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Can Crisis Periods Affect the ESG Reporting Scope? The Portuguese Euronext Entities Case

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Abstract: Portuguese companies are increasingly responding to the demand of stakeholders for transparent information about companies' environmental, social, and governance (ESG) performance by issuing non-financial reports (NFRs). While the number of NFRs published annually has been increasing over the last two decades, their quality and companies' ESG performance have been questioned, especially in times of crisis. To address these concerns, several jurisdictions have introduced mandatory NFR rules, such as the European Directive 2014/95/EU. Employing an institutional theory lens, this paper's research objective is to evaluate whether the last decade's crises and whether the fact that NFRs became mandatory for certain entities positively affected companies' activities covered in the ESG reporting scope. We used panel data regression models on 45 listed companies in Portugal during the period 2008–2021. Our results show that the ESG reporting scope is not positively influenced by the transition from NFRs to a mandatory and global financial crisis (GFC). However, the COVID-19 crisis positively affected NFR quality. These results have major implications for practitioners, reflecting the importance of promoting these tools in an organization to improve non-financial performance and companies' sustainability.

Keywords: non-financial reporting; ESG disclosure; ESG reporting scope; crisis; Directive 2014/95/EU

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1. Introduction

Sustainable development is the central challenge of our times (Sachs 2015). Our world is under strain after years of evolution; poverty continues and is mirrored in families and communities (Sachs 2015). As if that were not enough, climate change threatens livelihoods, inequalities are worsening, and crises (social, environmental, and consequently financial) will only become worse if we do not change course (Sachs 2015). The capitalist system is under siege. In recent years, business has increasingly been seen as a root cause of ESG and economic problems. Businesses prosper at the wider community's expense (Porter and Kramer 2011).

In comparison, Sherman (2015) compare the capitalist economy's consequences to Alice going to Wonderland to escape the confusing world, i.e., a capital-dependent world that has been fueled by crises throughout its development. In 2008, the world suffered a major crisis that swept through the United States of America, Europe, Japan, China, and Indian; workers around the world lost their jobs due to the slowing down of the capitalist economy, causing a deep decline in the world market (Sherman 2015). Recent emergencies like the COVID-19 pandemic, the fallout from it, the strained relations between Russia and Ukraine, and the resulting energy turmoil in Europe have intensified the focus on these matters (Rau and Yu 2024).

The world is swept by great unrest, dramatic conflicts, fierce mass struggles, and unexpected twists and turns, and people are worried because international monopolies intentionally and recklessly accelerate the unity of humanity and nature's destruction to increase maximum profits (Engel 2017).

Economic crises are not coincidental; they have not been overcome at all, despite what many economists had assumed after the Second World War, when there was a relatively long economic boom (Weg and Dickhut 1986). According to Weg and Dickhut (1986), economic crises are the result of economic laws, i.e., objective laws, which operate independently of human will. As a result of these laws, each contraction has a huge impact on business activities, an impact that not only affects groups with a direct financial interest in the company but also affects other stakeholders such as employees, customers, suppliers, and society in general (Van der Laan Smith et al. 2005), without forgetting its impact on the environment (Hackston and Milne 1996).

Financial information, in the face of ongoing changes and globalization, is no longer sufficient for society; therefore, non-financial information has undergone a remarkable evolution, both from a regulatory and practical point of view, giving rise to NFRs (Baret and Helfrich 2019). One of the solutions to help balance the economy after the GFC that changed the prospects of the world economy was the NFR (Kulkarni 2014).

Recent literature and international organizations have been taking steps to try to identify, measure, and mitigate the negative impact of unsustainability worldwide (Trucco et al. 2021). In response to this call, companies have been promoting ESG practices (Abhayawansa and Guthrie 2016). This promotion is disclosed typically in the sustainability report or in the public non-financial or integrated report, and it aims to "provide relevant, faithful and comparable information and reliable information: on (i) material sustainability reporting impacts affected stakeholders (including the environment) and (ii) material sustainability risks and opportunities for its own value creation;—enabling information users to (i) understand the reporting entity's sustainability objectives, position and performance and (ii) inform their decisions related to their engagement with the entity." (Abhayawansa and Guthrie 2016). "Sustainability reporting is directly related to management reporting systems that enable reporting entities to better understand and manage sustainability and ultimately improve sustainability performance" (EFRAG 2021, p. 17).

Sustainability practices should be reported for a variety of reasons, such as the possibility of improving the dialogue between companies and stakeholders (Nikolaou and Evangelinos 2010; Sotorrío and Sánchez 2010). They can also help improve the degree of accountability to stakeholders (Kolk 2008; Perego and Kolk 2012), and they can offer legitimacy to some sectors (Nunes and Park 2017; Parsons et al. 2014). Despite this, ESG disclosure is a mechanism for addressing market imperfections (Blair 1992). Such disclosure should be detailed and rigorous, like financial disclosure (Gray and Milne 2002), and should also be concise and balanced, including all material issues (Melloni et al. 2017).

On sustainability management and NFRs, previous studies have argued that there is a paucity of research on the impact of regulatory pressures on ESG performance (Aluchna et al. 2022; Hassan and Romilly 2018; Tashman et al. 2017), as well as on its quality (Lock and Seele 2016).

Different institutional pressures can affect the development of sustainability management systems, reporting practices in ways that foster alignment between them (DiMaggio and Powell 1983; Ikäheimo and Taipaleenmäki 2010). According to Ali and Rizwan (2013), the higher the institutional pressure intensity, the faster the NFR practice will be adopted by the firm to put itself on par with other firms operating in the institutional environment.

Given that disclosure practices vary across countries and firms, benchmark studies using institutional theory show that even where there are coercive pressures to converge, local practices and traditions serve as other types of pressure that play a role in maintaining divergence (Aureli et al. 2020).

For instance, an example of institutional pressure is the introduction of the European Union (EU) Directive 2014/95/EU, amending Directive 2013/34/EU regarding the disclosure of NFRs by certain large companies and groups, which highlights the disclosure of non-financial information as being vital for managing change towards a sustainable global economy, combining long-term profitability with social justice and environmental protection (Baret and Helfrich 2019). The provisions of Directive 2014/95/EU establish

the obligation of a selected group of entities to include in their financial statements non-financial information related to environmental, social, and labor issues, human rights, and corruption and bribery prevention (Skoczylas-Tworek 2020). The Directive also requires a brief business model and a description of the policies followed in these matters, including the main risks related to the business operations and the non-financial key performance indicators relevant to the business in question (Ştefănescu et al. 2021, p. 259).

Given the market's volatility in the capitalist system, the crisis effects on non-financial accounts should not be overlooked (Bogataya et al. 2022; Bretos et al. 2018; Jiménez-Yáñez and Fontrodona 2022; Perez et al. 2017; Velte and Stawinoga 2017; Warren-Myers 2016); for example, the COVID-19 crisis (Brand et al. 2022; Johann 2022; Białkowski and Sławik 2022; Bifulco et al. 2023; Bodhanwala and Bodhanwala 2023; Demers et al. 2021; Dyczkowska et al. 2022; Dragomir et al. 2022; Kaakeh and Gokmenoglu 2022; Kuswantoro et al. 2022; Moalla and Dammak 2023; Poursoleyman et al. 2022; Pozzoli et al. 2022; Sidaway et al. 2022; Sharma et al. 2021), the environmental crises (Boiral et al. 2022; Corazza et al. 2020; Egbon and Mgbame 2020; Indrasari et al. 2022; Mora Rodríguez et al. 2020; Skärin et al. 2022), the legitimacy crises (Aureli et al. 2017; Beck et al. 2017; Mekaoui et al. 2020; Parsons 2019), war and post-war (Dissanayake and Samarathunga 2021; Thoradeniya et al. 2022), the communication crisis (Meintjes and Grobler 2014; Park et al. 2020), the social crisis (Maroun 2018), and the management crisis (Stratulat 2019).

Considering that most studies on NFRs in different sectors and countries were conducted in appropriate economic growth periods, and most did not analyze the recession influence on NFRs (Dias et al. 2016; Havlinova and Kukacka 2021), there is a gap in the ESG disclosure literature on crisis periods. It should be noted that the country where companies are headquartered is considered an important determinant of corporate social disclosure level and type (Van der Laan Smith et al. 2005).

For these reasons, in the European context, Portugal is a code-law country with a small stock exchange whose companies remain heavily dependent on bank loans and which has only a limited presence of institutional investors (Carmo and Ribeiro 2022). In this sense, the NFR is influential in attracting more investors (Baboukardos et al. 2023). Moreover, Portuguese local entities exhibit low levels of environmental accounting practices, with organizational size and environmental management practices positively correlated with their development (Ribeiro and Aibar-Guzman 2010). Surprisingly, the presence of compulsory environmental accounting standards does not seem to foster advancement among these entities in this area. This underscores the need for further efforts to promote environmental accounting awareness and implementation across all organizational scales in Portugal (Ribeiro and Aibar-Guzman 2010). In this sense, given the lack of studies in the Portuguese context, it is necessary to understand the quality of Portuguese companies' ESG reporting and whether its quality decreases during periods of crisis.

In view of the above, this study continues the studies by Dias et al. (2016) and Havlinova and Kukacka (2021) and analyzes the influence that the great global crisis and COVID-19 had on the NFR; however, it considers a longer period, that is, from 2007 to 2021.

In addition, it also continues the study by Aluchna et al. (2022) and analyzes, in a pioneering way, the European Directive 2014/95/EU's influence on the NFRs of Portuguese listed companies.

Finally, this paper is organized as follows: first, the literature review will be presented; then, the research methodology will be explained; then, the results will be presented and discussed; and finally, the study conclusion will be made.

2. Literature Review

ESG disclosure information and its quality are influenced by numerous factors that depend directly and indirectly on global economic and social conditions (Holmes 1976). These factors are linked to the organization itself, specifically to its contextual characteristics and factors that do not depend on the organization (i.e., external factors).

In the literature, it has been suggested that implementing ESG practices can serve as an effective strategy for attracting and retaining skilled employees, as noted by Greening and Turban (2000). Such practices also foster stronger customer relationships, potentially enhancing a company's overall value. Furthermore, investments in ESG initiatives can act as a safeguard against legal or regulatory risks, as well as providing insurance against unforeseen events, as highlighted by Kim et al. (2014). For instance, research by Kim et al. (2014) indicates that companies' CSR endeavors can help mitigate the risk of declining stock prices. Similarly, findings by Lins et al. (2017) demonstrate that firms with robust CSR commitments generated superior returns even during times of financial crisis. However, Lei et al. (2022) reveal that it is primarily companies led by CEOs with a national focus who experience heightened stock returns during periods of crisis such as the 2008–2009 financial downturn and the COVID-19 pandemic, emphasizing the importance of strategic CSR implementation under specific leadership contexts.

There are few studies that have conducted an analysis of ESG indices and the various financial crises' influence on NFRs with a longitudinal database (e.g., Dias et al. 2016; Gomes et al. 2015; Havlinova and Kukacka 2021; Karaibrahimoglu 2010; Mia and Mamun 2011); others focused only on the pandemic crisis (e.g., Białkowski and Sławik 2022; Bifulco et al. 2023; Bodhanwala and Bodhanwala 2023; Demers et al. 2021; Dragomir et al. 2022; Kaakeh and Gokmenoglu 2022; Moalla and Dammak 2023; Pozzoli et al. 2022; Sharma et al. 2021).

For instance, in the Mia and Mamun (2011) study, it was possible to verify that during the 2008 crisis, ESG disclosure did not change significantly, and during the crisis, there was an insignificant increase in disclosures, reinforcing that the company size and its profitability do not significantly influence this disclosure.

In the study of Dias et al. (2016), it was found that ESG disclosure increased before the great global crisis, and during the crisis, there was a slight drop. This drop was compensated by increasing the company's disclosures interactions with society, particularly on issues of corruption prevention and community engagement.

The study by Karaibrahimoglu (2010) and Gomes et al. (2015) also found that in periods of crisis, there is a significant drop in the numbers, extent, and performance of ESG, but not in terms of its quality and assurance; i.e., in crisis periods, only companies really committed to ESG best practices continue to publish the report and to ensure its quality.

In the case of Havlinova and Kukacka's (2021) study, which addressed several crises in the period from 2007 to 2020, in the SandP 500 index (America) companies, it was possible to verify that there is a statistically and economically significant positive relationship between ESG indices and the company's performance in the stock market in the period after the financial crisis.

Nevertheless, most of the studies on this topic focused on ESG disclosure in the pandemic context (e.g., Bodhanwala and Bodhanwala 2023; Demers et al. 2021; Jahmane and Gaies 2020; Melo and Galan 2011), on diversity and inclusion measures (Bax 2023), and on all ESG index practices (Bifulco et al. 2023). As an example, Bifulco et al. (2023), in an also-quantitative analysis (i.e., dealing with panel data, fixed, and random effects regression) tried to understand if and how the COVID-19 pandemic outbreak influenced the behavior of European companies listed in the STOXX Europe 600 in terms of ESG best practices, concluding that companies continued to increase their commitment to ESG goals in all scores (environment, social, governance) individually. In line, Shafeeq Nimr Al-Maliki et al. (2023) indicate that COVID 19 influences small- and medium-sized family and non-family firms' risk-taking. The study of Bagherpour Velashani et al. (2023) highlights that there was no significant relationship between the COVID-19 crisis and the reasons for fraudulent reports and the audit quality.

In view of the above, we formulate the first and second research hypotheses:

H1. *The global financial crisis is positively related to the ESG reporting scope of Portuguese listed companies.*

H2. *COVID-19 periods are positively related to the ESG reporting scope of Portuguese listed companies.*

The literature has addressed other external factors that influence ESG disclosure. As previously reported, in times of crisis, it is noticeable that voluntary disclosure tends to decrease, but reporting quality tends to increase or remain (Dias et al. 2016). Despite this, there is, in fact, a fair consensus that increasing the extent of information disclosed does not necessarily imply better disclosure (Melloni et al. 2017).

While the number of NFRs published annually has been increasing exponentially over the past two decades, their quality and effectiveness in managing ESG performance have been questioned (Aluchna et al. 2022).

There is ample empirical evidence on whether NFR regulation leads to higher disclosure quality (Aluchna et al. 2022; Lock and Seele 2016) and better ESG performance (Aluchna et al. 2022; Hassan and Romilly 2018; Tashman et al. 2017). Different legislation in different institutional settings (both at national and sectoral levels) can have different effects on organizational practices (Lock and Seele 2016).

In this sense, the introduction of mandatory NFR requirements is intended to reduce information asymmetry and to help stakeholders, including investors, civil society organizations, consumers, and governments assess the non-financial performance of companies and thus enforce the development of a more holistic approach (Aluchna et al. 2022; Lock and Seele 2016).

The literature that analyzes the ESG disclosure legislation effects provides inconsistent evidence (Aluchna et al. 2022). Critics use a strategic legitimacy perspective (Chelli et al. 2014) and argue that companies required by law to disclose ESG-related information only seek regulatory approval and limit their reporting practice to minimal compliance (Gong et al. 2018). As a result, mandatory reporting may be limited in improving the quality of NFRs (Carungu et al. 2021).

Evidence from China (Wang and Bernell 2013), Norway (Vormedal and Ruud 2009), Spain (Criado-Jiménez et al. 2008), and the US (Peters and Romi 2013) shows that despite the ESG disclosure legislation introduction, companies use various impression management strategies to avoid transparency and gain legitimacy (Chelli et al. 2014).

In the same vein, Stubbs et al. (2013) show that mandatory ESG reporting encourages a compliance culture with a focus on operational activities and a desire to mitigate institutional pressures and separate them from business strategy and decision-making. Chelli et al. (2018) conclude that mandatory parliamentary regimes complemented by voluntary GRI standards have a positive impact on the scope of companies' reporting. However, this does not translate into higher disclosure quality, which, as we argue, is crucial to exploiting the strategic functions of NFRs. Moreover, a study on UK-based listed companies provided limited evidence that mandatory carbon disclosure is leading to substantial emissions reductions (Tang and Demeritt 2018).

The question of whether cross-national regulation of NFRs can trigger disclosure and evidence of performance had few dedicated studies. Indeed, several empirical studies show that the mandatory environmental reporting introduction has a positive and lasting influence on NFR quantity (e.g., Aluchna et al. 2022; Fontana et al. 2015; Frost 2007; da Silva Monteiro and Aibar-Guzmán 2010) and environmental disclosure quality (e.g., Aluchna et al. 2022; Chelli et al. 2014; Fatima et al. 2015; Frost 2007; Ottenstein et al. 2022).

In Aluchna et al.'s (2022) study, it was possible to verify the effects of the European NFR Directive (2014/95/EU) on the ESG performance of Polish companies, and they concluded that coercive pressure to promote responsible corporate behavior resulted in increased NFR. Specifically, before the Directive's introduction, only 5% of listed companies voluntarily published non-financial reports (e.g., Aluchna et al. 2018; Aluchna and Roszkowska-Menkes 2019).

At the ESG indices level, the Aluchna et al. (2022) study shows an improvement in ESG performance in the post-Directive period for the whole sample. The improvement is larger for companies subject to the legislation in the case of the overall ESG performance

variable and for environmental and social performance, finding no effect for performance in the governance dimension (Aluchna et al. 2022). Moreover, the results indicate that the improvement in ESG performance is greater in the following years compared to the first year after the Directive's introduction (Aluchna et al. 2022).

Ottenstein et al. (2022) examined the European Directive's effects on companies' sustainability reporting practices, especially the NFR quantity (i.e., information's availability, comparability, and credibility). The results suggest that the Directive influences the ESG reporting quantity and quality; however, they also found that the Directive is not the decisive factor for the GRI guidelines adoption (i.e., comparability) (Ottenstein et al. 2022). On the other hand, the Ribeiro and Aibar-Guzman (2010) study suggests that the existence of mandatory environmental accounting standards is not positively associated with the development of environmental accounting practices by Portuguese local organizations. In this line, Carmo and Ribeiro's (2022) research reveals that after two years of EU NFR Directive implementation, there were still Portuguese companies that did not mention the framework used or did not disclose information on sensitive matters such as human rights or anti-corruption and bribery.

In view of the above, we formulate the last research hypothesis:

H3. *The introduction of mandatory NFRs is positively related to ESG reporting scope.*

3. Materials and Methods

3.1. Population and Sample

To test the hypotheses, a target population consisting of large multinational listed companies whose corporate information is available in the Thompson Reuters Refinitiv database was used. Companies that disclose non-financial information on the social, environmental, and governmental impact of their activity in a sustainability report, an integrated report, or any other reporting format were identified.

Our final sample contains all Portuguese companies listed in Euronext. The sample was an unbalanced panel of 630 observations from 45 listed companies in Portugal for the period 2008–2021. Despite the sample being small, given that Portugal has few companies listed on Euronext, higher-quality studies have used even smaller ones, with this not affecting the results (e.g., Aluchna et al. 2022). We performed all tests and regressions in STATA version 16.

Refinitiv provides ESG performance data for the period under analysis (Refinitiv 2020). The selected period considers the pre- and post-European NFR Directive implementation period, as well as the major financial crisis and the COVID-19 pandemic.

Table 1 shows the sample position by sector and period. As we can see, the consumer cyclicals is the most sample sector representative, with 24.44%, followed by the industrial sector, with 15.56%, and the technological and basic materials sector, with 13.33%.

Regarding the year, over the years, the number of companies disclosing NFRs has increased considerably. From 2008 to 2021, it increased by 94%, noting the effects of the NFR European Directive's introduction, which obliged Portuguese listed companies to disclose or publish their NFR from 2018.

Table 2 shows the evolution in the number of companies that reported NFRs per year.

Regarding ESG reporting scope, Table 3 shows the evolution over the years for each sector. As you can see, the industries with the most-complete report are consumer non-cyclicals, energy, and utilities, with values equal to or greater than 70. On the other hand, the companies with the most incomplete reporting and, in turn, the lowest quality are in the basic materials, consumer cyclicals, industrials, real estate, and technology sectors, with values below 34. In addition, the table shows that over the years, companies have reported more and with a higher degree of quality, with ESG reporting becoming increasingly complete. From 2017 to 2018, there was a significant increase due to the European Non-Financial Reporting Directive's introduction. These results are in line with Carmo and Ribeiro (2022), whose findings showed that the major effects on NFR disclosure quality

were observed in the first year of Directive 95/2014/EU's implementation. Regarding the ESG reporting scope average from 2020 to 2021, there was a decrease because of the COVID-19 pandemic.

Table 1. Sample representation by sector.

Sector	Companies' Representation (%)
Basic Materials	13.33
Consumer Cyclicals	24.44
Consumer Non-Cyclicals	8.89
Energy	4.44
Financials	6.67
Industrials	15.56
Real Estate	4.44
Technology	13.33
Utilities	8.89
Total	100.00

Table 2. Sample representation by year.

Year	Number of Companies That Report NFR
2008	1
2009	2
2010	4
2011	7
2012	8
2013	8
2014	8
2015	8
2016	7
2017	6
2018	12
2019	15
2020	15
2021	14
Total	115

Table 3. ESG reporting scope per year and sector.

Year	Basic Materials	Consumer Cyclicals	Consumer Non-Cyclicals	Energy	Financials	Industrials	Real Estate	Technology	Utilities	Total Average
2008	0		0	0	0	0		0	33	6
2009	0		45	0	0	0		0	33	12
2010	0		46	0	0	0		50	67	24
2011	0		96	100	48	0		8	67	38
2012	0		92	100	50	0		58	67	44
2013	0		96	100	50	0		94	67	49
2014	0		96	100	50	0		50	67	43
2015	0		94	100	86	0		44	67	47
2016	0		97	100	35	0		36	67	40
2017	0		95	100	50	0		0	67	37
2018	69		100	100	76	0		50	100	70
2019	83		100	100	76	27		50	100	77
2020	94		99	100	93	57		50	100	86
2021	63	0	50	50	62	7	0	17	75	29
Total average	23	0	77	73	49	7	0	34	70	41

3.2. Empirical Model

To test the proposed conceptual model, the variables shown in Table 4 will be used.

The ESG reporting scope is our dependent variable, which is an indicator of NFR quality (Refinitiv 2020) used in previous studies (e.g., Kaplan and Ramanna 2021; Yip and Yu 2023).

The explanatory variables are three dummy variables that identify the crisis years following the studies by, e.g., Bifulco et al. (2023), Havlinova and Kukacka (2021), and the introduction of the NFR disclosure obligation in Portugal, as used in the study by Aluchna et al. (2022).

Several researchers apply Refinitiv ESG scores in their research (e.g., Duque-Grisales and Aguilera-Caracuel 2021; Chairani and Siregar 2021; Giannopoulos et al. 2022). Refinitiv provides one of the most extensive ESG datasets on the market, with data going back to 2002. It measures companies' ESG performance across 10 themes and 3 pillars, with over 600 criteria (Refinitiv 2020). The ESG combines the three pillars, and their themes are as follows: Environment (emissions, innovation, and use of resources); Social (social human rights (human rights, workforce, product responsibility, and community); and Governance (shareholders, management, and CSR strategy) (Refinitiv 2020). ESG measures are formulated into three pillar scores: E, S, and G and a final ESG assessment.

The literature recognizes some shortcomings in performance scoring; although the disclosure of immaterial data does not affect the assessment, the lack of information on highly relevant aspects has a negative impact on the company's score (Aluchna et al. 2022). However, being comparable across industries and company sizes, Refinitiv scores serve as a sufficient indicator of ESG performance for our full-market sample. We discuss this topic in more detail in the research limitations section.

Table 4. Variables explanation.

<table>
<tr><th>Variables</th><th>Meaning</th><th>Scale</th><th>Data Base</th><th>Literature</th></tr>
<tr><td>ESG Reporting Scope (dependent variable)</td><td>The percentage of the company's activities covered in its environmental and social reporting.
- Take scope as reported by the company.
- Data on the percentage of the company's activities are covered in its environmental and social reporting.
- If extra financial reporting covers all of the company's global activities, then the scope is 100%.
- If the scope is not provided, we need to determine using the priority order as follows:
(1) Percentage of employees covered;
(2) Percentage of revenue covered;
(3) Percentage of operations covered
- When we have two different scopes relating to social and environmental coverage, consider the lowest value.</td><td>0–100</td><td rowspan="7">Refinitiv</td><td>Refinitiv (2020); Kaplan and Ramanna (2021); Yip and Yu (2023)</td></tr>
<tr><td>COVID-19 (independent variable)</td><td>This is a dummy that identifies the COVID-19 pandemic from 2020 to 2021. Values for crisis years are 1, and they are 0 for the remaining years.</td><td>0–1</td><td></td></tr>
<tr><td>GFC (independent variable)</td><td>This is a dummy that identifies the global financial crisis from 2008. Values for crisis years are 1, and they are 0 for the remaining years.</td><td>0–1</td><td>Bifulco et al. (2023); Havlinova and Kukacka (2021)</td></tr>
<tr><td>No crisis (control variable)</td><td>This is a dummy that identifies the good economic periods (2009–2019). Values for crisis years are 1, and they ar 0 for the remaining years.</td><td>0–1</td><td></td></tr>
<tr><td>NFRmandatory (control variable)</td><td>Binary variable indicating the existence of mandatory NFR legislation (0 for 2008–2017 and 1 for 2018–2021)</td><td>0–1</td><td>Aluchna et al. (2022)</td></tr>
<tr><td>ReportNFR (control variable)</td><td>Binary variable indicating the existence of NFR publication (0 yes, 1 no)</td><td>0–1</td><td></td></tr>
<tr><td>Year (control variable)</td><td>Years of company's data</td><td>2008–2021</td><td></td></tr>
</table>

Refinitiv collects most data from public sources, such as company websites, annual reports, and other company reports (Refinitiv 2020). It also collects the data directly from the company. They audit and normalize these data and prepare ESG scores. We used Refinitiv's ESG scores, which reflect the company's ESG performance, commitment, and effectiveness, based on non-financial information communicated by the company itself, which is categorized into three dimensions, i.e., ESG information (Aluchna et al. 2022; Refinitiv 2020).

Equation (1) was designed to identify the independent variables' (crisis and NFR-mandatory) effect on the dependent variable (ESG reporting scope).

The ESG reporting scope is our explained variable.

$$\text{ESGReportingScope it} = \beta 0 + \beta 1\text{COVID-19 it} + \beta 2\text{GFC it} + \beta 3\text{Nocrisis it} + \beta 4\text{NFRmandatory it} + \beta 5 \text{ ReportNFR it} + \beta 6\text{Year } \varepsilon\text{it} \quad (1)$$

ESGReportingScope is the dependent variable; crises (COVID-19 and GFC) are the independent variables; Nocrisis, NFRmandatory, ReportNFR, and Year are the control variables; and εit is the error term for company i in period t.

4. Results

4.1. Descriptive Statistics

Regarding the ESG reporting scope ratings' average, it appears that it has increased and decreased over the years, except for in 2015 to 2017. Despite this, it appears that in 2018, the best rating was obtained for this metric, largely because of the European NFR Directive's introduction and institutional efforts to increase ESG accountability and transparency, as shown in Table 5. Similar results were obtained in the study of Polish companies by Aluchna et al. (2022).

Table 5. ESG reporting scope average.

Year	Average of ESG Reporting Scope
2008	6.25
2009	11.88
2010	24.48
2011	37.71
2012	43.70
2013	48.67
2014	43.24
2015	46.69
2016	39.70
2017	36.91
2018	70.34
2019	77.39
2020	85.89
2021	29.17
Total average	41.42

Legend: Score cover quotes: 0–100. **Source:** Author's calculation with Refinitiv database.

As shown in Table 6, we observe that the ESG reporting scope average is 41 points, not reaching 50, which means that the percentage of Portuguese companies' activities covered in the ESG report is low.

Table 6. Sample descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG Reporting Scope	253	41.415	47.23059	0	100
GFC	630	0.1428571	0.3502052	0	1
COVID-19	630	0.1428571	0.3502052	0	1
No crisis	630	0.6428571	0.4795382	0	1
NFR Mandatory	630	0.3571429	0.4795382	0	1
Report NFR	630	0.1825397	0.3865956	0	1

Source: Author's calculation with Refinitiv database.

Regarding crisis periods, representation covers, on average, 21% of the sample period, considering the years 2008, 2020, and 2021. As for NFRs becoming mandatory, this

represents 36% (4 years out of 14) of the sample period under study, as shown in the table below.

Table 7 provides the Pearson's correlation matrix for each variable. We found that there is no correlation between the ESG reporting scope scores and the independent variables. We confirm that there is no multicollinearity after removing the highly correlated independent variables from the model by verifying that all model variables have VIF (variance inflation factor) ratios of less than 10.

Table 7. Pearson correlation matrix.

	ESG Reporting Scope	GFC	COVID-19	No Crisis	NFR Mandatory	Report NFR
ESG Reporting Scope	1.0000					
GFC	−0.2612	1.0000				
COVID-19	0.0315	−0.1667	1.0000			
No crisis	0.0506	−0.5477	−0.5477	1.0000		
NFR Mandatory	0.1908	−0.3043	0.5477	−0.3778	1.0000	
Report NFR	0.9625	−0.1577	0.1476	−0.0508	0.1795	1.0000

Legend: All Pearson coefficients are statistically significant at the 0.01 level. **Source:** Author's calculation with Refinitiv database.

Before performing panel data regressions, we begin by determining which is the most suitable panel data model. There are two static linear panel data models: random effects and fixed effects. We apply the relevant tests to arrive at the most suitable model for our analysis.

We compared fixed effects and random effects. We used the Hausman test and concluded that fixed effects are more adequate than random effects.

Table 8 presents the Hausman test results to test our equation.

Table 8. Hausman test.

Variables	Coefficients		(b-B) Difference	Sqrt (diag(V_b-V:B)) S.E.
	(b) Fixed	(B) Random		
GFC	8.72	8.72	0	0
COVID-19	8.36	8.36	0	0
No crisis	9.00	9.00	0	0
NFR Mandatory	2.33	2.33	0	0
Report NFR	86.84	86.84	0	0
Year	0.14	0.14	0	0

b = consistent under Ha, efficient undo H0, obtained from xtreg; B = inconsistent under Ha, efficient undo H0, obtained from xtreg; Test H0: difference in coefficients is not systematic; Chi2(0) = (b − B)′(V_b − V_B)^(−1)(b − B) = 0.00; Prob > Chi2 = (V_b − V_B is not positive definite). **Source:** Author's calculation with Refinitiv database.

4.2. Regression Results

Table 9 shows the proposed model results. Regarding hypothesis 1, we find that the GFC did not influence the ESG reporting scope, which means that the GFC economic restraint do not change the NFR quality of Portuguese listed companies (rejecting hypothesis 1; GFC ß = 6.54 and p = 0.251). Our results are in line with Bifulco et al. (2023), Bodhanwala and Bodhanwala (2023), Demers et al. (2021), Dias et al. (2016), and Havlinova and Kukacka (2021), who found that in the crisis period, ESG performance and quality, relative to other periods, did not change.

Table 9. Regression results.

ESG Reporting Scope	Coef.	Std. Err.	t	$p > t$	[95% Conf. Interval]	
GFC	6.548202	5.682533	1.15	0.251	−4.656489	17.75289
COVID-19	8.72307	3.784765	2.30	0.022 *	1.260356	16.18578
No crisis	7.648195	3.865393	1.98	0.049 *	0.0265002	15.26989
NFR Mandatory	2.142876	3.471748	0.62	0.538	−4.702638	8.98839
Report NFR	82.62088	2.441245	33.84	0.000 ***	77.80729	87.43447
Year	0.2879304	0.5590711	0.52	0.607	−0.8144334	1.390294
_cons	−584.598	1126.062	−0.52	0.604	−2804.941	1635.745
sigma_u	6.5947083					
sigma_e	12.043827					
rho	0.23066333 (fraction of variance due)					
F test that all u_i = 0: F(44, 202) = 1.69 u_i = 0: F(44, 202) = 1.69						
R-sq:	0.9252					
Prob > F = 0.0000 F(6, 202) = 321.98						

Legend: * $p \leq 0.05$, *** $p \leq 0.001$. Source: Author's calculation with Refinitiv database.

Regarding hypothesis 2, we find that the COVID-19 crisis is positively related to the ESG reporting scope, which means that during COVID-19, economic restraint was positively linked to the Portuguese listed companies' NFR quality and the disclosed activities' evolution change (accepting hypothesis 2; COVID-19 ß = 6.54 and $p = 0.251$). These results are in line with the study by Bax (2023), who found that the pandemic had an impact on social pillar performance/quality. Other studies confirm that the COVID-19 crisis did not affect ESG performance and quality (e.g., Bodhanwala and Bodhanwala 2023; Demers et al. 2021; Jahmane and Gaies 2020; Melo and Galan 2011).

Finally, hypothesis 3 indicates that the fact that NFRs became mandatory did not have a positive influence on the ESG reporting score (NFRmandatory: ß = 2.14 and $p = 0.53$). These results are in line with the study of Ribeiro and Aibar-Guzman (2010), who proved that the existence of mandatory environmental accounting standards is not positively associated with the development of environmental accounting practices by local Portuguese organizations. Although the number of companies disclosing NFRs has increased, NFR quality in Portuguese listed companies does not seem to have changed. These results are not in line with other research made in other European countries, like the Aluchna et al. (2018), Aluchna and Roszkowska-Menkes (2019) (Poland), and Ottenstein et al. (2022) (all European union) studies, who confirmed that the different emotional pressures influenced the development of sustainability management systems and relationship practices in a positive way (DiMaggio and Powell 1983; Ikäheimo and Taipaleenmäki 2010). According to Ali and Rizwan (2013), the greater the institutional pressure intensity, the faster will NFR practice be adopted by the company. To be at the level of other companies' that operate in the institutional environment, it is required that the company's behavior mirror our results. In this sense, greater distribution of this guideline to more companies will possibly have a positive result.

The results seem to be particularly important for the Portuguese institutional environment, which is characterized by a low pre-Directive NFR record, with only 16% of listed companies publishing an NFR in 2016, a percentage that is much higher than the study samples of Aluchna et al. (2018) and Aluchna and Roszkowska-Menkes (2019) with respect to Polish companies (a 5% sample).

In terms of a conclusion, using institutional theory, it appears that even where there is coercive pressure for disclosure, this has resulted in a greater number of companies' disclosing, which does not mean that the NFR quality increases.

5. Conclusions

In times of crisis, social and corporate responsibility was influenced by several factors. There is no doubt that social and corporate responsibility is a field of study with significant implications for the literature, industry, and society, and consequently, economic contractions are felt in all dimensions of social and corporate responsibility (Dahlsrud 2008).

Considering that the external environment influences the standard of non-financial/sustainable reporting practices, institutional constructions are useful to identify why, as well as which actors have intervened in corporate reporting.

Given the scarcity of studies that analyzed the various crises' effects on ESG disclosure, and the effects of recent regulations that oblige certain entities to publish their NFR, this study aimed to verify whether the ESG reporting scope quality was affected by the GFC situation and the COVID-19 pandemic crisis, as well as the introduction of the European NFR Directive.

In this sense, employing an institutional theory lens, we found that the intensity of institutional pressure drives the increase in companies disclosing their NFR; however, in Portuguese listed companies, its quality does not seem to have increased. For instance, in Polish listed companies, other results were obtained by Aluchna et al. (2022), and the NFR quality was related to institutional pressures and new mandatory regulations.

Although the ESG performance is superior for the post-policy period compared to the pre-policy period, the panel data results do not prove that it improves the NFR quality. Our analysis reveals that the improvement is greater for companies subject to ESG reporting legislation. The results seem to be particularly important in the Portuguese institutional context, which is characterized by a low pre-Directive NFR record, with only 16% of listed companies publishing an NFR in 2016.

In terms of crises, we found that GFC had no effect on NFR quality, thus not affecting the ESG reporting scope, as already confirmed in studies by Bodhanwala and Bodhanwala (2023), Demers et al. (2021), Dias et al. (2016), Havlinova and Kukacka (2021), Jahmane and Gaies (2020), and Melo and Galan (2011). On the other hand, the COVID-19 crisis had a positive effect on NFR quality in Portuguese listed companies.

We contribute to the NFR literature by addressing two existing gaps, assuming a positive link between COVID-19 and the ESG reporting scope in Portuguese listed companies. Portugal is in the process of developing regulatory requirements for environmental disclosure. Analyzing the current environmental accounting practices of local entities and their driving factors can aid regulators in crafting more effective ESG standards. This understanding is crucial for tailoring regulations that align with the needs and capabilities of Portuguese organizations in ESG reporting.

This study's limitation is related to the sample size, which reflects the low number of Portuguese listed companies; however, despite this, there was a sufficient number of observations for panel data analysis.

As for future studies, we suggest following up the study of Aluchna et al. (2022) and our own, using samples from other European countries to obtain an extensive NFR comparison of the Directive's application and to analyze its effects on ESG disclosure.

Furthermore, we suggest expanding the independent variables and including the effects of the new European Directive 2022/2464/EU that will oblige more entities to disclose their NFR.

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