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Mandatory Nonfinancial Disclosure and Its Consequences on the Sustainability Reporting Quality of Italian and German Companies

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Abstract: Companies disclosing nonfinancial information through sustainability reporting practices provide markets with data on their social, environmental, and governance performance. The quality of sustainability reporting is much discussed in the literature because this quality affects factors such as the credibility of accountability and building stakeholders' trust in the company. Nonetheless, the concept of quality is multidimensional, and empirical evidence relating to the quality of sustainability reporting presents different findings. Regulations on mandatory nonfinancial disclosure (NFD) open new perspectives for research on sustainability reporting quality (SRQ). This study explored the effect of introducing mandatory NFD on SRQ by focusing on the effects of new legislation (Directive 2014/95/EU) introduced in Italy and Germany. The analysis was conducted through qualitative content analysis of the sustainability reporting practices of Italian and German companies in the top lists of stock exchanges. Sustainability reporting practices of one year before (2016) and one year after (2017) the implementation of Directive 2014/95/EU were compared. The results of 132 observations demonstrated that the quality of sustainability reporting increased after implementation of the law on mandatory NFD. Further, the effect of the law seemed to reduce the differences in SRQ of the two countries before the introduction of mandatory NFD. The results suggested that obligatoriness of NFD affects SRQ together with other relevant determinants focused on by previous research (e.g., company size and industry type).

Keywords: sustainability reporting; sustainability reporting quality; CSR reporting; nonfinancial disclosure; mandatory reporting

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1. Introduction

During the past decades, researchers, policy makers, and public opinion have made loud calls for business to engage in and ensure sustainable development and increase attention to corporate social responsibility (CSR). In response to these calls, sustainability reporting practices have become more common among companies, and the concept of accountability has an increased role in improving market transparency and in building trust between companies and their stakeholders. Researchers have begun a wide debate on quality of nonfinancial disclosure and have identified the concept of sustainability reporting quality (SRQ) as critic and crucial. Initially, some approaches to SRQ identified quantity as an effective proxy of quality [1] or did not clearly distinguish between the concepts of quantity and quality [2]. Clearly, these approaches to SRQ assume a different significance when nonfinancial or sustainability disclosure is voluntary and when it is mandatory. Indeed, under the hypothesis of likeness of quantity and quality, by increasing the number of reports a company must produce, policy makers could very easily improve the quality of reports. Therefore, making nonfinancial disclosure (NFD) obligatory alone could affect the quality of reporting.

However, many studies adopted more complex and compounded instruments to measure SRQ. Researchers have particularly focused on the relationship between quality of reporting and voluntary disclosure by analyzing important aspects such as disclosure credibility [3,4].

Until the twenty-first century, sustainability reporting was voluntary worldwide, except for some isolated cases such as the *bilan social* [social balance] introduced in France by its 769/1977 law. However, France's pioneering imposition of corporate accountability did not lead to a great dissemination of sustainability reporting worldwide, at least not in relation to the type and content of the information included in the French social balance.

Along with the evolution of markets and stakeholders' expectations of companies' performance, some countries have introduced laws to make NFD mandatory, and the debate on SRQ has expanded because of the unavoidable differences between voluntary and mandatory disclosure. Different experiences with legislation worldwide have not clarified whether mandatory NFD improves the quality of nonfinancial statements [5–9]. In addition, the introduction of mandatory reporting has further stimulated the debate on the measurement and metrics of SRQ.

In general, quality is a complex concept and its measurement is always critical because it is multidimensional and can be subjective [10]. Diouf and Boiral [11] showed that SRQ is perceived by stakeholders as correlated to different dimensions such as balance and clarity of information. Further, by adopting the perspective of both users and preparers, Helfaya et al. [12] showed that quality is a multidimensional concept that cannot be understood by measuring only the quantity of disclosed information. These researchers confirmed many important scientific contributions [13–18], despite other studies having found a significant correlation between quantitative and qualitative measures of SRQ [19]. Researchers have consistently developed different metrics and instruments to measure SRQ, most of which are based on a compounded approach and on content analysis [12,19–25]. According to Helfaya et al. [12] (p. 18) quantity can be considered a secondary factor of quality because the most important determinants concern the content of the reports and are related to aspects of sustainability reporting such as information type, adoption of guidelines, and inclusion of quantitative or financial measures of social and/or environmental performance.

Alternative models developed by researchers focus on different aspects of the multiple dimensions of SRQ, and Helfaya and Whittington [26] found that different evaluation instruments affect rankings of companies based on SRQ despite the results of different evaluation scales being strictly correlated.

The present paper aimed to understand whether mandatory NFD affects not only the quantity of sustainability reporting but also its quality. To deepen this topic, the research focuses on the case of two European countries (Italy and Germany) that have recently introduced similar legislation on NFD of public entities through implementing Directive 2014/95/EU. Before this directive came into force, in both Italy and Germany, companies were not obliged to publish nonfinancial information and sustainability reporting was voluntary. Since January 1, 2017, all public-interest entities, including listed corporations and financial institutions, operating in European Union (EU) member countries have been required to make publicly available nonfinancial information related to "environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters" [27] (art. 19a). Thus, first mandatory NFD of companies operating in EU member country was published in 2018, containing information about performance in 2017.

To bridge the gap in knowledge on the effect of mandatory-reporting legislation on SRQ, it was useful to analyze reporting practices before and after the new legislation entered into force. The research explored and compared the effects of the new EU regulatory requirements on SRQ in Italy and Germany. This research was exploratory because it analyzed only the first editions of reports published since the new legislation was implemented. However, major effects of new legislation requirements usually arise in this first year. Further, the cross-country perspective of the research aimed to understand the effect of the EU legislation in relation to harmonization of sustainability reporting practices and SRQ.

To achieve this aim, the research compared the sustainability reports published before and after the NFD regulations entered into force. The research focused analysis on 40 Italian listed companies included in the stock market index FTSE MIB (Milano Indice di Borsa, Borsa Italiana) and on the 30 listed companies included in the German stock index DAX 30 (Deutsche Aktienindex, Börse Frankfurt) (See Appendix A, Table A1). A qualitative content analysis was conducted on the following documents in which companies disclosed nonfinancial information: integrated reports, stand-alone sustainability reports, sustainability websites, sustainability brochures, and sustainability disclosure on social-media channels. The instrument developed for the evaluation assigned a score to each report and analyzed three different dimensions of SRQ—availability, credibility, and strategic anchorage—and the analysis considered some key determinants affecting SRQ [15,28–30] to clearly understand the specific effect of the new legislation.

In the paper's analysis, the following three research questions are answered: (1) Has SRQ improved since the implementation of the new regulatory requirements for mandatory NFD? (2) Does the SRQ of companies in Italy and Germany differ since the implementation of the new regulatory requirements for mandatory NFD? (3) Is there evidence of harmonization between the NFD of companies in Italy and Germany since the implementation of the new regulatory requirements?

By answering these research questions, the paper aims to contribute to the debate on SRQ and on the relationship between SRQ and the obligatoriness of NFD. Indeed, despite the importance of sustainability reporting practices and the disclosure of nonfinancial information for the improvement of business and market transparency, evidence is lacking on the effect of legislative changes relating to SRQ.

The remainder of this paper is structured as follows: in the second section a literature review is presented including a summary of research that evidences the growing attention to sustainability reporting, the status quo of the sustainability reporting research in Italy and Germany and the evidence available regarding the mandatory disclosure of nonfinancial information. The third section outlines the materials and methods used in the research including the research design, the scale used for the evaluation of SRQ, and the sample of the study. The fourth section is dedicated to the presentation and discussion of the results in a threefold way: firstly, the descriptive statistics are presented; secondly, evidence regarding the variation on SRQ before and after implementing the EU directive is presented; and thirdly, the analysis of the determinants of SRQ in relation to the obligatoriness of NFD is analyzed and discussed. In the last section some conclusions and reflections about the limitations of the study are offered, as well as some suggestions for future research.

2. Literature Review

2.1. The Growing Attention to Sustainability Reporting

Several academic studies have examined sustainability reporting because of an increase in the adoption of social and environmental accountability practices by corporations [31], nonprofit organizations [32], and governments [33,34].

Researchers have highlighted how practices vary in different countries in relation to the number of published sustainability reports and the content of these reports. During the 1990s, a growing number of corporations began to publish sustainability reports, and several studies focused on the possible effects of different cultural, social, and political contexts on the content of corporate disclosures. Such studies were conducted in Europe [35] and around the rest of the world and considered factors such as differences in the content of corporate disclosure caused by factors such as industry [36,37]. Research has also identified the absence of international standards and external assurances as another cause of variability in reporting practices [38]. However, since the diffusion of reporting assurance practices, the role of such assurances as a determinant for the credibility of sustainability reports has been partially confirmed [39–43].

Researchers have also focused on the quality of sustainability reports, considering the growing role of NFD in the promotion of corporate reputation and legitimacy [44,45] and the emerging risk of conflict between commercial speech and social disclosure [46]. This research attention is also motivated by the acknowledged effect of social and environmental disclosure on the behavior of capital markets [28,47–51] and on the behavior of consumers [52]. Although the nature of this effect is still under discussion, it is evident that information asymmetries can be reduced by improving sustainability disclosure quantity and quality [53].

The factors that encourage corporations to publish sustainability reports have also been examined in the literature [54–59], as has the potential risk of using sustainability reports for greenwashing [60–62]. The relationship between sustainability performance and sustainability disclosure has been widely examined, and the empirical evidence remains ambiguous [21,62–66], reinforcing the need for an in-depth analysis of sustainability reporting practices and their quality.

In this context, the concept of SRQ is clearly crucial, and was addressed in several studies [15–18,20,23,26]. One issue is that there is no unanimously accepted notion of "quality" in relation to disclosure [12,67]; in addition, it is recognized that the quantity of disclosure is not a good proxy for the quality of disclosure [2]. Further, empirical evidence shows that SRQ is the synthesis of a complex system of elements, including the quantity and type of information disclosed, the managerial orientation of the companies [68], and the credibility of their sustainability reporting practices [69]. Adopting different methods of evaluation, researchers have demonstrated that in the absence of common rules, sustainability reporting practices vary in different countries [70]. Unfortunately, few studies have focused on the variations on SRQ after the implementation of mandatory NFD in a cross-country perspective [9].

2.2. Sustainability Reporting in Italy and Germany

Italy and Germany are two big European industrialized countries that have a similar context in relation to their regulation of corporations' nonfinancial information. That is, neither country had mandatory legislation for NFD before the adoption of Directive 2014/95/EU and both countries have civil-law oriented legal systems.

Sustainability reporting practices have proliferated significantly among Italian companies in recent decades [71], and the interest of the academic and practitioner communities in these reporting practices has also increased, as is evidenced by the activity of organizations such as the Gruppo per il Bilancio Sociale [Study Group for Social Reporting]. Before European harmonization, in Italy, NFD was voluntary and the practices in relation to this disclosure were diverse. Several studies have aimed to identify common practices of Italian corporations, analyzing different aspects of the topic, for example, the relationship between governance structure and voluntary disclosure [72]; the determinants of disclosure [73]; the process of assurance of nonfinancial reporting [74]; the effect of disclosure on customers' behavior [75]; the practitioners' perspective on nonfinancial reports [76]; and NFD in different industrial sectors such as in utilities [77].

After the adoption of Directive 2014/95/EU and before its entry into force, Venturelli et al. [78] demonstrated that Italian listed corporations were potentially less compliant with the new legislative requirements than corporations in other countries, and that the effect of the new regulatory requirements could be important. However, Costa and Agostini [79] analyzed the effect of Italian Legislative Decree 32/2007—a law concerning the content of consolidated financial statements—on the social and environmental information disclosed in both the annual consolidated reports and the sustainability reports of Italian listed corporate groups and found a good level of responsiveness to the legislation.

In Germany, as in Italy, the disclosure of nonfinancial information was voluntary before the implementation of Directive 2014/95/EU [80–83]. According to Fifka [84] (p. 1), already in 2010, 87% of German companies on the DAX 30 had disclosed nonfinancial information in their reports, and a study by Kirchhoff [85] confirmed that only two companies on the DAX 30 did not report on their social and environmental performance in 2016.

Approaching reporting as a communication instrument, Blankenagel [86] examined the social and environmental reporting practices of companies included in the DAX index. However, scientific attention to the quality of environmental disclosure by German companies can be traced back to Cormier et al. [87], who examined not only the quality of environmental disclosure by German companies, but also the role that economic incentives, public pressure, and institutional conditions played in such disclosure. More recently, research attention has been paid to identifying the determinants of CSR disclosure [88] and the relevance of this information for investors in Germany [89]. Quick and Knocinski [90] also examined the quality of stand-alone CSR reports in Germany, and Gruner [91] addressed only integrated reports.

Some studies have analyzed particular industrial sectors. For example, Zimara and Eidam [92] addressed the reporting practices of the German chemical industry, and Stibbe and Voigtländer [93] considered the German real-estate sector. Studies have also addressed the sustainability performance of companies in different countries, including Germany, in their analysis. For example, Hubbard [94] analyzed the quality of reports of companies from the banking, oil and gas, and food-manufacturing industries from 15 different countries. Fifka [95] examined the corporate citizenship practices of companies in Germany and the United States (US). Germany and the US were also examined by Blaesing [96] in their research on the determinants of corporate sustainability reporting. Similarly, Fifka and Drabble [97] compared sustainability reporting practices in the United Kingdom (UK) and Finland. Chen and Bouvain [98] compared CSR reporting practices in companies in the US, the UK, Australia, and Germany. Similarly, Freundlieb and Teutenberg [99] compared online CSR reports from companies in the US, Germany, and the rest of Europe. Hetze, Bögel, and Glock [100] compared public listed companies in Germany, Austria, and Switzerland, and D. El-Bassiouny and N. El-Bassiouny [101] compared the CSR reporting of top-listed companies in Egypt, Germany, and the US.

More recently, research attention has been paid to the preparedness of companies to comply with new regulatory obligations in relation to sustainability reporting. For example, the study of Institute for Ecological Economy Research (IÖW) [102] found in 2017, the sustainability reporting practices of some German companies needed improvement in relation to the quantity and quality of the information provided. Similarly, Folkens and Schneider's [103] study focusing on only the DAX 30 companies provided a first description of the sustainability and CSR reporting practices after the implementation of Directive 2014/95/EU in Germany.

2.3. Mandatory Disclosure of Nonfinancial Information in the EU

While mandatoriness is a novelty for Italy and Germany, a quite long history of voluntary and semi-compulsory schemes has covered the last three decades thanks to international organizations [104] and governments. Table 1 shows the milestones of this path with regards to both international scenario and Italian and German specific cases. Issues in relation to NFD being mandatory are much debated in the literature [6], and the effect of mandatory NFD in relation to accountability and improving transparency and stakeholders' engagement in corporate governance is also controversial [105]. Currently, it is not clear whether obligation has an important influence on the quality of reports, despite it having a clear effect on the quantity of reports. For example, Archel et al. [106] demonstrated that voluntary disclosure does not contribute to improving SRQ, and Hahn and Lülfs [107] debated the risks of voluntariness in relation to disclosing negative aspects of social and environmental performance. The empirical evidence on the introduction of mandatory NFD is not conclusive, and as presented in Gulenko's [80] literature review, increases in the quantity of sustainability reporting practices are not always connected to the improved quality of the resulting reports.

Table 1. Historical milestones towards mandatory nonfinancial disclosure in the European Union.

Year	Initiative	Character	Reporting Focus				Nonfinancial Themes Mainly Addressed							Scope
			Management process	*Principles*	*Themes*	*Indicators*	*Policies and/or processes*	*Environment*	*Social*	*Employee and labor*	*Human rights*	*Anti-corruption*	*Diversity*	
July 1993	Eco-Management and Audit Scheme (EMAS)	V	Yes	No	Yes	*Partially*	•	•						EU
1996	ISO 14001	V	Yes	No	Yes	*Partially*	•	•						GL
1999	AA1000 Framework Standard	V	Yes	Yes	Yes	No	•	•	•	•				GL
June 2000	GRI Sustainability Reporting Guidelines	V	Yes	Yes	Yes	Yes	•	•	•	•				GL
June 2000	EU Financial Reporting Strategy: the way forward COM(2000)359	M	No	Yes	No	No	•							GL
2000	United Nations Global Compact (UNGC) foundation	V	No	No	Yes	No		•	•	•	•	•		GL
2000	Carbon Disclosure project (CDP) foundation	V	No	No	No	Yes		•						GL
2001	GHG Protocol Standards	V	Yes	Yes	Yes	Yes	•	•						GL
May 2001	Commission Recommendation on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies (2001/453/EC)	M	No	No	Yes	Yes		•						EU
2001	Standard GBS 2001—Principi di redazione del bilancio social	V	No	Yes	Yes	Yes	•	•	•	•				IT
2001	SA8000	V	No	Yes	Yes	No	•		•	•	•	•	•	GL
2001	EMAS revision (EC No 761/2001)	V	Yes	No	Yes	*Partially*	•	•						EU
2002	GRI G2 Guidelines (update)	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
June 2003	Accounts Modernization Directive (2003/51/EC)	M	Yes	No	No	*Mentioned*	•	•	•	•				EU
2003	AA1000 Assurance Standard	V	Yes	Yes	Yes	No	•							
2004	GHG Protocol Standards (update)	V	Yes	Yes	Yes	Yes	•	•						GL
2004	ISO 14001 (update)	V	Yes	No	Yes	*Partially*	•	•						GL

Table 1. *Cont.*

Year	Initiative	Character	Reporting Focus				Nonfinancial Themes Mainly Addressed							Scope
			Management process	*Principles*	*Themes*	*Indicators*	*Policies and/or processes*	*Environment*	*Social*	*Employee and labor*	*Human rights*	*Anti-corruption*	*Diversity*	
December 2004	Gesetz zur Einführung internationaler Rechnungslegungsstandards und zur Sicherung der Qualität der Abschlussprüfung (Bilanzrechtregotmgesetz -BilReG)	M	Yes	No	No	*Mentioned*	•	•	•	•				GE
2005	GBS—La rendicontazione social nel settore pubblico	V	No	Yes	Yes	Yes	•	•	•	•				IT
2005	AA1000 Stakeholder Engagement Standard	V	Yes	Yes	Yes	No	•							GL
2006	GRI G3 Guidelines (update)	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
March 2007	Decreto Legislativo 32/2007 (Italian implementation of Directive 2003/51/EC)	M	Yes	No	No	*Mentioned*	•	•	•	•				IT
2008	AA1000 Assurance Standard (update)	V	Yes	Yes	Yes	No	•							GL
2008	AA1000 AccountAbility Principles separate standard	V	No	Yes	No	No	•							GL
2008	SA8000: 2008 (update)	V	Yes	No	Yes	No		•		•	•		•	GL
2009	EMAS revision (EC No 1221/2009)	V	Yes	No	Yes	*Mentioned*	•	•						EU
2010	ISO 26000	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
2011	GRI G3.1 Guidelines (update)	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
June 2011	Guiding Principles on Business and Human Rights	V	No	Yes	Yes	No	•		•	•	•		•	GL
2012	Rio+20 Declaration explicit references to nonfinancial reporting paragraph 47	V	No	No	Yes	No	•	•	•	•	•	•		GL
2013	GRI G4 Guidelines (update)	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
2013	Directive 2013/34/EU	M	Yes	No	Yes	No	•							EU
2013	Standard GBS 2013—Principi di redazione del bilancio sociale	V	No	Yes	Yes	Yes	•	•	•	•				IT
December 2013	International Integrated Reporting Framework Framework	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
2014	Directive 2014/95/EU	M	Yes	Yes	Yes	No	•	•	•	•	•	•	•	EU
2014	SA8000: 2014 (update)	V	Yes	Yes	Yes	No	•		•	•	•	•	•	GL

Table 1. *Cont.*

Year	Initiative	Character	Reporting Focus				Nonfinancial Themes Mainly Addressed							Scope
			Management process	*Principles*	*Themes*	*Indicators*	*Policies and/or processes*	*Environment*	*Social*	*Employee and labor*	*Human rights*	*Anti-corruption*	*Diversity*	
2015	ISO 14001 (update)	V	Yes	No	Yes	*Partially*	•	•						GL
2015	AA1000 Stakeholder Engagement Standard (update)	V	Yes	Yes	Yes	No	•							GL
2015	GHG Protocol Standards (update)	V	Yes	Yes	Yes	Yes	•	•						GL
2016	Decreto Legislativo 243/2016 (Italian implementation of Directive 2014/95/EU)	M	Yes	Yes	Yes	No	•	•	•	•	•	•	•	IT
2016	GRI Standards (update)	V	Yes	Yes	Yes	Yes	•	•	•	•	•	•	•	GL
April 2017	CSR Richtlinie-Umsetzungsgesetz (German implementation of Directive 2014/95/EU)	M	Yes	Yes	Yes	No	•	•	•	•	•	•	•	GE
2017	Guidelines on non-financial reporting (2017/C 215/01)	V	Yes	Yes	Yes	*Examples*	•	•	•	•	•	•	•	EU

Notes: Character: defines if the initiative establishes voluntary (V) or mandatory (M) requirements. Reporting focus: defines if the initiative provides guidance on how to design management processes (Management process), mention or defines principles to be followed for reporting and/or measuring (Principles), define themes to address in reports (Themes), provides indicators and KPIs for reporting (Indicators). Themes addressed: defines the topics covered by the initiative. Scope: defines if the scope of the initiative is global (GL), only related to the European Union (EU), to Italy (IT), or Germany (GE).

In any case, as clearly showed also by Table 1, Directive 2014/95/EU cannot be considered a sporadic intervention by the EU. Rather, this directive contributes to the harmonization of accountability practices. The regulation of NFD is only a part of a larger process aimed at creating an increasingly transparent European economic zone to guarantee the interests of all stakeholders who are concerned with corporations' behavior, and to prevent the risk of any abuse of power or conflicts of interest [108].

Nevertheless, the effectiveness of the directive and of national laws in the first year of entry into force is not clear, in part because previous national experiences were heterogeneous and are therefore, not simple to compare. The implementation of Directive 2014/95/EU triggered discussion on several topics related to sustainability reporting. For example, Saenger [81] examined the effect of the directive on the German Companies Act and the German Corporate Governance Code, and Stawinoga [83] explained the implications for accountancy practice in Germany. The adoption of this directive in the entire European market can be the first important test of introducing mandatory disclosure of nonfinancial information on SRQ in a cross-country setting.

The study of Hoffman and colleagues [109] (p. 48) reports the estimate of Kluge and Sick [110] affirming that in Germany the reporting requirement after the implementation of the directive "affects 536 companies including 278 capital market-oriented companies and 258 non-capital market oriented credit institutions and insurance companies". In Italy, Venturelli and al. [78] examined 223 companies, among which 168 capital market-oriented companies, 41 banks, and 14 insurances. At the present state of the art, there is a lack of evidence about the number of Italian non-listed companies that are obliged to publish NFD.

3. Materials and Methods

3.1. Research Design

The research focused on the effects of mandatory NFD introduced by Directive 2014/95/EU on SRQ in Italy and Germany. An exploratory analysis was conducted on two groups of major corporations: those listed on the FTSE MIB and those listed on the DAX 30 to verify whether obligation has had an effect on the reporting practices of the companies in those countries. The choice to analyze the companies listed in the top lists of the Italian and German stock exchanges facilitated the cross-country comparison because the two groups appeared similar in relation to size, international vocation, capitalization, and performance.

The research consciously compared corporations belonging to two different countries (i.e., Italy and Germany) with different traditions in relation to the disclosure of financial and nonfinancial information, and in relation to sustainability reporting practices, but that had been exposed to the same European mandate and were characterized by a similar civil-law system.

Further, although the new directive concerns all European countries, the research focused on Germany and Italy because they are the biggest industrial European countries to have implemented a law introducing mandatory NFD for the first time. This choice of countries enabled examination of the effect of obligation on SRQ without considering other determinants arising from institutional context such us the existence of previous laws and the minor differences in the implementation of the Directive 2014/95/EU [111].

Because the introduction of legislation requiring mandatory NFD was a novelty for Italy and Germany, at July 2018 it was only possible to observe the first edition of reports published following the implementation of Directive 2014/95/EU in those countries, making the research exploratory in nature. Nevertheless, major post-implementation effects usually emerge in the first year of validity of new laws.

The research adopted qualitative methods similar to previous studies that have evaluated post-implementation effects of regulatory requirements for NFD [6]. As stated, the present research aimed to provide the first significant answer to the following three research questions:

- Has SRQ improved since the implementation of the new regulatory requirements for mandatory NFD?
- Does the SRQ of companies in Italy and Germany differ since the implementation of the new regulatory requirements for mandatory NFD?
- Is there evidence of harmonization between the NFD of companies in Italy and Germany since the implementation of new regulatory requirements?

To answer these questions, a content-analysis technique was applied to codify qualitative information into categories, and to provide a synthetic evaluation using a quantitative scale [112]. Content analysis was conducted on reports published before and after the implementation of the directive. Previous studies have successfully applied methods of content analysis to examine reporting practices in NFD [13,26,87,89,113–115]. To avoid the risk of subjectivity that is typical in this methodology [23] (p. 418), the research adopted binary indicators, and applied consistent actions to guarantee the reliability of the analysis [26]. This methodological approach has previously been adopted to identify the quality of reporting in relation to matters such as the environment [22] and labor [116].

Once the samples of the analysis had been defined and the reports had been collected, the research was developed through the following phases.

First, the SRQ evaluation scale based on the literature review and on the protocol of content analysis was developed.

Second, a pilot study was conducted by applying the SRQ evaluation scale on 20 companies—as suggested by Adler and Milne [117]—to test the consistency of the content analysis. In this phase, to better guarantee consistency, content analysis was conducted independently by two researchers [118]. Using the results of the pilot study, the indicators of the SRQ evaluation scale were finally defined. The final instrument was applicable to all statements—both integrated reports and stand-alone sustainability reports; this evaluation scale rated each reporting system, and when applied to reports published before and after the legislation's entry into force. Reports published in 2017 contain information on the performance of the companies during 2016, which was before entry into force of the EU directive. Consequently, the first implementation of the directive relates to reports published in 2018 that contain the performance of companies in 2017. This pre-post analysis enabled identification of whether the quality of reporting had increased.

Third, the sustainability reporting practices of the companies contained in the sample were checked for inclusion of the 20 indicators of the developed scale, and each indicator was treated as a dichotomous variable.

Fourth, as recommended by Krippendorff [118] (p. 428), to assess the reliability of the scale, the results of the content analysis were verified by applying Cronbach's alpha.

Fifth, a Wilcoxon matched-pairs signed-rank test analysis [119–121] was conducted to evaluate the significance of the differences in sustainability reporting before and after the implementation of Directive 2014/95/EU. The test was conducted on the samples from both countries to allow cross-country comparison and verified whether mandatory disclosure affected SRQ independently from the quantity of published reports.

Sixth, to better explore the effect of Directive 2014/95/EU on SRQ, and to verify whether other determinants could affect the improvement of SRQ, a multiple-linear-regression model was built. Previous studies have established several determinants for SRQ related to size, profitability, and industry. The regression model considered these determinants to understand their effect on the SRQ score and was applied for the year 2017.

3.2. Evaluation Scale

Based on the literature review, beginning from the seminal work of Wiseman [122], an evaluation scale was built by adopting a broadly used approach that considers a wide number of determinants of SRQ [21,22,76,112,116,123–130]. The scale included 20 indicators based on previous studies (see Table 2).

Table 2. Instrument for analysis of sustainability reporting quality (SRQ).

	SRQ Indicator	Data-Collection Process
AV1	Availability of a stand-alone sustainability report (SR) or availability of an integrated report (IR) [58]	*Analysis of corporate website (detailed analysis of 'investor relations' and 'sustainability/Corporate Social Responsibility (CSR)' sections)*
AV2	Availability of brochures or other autonomous documents about sustainability [131]	*Analysis of corporate website in all its sections*
AV3	Availability of a webpage addressing sustainability/CSR issues [132,133]	*Analysis of corporate website*
AV4	Availability of sustainability information via social media [134]	*Analysis of social media (Facebook, Twitter, Youtube, and Linkedin)*
CR1	Explicit adoption of sustainability reporting guidelines (Global Reporting Initiative, Deutsche Nachhaltigkeits Kodex, Gruppo di Studio Bilancio Sociale) [22,116,123,135]	*Content analysis of method section of SR/IR*
CR2	Independent verification or assurance of NFD [22,40–42,116,123]	*Research into SR/IR for independent assessment letter*
CR3	Evidence of stakeholder engagement in sustainability reporting process [22,76,116,123]	*Content analysis of method section of SR/IR and possibly other sections ('stakeholder' section if one exists)*
CR4	Description of instruments used for stakeholder engagement in sustainability reporting process [136,137]	*Content analysis of method section of SR/IR and possibly other section ('stakeholder' section if one exists)*
CR5	Availability of quantitative data about sustainability-related expenditure [114,124,128]	*Content analysis of SR/IR (only explicit sustainability-related expenditures are considered, for example, expenditures for environmental sanctions are not considered)*
CR6	Availability of quantitative data about sustainability performance [108,114,124]	*Content analysis of SR/IR*
CR7	Inclusion of a materiality analysis as part of the sustainability report [138–140]	*Content analysis of method section of SR/IR and possibly other sections ('materiality analysis' section if one exists)*
SA1	Top-management statement about sustainability or reference to sustainability in top-management statement of integrated report [141]	*Content analysis of CEO's/president's letter*
SA2	Description of a sustainability policy/strategy [114]	*Content analysis of SR/IR*
SA3	Reference to the United Nations Sustainable Development Goals [142,143]	*Content analysis of SR/IR*
SA4	Reference to the United Nations Global Compact [144]	*Content analysis of SR/IR*
SA5	Integrated reporting [145]	*Analysis of annual report (regardless of whether there is also a stand-alone SR)*
SA6	Existence of a sustainability/CSR governance entity in the organizational structure [146,147]	*Content analysis of SR/IR and of corporate website*
SA7	Possession of certification by independent agencies for environmental issues (e.g., ISO 14000, EMAS) [22,123]	*Content analysis of SR/IR and of corporate website*
SA8	Possession of certification by independent agencies for social issues (e.g., OSHAS, SA8000) [116]	*Content analysis of SR/IR and of corporate website*
SA9	Possession of an ethical code or deontological code of behavior [148,149]	*Content analysis of SR/IR and of corporate website*

Notes: Availability (AV), Credibility (CR), Strategic anchorage (SA)

The indicators were organized into three levels of analysis that describe the following three dimensions of SRQ:

- Availability (indicators AV): the first dimension aims to understand whether sustainability reports are available to all possible stakeholders, including through nontechnical channels such as brochures or social media. The "universal" destination of sustainability reporting requires an effort to use different channels to reach different stakeholders, including those who do not have technical knowledge or free access to financial databases. Previous research has stated that this dimension of SRQ is crucial because of the natural tendency of sustainability reports to build good relationships with stakeholders.
- Credibility (indicators CR): the second dimension—largely recognized by previous research as fundamental in defining SRQ [22] and as being connected to the recognition of stakeholders' concerns related to the reliability of sustainability reports [150]—concerns the content of sustainability reports and the possibility of immediately verifying the quality of the information included in the reports. This dimension is identified from the perspective of each reader of the report and concerns the methodology adopted by the corporation in constructing the report. This dimension could be related to some of the goals pursued by the legislative reform in relation to NFD, for example, the harmonization of nonfinancial information disclosed by companies and the comparability of performance related to environmental, social, and governance issues among large European corporations.
- Strategic anchorage (indicators SA): the third dimension is related to the nexus between reporting and strategic policies on sustainability and CSR. This third group of indicators aims to understand whether reporting is an autonomous and occasional process or part of a wider sustainable strategy that also considers global challenges (e.g., United Nations Sustainable Development Goals) and internationally acknowledged tools for sustainability.

The reliability of the scale was good, all the results of Cronbach's alpha showed acceptable values above 0.7, confirming the reliability of the instrument [151–153]. The Cronbach's alpha for the entire scale was 0.946 and the values for the subscales were as follows: availability $\alpha = 0.755$; credibility $\alpha = 0.917$; strategic anchorage $\alpha = 0.854$.

3.3. Sample of Analysis

The analysis sample included the corporations listed on the Italian and German top lists (FTSE MIB and DAX 30), similarly to previous studies [69]. The Italian Stock Exchange FTSE MIB (Borsa Italiana) includes 40 titles, issued by 40 different corporations; however, four corporations were excluded from the sample. One was excluded because the sustainability report was not available on the date the information was gathered. Another company was excluded because a pre–post analysis was impossible given that 2017 was their first year of reporting after the merger of two companies that had been reporting independently before the directive was implemented. The other two companies were excluded because they disclosed nonfinancial information as part of a consolidated report of the holdings to which they belong. However, it was possible to analyze all 30 corporations listed on the DAX 30 of the Frankfurt Stock Exchange (Börse Frankfurt). A list containing the names of the companies included in the sample is available in the Appendix A in Table A1. Some of the information and data about the companies were collected because they were considered potential determinants of SRQ by previous studies [14,29]. In detail, the determinants were as follows: dimension (measured by a natural logarithm of total assets); profitability (measured by Return on Assets Index); industry (considered a dummy variable with value 0 for a services company and value 1 for a manufacturing company [30]); and country.

The study included 132 observations: 72 paired observations from 36 Italian companies (13 service companies and 23 manufacturing companies) and 60 paired observations from 30 German companies (10 service companies and 20 manufacturing companies).

4. Results and Discussion

This study was conducted with the principal aim of exploring whether the obligatoriness of NFD—introduced into the Italian and German legal systems following the implementation of Directive 2014/95/EU—affects SRQ. This chapter presents the empirical findings of the research questions and discusses these findings in the light of previous literature.

4.1. Descriptive Statistics

Table 3 presents the descriptive statistics on the SRQ of the Italian and German sample companies before and after implementation of Directive 2014/95/EU.

Table 3. Descriptive statistics of sustainability reporting quality in Italy and Germany before and after implementation of Directive (2016–2017).

	Sustainability Reporting Quality			
	Italy (*N* = 36)		**Germany (*N* = 30)**	
Period	**Mean**	**Std dev.**	**Mean**	**Std dev.**
Before implementation (2016)	12.50	7.241	16.30	3.678
After implementation (2017)	15.53	3.828	17.67	2.155

The results revealed an increase in the mean of SRQ scores after the implementation of Directive 2014/95/EU in both countries. Eight of the Italian companies did not have sustainability reporting practices before the directive was implemented, and consequently, the SRQ score for the Italian companies before implementation ranged from a minimum of 0 and maximum of 20, with a mean of 12.50 and a standard deviation of 7.241. In contrast, all the German companies had sustainability reporting practices before and after the directive's implementation. Overall, the SRQ scores for the German companies remained higher than those for the Italian ones. These findings were in line with a previous study focusing on the biggest European companies and showing the level of compliance before the implementation of Directive 2014/95/EU [154]. In addition, Venturelli et al. [155] highlighted a similar gap between Italian and UK companies in sustainability reporting practices, and thus our findings were in line with this previous study.

Following the implementation of Directive 2014/95/EU, it was expected that the corporations that had no previous practice of sustainability reporting would begin to practice such reporting to fulfill the new regulatory requirements. This phenomenon was observed for Italy, where eight companies that had not reported on sustainability before the implementation of Directive 2014/95/EU began to do so after the new regulatory requirements entered into force. Thus, following the implementation of the new regulatory requirements, there was an improvement in sustainability reporting practices, at least in terms of quantity. This result partially confirmed the Venturelli et al.'s [78] findings on the contribution of the EU directive to NFD in Italy and was in line with recent evidence from other European countries. The finding of a quantitative increase of sustainability reporting practices after the introduction of Directive 2014/95/EU was a recurring finding from other studies [156–167].

A comparison between the SRQ scores of first-time reporting companies and those of experienced reporting companies in Italy found that the mean value of SRQ for first-time reporters after implementation of Directive 2014/95/EU (mean = 11.25) was lower than that of experienced reporting companies after the implementation of the directive (mean = 16.75). This comparison was not possible for Germany because all the companies analyzed had sustainability reporting practices before implementation of the directive. The idea that the SRQ increases with more experience in reporting is in line with previous studies such as Albertini [168]. However, the results of the present research should be interpreted prudently because to present clear evidence on the quality of sustainability reporting requires longitudinal research and a larger sample. Moreover, previous studies have addressed the difficulties of identifying clear differences between first-time reporters and companies with more reporting experience [69,167].

As presented in Table 4, after the implementation of Directive 2014/95/EU, surprisingly, the SRQ score of four Italian companies decreased. For one company, the decrease was because of a change in the type of report, but for the other three companies, the decrease was caused by the absence of some information (e.g., SA7: Possession of certification by independent agencies for environmental issues) in the most recent edition of the sustainability report. Twenty Italian companies increased their SRQ, but the SRQ of 12 of the Italian companies did not change after the implementation of mandatory NFD.

Table 4. Comparison of sustainability reporting quality in Italy and Germany after implementation of the directive (2016–2017).

Period	Sustainability Reporting Quality			
	Italy (N = 36)		Germany (N = 30)	
	N	SRQ Mean	N	SRQ Mean
Decrease of SRQ after implementation	4	14.00	–	–
Increase of SRQ after implementation	20	14.40	16	17.06
No change in SRQ after implementation	12	17.92	14	18.36

For the German companies, there were either increases in the SRQ score (observed in 16 companies) or no change in the SRQ score (observed in 14 companies). This can be explained by the fact that all the analyzed German companies reported on sustainability before and after the implementation of the directive. Fifka [169] showed that this tradition of reporting evident in the German companies can be partially attributed to the effect of a modernization law enacted previously that allowed companies to incorporate nonfinancial information in their reporting instruments. For this reason, the German legislator emphasized implementation of Directive 2014/95/EU as "strengthening" German laws on reporting and did not consider implementation of the EU directive a new reporting law. Fourteen of the German companies maintained their SRQ at the same level. This outcome was in line with the opinion of researchers who have noted that the discussion on the obligatoriness of sustainability reporting was more an issue for small and medium enterprises because the large companies in Germany had a long-standing tradition and experience of sustainability reporting [80,84].

German and Italian companies that received the same SRQ score before and after the implementation of the directive showed a higher mean value for SRQ than companies that improved their SRQ score (in Italy 17.92 > 14.40; in Germany 18.36 > 17.06). Thus, the introduction of compulsory NFD can be considered principally as an incentive for companies to initiate sustainability reporting practices [167].

4.2. SRQ Differences before and after Implementing the EU Directive

As presented in Table 5, improvement in SRQ scores after the implementation of Directive 2014/95/EU had a different effect in the two countries. In Italy, the greater effect was on the dimension of strategic anchorage of sustainability reporting practices ($\Delta = 1.44$), followed by the dimension of credibility of sustainability reporting practices ($\Delta = 1.19$), and then by the dimension of availability of sustainability reporting practices ($\Delta = 0.38$). For Germany, the effect of the implementation of the directive was greater in the dimensions of strategic anchorage and credibility of sustainability reporting practices ($\Delta = 0.53$), and lower in the dimension of availability of sustainability reporting practices ($\Delta = 0.37$).

Table 5. Comparison of the dimensions of sustainability reporting quality in Italy and Germany before and after implementation of the directive (2016–2017).

	Sustainability Reporting Quality (SRQ)							
	Italy (N = 36)				**Germany (N = 30)**			
	AV	**CR**	**SA**	**SRQ**	**AV**	**CR**	**SA**	**SRQ**
Mean before	2.56	4.64	5.31	12.50	3.23	6.10	6.97	16.30
Mean after	2.94	5.83	6.75	15.53	3.53	6.63	7.50	17.67
Δ	0.38	1.19	1.44	3.03	0.30	0.53	0.53	1.37
p	0.046 *	<0.001 *	<0.001 *	<0.001 *	0.014 *	0.016 *	0.002 *	<0.001 *
Z	−1.997 [a]	−3.234 [a]	−3.619 [a]	−3.502 [a]	−2.460 [a]	−2.410 [a]	−3.066 [a]	−3.573 [a]

* Indicates statistically significant change. [a] Based on negative ranks.

In both countries, the greatest effect of the EU directive was on the strategic anchorage of the sustainability reporting practices. This outcome can be explained by the content of the EU directive, which explicitly requires from the companies the disclosure of some strategic elements related to the sustainability practices of the companies [27]. The improvement in the dimension of credibility of sustainability reporting practices was in line with Lock and Seele's [69] and Helfaya et al.'s [12] findings; however, Ioannou and Serafeim [6] found that country-level variables could also explain differences in the dimension of credibility of SRQ.

To determine the significance of the differences in SRQ before and after implementation of Directive 2014/95/EU, a Wilcoxon signed-rank test was performed. This nonparametric analysis was possible because paired data of the sustainability reporting practices of Italian and German companies were available and measured. As presented in Table 5, the Wilcoxon signed-rank test showed statistically significant differences between the SRQ scores before and after the implementation of the new regulatory requirements for mandatory NFD in Italy ($Z = -3.502$, $p < 0.001$). For Germany, the Wilcoxon signed-rank test also showed statistically significant differences between the SRQ scores before and after the implementation of the new legislation for mandatory NFD ($Z = -3.573$, $p < 0.001$).

For the dimension of availability of sustainability reporting practices, the Wilcoxon signed-rank test confirmed the statistical significance of the differences for the companies in Italy ($Z = -1.997$, $p < 0.046$) and in Germany ($Z = -2.460$, $p < 0.014$) included in the analysis. The Wilcoxon signed-rank test also showed statistically significant differences for the dimension of credibility of reporting practices of the Italian ($Z = -3.234$, $p < 0.001$) and German ($Z = -2.410$, $p < 0.016$) companies after the implementation of the EU directive. Finally, the Wilcoxon signed-rank test also confirmed the existence of significant differences in the dimension of strategic anchorage of the reporting practices of the Italian ($Z = -3.619$, $p < 0.001$) and German ($Z = -3.066$, $p < 0.002$) companies.

Therefore, it can be affirmed that the implementation of the directive affected the SRQ of the companies in the sample, and that the effect of the new regulatory requirement related more to the strategic and credibility dimensions of sustainability reporting practices than to the availability of such practices. Consequently, far from considering sustainability reporting a mere administrative burden, it seemed that the companies included in this study improved their reporting practices in a more strategic manner [170].

The Wilcoxon signed-rank test was also conducted specifically on sustainability reporting practices by companies that were experienced in reporting to verify whether mandatory NFD had a significant effect on SRQ even when companies had been engaging in sustainability reporting voluntarily before the introduction of legislation requiring such reporting. The results of Wilcoxon test (see Table 6) showed a significant improvement in the total SRQ score for reporters with experience ($Z = -4.085$, $p < 0.001$). This analysis confirmed that obligation had an effect on quality independently from = growth of reporting quantity. This finding was in line with previous literature [11] that has distinguished the notion of quality from quantity in relation to NFD.

Table 6. Comparison of the dimensions of sustainability reporting quality before and after implementation of the directive (2016–2017) by reporters with experience.

	Sustainability Reporting Quality			
	Reporters with Experience (N = 58)			
	AV	**CR**	**SA**	**SRQ**
Mean before	3.26	6.03	6.90	16.19
Mean after	3.40	6.45	7.38	17.23
Δ	0.14	0.42	0.48	1.04
p	0.083	0.002 *	<0.001 *	<0.001 *
Z	−1.734 [a]	−3.079 [a]	−3.781 [a]	−4.085 [a]

* Indicates statistically significant change. [a] Based on negative ranks.

The quality of sustainability reporting improved significantly for the dimension of credibility ($Z = -3.079$, $p = 0.002$) and most of all for the dimension of strategic anchorage ($Z = -3.781$, $p < 0.001$), while SRQ for the dimension of availability remained unchanged ($Z = -1.734$, $p = 0.083$). These findings were not surprising because companies that adopted voluntary disclosure before mandatory NFD was introduced were inclined to make their reports available to stakeholders using different media, confirming the findings of a previous study [134].

4.3. Determinants of SRQ and Obligatoriness of NFD

Previous literature has shown that several determinants can affect SRQ. Consequently, a multiple-linear-regression model was built to understand whether the SRQ Index adopted in the present research was conditioned by the determinants such as company size, profitability, industry, and country. This selection of determinants was based on the research of Fifka [29] and Hahn and Kühnen [15], which revealed these as the most relevant determinants for analysis of SRQ.

There are different means used for measuring company size. For example, previous studies have adopted total assets as a proxy of size [28,30,171–173]. To avoid scale problems, the common practice of using the natural logarithm of total assets was adopted by the present study [25,174–176].

The Return on Assets Index was adopted by the present study as a good proxy of profitability in line with other empirical studies [21,28,174].

Industry was considered a dummy variable for which value 0 was assigned to service companies and value 1 to manufacturing companies, which are considered potentially high-risk industries [30].

Finally, country was adopted by the present study as an independent variable because previous studies have emphasized the significance of this variable [177], and this variable was consistent with the research questions. Thus, country was used as a dummy variable (0 = Italy; 1 = Germany).

The multiple-linear-regression model was developed as following:

$$\text{SRQ Index} = \alpha + \beta\ {**}\text{Size} + \beta\ {**}\text{Profitability} + \beta\ {**}\text{Industry}\ {*}{+}\ \beta\ {**}\text{Country}\ {+}{*}\varepsilon$$

To determine whether the sample presented multicollinearity, the relevant Pearson correlations between the variables were calculated. As shown in Table 7, some variables were significantly correlated but their coefficients were not sufficiently high (>0.80) to cause problems in the multiple linear regression [178].

Table 7. Pearson correlations.

	1	2	3	4	5	6	7	8
1 SRQ Index	1							
2 AV	-	1						
3 CR	-	-	1					
4 SA	-	-	-	1				
5 Size	0.378 **	0.344 *	0.440 **	0.188	1			
6 Profitability	−0.281 *	−0.187	−0.269 *	−0.215	0.454 **	1		
7 Industry	0.049	−0.169	−0.042	0.225	−0.470 **	−0.055	1	
8 Country	0.200	0.167	0.230	0.096	0.429 **	−0.368 **	0.701	1

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 8 shows the results of regression and the goodness of fit of the model ($R^2 = 0.218$; D-W = 1.119), thus allowing some first conclusions. Size appeared a relevant variable to explain SRQ as affirmed by several previous studies [22,68,87,114,179–181], while the other variables did not show a significant on SRQ. Indeed, among the other variables, only industry showed a moderately significant t value. In contrast, there was not significant finding for profitability despite previous studies [21] finding a significant relationship between economic performance and environmental performance. This result was more in line with the outcomes of Brammer and Pavelin [171], Clarkson et al. [22], and Clarkson et al. [64].

Table 8. Sustainability reporting quality as dependent variable.

	B	t	Collinearity statistics	
			Tolerance	VIF
(constant)	9.352	3.397 ***		
Size	0.686	2.838 ***	0.478	2.091
Profitability	−0.016	−0.284	0.686	1.459
Industry	1.448	1.957 *	0.666	1.500
Country	−0.148	−0.225	0.754	1.326

N = 55, $R^2 = 0.218$, Durbin–Watson = 1.119; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

In the context of the present analysis, the results of the regression models were interesting above all from two perspectives. First, country was not revealed as a significant determinant of SRQ, suggesting a potential harmonization effect of sustainability reporting practices across different countries after the implementation of the EU directive. This finding contributes to broader previous literature about the effects of mandatory NFD that focused on other aspects such as the economic effect of compulsory disclosure [182] and the effectiveness of legislation on NFD [183,184].

Second, the results of the multiple-linear-regression model suggested that the introduction of mandatory NFD had a relevant effect on SRQ in both Italy and Germany. Although further research is required to confirm these findings, they can positively contribute to scientific debate and policy making in relation to the effects of the obligatoriness of NFD on SRQ.

The model was also applied adopting single dimensions of SRQ as the dependent variable (Table 9). While the results of the model applied using the dimension of availability as the dependent variable showed acceptable but not high fit ($R^2 = 0.130$; D-W = 1.693), the model applied to the other two dimensions (i.e., credibility and strategic anchorage) had good results (for CR: $R^2 = 0.245$, D-W = 1.389; for SA: $R^2 = 0.184$, D-W = 1.171).

Table 9. Single dimensions of SRQ as dependent variable.

	AV as Dependent Variable		CR as Dependent Variable		SA as Dependent Variable		Collinearity Statistics	
	B	**t**	**B**	**t**	**B**	**t**	**Tolerance**	**VIF**
(constant)	1.961	1.778 *	3.779	4.456 ***	3.612	2.212 **		
Size	0.122	1.257	0.239	3.204 ***	0.326	2.272 **	0.478	2.091
Profitability	−0.007	−0.304	−0.001	−0.034	−0.008	−0.257	0.686	1.459
Industry	−0.163	−0.551	0.391	1.716 *	1.221	2.781 ***	0.666	1.500
Country	0.163	0.619	−0.032	−0.160	−0.278	−0.715	0.754	1.326
	N = 55 R^2 = 0.130 Durbin-Watson = 1.693		N = 55 R^2 = 0.245 Durbin-Watson = 1.389		N = 55 R^2 = 0.184 Durbin-Watson = 1.171			

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

The results presented in Table 8 substantially confirmed the findings of the regression model using SRQ as the dependent variable. The results confirmed that size has a significant effect on SRQ. In addition, the results for strategic anchorage demonstrated that industry has a significant effect on the strategic anchorage of SRQ, thus confirming previous studies about the relevance of environmental risks on the sustainability strategy of companies [63,185] such as those demonstrated by Carini et al. [186] for the oil and gas sector.

Finally, even when applied with the three dimensions of SRQ separately as dependent variables, the multiple-linear-regression model suggested both the harmonization effect on SRQ in the analyzed country-based samples and a significant effect of obligatoriness on SRQ.

5. Conclusions and Limitations

This article aimed to clarify whether the obligatoriness of NFD has had an effect on SRQ. To infer some initial conclusions related to the research questions, the research applied a content analysis on the sustainability reporting practices of Italian companies listed on the FTSE MIB and German companies listed on the DAX 30. The content analysis allowed the application of an evaluation scale organized according to three dimensions of SRQ: credibility, availability, and strategic anchorage. While the present results must be confirmed by further research, they allowed some general conclusions to be made. Indeed, the analysis had an exploratory nature and was able to capture only the short-term effects of mandatory NFD because the directive under study entered into force in 2017. Nevertheless, it is reasonable to presume that the variations in SRQ from 2016 to 2017 were caused principally by the directive and not by other endogenous or exogenous factors. This finding was clarified by the implementation of a multiple-linear-regression model that considered the most relevant determinants of SRQ highlighted in previous literature.

The study shows that the majority of the companies included in the sample already had sustainability reporting practices, which can also be considered of high quality. While in the Italian sample, eight companies did not employ sustainability reporting practices before the implementation of Directive 2014/95/EU, in the German sample, all the companies engaged in sustainability reporting practices before and after the implementation of the directive. However, the comparative analysis found significant differences in SRQ before and after the entry into force of Directive 2014/95/EU in both Germany and Italy. Moreover, it was possible to identify that after implementation of the directive, the strategic anchorage and credibility dimensions of SRQ showed greater changes than the dimension of availability in both countries, these means that the implementation of the Directive 2014/95/EU is contributing to increasing the SRQ although the levels of SRQ where already high before its implementation.

The comparison between the two national groups of companies clarified that obligation is effective in harmonizing SRQ, and thus bridges previous gaps in SRQ. Thus, Directive 2014/95/EU mandating NFD has aligned the level of SRQ of companies in the two analyzed countries.

Although major efforts have been done to address the consequences of mandatory nonfinancial disclosure on SRQ, the study has also some limitations. The conclusions of present analysis must be considered a first explorative observation that can be expanded through further analysis of other Italian and German listed companies and of companies in other European countries that introduced mandatory NFD through Directive 2014/95/EU. At the moment of doing the data collection it was possible to address only two periods of reporting; however, the analysis could be also enrich taking a longitudinal approach in the research design, these could be done as the time passes and evidence of NFD practices become available. This study can also be improved after enlarging the sample of companies including also non-stock exchange listed companies; or including more countries in the analysis. Enlarging the sample of companies would allow to make more detailed comparisons regarding the determinants of SRQ as for example industry membership. In this same line of thinking, also inquiring regarding other potential determinants of SRQ would be possible, i.e., board and governance structure of companies, media visibility of companies, etc.

Although this research is exploratory, it created some first theoretical and then practical implications. First, this paper contributed to scientific debate on SRQ because the cross-country comparison demonstrates that mandatory NFD makes systems more homogeneous and bridges the gap in SRQ when NFD is voluntary. The present research opens up further research aiming to understand how the concept and the metrics of SRQ change when NFD is mandatory, while previous studies have mainly focused on understanding these factors in the context of voluntary NFD. From this perspective, the findings of this paper benefited from the cross-country comparison conducted in a special—and probably unique—context: the implementation of the same directive in two different countries with different previous reporting experiences.

Further, the findings suggested to policy makers that in a globalized context, they could improve the transparency of markets and the quality of relationship between companies and stakeholders by harmonizing legislation on NFD. However, future research could address the impact of mandatory nonfinancial disclosure in a longitudinal perspective; moreover, it is still necessary to go deeper into the consequences of mandatory disclosure of nonfinancial information and its relation to the performance of companies, paying attention to the differences between financial and nonfinancial performance. One of the most discussed issues regarding the introduction of mandatory disclosure of nonfinancial information was related to the cost that it will represent from companies, a question that remains unanswered regarding the amount of resources used by companies to comply with these new regulatory requirements and the opportunity costs for these resources. Furthermore, co-cost and co-benefits of new regulatory requirements still to be addressed.

From a more systemic perspective, the impact of mandatory disclosure of nonfinancial information and its relation to sustainable development at a national and regional level still to be studied, this is crucial for the evaluation of new regulatory requirements and the effectiveness of sustainability policy making at a macrolevel.

Finally, the analysis has revealed some interesting implications for standard setters. That is, the application of SRQ evaluation instruments made clear a lack of attention to the availability of nonfinancial information on channels other than the annual report and the lack of financial information related to environmental and social expenditure in corporate reporting.

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Appendix A

Table A1. Companies included in the sample.

Italian Companies	German Companies
A2A	Adidas AG
Atlanta	Allianz SE
Azimut Holding	BASF SE
Banca Generali	Bayer AG
Bper Banca	Beiersdorf AG
Brembo	Bayerische Motoren Werke AG
Buzzi Unicem	Commerzbank AG
Campari	Continental AG
Cnh Industrial	Covestro AG
Enel	Daimler AG
Eni	Deutsche Boerse AG
Exor	Deutsche Bank AG
Ferrari	Deutsche Post AG
Fiat Chrysler Automobiles	Deutsche Telekom AG
Generali	E.ON SE
Intesa Sanpaolo	Fresenius Medical Care AG & Co KGaA
Italgas	Fresenius SE & Co KGaA
Leonardo	HeidelbergCement AG
Luxottica	Henkel AG & Co KGaA
Mediaset	Infineon Technologies AG
Mediobanca	Deutsche Lufthansa AG
Moncler	Linde AG
Pirelli & C	Merck KGaA
Poste Italiane	Muenchener Rückversicherungs-Gesellschaft AG
Prysmian	RWE AG
Recordati	SAP SE
Saipem	Siemens AG
Salvatore Ferragamo	Thyssenkrupp AG
Snam	Vonovia SE
Stmicroelectronics	Volkswagen AG
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