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Growing Double Materiality into Corporate Sustainability Reporting in Order to Meet Green Deal Targets

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Abstract

The transition to a clean, just, and sustainable European economy, in line with the objectives of the Green Deal, is an ongoing activity. Global warming, post-pandemic recovery, the challenges and difficulties arising from the conflict situation in Ukraine, have all intensified the efforts of the Member States in order to reduce the dependency on natural resources and to achieve sustainable growth. European companies are also facing these challenges, as the net-zero emissions targets are expected from the business environment. From these considerations, in 2022, the European Commissions adopted the Corporate Sustainability Directive and presented the first draft of European Sustainability Reporting Standards, as essential tools, aimed to increase transparency and quality of non-financial data. Both documents incorporate the principle of double materiality as a reporting criterion. This paper investigates the frequency with which the two materiality perspectives were reported by 128 European companies operating in five industries. The research is based on a content analysis of 512 Sustainability Reports published for the period 2019-2021. The general findings of the analysis highlight a current low stage of integrating the principle of DM in sustainability reporting, but with obvious perspectives of awareness of its content, usefulness, and purpose. Cross-sector oscillations were observed, with a clear detachment of energy companies, which is considered a positive aspect, given that the greening of the energy sector is one of the European Green Deal's targets.

Keywords: double materiality, CSRD, Green Deal, sustainability, content analysis.

JEL Classification: M14, G30.

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1. Introduction

Economic sustainable development has always been at the heart of European policies and projects, but in the face of intensifying the negative effects of climate changes, the financial and social difficulties caused by the COVID-19, and the challenges arising from the conflict situation in Ukraine, the European Commission (EC) decided to accelerate the actions taken in order to meet a fair and efficient ecosystem. Adopted in December 2019, the European Green Deal (EGD) represents the main instrument that will transform the EU into a competitive and modern economy with sustainable growth that is decoupled from the resource use (EU Commission, 2019a). The green transition needs to be embraced by the entire society, policy makers and, most importantly, business environment. From these considerations, the successful implementation of the EGD requires "better data from companies about the sustainability risks they are exposed to, and their own impact on people and the environment" (EU Commission 2021, 189 final, p. 2).

Introduced as a criterion for assessing sustainability data, the concept of double materiality (DM) has steadily increased in importance, applicability, and impact on achieving the goal of decarbonising European industries. Evidence of the increasing applicability of materiality is also provided by the academic area (Machado et al., 2021; De Cristofaro, Gulluscio, 2023). However, most of the studies undertaken converge toward the conclusion of an emerging and complex character of the concept, as well as major disparities in practical implementation and a lack of uniformity in the concept definition (Cerioni et al., 2021; Fiandrino, Tonelli, 2021).

The gap between the significant evolution of DM within European regulations, compared to the divergences from scientifical framework and practical use of the concept, is the main motivation for our research. Based on this, we formulated our scientific objective to quantify the practical applicability of DM in the European sustainability reporting. The assignment is far from being easy or devoid of subjectivity. As De Cristofaro and Gulluscio (2023) point out in their paper "there is a fragmented landscape of materiality disclosure" and taking into account the ambitious Green Deal's objectives this aspect needs to be improved. For these reasons, the present research goes beyond previous investigations (De Cristofaro, Gulluscio, 2023; Machado et al., 2021; Jorgensen et al., 2021) by providing additional clarifications and contributing to the literature in three main aspects. First, our research focuses only on European companies targeted by non-financial reporting. The homogeneity of the analysed population, in terms of consistency of the DM criteria, allows for comparability of the results and adds scientific value to the conclusions drawn. Secondly, the content analysis, carried out based on the key terms regarding the European view on DM, reveal the real state of understanding and application of the concept, as well as its evolution. Third, but not least, by corroborating the analysis in structure (cross-industry) and in dynamics (2019-2021), important conclusions are drawn, both from a theoretical and practical point of view, considering the on-going process of standardisation of sustainability reporting.

2. Double Materiality Regulation and Practical Implications

The principle of double materiality (DM) emerged and developed in close accordance with European regulations on non-financial reporting. Although it does not clearly mention the need for a double approach in assessing the materiality, Directive 95/EU recommends that companies include in their reporting "key non-financial performance indicators relevant to the specific business of the company" (Directive 2014/95/EU, Art. 19(e)). In June 2019, the EU formally introduced a new element to be taken into account in non-financial reporting, namely, the concept of DM. This principle was stipulated in the content of the communication aimed at providing assistance and guidance in non-financial reporting, complementing the Guide adopted in 2017. These new guidelines underline the importance of the materiality of non-financial indicators, "both from a business perspective and from a societal impact perspective" (EU Commission, 2019b/C 209/01, point.2.2).

With the release, in April 2021, of the Proposal for a Corporate Sustainability Reporting Directive (EU Commission, 2021, 189 final), the principle of DM has been increased to the degree of non-financial reporting criterion and further clarified. The European companies are mandated to communicate information about "the sustainability risks they are exposed to, and their own impact on people and the environment" (EU Commission, 2021, 189 final, p. 3).

The Corporate Sustainability Reporting Directive (CSRD) adopted in December 2022, consolidates the rules for disclosure of environmental, social, and governance data, contributing to a maturing of the corporate sustainability reporting process and bringing it closer to financial reporting (CSRD/2022/464, art. 29). The CSRD mandates the European Financial Reporting Advisory Group (EFRAG) to develop a set of European Sustainability Reporting Standards (ESRS). The principle of DM lies also at the heart of the ESRS delivered on December 2022 (Draft ESRS 1 General requirements).

3. Review of the scientific literature. Research Questions

Even though DM is promoted as an essential requirement for non-financial reporting, both researchers and practitioners have repeatedly pointed out that the diversity of definitions and approaches affects the comparability, usefulness, and transparency of data published in companies' sustainability reports (Cerioni at al., 2021; Fiandrino, Tonelli, 2021). Based on a quantitative content survey of 140 sustainability reports, grounded on the GRI recommendations, Machado et al. observed that companies do not disclose complete and detailed information about all issues identified as relevant (Machado et al., 2021). A rather small percentage, around 22% of the material indicators tracked in the study, was found in the company reports with broad content. Arvidsson and Dumay (2021) observed, in extensive research on non-financial reporting, an increase in the volume of published data, but without an improvement in their quality. The study was carried out on 30 Swedish companies listed on the Stockholm Stock Exchange and involved a content analysis of their published sustainability reports from 2008-2018 (Arvidsson, Dumay, 2021).

Improving the quality of published non-financial data requires, according to Rodríguez-Gutiérrez, creating an inclusive relationship between the company and key stakeholders in order to identify the sustainability issues with the highest degree of materiality. To demonstrate the importance of having a dialogue between the company and its stakeholders, on the materiality's topic, the author approached integrated reporting (IR) as an innovative non-financial communication tool in Spanish companies (Rodríguez-Gutiérrez, 2021).

In a more recent approach, De Cristofaro and Gulluscio (2023) investigated, through an exploratory analysis (based on text analysis), the applicability of DM in reporting sustainability at the level of a sample of 58 companies, from 21 European and non-European countries. The research allowed them a mapping of the latest corporate initiatives to apply DM in non-financial reporting. Such initiatives have unfortunately been identified only in the case of European companies and at a low level. The scholars also pointed out that there are very large discrepancies between approaches to the concept of DM "and a few empirical scientific contributions dedicated to DM disclosure" (De Cristofaro, Gulluscio, 2023, p. 24). Along with this remark, we enumerate the other conclusions drawn from the conducted review: (i) diversity of definitions and applicability of DM (Jorgensen et al., 2021); (ii) a lack of transparency, inaccuracy, and incomplete disclosure of sustainability issues (Machado et al., 2021); (iii) distortion and manipulation of the content of sustainability information in the interest of the company (Arvidsson, Dumay, 2021); (iv) different intensity in the application of DM at the global level, high subjectivism in the identification of sustainable issues, and very little evidence of a formal and consistent adoption of DM (De Cristofaro, Gulluscio, 2023).

In the current stage of knowledge, the present paper aims to make both theoretical contributions, to fill the gap in the literature, as well as practical contributions that focus on the principles laid down by the EU in the field of DM.

Subsidiary to this scientific objective, the following research questions (RQ) have been formulated:

RQ1: What is the general stage for the implementation of DM in European companies reporting? How has it evolved?

RQ2: Are the two perspectives of materiality reported accordingly to dominant principles and concepts at the level of European Union?

RQ3: The current stage of awareness and integration of DM can support the fulfilment of European Green Deal objectives?

4. Research Methods

The study is based on a quantitative content analysis of Sustainability Reports published by European companies for the financial years 2019-2021. The research included exclusively European companies targeted by mandatory non-financial reporting for which have been accessed Sustainability Reports on corporateregister.com platform. As one of the largest Corporate Social Responsibility reporting platforms in the world (Arvidsson, Dumay, 2021), which offers free institutional access to researchers, it allowed us to extract a total

of 512 sustainability reports from a sample of 128 European companies operating in five activity areas (Table 1).

Table 1. Structure of companies' sample

Field of activity	Companies
Basic materials	32
Energy	31
Technology	26
Utilities	21
Industrial products	18
Total	**128**

Source: Authors processing.

This paper examines the degree to which European companies have exclusively implemented the EU view of DM. To this end, we have considered the dynamics of the concept within the European regulations and have particularised this evolution between two main points in time: (a) the period 2019-2020, when non-financial reporting was carried out under the Directive 95/EU assisted, in terms of DM, by the guidance 2019b/C209 on non-financial reporting; (b) the year 2021, when the public debate on revision of the CSRD had already been held and the Proposal for a Corporate Sustainability Reporting Directive was released.

At the level of these regulations, text mining was carried out and a range of visualisations of the main contents of the DM guidance was generated (figures 1, 2).

Figure 1. Visual representations of the key concepts identified within the guid of EU Commission, 2019/C 209/01

Source: Authors processing.

Figure 2. Visual representations of the key concepts identified within the Proposal for CSRD

Source: Fiandrino, Tonelli, 2021, p. 9.

The 512 sustainability reports published by the companies from the scientific population have been the subject of a quantitative content analysis, by using the

linguistic soft Linguistic Inquiry Word Count (LIWC). Quantitative text analysis is an efficient technique to transform textual content into statistically relevant data. This is increasingly used in management research (Pröllochs, Feuerriegel, 2020) and non-financial reporting (Fiandrino, Tonelli, 2021; Arvidsson, Dumay, 2021). Linguistic Inquiry and Word Count (LIWC), in particular, is a software for academic research, which quantifies the frequency with which a word or association of words is used in a given volume of text. Within this process, the software is based on a closed dictionary of terms. The dictionary may be defined by each researcher in relation to its scientific objectives.

In order to elaborate an appropriate dictionary of terms, we started from the list of key terms, identified by Fiandrino and Tonelli, after a text-mining content analysis of all attached documents, as debates and contributions, to the revision of non-financial Directive (Fiandrino and Tonelli, 2021). Gathering opinions and contributions from 588 companies, NGOs, academic environments, and public institutions, these materials present an informational utility extremely valuable. This criterion made the key terms resulting from the analysis of the EU Commission guide, 2019b/C 209/01, to be considered secondary information.

The key terms list used in the research is presented in Table 2. There are terms relevant to the financial perspective of materiality (first category), to the ecological-societal perspective of materiality (second category) and to a unitary-cumulative approach to the concept of DM (third category), in accordance with EU regulators at the time of reporting for 2019-2021.

Table 2. Dictionary of relevant terms to the research context

Item no.	Financial materiality perspective	Environmental and social materiality perspective	Singular approach of DM
1.	Financial	ESG (Environment, Social, Governance)	European Reporting standards (NFRD)
2.	Global (performance)	Climate changes	Transparency
3.	Business (growth)	Non-financial disclosure	Sustainability
4.	Risks (Investors)	Human rights	Carbon footprint
5.	Company value	Greenhouse gas emissions	Responsible business
6.	Impact (Stakeholders)	People, society	Internal and external
7.	Innovation	Social issue	Key process
8.	Green investments	Recycling	Renewable resources
9.	Efficiency	Community needs	Sustainable product
10.	Research and development	Relevant social issues	Company impact

Source: Authors processing.

To document the research questions (RQ1-RQ3) using the quantitative content analysis technique, the following were considered:

1. Index of DM reporting stage (ISr) at the level of European companies:

$$I_{sr} = \sum Weight\ term_{\ i} \quad (1)$$

where: I = 1 … 30 terms

In order to determine the weight of each $term_i$ of research dictionary, the option „Word Frequencies Analysis" of LIWC-22 software is used.

2. Frequency of use of each of the three categories in the research dictionary in total Sustainability Reports. In calculating this reporting frequency, only the terms with relevant internal consistency from category to which they belong are included. The analysis of internal consistency is measured based on correlation degree and mutual prediction of terms from a certain category (appreciated by values between 0-1). This analysis is performed by using the option „Evaluate Internal Consistency" of software LIWC-22.

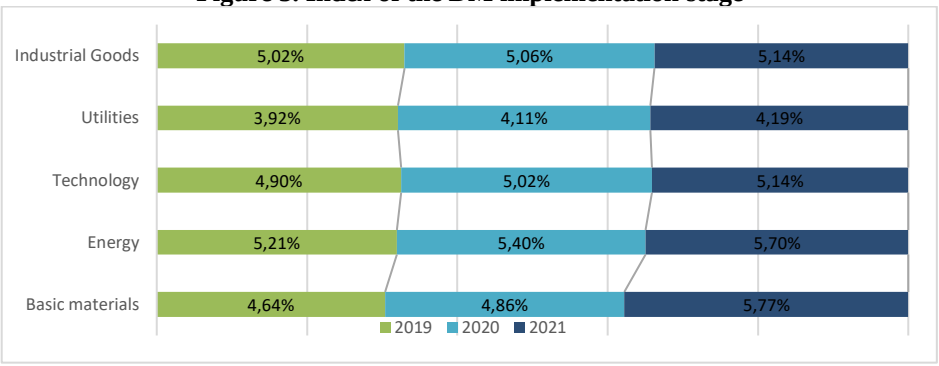
5. Results and Discussions

The results obtained from the quantitative content analysis and the main observations arising from them are presented according to the research questions.

Q1: What is the general stage for the implementation of DM in European companies reporting? How has it evolved?

In order to document RQ1, in the first part of the scientific investigation, the size of the *Index of DM reporting stage* (ISr) was calculated. By aggregating the total frequency of key terms (from the research dictionary) in the content of sustainability reports of European companies, ISr allows us to make a comprehensive assessment of the degree to which the principle of materiality has been integrated into non-financial reporting (figure no.3).

Figure 3. Index of the DM implementation stage



Source: Authors processing.

Based on the results obtained, it can be seen that the ISr values range from 3.9% to approximately 6%, which indicates a relatively low degree of integration of the DM, delimited according to the European vision, in the reporting of analysed companies. The constant upward trend was notated as a a favourable and encouraging premise at the level of European practice. The structure of the companies' sample, in the five activity fields, strengthens and expands the perimeter of scientific observations. As can be seen in Figure 3, energy companies have the highest ISr values. With annual sizes consistently above the 5% threshold, this category of companies demonstrates a higher awareness of the concept of DM. They

are followed by companies in industrial goods, technology, basic materials, and utilities. The slight inter-industrial fluctuations of the ISr level contribute to a better shaping of the position taken by these companies towards the non-financial reporting requirements. The observation is also consolidated by the analysis of the distribution in dynamics of terms with dominant individual frequencies (weight above 0,50% in total of words from Sustainability Reports, as can be seen in Table 3).

Table 3. Terms with dominant individual frequencies (weight above 0,50%)

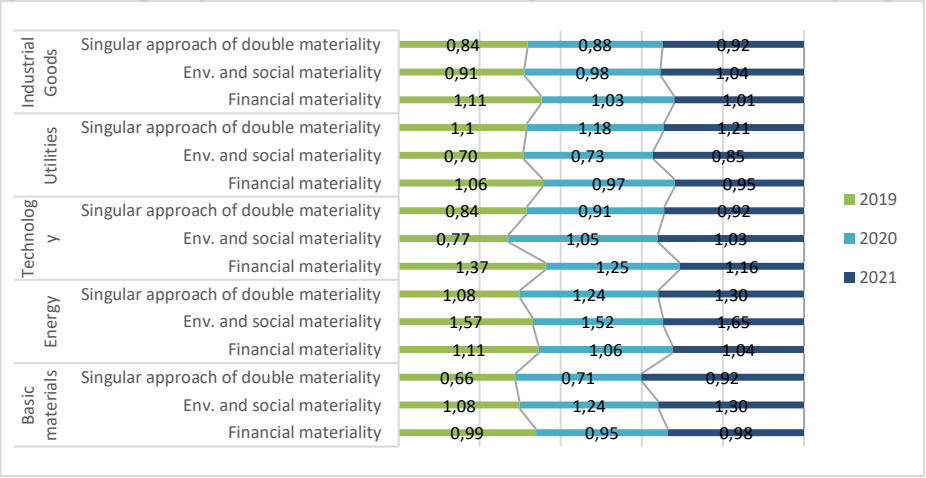
	Basic materials	Energy	Technology	Utilities	Industrial Goods
2019	Financial; Shareholders; Non-financial; Environment.	Innovation; Non-financial; Environment; Climate changes.	Performance; Recycling; Sustainability.	Financial; Company growth; Sustainability.	Performance; Greenhouse gas emissions; Social.
2020	Performance; Non-financial; Environment; Social.	Research and development; Environment; Climate changes.	Social; Greenhouse gas emissions	Environment; Social; Human rights.	Environment; Social; Sustainability.
2021	Environment; Social; Community; Standards.	Greenhouse gas emissions; Renewable resources; Materiality.	Environment; Social; Investors; Non-financial.	Social; Climate changes; Sustainability.	Greenhouse gas emissions; Climate changes.

Source: Authors processing.

Further, we have investigated and tested the internal consistency of the terms, and we documented the second question of our study (Figure 4):

RQ2: Are the two perspectives of materiality reported accordingly to dominant principles and concepts at the level of European Union?

Figure 4. Frequency of use of the three DM categories in total Sustainability Reports



Source: Authors processing.

The *Financial materiality* category has recorded, across all five industries, close weights and even above 1% from total of Sustainability Reports content. This value is attributed to the fact that reporting on financial aspects is a much easier and even more familiar aspect for companies. *Env and social materiality* category, has recorded values above the average of reporting frequency and with a visible upward trend over the time period analysed. These facts constitute favourable premises regarding the integration of DM in line with the EU vision. *Singular approach of the DM* Category, has registered the lowest frequencies of use in Sustainability Reports content. The tendency of oscillation in dynamics is also lower compared to the other two categories of terms, with a normal accentuation towards the end of the analysis interval. The low values of the weight of terms in this category are attributed to positive signals on non-financial reporting.

By corroborating the scientific observations drawn from the analysis of the first two research questions, judgements can be made on the extent to which the current state of assimilation of materiality into the information system can support the achievement of sustainable development goals.

RQ3: The current stage of awareness and integration of DM can support the fulfilment of European Green Deal objectives?

The current low degree to which the principle of DM is reported by European companies, but combined with an adequate manner of approach, the perspectives content of this principle constitutes supportive premises to set a unitary and robust direction towards sustainable development.

6. Conclusions

The present research makes original contributions regarding the European regulations in the area of DM and the way in which the companies have assumed them. The obtained results lead to a rather low stage of implementation of the principle of DM, but with real prospects of growth in the context of a much more rigorous standardisation. The calculated *Index of the DM reporting stage* (ISr) suggests difficulties in achieving sustainable development goals in the short term. Further, the analysis results showed low frequencies of use of the two perspectives of materiality, but with significant evidence of correct understanding and application of their content. Across the analysis, cross-industry oscillations were observed, with a clear detachment of energy companies in terms of implementation of the dual materiality.

Analysed in the context of the European Green Deal, both the overall degree and the individual frequencies of using DM indicate an insufficient level and incompatible with the European objectives, but with real growth potential. Partly, these low values can be justified by the fact that they were recorded in a transitional period between voluntary and mandatory reporting. In order to make a real contribution to climate neutrality, the future ESRD must provide a comprehensive, concrete, and consistent rules for corporate non-financial reporting.

The main limitation of the research arises from the fact that the analysis focused only on the period 2019-2021. This is because, although this is an eloquent

timeframe for the topic of DM, reporting at the level of 2022 (a representative year through the adoption of the CSDR and ESRS) was not included (due to lack of data) in the research. Nevertheless, the present research highlights the importance of knowing how the initial European regulations were understood and applied in practice and can also provide a basis for further research.

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