Annual Balance Sheet Total

Source: own elaboration from SABI database.

