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The impact of the Corporate Sustainability Reporting Directive

on the quality of sustainability reporting

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Abstract

Purpose: This study explores the impact of the new Corporate Sustainability Reporting Directive (CSRD) on sustainability reporting quality (SRQ), using a sample of European agrifood companies. Moreover, this research is also aimed at understanding the mediating role of a set company-related variables on SRQ.

Research methodology: The sample comprises 43 European agri-food companies and the years under analysis are 2020 (pre-CSRD) and 2023 (post-CSRD). A content analysis technique, using a framework developed by previous researchers, is applied to code the report of the selected companies. The result of the content analysis is a quality index for each report, measured on a scale from 0 to 1. This is employed as a dependent variable in a regression analysis to understand how company size, profitability, board gender diversity, report length, release of a standalone sustainability report and assurance of the report influence SRQ.

Findings: In the second year of analysis, the average SRQ value for the sample taken as whole was 10% higher compared to 2020. The variable having the highest effect on SRQ was the release of a standalone sustainability report: SRQ for companies issuing a standalone report was 13.8% higher compared to companies including their sustainability information in the annual report. Moreover, the variable having the most statistically significant effect was the profitability, even if the magnitude of this effect was very low. Furthermore, the effect of board gender diversity, report length and assurance on SRQ were positive, even if the latter was not statistically significant. Finally, contrarily to what was formulated in the hypotheses section, the effect of the size of the company on SRQ was negative and barely significant.

Keywords: Sustainability reporting quality, Agri-food sector, Directive EU 2022/2464 (CSRD), ESG, ESRS

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Glossary

SRQ	Sustainability Reporting Quality
NFRD	Non-Financial Reporting Directive
EU	European Union
CSRD	Corporate Sustainability Reporting Directive
ESRS	European Sustainability Reporting Standards
EFRAG	European Financial Reporting Advisory Group
SFAP	Sustainable Finance Action Plan
SFDR	Sustainable Finance Disclosure Regulation
MiFID	Markets in Financial Instruments Directive
UNGC	United Nations Global Compact
GRI	Global Reporting Initiative

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Introduction

In response to new regulatory requirements and stakeholder expectations, businesses worldwide have begun disclosing sustainable information at an increasing rate in recent years (Amel-Zadeh & Serafeim, 2018). The upsurge of sustainability reports is evident when examining the 250 biggest firms in the world. In 1999, only 35% of these companies reported on their sustainability performance; by 2013, however, 93% of these organizations had sustainability reports completed (KPMG, 2013).

Nevertheless, sustainability reporting quality has faced significant criticism, with many companies being labeled as "green washers" due to discrepancies between disclosed information and actual performance (Thorne, Mahoney, & Manetti, 2014). Moreover, skepticism regarding the quality of sustainability reporting is also linked to factors like value relevance and comparability, causing companies to fall short of stakeholders' expectations (Cho et al., 2015).

In response, new regulations for corporate reporting have mushroomed. In Europe, the focus of this thesis, sustainability reporting was initially called "non-financial reporting" and was mandated through the Non-Financial Reporting Directive (2014/95/EU). The NFRD, which was mandated in 2014, required large public interest entities to issue non-financial reports since 2017 (EU, 2014). However, the NFRD and its stipulated reporting requirements fell short in harmonizing non-financial reporting and attaining comparability of non-financial information across Europe (Samani, Overland, & Sabelfeld, 2023). Evidence gathered by policymakers and practitioners regarding the directive has underscored challenges in comparing non-financial information, attributable to sector-specific nuances and the lack of a common reporting framework (CDSB, 2020; European Commission, 2020). Acknowledging this deficiency, the EU recognized the need to enhance sustainability reporting requirements by introducing the new Corporate Sustainability Reporting Directive (2022/2464), effective from 5 January 2023. The goal of the CSRD is to establish uniform reporting standards across the EU. It will require undertakings to report according to the European Sustainability Reporting Standards, developed by the European Financial Reporting Advisory Group (European Parliament & Council of the European Union, 2022). The new CSRD will enlarge the scope of companies that have to comply: approximately 49,000 undertakings will be subject to the new directive, compared to the 11,700 companies affected by the NFRD (KPMG, 2023). This decision will

completely change the sustainability disclosure landscape in Europe and make the European Union the frontrunner in the global sustainability reporting scenario (Wollmert & Hobbs, 2022).

Given the novelty of the CSRD, there is no evidence yet to determine whether the new directive will enhance the quality of sustainability reporting. Also, several authors highlighted the need to enlarge the literature on SRQ (Arvidsson & Dumay, 2021; Romero, Ruiz, & Fernandez-Feijoo, 2018), and more specifically in the European context after the CSRD implementation (Venturelli et al., 2020).

Therefore, the purpose of this study is to join the conversation of the abovementioned authors shedding light on two main issues: (1) the impact of the CSRD on the quality of sustainability reporting and (2) the moderating role of company-related variables on SRQ.

The resulting research questions are the following:

RQ1. Has the Corporate Sustainability Reporting Directive improved the quality of sustainability reporting?"

RQ2. What is the effect of company-related variables on the quality of sustainability reporting?

To address these questions, a sample of 43 European agri-food companies was drawn and the sustainability information in their annual and sustainability reports from 2020 (under the NFRD) and 2023 (under the CSRD) were analyzed. To this aim, this study employed the "Analytical ESG information quality framework", developed by previous researchers (Arvidsson & Dumay, 2021), to code the reports of the selected companies. The coding procedure resulted in a quality index per each company for 2020 and 2023, ranging from 0 to 1. Then, data were collected about six company-related variables for both years: company size, profitability, board gender diversity, length of the report, release of a standalone report and assurance of the sustainability information. These data, as well as the results obtained after the content analysis of the report, were used to create a panel time series dataset. Thereafter, a regression model was estimated through fixed effects, using the R software, to identify the impact of the company-related variables on SRQ. Fixed effects is considered one of the most common approaches to estimates panel data models, this is the reason why it is widely used by previous researchers (White et al., 2013).

There exist numerous justifications for narrowing the focus of this study in the agri-food sector. Firstly, it's crucial to emphasize the historical juncture through which the sector is currently undergoing. Farmers are holding protests across Europe, clogging the streets with their tractors, blocking ports and manifesting in front of the European Parliament over a long list of complaints: from strict environmental regulation to excessive input costs and low and volatile off-farm prices (Huttunen & Peltomaa, 2016; Jan Douwe van der Ploeg et al., 2019). Secondly, the concept of "value chain" holds paramount importance in both the CSRD directive and the agri-food system. The former necessitates undertakings to disclose information on their sustainability matters encompassing their influence on the value chain (European Parliament & Council of the European Union, 2022). This stands as a significant departure from the previous directive. Additionally, within the agri-food system, the "value chain" dynamic has perennially presented challenges, characterized by an unequal distribution of market power among farmers, processors and retailers (Bakucs, Fałkowski, & Ferto, 2014). Thus, focusing on the agri-food sector, where the "value chain" concept has long been contentious, is compelling. Thirdly, the agri-food sector is a major contributor to environmental issues such as waste generation, biodiversity loss and water consumption (Govindan, 2018).

Furthermore, this study makes key contributions to the literature. Firstly, it extends the current debates on the quality of sustainability reporting, which is minimal and conflicting in its focus and results (Aureli et al., 2020; Leong & Hazelton, 2019). Secondly, it compares pre- and post-CSRD sustainability reports to identify specific improvements in SRQ. Finally, this study aims to provide novel insights into the interplay between company-related variables and the quality of sustainability reporting under the new CSRD.

The rest of this paper is structured as follows. The 2nd section outlines a literature review, which includes a summary of how previous studies have conceptualized the quality of sustainability reporting, an overview of previous studies about the effectiveness of reporting mandates in improving SRQ and the main theories justifying sustainability reporting. Additionally, the study's hypotheses are presented in section 3. Furthermore, section 4 reports the methodology, including an overview of the European sustainability strategy, the design of the research, the data collection process and the research sample. Thereafter, section 5 is dedicated to the presentation of the analysis and section 6 displays the results in 3 subsections: descriptive statistics, content analysis results and regression results. Moreover, section 7 offers a comprehensive interpretation of each variable, elucidating the underlying driving the results derived from the regression model. Finally, section 8 concludes the paper, discussing the contributions and limitations of the research, as well as the avenues for further research.

Literature review

A growing number of organizations globally are disseminating information on environmental, social and governance (ESG) aspects via sustainability and integrated reports (De Villiers & Sharma, 2017; Dumay et al., 2016). Although sustainability information can be valuable, it is often criticized by ambiguity and lack of comparability (Searcy & Buslovich, 2013). Still, a considerable disparity remains between corporate sustainability talk and actual practice, to such extent that corporate sustainability reporting often serves as a mere façade (Cho et al., 2015).

Quality definitions

Grasping the quality of sustainability reporting is crucial for several reasons. For instance, highquality sustainability information is perceived as relevant, reliable and credible, thereby reducing stakeholders' mistrust and the credibility gap regarding the information disclosed by companies (Michelon, Pilonato, & Ricceri, 2015). Moreover, when the credibility gap is minimized, a firm's external image is significantly enhanced (Cormier, Magnan, & Velthoven, 2005).

Quality is a multifaceted and intricate concept, often posing significant challenges for measurement due to its inherently subjective nature (Lokuwaduge & Heenetigala, 2017; Beattie, McInnes, & Fearnley, 2004). In the realm of accounting, studies typically focus on evaluating the content of corporate reports, employing various measures to derive a proxy for the information disclosed by companies. Nevertheless, there remains a lack of consensus regarding the optimal design for these measures in the academic literature (Helfaya & Whittington, 2019).

Early studies have employed quantity as an indirect measure of SRQ (Beretta & Bozzolan, 2008). The premise underlying this approach is that a higher volume of reporting indicates enhanced transparency of the disclosure (Helfaya & Whittington, 2019). Furthermore, volumetric approaches, which tally words, sentences or pages also operates under the assumption that the extent of the disclosure is positively correlated with the significance assigned by the readers to the report (Helfaya, Whittington, & Alawattage, 2018).

Helfaya & Whittington (2019) introduced two "quantity measures" within the "unidimensional measures" outlined in their article. The first measure, termed "Relative quantity (RQN)", seeks to gauge the proportion of environmental content within sustainability reports. This is quantified by calculating the ratio between the number of pages dedicated to environmental information and the total pages of the report. The second measure, the "Standardized quantity

index (SQNI)", standardizes and assesses the absolute volume of environmental information (in pages) relative to the sample size.

Despite several frameworks in the literature use quantity as a proxy for quality, more robust conclusions could potentially emerge from the development of disclosure measures specifically designed to directly assess quality. The distinction is crucial because quality and quantity are not necessarily synonymous (Helfaya, Whittington, & Alawattage, 2018).

The proponents of the notion that quantity should not be used a proxy to measure quality, have conceptualized and measured SRQ through various methodologies. For instance, Staden & Hooks (2007) constructed an index for evaluating the quality of environmental disclosure on a sample of 32 New Zealand organizations. Their index is based on a detailed list of 32 environmental items categorized into six groups: entity, management policy and systems, environmental impacts, stakeholders, financial impacts and general aspects. Of these, 19 items were assessed on a 5-point scale (ranging from 0 to 5), 11 on a 3-point scale (0 to 2) and 2 on a 2- point scale (0 to 1), yielding a maximum score of 100 for each company's corporate environmental report. In a similar vein Cormier, Magnan, & Velthoven (2005) devised a model to assess the quality of environmental disclosure among a sample of German companies. The environmental disclosure framework encompasses 39 items categorized into 6 groups: environmental expenditures and risks, regulatory compliance, pollution control, sustainable development, land remediation and contamination and environmental management. Each item is evaluated on a scale from one to three: a score of three indicates detailed description with monetary or quantitative specifics, a score of two indicates specific description without quantitative details and a score of one indicates a general discussion of the item. Similarly, Amran, Lee, & Devi (2014) employed 10 criteria, such as "stakeholders engagement in sustainability reporting process" and "independent verification/assurance about information disclosed in the sustainability report", to evaluate SRQ for each firm. A maximum score of 10 points was achievable if all criteria were present in the sustainability report. This total score was then divided by the number of criteria to transform it into continuous data. Khan et al. (2021) furthered the discussion on the quality of sustainability reporting by creating an index to evaluate SRQ in a sample of banks in Bangladesh from 2002 to 2014. Their index focused on two sub-dimensions of quality (relevance and reliability), which were assessed using 5 and 6 indicators, respectively. The overall quality score for each company was computed by summing the scores for each subdimension and then scaling this total by the maximum possible score.

From this discussion it is evident that there is not a single model to measure the quality of sustainability reporting. However, models incorporating multiple dimensions appear to be the most effective in capturing the complexity of SRQ (Helfaya & Whittington, 2019).

The effectiveness of reporting mandates in improving SRQ

Several authors have investigated the potential enhancement in the quality of sustainability reporting following the implementation of new reporting mandates and standards (Aureli et al., 2020). The rationale behind this is that standards and legal acts are perceived to ostensibly mandate higher-quality and/or more comparable reporting; this, in turn, can provide more informative disclosure relative to the previous status quo (Christensen, Hail, & Leuz, 2021). This viewpoint is further reinforced by Perego & Kolk (2012), who believe that the guidelines for sustainability reporting play a key role in enhancing the quality of social and environmental reports. They cited the Global Reporting Initiatives (GRI) guidelines (GRI, 2006) as a pivotal example of how established frameworks can drive enhancements and elevate the standards met by these reports. Nevertheless, some authors hold reservation regarding the efficacy of minimum standards in improving quality, arguing that they may lead to rigidity due to their "one-size-fits-all" nature (Jackson et al., 2020).

Yet the studies examining the impact of EU mandates on the quality of sustainability reporting have yielded mixed results. For instance, Cordazzo, Bini, & Marzo (2020) investigated the implementation of the EU Directive 95/2014 in Italy, where it was enforced through the Italian Legislative Decree 254/201. Their research aimed to understand whether transitioning from a voluntary to a mandatory disclosure regime affects the value relevance of non-financial information. They analyzed the consolidated non-financial statements (CNFS) of 231 listed firms before (2016) and after (2017) the application of the Legislative Decree. Their assessment of information's value relevance utilized a specific disclosure framework consisting of three indicators: overall non-financial disclosure, environmental disclosure and social disclosure. Ultimately, their findings indicated that despite the implementation of the EU directive, corporate ESG information continued to lack value relevance. Oppositely, Cuomo et al. (2024) suggested a positive impact of the EU Directive 95/2014 on enhancing transparency and improving overall corporate performance. To achieve this, the authors selected a sample from European companies spanning 17 countries for their study. Then, they collected environmental and social scores for the companies from the Thomson Reuters Refinitiv database in two distinct periods: before the directive (2008-2013) and after its implementation (2015-2018). Following this methodology, they highlighted a positive impact of the directive on the reporting transparency. In a similar vein, Chelli, Durocher, & Richard (2014), conducted a study to determine whether the "New Economic Regulations" (NRE) introduced in France in 2001, which mandated publicly listed companies to disclose environmental information, resulted in an improvement in both the quality and the quantity of environmental reporting. To this end, they selected a sample of 26 companies from the CAC 40 index and performed a content analysis of environmental disclosure in the annual reports, environmental reports and websites of the selected companies from 2001 to 2011. Their findings indicated a significant and sustained enhancement in the quality and quantity of environmental disclosures during this timeframe. Contrarily, Chauvey et al. (2015) yielded varying results when examining the impact of the same regulation (NRE) on the extent and the quality of the disclosures among a sample of 81 publicly traded French companies. To assess whether disclosure quality and quantity among French firms have evolved following the adoption of the NRE, the authors sampled and coded the company reports for both 2004 and 2010. They evaluated the quality of the disclosures based on four attributes: relevance, comparability, verifiability and clarity. Their findings indicated a significant increase in the amount of space devoted to non-financial disclosure, along with some evidence of improved quality. However, the overall information quality of the disclosures remained low and fewer companies included negative performance information in their reports.

Overall, prior research has demonstrated both positive and negative impacts of non-financial reporting mandates on the reporting quality, indicating that the issue is far from settled. Furthermore, the CSRD, effective as of January 5, 2023, introduces a transformative shift in the regulatory landscape of sustainability reporting within the EU. As a new directive, its introduction marks a pivotal moment for corporate transparency, establishing new obligations for companies to disclose their ESG practices. Indeed, this study aims to contribute to and extend this literature by evaluating the impact of the EU CSRD on the quality of sustainability reporting.

Theoretical background

Previous literature has primarily explained sustainability reporting through the lenses of legitimacy theory and stakeholders' theory (Chelli, Durocher, & Richard, 2014; Owen, 2008; Parker, 2005). While both theories view organizations as part of a societal structure, legitimacy theory regards society as a unified whole, whereas stakeholder theory distinguishes between various groups within society, each with its own legitimate interests (Woodward, Edwards, & Birkin, 1996).

At a macro level, legitimacy is characterized as a perception or assumption "... that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995). Legitimacy theory posits that companies and society are bound by a social contract, wherein companies are expected to act in a manner that society deems socially responsible (O'Donovan, 2002). Consequently, companies use sustainability disclosure to enhance public perception of their sustainability performance (Deegan, 2002). Boiral (2013) demonstrated that "cherry-picking" is a prevalent issue in sustainability reporting, with only 10% of significant sustainability matters being disclosed by companies. This finding is also supported by (Hummel & Schlick, 2016), who suggested that some companies prefer to report low-quality information to seek social legitimacy, attempting to create a public perception of strong sustainability performance, while actually being poor performers. Indeed, research on the quality of sustainability reporting is further driven by the opportunistic behavior of companies that disclose manipulated information, thereby creating information asymmetry (Merkl-Davies & Brennan, 2007).

Stakeholders' theory provides insights into how a company's internal resource allocation decisions are interconnected with the demands of stakeholders crucial to its success (Freeman, 1984). According to this theory, firms have to provide transparent information about the impacts of their activities to stakeholders (Dubbink, Graafland, & Liedekerke, 2008). Indeed, sustainability reporting serves the purpose of meeting stakeholders' informational needs, as the survival of firms depends on the support of these stakeholders (Romero, Ruiz, & Fernandez-Feijoo, 2018). Also the European Parliament and the Council have underscored the potential benefits of enhanced sustainability information for various stakeholder groups. For instance, (1) trade unions and worker representatives would be better equipped to engage in social dialogue, (2) investors could assess risks and opportunities associated with their investments and (3) business partners could understand the societal impacts of their suppliers (European Parliament & Council of the European Union, 2022). Furthermore, to garner support from stakeholders, firms must actively engage and manage them through their sustainability policies (Romero, Ruiz, & Fernandez-Feijoo, 2018). Consequently, sustainability disclosure may function not merely as a communication tool but as a strategic mechanism to foster stakeholder engagement (Shubham, Charan, & Murty, 2018). A wide array of stakeholders consistently demands transparent disclosure across economic, social and environmental dimensions of performance (Rasche & Esser, 2006; Logsdon & Lewellyn, 2000). Within management literature, numerous studies have explored how companies diversely respond to pressures for

sustainable operations originating from different stakeholders' groups (Benito & González-Benito, 2008). Companies establish direct relationship with stakeholders and stakeholders use disclosure practices to evaluate the likelihood of sustaining these relationships (Barringer & Harrison, 2000). This underscores another critical reason for investigating about the quality of sustainability reporting: stakeholders may withhold their endorsement of reporting efforts unless they perceive authentic improvements in SRQ by firms (Burritt & Schaltegger, 2010; Cho et al., 2012).

Hypotheses development

As outlined in the literature review, numerous studies have examined the effect of reporting mandates on the quality of sustainability reporting (Cordazzo, Bini, & Marzo, 2020; Cuomo et al., 2024). Furthermore, research indicates that SRQ varies based on factors such as company size, financial leverage, adherence to standardized reporting formats and other variables (Gao et al., 2015; Khan et al., 2021).

The aim of this study is to evaluate the impact of the new CSRD on the quality of sustainability reporting, while also exploring the moderating role of company-related variables (size, profitability, board gender diversity, release of standalone sustainability report, length of the report and external assurance of the report) on the disclosure quality. As a reference, the research questions are presented again:

RQ1. Has the Corporate Sustainability Reporting Directive improved the quality of sustainability reporting?"

RQ2. What is the effect of company-related variables on the quality of sustainability reporting?

To address these questions several hypotheses need to be formulated.

The efficacy of the CSRD in improving the quality of sustainability reporting

The disclosure of ESG information has primarily been a voluntary endeavor adopted by corporations to align with stakeholder expectations and enhance their legitimacy (Deegan, 2002; Cho, Freedman, & Patten, 2012). Nonetheless, numerous studies have pointed out that the quality of voluntary disclosed information is often subpar, failing to reflect actual practices and serving merely as a symbolic management strategy (Cho et al., 2015; Michelon, Pilonato, & Ricceri, 2015). As a result, both researchers and regulators have increasingly advocated for mandatory ESG reporting (Aboud, Saleh, & Eliwa, 2023).

The current inclination toward obligatory sustainability reporting is driven by two main factors. First, there is a preceived lack of transparency, as some companies engage in impression management by withholding significant information unless legally compelled to disclose it. Second, voluntary non-financial information is frequently viewed as incomplete and irrelevant to stakeholders, thereby diminishing its practical utility (Matuszak & Różańska, 2017). Proponents of mandatory reporting contend that legal acts could improve the quality and comparability of sustainability reporting (Deegan, 2002). For instance, Ioannou & Serafeim (2017) examined the implications of regulations requiring the disclosure of ESG information in China, Denmark, Malaysia and South Africa using a DiD estimation approach. The collective evidence indicates that ongoing efforts to enhance transparency regarding organizations' societal impacts effectively improved both the quantity and the quality of disclosures. Similarly, Christensen, Hail, & Leuz, (2021) reinforced this perspective and emphasized the current heterogeneity in the sustainability reporting guidelines. The authors view standards as a means of enhancing the level of reporting harmonization, which, in turn, can improve users' ability to compare sustainability information across different firms.

The new CSRD provides more detailed specifications regarding the sustainability information that companies are required to disclose and it mandates the use of the ESRS developed by EFRAG. These mandatory standards address the issues associated with the non-financial reporting requirements outlined in the NFRD, which were often vague and allowed for significant flexibility, leading to a lack of comparability in the reported information (Hahnkamper-Vandenbulcke, 2021).

With these points in mind, the first hypothesis is stated as follow:

H1: The quality of sustainability reporting will improve under the CSRD

The moderating role of firm size on the quality of sustainability reporting

Historically, company size has been shown to exert a positive influence on the quality of sustainability reporting, as larger corporations engage in signaling activities, such as sustainability reporting, to seek legitimacy (Hahn & Kühnen, 2013). Numerous studies have explored the impact of company size on SRQ. For instance, Lee (2017) conducted a content analysis of the environmental disclosures made by 55 Australian mining and metal companies listed among the Australian Securities Stock Exchange's (ASX) Top 100. He concluded that firm size significantly affects both the quantity and quality of corporate environmental disclosures. In a similar vein, Brammer & Pavelin (2006) scrutinized the relationship between firm size and the quality of environmental disclosures in the United Kingdom. Their study sampled firms across various industries, including manufacturing, service and finance, from the All-Share Index. The authors found that larger firms are significantly more likely to diclose

environmental information and the quality of the information is positively correlated with firm size.

There exist numerous justification why the quality of the disclosures of bigger companies is higher if compared to small companies:

- 1. Larger companies typically exhibit a range of corporate characteristics that distinguish them from their smaller counterparts, such as more diverse array of products, more complex distribution networks and a greater reliance on capital market for finacing. This latter factor particularly influences both the quantity and the quality of diclosed information (Frias-Aceituno, Rodríguez-Ariza, & Garcia-Sánchez, 2014);
- Bigger firms have more financial resources and assets to invest in sustainable practices, which can further enhance the quality of their sustainability reporting (Jackson et al., 2019);
- Larger corporations are often subject to high public scrutiny, hence they are more motivated to engage in sustainable activities and reporting (Gallo & Jones-Christensen, 2011);
- 4. Communication of sustainable initiatives is less costly for big companies, facilitating their engagement in such practices (Hahn & Kühnen, 2013).

Taking these points into account, the second hypothesis is proposed in the next statement:

H2: The quality of sustainability reporting will be higher for larger companies The moderating role of firm profitability on the quality of sustainability reporting

The connection between sustainability reporting and financial performance has been extensively examined by scholars (Cormier & Gordon, 2001; Haniffa & Cooke, 2005). The underlying premise is that companies can enhance their competitive advantage by adopting etichal practices, such as sustainability reporting and sustainable business models (Stubbs & Cocklin, 2008). A significant body of the current literature suggest that firms with strong financial performance tend to engage more actively with their stakeholders by disclosing their sustainability information (Malik, 2014).

For instance, Said, Zainuddin, & Haron (2009) analyzed the sustainability disclosures in the annual reports and websites of publicly listed companies in Malaysia. They developed a quality index to assess the sustainability information, to then examine the relationship between the index and various variables, including profit. Their findings indicated a strong positive

correlation between profitability and the disclosure of sustainability information. They posited that high-profit companies are more likely to actively disclose environmental and social information to demonstrate their commitment to community welfare and to substantiate their legitimacy. Along the same line, Qiu, Shaukat, & Tharyan (2016) suggested that firms with a history of profitability possess both the resources and the inclination to invest in the social arena. A justification for this logic is that making objective environmental and social disclosures incurs substancial production costs, as firms must establish systems for identifying, measuring and reporting such information (Brammer & Pavelin, 2006; Buhr, 2002), costs that more profitable firms are better positioned to bear (Qiu, Shaukat, & Tharyan, 2016). Another reason behind this rationale is that revealing objective information about a firm's environmental and social practices can incur significant propietary costs (Cormier & Magnan, 1999). For example, disclosing information about a firm environmental technologies and practices can be commercially sensitive; such disclosures may attract attention from regulators, advocacy groups and other stakeholders, potentially resulting in regulatory scrutiny or reputational damage. Thus, as Cormier & Magnan (1999) argue, firms with superior financial performance should be more willing to absorb these costs.

In light of these considerations, the third hyphothesis is:

H3: The quality of sustainability reporting will be higher for more profitable companies The moderating role of board gender diversity on the quality of sustainability reporting

Numerous studies highlighted the positive influence of female directors on corporate behavior, noting that they tend to adopt ethical standards that differ from those of their male counterparts, often displaying greater philanthropic concerns (Ibrahim & Angelidis, 1995). These traits are linked to increased transparency, particularly in sustainability reporting (Barako & Brown, 2008; Prado-Lorenzo & Sánchez, 2010). Furthermore, female directors are considered more trustworthy than men and are less likely to engage in manipulation of corporate disclosures (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019). Also Gul, Srinidhi, & Ng (2011) have entered the branch of research about board gender diversity, they argued that women not only exhibit greater risk aversion and ethical begavior, but they also excel at gathering voluntary information, which can reduce information asymmetry.

When talking about sustainability reporting, it worth mentioning the concept of impression management, conceptualised as a manipulative tool to alter the stakeholders' perception of the

real performance of the firm (Yuthas, Rogers, & Dillard, 2002). The understanding of this notion is relevant as often the reporting of sustainability information has been considered opportunistic, "green washing" and failing to meet users' expectations (Khan et al., 2021). However, the presence of female directors on boards dimishes the likelihood of impression management tactics being used, as they are more inclined to ensure accurate, transparent and higher-quality sustainability reporting. This, in turn reduces the risk of stakeholders making misguided decisions due to incomplete or biased information (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019).

Finally, the unique attributes that women bring to boards foster a more democratic, participative and collaborative leadership style, enhancing the board's ability to make well-informed decisions (Eagly, Johannesen-Schmidt, & van Engen, 2003). This leads to greater overall board effectiveness and stronger oversight of the firm's disclosures (Ben-Amar, Chang, & McIlkenny, 2017). As a result, higher gender diversity within board of directors is closely associated with the production of sustainability that are more balanced, consistent and reliable, promoting a higher level of transparency and accountability in corporate disclosures (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019).

Bearing these points in mind, the fourth hypothesis is articulated as follow:

H4: The quality of sustainability reporting will be higher for companies with more gender diverse board of directors

The moderating role of the release of a standalone sustainability report on the quality of sustainability reporting

Since the mid-1990s, there has been a growing trend for annual reports to include more information on ethical, social and environmental aspects of a company's operations. Conversely, in recent years, an increasing number of companies have recognized the evolving expectations of stakeholders and have begun to place greater emphasis on environmental and social issues, often opting to disclose such information through standalone sustainability reports (Daub, 2007).

Sustainability reporting has emerged as a strategic tool for strengthening the relationship with stakeholders (Nielsen & Thomsen, 2007) and, among various reporting formats, the sustainability report is perceived as the most effective in bridging the information gap between firm managers and their audience (Romero, Ruiz, & Fernandez-Feijoo, 2018). A significant body of literature links the release of a standalone sustainability report with stronger

commitments to sustainability and improved disclosure quality. For instance, Mahoney et al. (2013) explored whether U.S. companies that issue sustainability reports have higher sustainability performance than those that do not. After controlling for variables such as leverage, profitability and industry, the study found that firms realising standalone reports scored higher in environmental and social performance compared to those that never publish such reports. This suggests that publishing a standalone report signals a genuine commitment rather than being a greenwashing tactic. Similarly, Dhaliwal et al. (2012) proved that issuing standalone reports is associated with reduced analyst forecast errors, highlighting the role of these reports in complementing financial information. Moreover, Mervelskemper & Streit (2016) studied the phenomenon from a capital market pespective and discovered that investors evaluate companies' ESG performance more favorably when firms use sustainability reports, rather than disclosing sustainability information in the annual report.

To conclude, sustainability reporting serves as a means for companies to legitimize their role within society, while traditional annual reports tend to focus predominantly on financial aspects, often neglecting deeper commitments to sustainability issues. Hence, disclosing sustainability information through dedicated sustainability reports is linked to higher quality reporting (Romero, Ruiz, & Fernandez-Feijoo, 2018).

With these observations considered, the fifth hyphotesis can be presented in the following format:

H5: The quality of sustainability reporting will be higher for companies issuing a standalone sustainability report

The moderating role of the length of the report on the quality of sustainability reporting

Research on the quantity of sustainability disclosed information typically focused on examining the extent or scale of information. This involves analyzing various measures such as the total volumes of words, the number of sentences or the overall page count within the report (Hooks & Van Staden, 2011). Several authors highlighted how a greater volume of reported information reflects a higher level of transparency in the disclosure (Helfaya & Whittington, 2019). Additionally, the breadth of the disclosure is positively linked to the importance the readers attribute to the report (Helfaya, Whittington, & Alawattage, 2018). Koh, Li, & Tong (2023) proposed that firms with stronge sustainability performance are likely to disclose a greater quantity of information in their reports, resulting in longer and more detailed disclosure. Their conjecture suggests how these well-performing companies are more transparent and willing to share more detailed information about their ESG activities. In contrast, companies with weaker performance may either withold information or produce shorter reports. Numerous researchers have examined how the quantity of disclosed information influences the quality of sustainability reporting. For instance, Helfaya & Whittington (2019), argued that the quality of reporting improves when a substantial amount of information is provided on each topic. In a related approach, Lee (2017) utilized content analysis to assess both the quantity and quality of corporate environmental disclosures in the Australian mining and metal industries. The firms included in the study were drawn from the 2013 Top 100 list on the Australian Securities Exchange. The findings revelead a strong, significant and positive correlation between the volume of the disclosures (measured by word count) and the quality of environmental reporting quality. Finally, Hasseldine, Salama, & Toms (2005) arrived to a similar finding, noting that their quality variable was strongly correlated with the extent of disclosures, which was measured by sentence count in environmental reports.

Accordingly, the sixth hyphotesis can be stated as:

H6: The quality of sustainability reporting will be higher for companies issuing longer reports

The moderating role of external assurance on the quality of sustainability reporting

As sustainability reports gain prominence among investors and other stakeholders, the demand for these reports to be supported by independent verification is rising (Wong & Millington, 2014). It is worth understanding the moderating role of the external assurance on the quality of sustainability reporting, particularly as the new CSRD mandates external audits of sustainability information. Initially this requirement involves a limited level of assurance, however there is an option to move progressively to a reasonable level of assurance in a later stage (European Parliament & Council of the European Union, 2022). Reasonable assurance engagements results in a direct opinion or positive statement on whether the subject matter complies with specific criteria, offering a high level of confidence. In contrast, limited assurance engagements lead to conclusions about whether anything suggest that the subject matter does not meet the defined criteria (International Sustainability and Assurance Board, 2015). The practice of externally verifying sustainability information predates the CSRD. For instance, in 2017, 67% of the world's largest 250 companies had engaged independent experts for at least partial verification of their sustainability data (KPMG, 2017). Numerous studies have shown that the quality of externally assured sustainability information is superior to that of non-assured reports. Simnett, Vanstraelen, & Chua (2009) found that companies opting for independent verification of their ESG disclosures demonstrate a strong commitment to highquality reporting, enhancing the credibility and reliability of voluntary non financial disclosures. Maroun (2019) also argued that an increase in the number of externally assured ESG disclosures is correlated with improved reporting quality. Beyond improving data quality, external assurance can identify weaknesses in a company's reporting systems and internal controls, offering reccomendations to strenghten the underlying infrastucture necessary for high-quality reporting (Farooq & Villiers, 2018; GRI, 2013).

On the basis of the above considerations, the seventh hypothesis is stated in the following statements:

H7: The quality of sustainability reporting will be higher for companies opting for external assurance of their sustainability information

Research method

Research context

The Paris Agreement, adopted on the 4th of November 2016 by 196 parties, is the first international, binding agreement on climate change. The 196 signatories parties committed to its goal: "... hold the increase in the global average temperature increase to 1.5 °C above pre-industrial levels" (UN, 2016).

Moreover, in 2018, the EU created the Sustainable Finance Action Plan, in line with the Paris Agreement and the UN 2030 Agenda for Sustainable Development.

The SFAP is an European policy designed to promote sustainable investments across EU member states, mobilize sustainable finance and reinforce European leadership by setting a global standard for sustainable finance. The SFAP incorporates ESG criteria into its financial policy framework, providing investors, businesses and financial institutions with greater clarity and transparency on various European sustainability initiatives. The SFAP "aims to:

- reorient capital flows towards sustainable business investments in order to achieve sustainable and inclusive growth;
- 2. manage financial risks stemming from climate change, resource depletion, environmental degradation and social issues;
- foster transparency and longtermism in financial and eonomic activity" (European Commission, 2018).

Furthermore, on the 11th of December 2019, the European Commission adopted the European Green Deal, which substantially elevates the EU's ambitions for climate action and environmental policy. The Green Deal aims to steer the EU towards a green transition, with the ultimate objective of achieving climate neutrality by 2050 (European commission, 2019). Transitioning to a sustainable economy will require substantial investments across all sectors. To support this, the European Commission adopted a renewed sustainable finance strategy on July 6, 2021. Building on the SFAP, this updated strategy aims to advance the goals of the European Green Deal.

To fully understand the EU sustainable finance strategy, one must consider it not as a single policy block but as a series of interconnected policy blocks that, when combined, create an environment that should not only be more transparent, with common references, but also able to effectively channel more capital flows towards the funding of sustainable activities.

Only by understanding the different pieces of legislation in the EU, it can be possible to comprehend the magnitude of the impact that this plan can have (Amundi, 2022). Within the EU Sustainable Finance Strategy, there are five key building blocks:

- EU Taxonomy Regulation: determines which economic activities are environmentally sustainable. It assists investors, companies and policy makers in identifying activities that contribute significantly to environmental goals and, as a result, aid in financing the transition to a more sustainable economy. To this purpose, the EU Taxonomy has established a list of activities that contribute to six environmental objectives: climate change adaptation, climate change mitigation, sustainable use and protection of water, transition to a circular economy, pollution prevention and biodiversity protection (European Parliament & Council, 2020);
- 2. Sustainable Finance Disclosure Regulation: requires companies to provide comprehensive information about sustainability risks within their investment process. They must disclose the metrics used to evaluate ESG factors, the objectives related to sustainable environmental and social investments and how their investments decisions align with these objectives while also considering the significant negative impacts on sustainability factors. By establishing a structured framework for reporting standards, the SFDR directly affects financial market participants and raises the standards for investment products. This is particularly relevant for funds that aim to promote ESG characteristics (Article 8 funds) and those that have specific ESG objectives (Article 9 funds) (European Parliament & Council, 2019);
- 3. Markets in Financial Instruments II and Insurance Distribution Directives: have been amended to integrate ESG factors considerations into the investment advice related to investment funds and insurance-linked products. While asset managers in the EU already have a fiduciary duty to act in the best interest of their investors, the EU is now explicitly embedding ESG factors into these obligations. Under MiFID II, financial market participants will be required to inquire about their client's sustainability preferences as part of the suitability assessment process. This assessment is designed to ensure that investors receive tailored recommendations and that appropriate investments decisions are made on their behalf. Moreover, investment advisers and managers will now need to evaluate clients' sustainability preferences alongside their financial expertise, investment objectives, financial situation and risk tolerance (European Parliament & Council, 2014; European Parliament & Council, 2016);

- 4. *EU benchmark regulation*: all investment benchmarks will now require to transparently disclose whether and in what manner they integrate ESG criteria into their methodologies. Moreover, new standards have been established for carbon products, including the introduction of two distinct types of climate benchmarks. These benchmarks are designed to aid investors in comprehending the carbon footprint associated with their investment choices (European Parliament & Council, 2016);
- 5. *Corporate Sustainability Reporting Directive* (European Parliament & Council of the European Union, 2022).

From the NFRD to the CSRD

In September 2014 the EU enacted the NFRD, amending the Accounting Directive, to mandate large public interest entities (PIEs), with an average of over 500 employees, the disclosure of non-financial information (EU, 2014). In April 2021 the European Commission introduced a proposal for a new Corporate Sustainability Reporting Directive, which was published in the EU's official journal in December 2022 and took effect on January 5, 2023, with the following phased-in application:

- first reporting in 2025, covering the financial year 2024, by companies already subject to the NFRD;
- 2. first reporting in 2026, covering the financial year 2025, by other large companies;
- 3. first reporting in 2027, covering the financial year 2026, by listed small and mediumsized enterprises;
- 4. from financial year 2028 onwards, EU branches and subsidiaries of non-EU undertakings are also subject to the CSRD if the non-EU undertaking has a net turnover of EUR 150 million generated in the EU. (European Parliament & Council of the European Union, 2022)

The CSRD introduces several significant distinctions from the NFRD. Firstly, it enlarges the scope of companies required to report on sustainability issues. Specifically, all the companies that meet at least 2 of the following criteria have to report starting from financial year 2025 as they are considered "large companies": (i) a balance sheet total of EUR 25 million, (ii) net turnover of EUR 50 million and (iii) an average number of 250 employees during the financial year. Additionally, the CSRD specifies in greater detail the types of information that must be reported, mandating alignment with the ESRS developed by EFRAG. Another critical change is the introduction of a requirement for external audits on sustainability information.

Initially, a limited level of assurance is required, with an option for companies to advance to a reasonable level of assurance in the future. Moreover, the CSRD is adding additional requirements on the double materiality concept, which implies that a company should account for sustainability information related to impacts, risks and opportunities material either from a financial materiality perspective or from an impact materiality perspective. Additionally, companies must present their sustainability information within their management report in a digital format. Finally, the directive calls for enhanced forward-looking disclosures, including targets and progress indicators, as well as information related to intangibles, like social, human and intellectual capital.

European Sustainability Reporting Standards

In January 2020, the European commission introduced a proposal to establish sustainability reporting standards (European Commission, 2020). Following this, EFRAG was designated as the technical advisor responsible for developing the standards. By November 2022, EFRAG finalized the first set of draft ESRS and submitted them to the European Commission (EFRAG, 2022). In July 2023, the European commission adopted the first set of these standards through a delegated act (European Commission & Council , 2023). The adopted standards are depicted in Table 1 and consist of cross-cutting standards (ESRS 1 and ESRS 2) and topical standards (ESRS E1 to E5, ESRS S1 to S4 and ESRS G1) and is sector agnostic. ESRS 1 ("General Requirements") includes the architecture of the ESRS, the drafting conventions, the fundamental concepts used and the general requirements for preparing and presenting sustainability information. While, ESRS 2 specifies key information to be disclosed regardless of which sustainability matters being considered. The topical standards contain additional disclosure requirements for material sustainability matters and are divided into environmental (ESRS E1 to E5), social (ESRS S1 to S4) and governance (ESRS G1).

Table 1: European Sustainability Reporting Standards

ESRS 1	General requirements
ESRS 2	General disclosures
ESRS E1	Climate change
ESRS E2	Pollution
ESRS E3	Water and marine resources

ESRS E4	Biodiversity and ecosystems
ESRS E5	Resource use and circular economy
ESRS S1	Own workforce
ESRS S2	Workers in the value chain
ESRS S3	Affected communities
ESRS S4	Consumers and end-users
ESRS G1	Business conduct

Source: Own illustration.

Research design

The current study has two main objectives: (1) determine whether the CSRD foster an increase in the quality of sustainability reporting and (2) assess how company-specific variables influence the quality of sustainability reporting.

Although, the first reports under CSRD are officially due in 2025, covering the financial year 2024, the directive was published in 2022, allowing its impact on reporting quality to be assessed in 2023. Moreover, it's a common practice for companies to anticipate the application of legal norms earlier than formally required to enable a smooth transition (Dilling O. , 2007). This is evident when reading the 2023 reports of the undertakings, two examples of statements provided by the companies are presented below:

"We carried out an extensive double materiality assessment for the first time in 2023 to anticipate the requirements established by the EU's Corporate Sustainability Reporting Directive and the European Sustainability Reporting Standards (ESRS)"

"Our DMA was performed in line with the exposure drafts of the European Sustainability Reporting Standards (ESRS) from January 2022. This represents a first step towards implementation of the Corporate Sustainability Reporting Directive (CSRD)"

The study utilized a mixed-method approach, combining both qualitative and quantitative analyses. Firstly, a qualitative content analysis was performed using the "Analytical ESG information quality framework", developed by (Arvidsson & Dumay, 2021) to code the reports

of the sampled companies. Qualitative content analysis was used as it is a widely adopted methodology to capture sustainability disclosure (Michelon, Pilonato, & Ricceri, 2015).

The outcome of this analysis was a quality index per each company, for 2020 and 2023, varying from 0 to 1. This index was employed as the dependent variable in the quantitative analysis, serving as a proxy for SRQ. Subsequently, data were collected about the company-related variables. The framework used in the qualitative content analysis, as well as the process to collect the data for the company-related variables are outlined in the next section of this paper. Following the qualitative analysis, a quantitative regression analysis was conducted to evaluate both the sign and the magnitude of the impact that the CSRD and the company-related variables exerted on SRQ. Since the study examined the same companies in both 2020 and 2023, a panel time series dataset was developed, including both the data regarding SRQ and the indicators for company-related variables. The regression model was estimated using a fixed effects approach, executed in the statistical software R; the fixed effects estimation will be explained in the "Analysis" section.

Data collection

Dependent variable

To capture the quality of sustainability reporting, secondary data were collected from companies that have reported information on sustainability-related matters. To such extent, a content analysis was performed using the "Analytical ESG information quality framework", developed by (Arvidsson & Dumay, 2021). The content analysis was performed by manually reading the sustainability reports or annual reports published by the companies, depending on how the company has chosen to disclose sustainability information.

The "Analytical ESG information quality framework" is composed by three dimensions: Environmental, Social and Governance.

The environmental analysis concentrated on how the sampled companies disclosed their environmental initiatives. Moreover, the social analysis assessed how the companies addressed their stakeholders and reported on stakeholders-related initiatives, with a focus on the process of materiality assessment in the performance subdimension. While, the governance analysis focused on the company's governance initiatives. The emphasis in this case was on the Global Reporting Initiative and the UN Global Compact frameworks.

Each dimension is divided into three sub-dimensions: position, development and performance. Each subdimension is aimed at capturing different aspects of a company's reporting process:

1. *Position*: Describes a company's present status;

- 2. *Development*: Describes a company's progress over time;
- 3. *Performance*: Describes a company's targets and outcomes.

The values for each subdimension are computed through 1 or 2 indicators, which are detailed in Table 3.

Then, the final values for the E, S and G dimensions are computed as the average of position, development and performance for each dimension. Finally, the quality index for each report is computed as the average of the three dimensions (ESG) and it is goes from 0 to 1. The quality index was used as dependent variable in the regression model, with the notation of SRQ (Sustainability Reporting Quality).

	E	S	G
Position	• Ratio between the number of environmental initiatives described in detail in the report and the total number of environmental initiatives mentioned.	 Ratio between the number of stakeholders relationships described in details and the total number of stakeholders mentioned. A score of 1 is assigned if the company described how it identified the relevant stakeholders or 0 if not. 	• A score of 1 is assigned if the company described its governance system or 0 if not.
Development	Ratio between the number of environmental initiatives that feature a description of development over the last 3 years and the total number of environmental initiatives mentioned.	 A score of 1 is assigned if the company described the design and the objective(s) of the stakeholder's engagement process or 0 if not. 	 A score of 1 is assigned if the company was a member of the UNGC and described what UNGC is or 0 if the company did only one or none. A score of 1 is assigned if the company applied GRI and described what GRI is or 0 if the company did only one or none.

Table 2: Analytical ESG quality framework

Performance	• Ratio between the number of environmental initiatives where a target, a target time frame and outcome are given and the total number of environmental initiatives mentioned.	• A score of 1 is assigned if the company conducted and described the process of materiality assessment, otherwise 0.	• A score of 1 is assigned if the company included a GRI index with indicators in the report or 0 if not.
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Source: Own illustration.

Independent variables

As highlighted in the "Hypotheses development" section of this paper, various company-related variables affect the quality of sustainability reporting. This study concentrated on six key variables: size, profitability, gender diversity in the board of directors, release of standalone sustainability report, length of the report and external assurance of the report. Table 4 provides a description of the independent variables used in the current study, highlighting the notation of the variables, their names and the indicator to define the variable.

Data for the first two variables (size and profitability), were obtained through the ORBIS database, specifically from the "Key financials & employees" section of each company's profile. For companies lacking data in ORBIS, the process was supplemented with information from their annual reports. For the remaining variables, meaning board gender diversity, issuance of a standalone sustainability report, reporth length and external assurance, data were gathered from company websites, annual reports and sustainability reports.

The size of the company was represented by the value of total assets. Moreover, the profitability was captured by the net income. Furthermore, board gender diversity was quantified using the percentage of women in the board of directors. Then, the a dummy variable having a value of 0 was used from companies reporting sustainability information in the annual report, conversely the value was 1 for companies reporting sustainability information in a standalone sustainability report. The length of the report was quantified as the number of pages of the sustainability report or of the sustainability information in the annual report. In addition, another dummy variable was employed to capture the external assurance of the report, specifcally it assumed a value of 0 if the report was not assured and a value of 1 if the report was assured. Finally, a time dummy variable was also included in the analysis and it assumed a value of 0 for the year 2020 and 1 for 2023.

Table 3: Independent variables

Variable notation	Variable name	Variable indicator
Size	Firm size	Total assets
Profitability	Firm profitability	Net income
Diversity	Board gender diversity	Dummy variable coded
		1 if the percentage of
		women in the board of
		directors was higher
		than 30, 0 otherwise
Stand_alone	Release of a standalone report	Dummy variable coded
		1 if the company
		released a standalone
		sustainability report,
		0 otherwise
Lenght	Lenght of the report	Number of pages of the
		sustainability report or
		of the sustainability
		information in the
		annual report
Assurance	Assurance of the report	Dummy variable coded
		1 if the report was
		assured, 0 otherwise
Time	Policy effect	Dummy variable coded
		0 for the year 2020 and
		1 for 2023

Source: Own illustration.

Research sample

In line with the purpose of the study, the sample consists of a selection of European agri-food companies. To find the right companies for the research purpose, the Orbis database was used. Then, to narrow the focus just on agri-food companies, the "BvD sectors" filter was applied and the following sectors were selected: "Agriculture, Horticulture & Livestock", "Food & Tobacco Manufacturing" and "Retail". Then, the "location" filter was leveraged to only

consider EU companies. The outcome of this research was a ranking of European agri-food companies, ordered from the highest to the lowest operating turnover. To finalize the sample, starting from the top of the ranking, company websites were reviewed and only the companies that had either a sustainability report or an annual report with sustainability information published in 2020 and in 2023 were selected.

The initial sample consisted of 50 companies, but 6 were removed as they were based in countries outside from Europe, which are out from the scope of this study. Then, another company was taken out because its financial data were not available. So, the final sample consists of 43 companies.

Company name	Nationality	Orbis activity
NESTLES A	СН	Corporate, Food & Tobacco
NESTEE S.A.		Manufacturing
CARLSBERG A/S	DK	Corporate, Food & Tobacco
CARESDERO A/S	DIX	Manufacturing
MERCADONA SA	ES	Retail
JERONIMO MARTINS SGPS S.A.	РТ	Retail
COLRUYT GROUP N.V.	BE	Retail
	СН	Corporate, Food & Tobacco
		Manufacturing
KERRY GROUP PLC	IF	Corporate, Food & Tobacco
		Manufacturing
HELLOFRESH SE	DE	Retail
AXFOOD AB	SE	Retail
CHOCOLADEFABRIKEN	СН	Corporate, Food & Tobacco
LINDT & SPRUENGLI AG		Manufacturing
MOWLASA	NO	Corporate, Agriculture, Horticulture
		& Livestock
GLANBIA PLC		
		Manufacturing
GREENYARD NV	BE	Corporate, Food & Tobacco
		Manufacturing

Table 4: Research sample

HUHTAMAKLOVI	FI	Corporate, Food & Tobacco
	11	Manufacturing
	SE	Corporate, Food & Tobacco
	SE	Manufacturing
DANISH CROWN A/S	אַמ	Corporate, Food & Tobacco
DANISH CROWN A/S	DK	Manufacturing
DAVIDE CAMBARI MILANO NV	IT	Corporate, Food & Tobacco
DAVIDE CAMPARI-MILANO N.V.	11	Manufacturing
	NO	Corporate, Food & Tobacco
LEROT SEAFOOD GROUP ASA	NO	Manufacturing
	NO	Corporate, Agriculture, Horticulture
SALMAR ASA	NO	& Livestock
ODICINI ENTERDRIGES DI C	IE	Corporate, Agriculture, Horticulture
ORIGIN ENTERPRISES PLC	IE	& Livestock
	FD	Corporate, Agriculture, Horticulture
	FR	& Livestock
MUD CE	CV	Corporate, Food & Tobacco
MITP SE	CI	Manufacturing
	TTT	Corporate, Food & Tobacco
KEKNEL HOLDING S.A.	LU	Manufacturing
ABV7TA AC	СЦ	Corporate, Food & Tobacco
ARIZIA AO		Manufacturing
MARR SRA	IT	Corporate, Food & Tobacco
MARK SFA	11	Manufacturing
HESCANOVI	FI	Corporate, Food & Tobacco
IIKSCAN OTJ	11	Manufacturing
	SE	Corporate, Agriculture, Horticulture
SCANDI STANDARD AB	SE	& Livestock
SOVENA PORTUGAL - CONSUMER	DO	Corporate, Food & Tobacco
GOODS, S.A.	PO	Manufacturing
LOTUS BAKEDIES NV	BE	Corporate, Food & Tobacco
	BE	Manufacturing

DE DAVVAEDOST SALES	DK	Corporate, Food & Tobacco		
1/1 DARKAI KOST SALLS		Manufacturing		
KONINKLIJKE AHOLD DELHAIZE	NI	Potoil		
N.V.	INL	Retail		
X5 RETAIL GROUP N.V.	NL	Retail		
	NL	Corporate, Food & Tobacco		
HEINEREN HOLDING N.V.		Manufacturing		
ZUIVELCOOPERATIE	NI	Corporate, Food & Tobacco		
FRIESLANDCAMPINA U.A.		Manufacturing		
IDE DEETIC NI V	NL	Corporate, Food & Tobacco		
JDETEETSN.V.		Manufacturing		
JUMBO SUPERMARKTEN B.V.	NL	Retail		
	NL	Corporate, Food & Tobacco		
CORDION N.V.		Manufacturing		
COOPERATIE KONINKLIJKE COSUN	NL	Business services (agricultural		
U.A.		cooperative)		
	SE	Corporate, Food & Tobacco		
		Manufacturing		
	DK	Corporate, Food & Tobacco		
AKLA I OODS AMBA		Manufacturing		
ANDELICED DUCCH NIDEV CA ANY	BE	Corporate, Food & Tobacco		
AMILUSER-DUSCH INDEV SAMV		Manufacturing		
AUSNUTRIA B.V.	NL	Business services		
STICHTING		Corporate Food & Tobacco		
ADMINISTRATIEKANTOOR	NL	Manufacturing		
VANDEMOORTELE		manuracturning		

Source: Own illustration.

Analysis

The database used in this study is a panel time series, through which the model was estimated using fixed effects. In the case of panel data models, the unobserved factors affecting the dependent variable (those captured by the error term) are of two types: some are constant over time and others vary over time. Hence, the error term has two components:

- 1. $a_i \rightarrow$ fixed effect error (constant over time)
- 2. $u_{it} \rightarrow$ idiosyncratic error (time-varying)

The fixed effects estimation is based on a transformation of the data based on the unit-specific means: the mean of all observation of each unit over time. In order to estimate the model, the first step is to compute the difference between each value and its unit-specific mean. In this way, the intercept and the fixed component of the error term disappear. The resulting regression is known as "within regression" and applying ordinary least squares to it provides slope parameter estimated that are unbiased and consistent.

Given the above, this study used fixed effects to investigate how SRQ changed after the CSRD and the moderating role of company size, profitability, board gender diversity, report length, the release of a standalone report and report assurance on sustainability reporting quality. The dependent variable, labeled SRQ, was explained by the following model:

$$SRQ = Time + Size + Profitability + Diversity + Length + Stand alone + Assurance + u$$

Additionally, in panel data models, serial correlation often poses a challenge because, unlike cross-sectional data, panel data are characterized by repeated measurements for the same unit over time, leading to dependencies in errors across time periods. If not addressed, serial correlation can bias standard errors, compromising the reliability of the significance tests in the model. To mitigate this, the current study applied clustered standard errors by company in the fixed effects model.

Results

Descriptive statistics

Table 5 presents the descriptive statistics for the sample taken as a whole, with "Net income", "Total assets" and "Turnover" shown in million of euros. Although "Turnover" and "Employees" were not included in the quantitative analysis, they are displayed here to highlight that the sampled companies far exceed the minimum thresholds to qualify as large undertakings under the CSRD. Specifically, companies are classified as large if they meet at least two of the following criteria: (i) a balance sheet total of EUR 25 million, (ii) net turnover of EUR 50 million and (iii) an average number of 250 employees during the financial year. The companies in the sample show a mean total asset of EUR 14,054.91 million, an average turnover of 10,947.44 million and a mean workforce of 44,843.67 employees. This demonstrates that the dataset comprises some of the Europe's largest agri-food companies.

Regarding SRQ, an average score of 0.51 indicates that the sampled companies, on average, scored just over the halfway point of the maximum possible score according to the model of (Arvidsson & Dumay, 2021). Additionally, a standard deviation of 16% reflects a moderate variability of the SRQ values around the mean. Finally, on average, the percentage of women in the board of directors (31.13%) is significantly lower compared to men, highlighting a gender imbalance in leadership positions.

Measure	Quality index	Net income	Lenght	Gender diversity	Total assets	Turnover	Employees
Minimum	0.01	- 5,472.77	4	0	239.01	567.56	510.00
Maximum	0.80	12,075.34	250	57.1	198,497.65	101,029.28	402,000.00
Mean	0.51	522.50	93.09	31.13	14,054.91	10,947.44	44,843.67
St. Dev	0.16	1,955.30	45.57	12.53	34,428.66	19,121.38	88,928.53
Median	0.53	141.79	80	30.45	3,546.14	3,755.65	11,286.00

Table 5: Descriptive statistics

Source: Own illustration.

A focus on SRQ

Figure 1 shows the values of the E, S and G dimensions of the index used to capture SRQ, as well as the values of the total index, for the years 2020 and 2023.

It's noteworthy that all the three dimensions experienced a growth from 2020 to 2023, with the overall index increasing by 10% in the second year of analysis. Despite the improvement compared to 2020, the total quality index in 2023 was 0.55, reflecting a relatively low level of quality. The E dimension recorded the lowest value primarily due to development and

performance subdimensions. Specifically, many companies in the sample, particularly in 2020, failed to provide adequate transparency regarding the trend of their initiatives over the last three years, as well as the targets of the initiatives. The values of these subdimensions negatively influenced the values of the E position subdimension: 0.49 in 2020 and 0.75 in 2023. In contrast, the S dimension achieved the highest value in both years. This can be attributed to the fact that most of the companies offered detailed descriptions of their stakeholders' relationships and the design and objectives of their stakeholders' engagement process. Additionally, the strong performance of the S dimension was driven by the S performance subdimension, as 69.7% of the companies in the sample conducted and described their process of materiality assessment in 2020. This value rose significantly in 2023, with 95.34% of the companies (41 out 43) performing and reporting their materiality assessment process. The positive outcomes across most S indicators were enough to offset the negative results from the second indicator of the S position dimension, where only 10 and 13 companies described how they identified their relevant stakeholders in 2020 and 2023 respectively. Lastly, the G dimension showed the smallest change between 2020 and 2023, largely due to the G development subdimension, where the number of companies applying the GRI framework, being member of the UNGC and describing what GRI and UNGC remained unchanged across the two years.

Figure 1: Content analysis results



Source: Own illustration.

Regression results

Table 6 presents the results of the model explaining SRQ. Firstly, it is worth highlighting that, as proposed in H1, the CSRD had a positive impact on the quality of sustainability reporting. Specifically, the directive led to a 6.03% increase in SRQ, a statistically significant improvement at the 5% level. Secondly, contrarily to the expectations set forth in H2, the model revealed a negative relationship between company size and SRQ. Specifically, an increase of EUR 100 million in total assets, resulted in a 0.0963% in reporting quality. However, it is important to note that this effect is barely significant and negligible in magnitude. Thirdly, consistent with H3, profitability positively influenced SRQ, with a significant effect at the 1% level (t-value = 3.08). Nonetheless, the magnitude of this impact was modest: a EUR 100 million increase in net income led to only a 0.48% improvement in SRQ. Additionally, as hypothesized in H4, greater board gender diversity positively affected SRQ. A 1% increase in female representation in the board of directors resulted in a 6.31% enhancement in SRQ, significant at the 5% level. Furthermore, as theorized in H5, the analysis further confirmed the positive relationship between report length and SRQ. Each additional page improved the quality index by 0.134%, which is statistically significant at the 5% level. Moreover, as assumed in H6, the results proved that companies issuing standalone sustainability reports have higher SRQ. This variable was the one with the highest influence on the dependent variable, causing an increase of 13.81% on reporting quality at the 5% level of significance. Additionally, as expected in the last hypothesis, the assurance of sustainability reports was positively associated with SRQ. Reports with assurance showed a 2.01% higher quality index compared to nonassured reports. However, with a t-value of 0.5171, this relationship did not reach statistical significance.

Finally, an R-Squared value of 0.55548 indicates that the model provides a moderately good fit for the data. In other words, 55.48% of the variation in the dependent variable is explained by the independent variables included in the model. Then, a negative Adjusted R-Squared (-0.049555), might be due to the inclusion in the model of the variables "Size" and "Assurance", which are not statistically significant. As a further point, the p-value of the F-Statistic (6.11e-05) suggests that the model as a whole is statistically significant.

Table 6: Regression results

$SRQ = \beta 1 TIME + \beta 2 SIZE + \beta 3 NET_INCOME + \beta 4 DIVERSITY + \beta 5 LENGHT + \beta 6 STAND_ALONE + \beta 7 ASSURANCE + u$								
Control variables	Estimate	Std. Error	t-value	Pr(> t)				
Time	6.0276E-02	2.3481E-02	2.5669	0.014562	*			
Size	-9.6291E-06	5.6220E-06	-1.7127	0.09536				
Net_income	4.8391E-05	1.5709E-05	3.0804	0.003947	**			
Diversity	6.3123E-02	2.8281E-02	2.232	0.03193	*			
Lenght	1.3401E-03	5.5280E-04	2.4242	0.02049	*			
Stand_alone	1.3808E-01	6.4183E-02	2.1514	0.038228	*			
Assurance	2.01E-02	3.90E-02	0.5171	0.608264				
Model summary	Value							
Total Sum of Squares	0.74481	-						
Residual Sum of Squares	0.33108							
R-Squared	0.55548							
Adjusted R Squared	-0.049555							
F Statistic	6.42667 on 7 and 36 DF, p-value: 6.1151e-05							

Source: Own illustration.

Notes: (1) Two asterisks (**) indicate that the estimate is statistically significant at the 1% level (p-value < 0.01). (2) One asterisk indicates that the estimate is significant at the 5% level (p-value < 0.05). (3) A dot (.) denotes marginal significance. (4) The absence of a symbol indicates no statistical significance.

Discussion

Regarding the effect of the CSRD in improving SRQ, the results of this study are aligned with studies highlighting how reporting mandates drive substantial and positive improvements in the quality of sustainability reporting (Kinderman, 2020; Jamali & Karam, 2018). The finding of the current study are also in line with the results suggested by Fiechter, Hitz, & Lehmann (2022), who examined the impact of the NFRD on a sample of European companies. Their research demonstrated that firms within the scope of the regulation significantly increased the transparency of their reporting activities. Notably, in line with this study's context, they highlighted how the effects of the directive became evident even before the latter came into effect. Several factors explain why legal acts, such as the CSRD, lead to improved SRQ, even before their mandates came into force. One possible explantion is that firms proactively enhance their sustainability reporting activities in anticipation of stakeholders reactions (Bolton et al., 2021). These reactions are expected as the reporting mandate could heighten stakeholder scrutiny and increase the perceived importance of the firms' sustainability efforts (Christensen et al., 2017). As a consequence, companies seek to improve their sustainability practices ahead of the directive's implementation to safeguard their reputation with customers (Fiechter, Hitz, & Lehmann, 2022), investors (Grewal, Riedl, & Serafeim, 2019) and other important stakeholders' groups. Another reason which pushes companies in enhancing their reporting practices before the mandate come into force is called "internal learning". Specifically, in preparing for the mandate, firms often begin collecting data, processing additional information, refining their internal reporting systems, reviewing existing policies and establishing governance and reporting committes focusing on sustainability (Fiechter, Hitz, & Lehmann, 2022). These preparatory activies enrich managers' information (Roychowdhury, Shroff, & Verdi, 2019), for instance revealing inefficiencies or policy weaknesses and potentially prompting adjustments to their sustainability strategies.

Firm size and SRQ

The findings regarding the relationship between SRQ and firm size reached by this study diverge from the conclusion of authors suggesting a positive relationship between the size of the company and the quality of sustainability reporting (Brammer & Pavelin, 2006; Lee, 2017). However, a different body of literature suggests that a positive relationship vetween company size and SRQ is not guaranteed. For instance, Arvidsson & Dumay (2021) analyzed the ESG information in the sustainability reports of the 30 most-traded Swedish companies listed on the

NasdaqOMXS30 Stocholm Stock Exchange between 2008 and 2018. They found that the quality of sustainability reporting remained low, even among these large firms. Similarly, research on the 2012 sustainability reports of the world's largest companies reached a comparable conclusion: despite their size, these firms produced reports with low quality (Sethi, Martell, & Demir, 2017). This discrepancy can be explained by the varying motivations behind sustainability reporting. From an accountability perspective, sustainability reporting is viewed as an organization's responsability to provide a comprehensive account of its activities (Gray & Dey, 1997; Gray et al., 2001). This is especialy true for larger companies that, due to their greater environmental and social impact and heightened visibility, are subject to gretaer stakeholder scrutiny and pressure (Gallo & Jones-Christensen, 2011 ; Fortanier, Kolk, & Pinkse, 2011). The accountbility perspective recognises the gap between what companies are reporting and what is required by stakeholders, criticizing the current quality of sustainability disclosures (Comyns et al., 2013). Furthermore, some reporters tretas sustainability reporting as a mere compliance excercise, aiming to meet the minimu requirements at the lowest possible cost (Farooq & Villiers, 2019). In this cases, sustainability reporting often lacks senior management and board level support, negatively impacting reporting quality (Bellringer, Ball, & Craig, 2019).

Firm profitability and SRQ

Another finding proved by this thesis was the positive relationship between profitability and SRQ, this can be attributed to the substantial human and financial resources required for effective sustainability reporting. Profitable companies are better equipped to allocate these resources, enabling them to make sustainability information readily available, by hiring specialized personnel, implementing advanced reporting systems and investing in comprehensive data collection and analysis (Seifert, Morris, & Bartkus, 2004; Ramus & Steger, 2000). Additionally, also Dilling P. (2010) aligned with the prevailing consensus among researchers: more profitable firms are likelier to produce high-quality sustainability reports. Another factor supporting this view is that sustainability reports often present a balanced view, which typically highlights both accomplishments and areas where targets were missed or improvements were insufficient. While this level of transparency can expose firms criticisms and reputational risks, financially robust companies have the resources and resilience to mitigate the negative consequences of disclosing such information while maintaining stakeholders confidence (Cormier & Gordon, 2001; Haniffa & Cooke, 2005). Lastly, the role of stakeholder engagement is paramount in ensuring high-quality sustainability reporting.

It helps aligning the report with the most material issues, incorporating different perspective and meeting the expectations of those affected by the company's operations. In this respect, Malik (2014) demonstrated that firms with strong financial performance are better equipped to actively engage with their stakeholders, using their resources to enhance the depth, relevance and credibility of their reporting.

Board gender diversity and SRQ

As proposed in the "Hyphoteses development" section, this study confirmed a positve relationship between SRQ and board gender diversity. In this regard, Terjesen, Seal, & Singh (2009) suggested that more diverse boards enhance board effectiveness and performance, ultimately driving superior organizational value and otucomes (Gul, Hutchinson, & Lai, 2013). Moreover, Vermeir & Kenhove (2008) indicated that female directors demonstrate a lower propensity for fraudolent behavior, they also show a stronger commitment to applying higher ethical standards in the decision making process (Thorne, Massey, & Magnan, 2003). This superior ethical behavior and commitment have been shown to correlate with high quality reporting (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019). Additionally, female directors exhibit a greater inclination to advocate for assurance statement in sustainability reports, thereby enhancing their credibility (Fernandez-Feijoo, Romero, & Ruiz-Blanco, 2014). Therefore, as extensively discussed in this study, the assurance of sustainability information lead to higher sustainability reporting quality. Furthermore, female directors are recognized as a powerful mechanism for managerial oversight (Gul, Srinidhi, & Ng, 2011); their monitoring and control foster a culture of trust and reliability in the firm's disclosure. By reducing the likelihood of impression management strategies, female directors help to lower the risk of information distorsion, promoting more objective and transparent disclosure practices. In turn, this reduces the likelihood of stakeholders making poorly informed decisions (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019). Moreover, female directors are less liley to manipulate corporate information and have a positive influence on accouting practices, earnings quality and financial reporting (Gul, Srinidhi, & Ng, 2011 ; Sánchez, Domínguez, & Álvarez, 2011 ; Ho et al., 2014). Consequently, sustainability reports are expected to contain less impression management and benefit from superior information quality (García-Sánchez, Suárez-Fernández, & Martínez-Ferrero, 2019).

The lenght of sustainability disclosures and SRQ

The relationship between the quantity and the quality of sustainability reporting has always been a subject of debate in the literature. Specifically, the question is: does a greater extent of disclosure equate to higher quality? On one hand, several scholars argue that companies often adopt a symbolic use of sustainability reporting practices. In such cases, extensive disclosure may consist of large volumes of "empty" statements or boilepate information, offering little value in enhacing stakeholders' understanding of corporate activities and their impacts (Michelon, Pilonato, & Ricceri, 2015). On the other hand, a body of literature supports a positive relationship between the quality and the quantity of sustainability disclosure. For instance, Hooks & Van Staden (2011), demonstrated a positive relationship between the quality of sustainability disclosures and the number of pages of the report. Additionally, several scholars highlighted how better sustainability performing firms have economic intentives to disclose more information so that stakeholders could differentiate their performance from that of their competitors (Prado-Lorenzo & Sánchez, 2010; Clarkson et al., 2008). These findings are aligned with the signalling theory of information disclosure, which posit that firms with higher sustainability performance disclose more information as it is costly for poorly performing firms to mimic by disclosing likewise (Koh, Li, & Tong, 2023). The idea that good environmental performance is associated with more extensive disclosure is also supported by Al-Tuwaijri, Christensen, & Hughes (2004), who motivated their rationale highligting how the disclosure of these information is perceived as a good news by investors. Moreover, issuing more information contributes directly to enhancing an organization's reputation, as extensive disclosure signals opennes, which strenghtens trust and credibility with stakeholders (Hasseldine, Salama, & Toms, 2005). Despite the positive correlation between information quality and quantity observed in this study and supported by previous research, the debate surrounding this relationship remains a highly discussed topic, as some high-quality reports can be very concise.

The release of a standalone sustainability report and SRQ

Signalling theory posits that companies recognized as "good" corporate citizens issue standalone sustainability reports to adress information asymmetries that may hinder them from fully reaping the benefits of their actions. Signalling suggest that firms use standalone sustainability reports as a signal of their superior commitment. Therefore, high sustainability performing companies, issue standalone sustainability reports to ensure that stakeholders are

aware of the appropriateness of the firms' actions taken on social and environmental issues (Clarkson, Overell, & Chapple, 2011 ; Gray, Kouhy, & Lavers, 1995). In addition, the signalling argument suggests that firm with stronger sustainability performance incur lower costs in issuing standalone sustainability reports compared to firm with weaker sustainability performance (Mahoney, Thorne, Cecil, & LaGore, 2013). According to some scholars, what distinguishes these standalone reports is their clear demonstration of a company's engagement with critical environmental and social responsability, as well as business sustainability (Gray & Herremans, 2011). Therefore, the creation and publication of standalone sustainability report represent a deliberate effort by firms to highlight their dedication to these causes (Dhaliwal et al., 2012). Finally, sustainability reporting serves as a tool for companies to legitimize their role in society. While traditional annual reports focus primarily on financial performance, often neglecting deeper commitments to sustainability issues, the disclosure of sustainability information through dedicated reports is associated with higher quality reporting (Romero, Ruiz, & Fernandez-Feijoo, 2018).

External assurance and SRQ

The role of external assurance in enhancing the quality of sustainability reporting has been extensively explained by scholars and several reasons can be identified behind this positive relationship:

- External assurance promotes active stakeholder engagement (Morimoto, Ash, & Hope, 2005);
- External assurance highlights gaps in the company'sustainability and reporting policies (GRI, 2013; Gillet-Monjarret, 2012);
- External assurance can raise awarness of high-quality sustainability reporting (Edgley, Jones, & Solomon, 2010).

Furthermore, Al-Shaer & Zaman (2019) has highlighted a positive link between assurance and a commitment to deeper values, such as trust, credibility and confidence in reporting. In this context, it is worth mentioning Schein's model of organizational culture, which emphasizes that an organization's values profoundly shape its behaviors (Schein, 1983). These values provide a framework that guides how members of the organization act and make decisions (Hogan & Coote, 2014). In the context of reporting, fostering a culture of trust and confidence around this practice, establishes a foundation of accuracy and diligence. As a result, this cultural alignment is expected to contribute to the production of high quality sustainability reports.

Despite the positive association between external assurance and SRQ provided by this study and by previous researchers, there is still a stream of literature suggesting that external assurance does not necessarily lead to higher quality sustainability reports. Some scholars, such as Simnett, Vanstraelen, & Chua (2009) argue that external assurance may sometimes be used merely as a signalling mechanism. Morever, concerns have been raised regarding the capability of assurance providers, typically trained in financial statement audits, to assess ESG disclosures effectively (Manetti & Toccafondi, 2012). Until now, external assurance of sustainability information has been a voluntarily practice for firms. However, with the introduction of the new CSRD it will become a mandatory practice. This shift presents an intriguing opportunity to examine how the relationship between external assurance and sustainability reporting quality may evolve under this significant regulatory change.

Conclusion

This thesis provided empirical evidence contributing to the ongoing debate about the impact of mandatory legislations on the quality of sustainability reporting. For the purpose of this research, SRQ was assessed using the framework developed by (Arvidsson & Dumay, 2021). The latter was applied to evaluate the quality of sustainability information from a sample of 43 European agri-food companies in two periods: 2020 (under the NFRD) and 2023 (under the CSRD). The findings reveal a 10% improvement in the quality of sustainability reporting in the second period of analysis. Additionally, the study identified several variables that positively and significantly influenced sustainability reporting quality, including company profitability, board gender diversity, report length and the publication of a standalone report. Conversely, company size was found to have a negative and marginally significant effect, while report assurance demonstrated a positive but statistically insignificant impact.

As highlighted at the beginning of this research, the scientific community remains divided on whether mandatory legislations drive improvements in SRQ. This uncertainty also arises from the complex and multifaceted nature of SRQ, which is challenging to measure due to its subjective elements (Beattie, McInnes, & Fearnley, 2004; Lokuwaduge & Heenetigala, 2017). Despite the growing emphasis on sustainability reporting in recent years, particularly with the introduction of the CSRD, which positions Europe as a leader in this field (Wollmert & Hobbs, 2022), it is crucial to understand that reporting alone is not the ultimate goal. True sustainability commitment requires companies to move beyond the content of their reports and focus on their actual practices and performances. Tackling the climate crisis demands more than well-crafted narratives about targets, it requires setting ambitious, meaningful goals and achieving them, irrespective of the reporting framework and communication channel used. This shift is only possible if companies reinvent their value creation models to balance long-term profitability with social justice and environmental protection.

Research contributions

This study contributes to the ongoing debate on the influence of reporting mandates on the quality of sustainability reporting, a topic that has yielded mixed findings in the literature. Some researchers argue that legislations positively influence SRQ (Chelli, Durocher, & Richard, 2014), while others suggest they may have little or no impact (Chauvey et al., 2015). By engaging with this debate, the current research offers valuable emprical evidence regarding this discussed topic. Furthermore, given the novelty of the CSRD, this study is among the first to

examine its impact on SRQ. It focused specifically on the agri-food sector, which is under heightened scrutiny due to its significant environmental footprint, including contributions to waste generation, biodiversity loss and water consumption (Govindan, 2018). This sector's unique challenges and responsabilities make it a critical area for evaluating the effectiveness of the CSRD. Lastly, this stduy shed the light on role of various company-variables in influencing SRQ under the new regulatory framework. It not only identified if variable such as size, profitability and board gender diversity have a positive or negative influence on SRQ; it also explored the mechanisms thorugh which each factor affects reporting quality.

Research limitations

Despite the valuable insights and contributions of this study, it is important to acknowledge its key limitations. First, the sample size was relatively small, which may have influenced some of the statistical findings, particularly the non-significance of the "Assurance" variable and the marginal significance of the "Size" variable in the regression analysis. Second, the results are likely influenced by the selection of sustainability and annual reports, as the study focused exclusively on agri-food companies. This sector-specific approach means that the findings may not be generalizable to companies in other sectors, where different dynamics could yield varied results. Third, the study was influenced by the inherent subjectivity of the coding procedure. The results might be influenced by the framework used to analyze SRQ and alternative results could emerge if an alternative framework had been applied. Finally, similar to previous research examining SRQ prior to the full implementation of reporting mandates (Fiechter, Hitz, & Lehmann, 2022), this study provided early evidence, as the first official reporting year under the CSRD will be financial year 2025.

Avenues for future research

The research sample consisted of companies that exceed the criteria for classification as "large" undertakings under the new CSRD. Consequently, it is likely that many of the companies in this study were already well-versed in sustainability reporting. Hence, future research could focus on examining the reporting quality of companies classified as "large" undertakings in the CSRD, as well as SMEs, to gain insights into how organizations with less experience in sustainability reporting respond to the new CSRD requirements. Additionally, future research could explore the effect of the CSRD on SRQ in other sectors, as this study was limited to agrifood companies. Investigating other industries could offer a broader understanding of how the directive impacts sustainability reporting across different business context. Moreover, several

studies have explored the relationship between ESG performance (captured by index developed by rating agencies) and disclosure (Aboud, Saleh, & Eliwa, 2023), investigating whether companies with stronger ESG performance also tend to have higher SRQ. Future research could further explore this relationship within the context of the CSRD.

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