

Article

Scoring Nonfinancial Information Reporting in Italian Listed Companies: A Comparison of before and after the Legislative Decree 254/2016

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Abstract: Directive 2014/95/EU requires EU Member States to mandate nonfinancial disclosures for large public interest entities. The adoption of the Legislative Decree 254/2016, transposing into Italian law the EU Directive, has opened up new perspectives for research on the effects produced by regulatory requirements on nonfinancial information (NFI) in the Italian context. This paper aims to examine how the new regulation is influencing the quantity of NFI disclosed by Italian companies concerning sustainability matters required by the Directive. Content analysis is used to verify the sustainability indicators disclosed by Italian companies before and after the implementation of the Decree. A composite indicator of disclosure performance is then constructed using Principal Component Analysis (PCA). The results highlight a generalized reduction of indicators disclosed by companies belonging to the sample. Over the three years analysed, most companies have improved their disclosure ranking. Nevertheless, a comparison among companies having the same ranking showed a decrease in the disclosure index for the majority of them. Despite the growing attention paid by academics to Directive 95/2014/EU and its implementation in Italy, this is one of the few studies that has evaluated the effects of the Decree over three years, considering what happened after the first year of its implementation.

Keywords: nonfinancial information; Directive 2014/95/EU; Legislative Decree 254/2016; Global Reporting Initiative; principal component analysis; sustainability disclosure index

1. Introduction

Until the adoption of Directive 2014/95/EU (hereafter, simply “Directive”), nonfinancial information reporting in Italy had been largely voluntary, with the sole exception of banking foundations, some social cooperatives, and social enterprises. Notwithstanding, Italian companies that have undertaken voluntary corporate responsibility reporting “demonstrated both strong communication and professionalism overtime” for over a decade ([1] p. 4). Likewise, the interest of academics and practitioners in nonfinancial reporting has grown, and many studies have been published on different aspects of this topic. The research focused on issues ranging from the determinants of the corporate responsibility reporting (CRR) disclosure [2–4] to the assurance of voluntary reports [5] and from CRR practices [6,7] to their effects on performance and various stakeholders [8].

The adoption in Italy of the Legislative Decree no. 254 on 30 December 2016 (hereafter, simply “Decree”), transposing into Italian law the Directive, has increased interest in the effects that the adoption of the new regulatory requirements has had on the quantity and/or quality of NFI disclosed by Italian companies. The issue of voluntary versus mandatory disclosure, widely debated in the

literature with contradictory results [9–12], has become a central topic of study related to the Italian case. To date, we have identified two main groups of research on this topic in the academic literature. A first, and less numerous, set of studies has analysed the effects of the adoption of the directive by Italian companies, comparing nonfinancial information published both before and after the new legislation entered into force [13–15]. Other studies, on the contrary, have analysed the reporting behaviour of Italian companies before the adoption of the Directive [16–19] or after the adoption [20]. Most of these studies aim at measuring and describing the reporting quality using a content analysis technique to evaluate whether the principal content elements regarding nonfinancial information are provided [14,17]. Others have analysed the differing degrees of completeness in disclosure using different evaluation scales [15,18,19].

As highlighted below, less research has investigated the effects of the Decree on NFI disclosures both before and after the entry into force of the Directive. To address this gap, the main objective of this study is to assess changes in the reporting of nonfinancial information produced by the transposition of the Directive in Italy. To this end, we formed the following research questions: What are the sustainability indicators that companies are currently using to meet the demands of the Decree, compared with those reported before? How did the new regulation influence the quantity of nonfinancial information disclosed by Italian companies with reference to the sustainability matters required by the EU Directive?

This study uses institutional theory to assess the early phases of institutionalisation of the new mandatory reporting practices involving Italian companies. Institutionalisation is how organisations share a set of meanings, practices, values, and beliefs, which combined produce the homogenisation of organisations [21]. Therefore, using the institutional theory lens, we want to contribute to the understanding of the company's responses to pressure from the Italian government.

To answer these research questions, we carried out a content analysis of nonfinancial reports published in 2016, 2017, and 2018—before and after the adoption of the Decree by Italian listed companies. In particular, we focused on indicators disclosed in nonfinancial reports drawn up by Italian companies and related to sustainability matters required by the law, namely: the environment, social issues, employees, human rights, anticorruption and bribery. To perform our study, a composite index of performance was constructed using a multivariate statistical methodology called principal component analysis [22,23]. This analysis allows for constructing a composite sustainability index that includes a comprehensive analysis of the sustainability performance of Italian companies adopting the Decree, and the benchmark and ranking of the companies' sustainability performance.

Our results provide a measure of the overall sustainability performance of Italian companies before and after the Decree. They show a generalized reduction of indicators disclosed by companies belonging to the sample. Over the three years analysed, most companies improved their disclosure ranking. Nevertheless, most companies having the same ranking showed a decrease in their disclosure index.

Our paper makes two main contributions. Theoretically, this is one of the few studies analysing the effects of the implementation of the Directive before and after the entry into force of the Italian Decree. Moreover, it is the first to analyse not only what happened in the first year of mandatory adoption of the Decree (2017), but also in the following year (2018). However, the major post-implementation effects of a new law can emerge after the first year of its implementation [24]. Our findings contribute to an understanding of the impact of government regulation on the disclosure on NFI, highlighting the advantages and disadvantages of mandatory nonfinancial disclosure. Therefore, the paper also contributes to the underexplored area of research [25] related to the institutionalisation of NFI reports in response to pressure from the government.

Furthermore, documenting the current state of NFI reporting can be of interest to policymakers, especially as the European Commission is reviewing the nonfinancial reporting Directive as part of a broader consultation strategy to improve the disclosure of NFI [26]. Our research can also have managerial implications, giving managers the opportunity to appraise the performance of their companies by comparing them with other companies in the same period.

We structure the paper as follows. The second section provides an overview of studies published on this topic with reference to the Italian case. The third section describes the sample and methodology, the fourth section contains the results, and the final section provides some closing remarks.

2. Theoretical Perspective and Background

Several studies have analysed the effects produced by the introduction of mandatory nonfinancial information reporting on environmental and/or social performance and the quality of NFI reporting, obtaining different results. Some studies have documented an improvement in environmental performance [27] and on social and governance aspects [28]; a higher propensity to increase disclosure, receive external assurance, and adopt reporting guidelines [10]; and a significantly higher quality of mandatory reports [9,15]. Other research, on the contrary, showed that mandatory disclosure does not produce greater reporting credibility [29]; mandatory reports are still incomplete and need improvement to meet the requirements of the EU Directive [30]. These different results well explain what Hąbek and Wolniak [9] say regarding the regulation “double-edged sword” (p. 403). That is, on the one hand, the regulations can increase the quality of reports but, on the other hand, are capable of limiting companies’ reporting proactivity, therefore discouraging them from identifying new issues not specified by the Decree [12,14].

One of the most significant recent developments in the mandated disclosure of NFI was EU directive 95/2014. The Directive established that companies of a certain size should provide NFI to the extent necessary for understanding “the undertaking’s development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters” ([31] (par. 1)). Therefore, the Directive gives companies the flexibility to choose what information to disclose and how to disclose it, and lists principles and frameworks that can be used by companies [32].

The national transposition of the Directive was done by the Legislative Decree 254/2016. The implementation of the Directive in Italy has attracted the attention of several researchers who have verified the effects of mandatory nonfinancial disclosure on companies’ disclosure.

In the academic literature, we have identified two main streams of research. A first and less numerous stream of research concerns studies that have analysed the effects of the directive on Italian companies, comparing NFI published before and after the new legislation entered into force [13–15]. Other studies, on the contrary, have analysed the reporting behaviour of Italian companies before the adoption of the Directive [16–19] or after its adoption [20]. Most of these studies aim at measuring and describing the reporting quality using a content analysis technique [13,14,17], rarely combined with inferential statistics [14]. Few papers have evaluated the degree of completeness of disclosure using different evaluation scales [15,18,19] (see Table 1). In these studies, there is no commonly used theoretical perspective to shed light on the early phases of the institutionalisation of NFI reporting in Italy.

Table 1. Overview of studies on the adoption of the EU Directive in Italy.

	Author(s) Year	Research Aims	Sample and Period	Method	Results
Empirical studies comparing non-financial disclosure before and after the new legislation	Rauci and Tarquinio (2020) [13]	To evaluate the effects produced on SPIs' disclosure by the entry into force of the Italian Decree implementing the Directive on NFI.	31 Italian Listed companies. 2012 and 2017	Content analysis	Each category of performance indicators was largely reported in 2012. A reduction in the quantity of indicators disclosed was documented in 2017.
	Caputo et al. (2019) [14]	How Italy is responding to the directive by evaluating the degree of nonfinancial reporting quality, and factors that, at various levels, can influence the qualitative level of disclosure in 2017.	147 Italian Public Interest Entities listed on the Milan stock exchange. 2015 and 2017	Content analysis and ordinary least squares (OLS) regression analysis	Regulation does not always generate greater improvements in terms of the quality of sustainability reporting. Some variables (IIRC, EXP, and PAGE) influenced compliance and others (LOG ASSET, TURNOVER, and EMPLOYEES) influenced the quality of disclosure.
	Mion et al. (2019) [15]	Effects of introducing mandatory nonfinancial disclosure (NFD) on sustainability reporting quality (SRQ) in Italy and Germany	40 Italian companies listed on the FTSE MIB and 30 German companies listed on the DAX30. 2016 and 2017	Content analysis	Significant differences in SRQ before and after the entry into force of the Directive in Germany and Italy. The implementation of the directive affected the SRQ, increasing the quality of sustainability reporting. In Italy, the greater effect was on the dimension of strategic anchorage of sustainability reporting practices, credibility, and availability of practices. For Germany, the effect of the directive was greater on the dimension of strategic anchorage and credibility of sustainability reporting practice.
Empirical studies analysing non-financial disclosure before the new legislation	Doni et al. (2019) [33]	To assess whether the quantity and quality of nonfinancial information disclosed before the adoption of the Directive were linked to the level of compliance.	60 Italian listed companies. 2013 and 2014	Content analysis and ordinary least squares (OLS) regression analysis	Evidence showed that prior skills and competencies in nonfinancial reporting made a significant contribution, especially regarding the presence of a business model, but further efforts are expected to improve the quality of nonfinancial reports.
	Venturelli et al. (2019) [19]	Evaluation of the quality of NFI in the UK and Italy before the implementation of the EU Directive.	343 large listed companies (quoted in the Italian Stock Exchange and the London Stock Exchange) (134 of them are Italian)	Content analysis	Findings show that the UK is more compliant than Italy. So, regulation could be important to improve NFI in Italy more than in the UK.
	Carini et al. (2018) [18]	What were the degree of completeness and the organization of sustainability disclosure before the Directive came into force? What are the sustainability matters that firms have to invest in to achieve the Directive's requirements?	10 oil and gas companies of European extractive petroleum companies listed in the DJSTOXX 600 Europe index. Analysis of financial and sustainability reports at 2014 by (1 company is Italian)	Content analysis—disclosure score system	The results suggest that oil and gas companies disclose a fair amount of sustainability information compared to the Directive requirements. The results suggest that oil and gas companies will have to invest more in disclosing environmental and employee matters, and also in the business model's communication.
	Manes-Rossi et al. (2018) [17]	To analyse the European stage of nonfinancial reporting from a regulatory and practical point of view.	50 biggest European companies (2 of them are Italian). 2016	Content analysis and disclosure index	High level of compliance by European big companies with the EU guidelines. Particular attention is devoted to Social, Employee, and Environmental Matters. The disclosure on "principal risks and their management" is widespread.
	Venturelli et al. (2017) [16]	To evaluate the information gap for Italian companies and the adjustments required by the new Directive on nonfinancial information.	223 large Italian companies (entities of public interest). 2015	Content analysis and disclosure index	The highest levels of compliance were achieved with regard to two content elements, business model and sustainability policies, while there was an insufficient level of compliance regarding diversity policies.
Empirical studies analysing non-financial disclosure after the new legislation	Leopizzi et al. (2020) [20]	To analyse the level of nonfinancial risk disclosure after the introduction of the Directive. To evaluate the outlook orientation and the approach to risk.	202 Italian companies obliged to follow the Decree	Content analysis	Positive effect on nonfinancial risk disclosure after the introduction of the Decree. The outlook orientation shows that the information is mostly oriented to the past or present and rarely to the future. Information is more neutral or positive and rarely negative.

The research that analysed nonfinancial reports before and after the adoption of the Decree showed that the adoption of the Decree produced an improvement in the quality of reporting [14,15] and a rationalization of the sustainability indicators [13]. These studies, even if referring to Italian companies, chose different samples and have only compared information disclosed at two times, one year before the adoption of the Decree and during the first year after its adoption. All studies have performed a content analysis of NFI reports. However, they have codified and categorized information in different ways (i.e., constructing sustainability reporting quality indicators using specific features of nonfinancial disclosures [14,15] or employing all indicators disclosed in NFI reports [13]).

Our research uses institutional theory as its conceptual framework. Institutional theory views companies as part of a social system in which they operate and in which they are subjected to three types of institutional pressures [21,34]. Di Maggio and Powell [21] refer to coercive (from the government, society, or other organisations that hold critical resources), mimetic (imitation of other successful or powerful firms), and normative (resulting from the professionalisation of a field) pressures. A number of corporate social responsibility (CSR) disclosure studies have used institutional theory as a conceptual framework [35–38], highlighting how pressure from, for example, the government, influences NFI reporting. “However, companies do not adopt a uniform response to coercive pressures for CSR reporting” [39] (p. 359). Consequently, based on the results of the literature on CSR and institutional theory, we want to verify the companies’ response to mandatory NFI, to assess the effects produced on NFI reporting by the new law.

Our study, different from others related to the Italian case, aims to identify the sustainability indicators disclosed by Italian companies listed on the FTSE Italia All Share Index over a three-year period. We have analysed NFI reports published by Italian companies for the one year before and the two years after the Decree (the first year of the entry into force of the Decree (2017) and the following one (2018)). Indeed, the major post-implementation effects of a new law can emerge after the first year of its implementation, as “classically the ambition of legal regulation is to change behaviors” [24] (p. 241). Our analysis was focused, unlike other studies on the same topic, on indicators related to sustainability matters required by the law, namely: the environment, social issues, employees, human rights, anticorruption and bribery. Furthermore, until now there have been no studies that have evaluated and benchmarked corporate sustainability performance, before and after the adoption of the Decree in Italy, via a unique composite sustainability index, able to measure the overall economic, environmental, and social performance. To this end, we used a multivariate statistical method, the principal component analysis (PCA).

3. Sample and Methodology

To investigate the impact of the Directive in Italy, we carried out a content analysis aimed at comparing the quantity of nonfinancial information reported by Italian companies in 2016, 2017, and 2018. Content analysis is a research technique widely used to analyse and describe the content of documents improving the validity and reliability of scientific studies and increasing researchers’ understanding of specific phenomena [40,41].

The analysis is based on reports published in 2016, 2017, and 2018; the provisions of the EU Directive have been applied starting on 1 January 2017 [31]. The comparison is made between sustainability reports drawn up by companies for the financial year 2016, before the entry into force of the Decree, and nonfinancial statements published by the same companies for the financial years 2017 and 2018 in response to legislative requirements.

Data collected through the content analysis are analysed using descriptive statistics and principal component analysis. PCA is used to create a disclosure index and thus obtain a ranking of the sample companies according to the quantity of nonfinancial information disclosed in their reports.

3.1. Sample Selection

The Decree applies to public interest entities (e.g., listed companies, banks, insurance, reinsurance undertakings, etc.) with more than 500 employees and exceeding either a total balance sheet of €20 million or a net turnover of €40 million. Consequently, we selected as our starting sample the 225 companies included in the FTSE Italia All Share Index, updated to 24 September 2018. This index consists of stocks listed on the MTA and MIV markets of Italian Stock Exchange and represents the significant capital and industry segments of the Italian market. Since our analysis aims at comparing nonfinancial reports drawn up by companies in 2016, 2017, and 2018, it is necessary to identify, within the starting sample, those companies that had reported nonfinancial information even before the entry into force of the Italian Decree. For this reason, 154 companies were excluded from the analysis. Fourteen of the remaining 71 companies were eliminated from the sample for reasons related to the unavailability of the GRI Index, the absence of a nonfinancial report in 2016 (although these companies had disclosed NFI in previous years), and noncompliance with the Italian Decree. Therefore, our final sample consisted of 57 companies (see Table 2).

Table 2. Sampling.

Sample	Number
Initial sample—Companies included in the FTSE Italia All Share Index	225
Companies disclosing NFI even before the Italian Decree	71
Companies eliminated for lack of data or noncompliance with the Italian Decree	14
Final sample	57

Figure 1 shows the 57 companies of the final sample, sorted by industry sector according to the classification provided by the Italian Stock Exchange. Most companies belong to the Industrials sector, followed by the Financials and Utilities sectors.

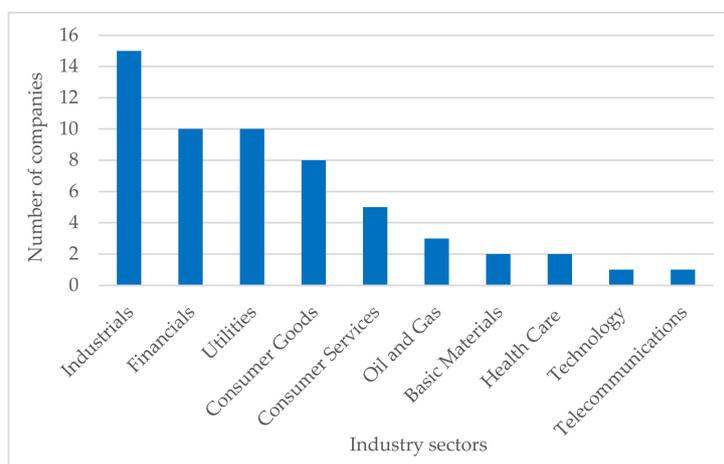


Figure 1. The industry sector included in our sample.

3.2. Data Collection

We found that all companies in the sample have produced their nonfinancial reports according to Global Reporting Initiative (GRI) guidelines or standards. Specifically, the G4 Sustainability Reporting Guidelines (G4) and the GRI Standards were adopted. Consequently, a comparative analysis was carried out by collecting data from GRI Content Indexes published by companies in their nonfinancial reports or websites. GRI Content Index is a navigation tool for the content provided in a GRI report. It makes information traceable by report users by providing a complete, accurate, and transparent

overview of all the indicators addressed in a report [42]. This tool allows us, therefore, to understand the degree of adherence to GRI Guidelines [43] based on the quantity of indicators reported by companies. We codify an indicator's presence in the report with a score of 1 and its absence with a score of 0, by assigning the same weight to each indicator [44]. To ensure the reliability of the analysis, the GRI Indexes were verified by two separate researchers. Results were compared, and the final codification table was elaborated.

We have chosen the GRI Content Indexes as the data source for two main reasons:

- they guarantee the reliability of the data employed in the analysis;
- to help organizations to comply with the EU regulations on NFI, GRI has published a document linking the contents of each topic required by Directive 2014/95/UE and the corresponding GRI Standard Disclosures [45]. By using GRI Indexes together with this document, we have identified the quantity of information disclosed by companies not only in accordance with the GRI Standards, but also in response to regulatory requirements. The GRI mapping tool, providing an overview of where G4 content can be found in the GRI Standards, allows for creating this linkage for G4 reports [46].

In the linkage document, the GRI Standards and the related Disclosures are divided into seven groups corresponding to the main topics covered by the EU Directive (i.e., General Statements, Diversity, Environment, Social, Employees, Human rights, and Anticorruption and bribery) [45]. We have followed the subdivision proposed by GRI, focusing our analysis on the last five groups, namely those concerning “sustainability matters” [45] (p.5). Indeed, the General Statements contain information generally disclosed in corporate reports, so they would not have provided relevant results on the transition from voluntary to compulsory reporting. Moreover, disclosures selected to report against Diversity also occur in the Employee group. For this reason, we have decided to avoid redundancies by considering such disclosures only once. Table 3 shows the topic-specific disclosures (from G4 Guidelines and GRI Standards) and the indicators that correspond to each element required by the European Directive.

Table 3. Linking Directive and GRI standards or G4 Guidelines.

Sustainability Matters Required by the EU Directive	Topic-Specific Disclosures	Indicators		
		G4	GRI Standards	
Environmental	Energy	G4-EN3	302-1	
		G4-EN4	302-2	
		G4-EN5	302-3	
		G4-EN6	302-4	
		G4-EN7	302-5	
		Emissions	G4-EN15	305-1
			G4-EN16	305-2
	G4-EN17		305-3	
	G4-EN18		305-4	
	G4-EN19		305-5	
	G4-EN20		305-6	
	Biodiversity	G4-EN21	305-7	
		G4-EN11	304-1	
		G4-EN12	304-2	
		G4-EN13	304-3	
	Materials	G4-EN14	304-4	
		G4-EN1	301-1	
		G4-EN2	301-2	
	Water and Effluents	G4-EN28	301-3	
		G4-EN8	303-1	
		G4-EN9	303-2	
G4-EN10		303-3		
		303-4		
	303-5			

Table 3. Cont.

Sustainability Matters Required by the EU Directive	Topic-Specific Disclosures	Indicators		
		G4	GRI Standards	
Social	Local Communities	G4-SO1	413-1	
		G4-SO2	413-2	
Employees	Employment	G4-LA1	401-1	
		G4-LA2	401-2	
		G4-LA3	401-3	
	Labour/Management Relations	G4-LA4		402-1
				403-1
	Occupational Health and Safety	G4-LA5 G4-LA6 G4-LA7 G4-LA8		403-2
				403-3
				403-4
				403-5
				403-6
				403-7
				403-8
				403-9
Training and Education	G4-LA9 G4-LA10 G4-LA11		403-10	
			404-1	
			404-2	
Diversity and Equal Opportunity	G4-LA12 G4-LA13		404-3	
			405-1	
Human rights	Non-discrimination	G4-HR3	405-2	
			406-1	
	Freedom of Association and Collective Bargaining	G4-HR4		407-1
				408-1
	Child Labour	G4-HR5		409-1
				410-1
	Forced or Compulsory Labour	G4-HR6		411-1
				412-1
	Security Practices	G4-HR7		412-2
				412-3
			414-1	
Rights of Indigenous Peoples	G4-HR8		414-2	
			415-1	
			416-1	
			416-2	
			416-3	
Supplier Social Assessment	G4-LA14 G4-LA15 G4-HR10 G4-HR11 G4-SO9 G4-SO10		417-1	
			417-2	
			417-3	
			418-1	
			418-2	
			418-3	
Anticorruption and bribery	Anti-corruption	G4-SO3	205-1	
		G4-SO4	205-2	
		G4-SO5	205-3	
	Public Policy	G4-SO6	415-1	

3.3. Principal Component Analysis

We used R software (the R Foundation, Vienna, Austria) to apply a multivariate statistical methodology, called principal component analysis, in the construction of composite indicators for disclosure performance measurement [23].

The PCA method uses an orthogonal transformation to convert a set of correlated variables into uncorrelated variables that are linear combinations of the original ones [47]. Together these new variables, called principal components (PCs), retain all the information found in the original variables, compressing most of the information into the first components, and are mathematically ranked according to their ability to explain variance in the dataset [48].

PCA can be used as a tool for the construction of composite indicators [49]. For example, Krishnan [50] adopted PCA to develop an area-based socioeconomic index aimed at understanding

factors that shape children's development. Li et al. [22] measured the sustainability performance of industrial practices, showing that PCA is an effective approach for constructing sustainability indicators across environmental, economic, and social dimensions.

We carried out a PCA to build a disclosure index that classifies companies according to the quantity of NFI disclosed in their reports and allows us to understand the possible changes that occurred in the transition from voluntary to mandatory disclosure. Indeed, this index is calculated for 2016, 2017, and 2018, making it possible to compare not only the disclosure level of the different companies included in the sample, but also the disclosure level of an individual company before and after the entry into force of the Italian Decree.

Construction of the Disclosure Index

The first step in constructing the disclosure index is to identify the total number of GRI indicators included in each topic-specific disclosure considered in the GRI linkage document. Subsequently, we verify how many indicators have been effectively reported by the sample of companies for each standard in 2016, 2017, and 2018.

At this stage, a PCA is performed following the steps proposed by Li et al. [22]. Since the topic-specific disclosures do not contain the same number of indicators, it is critical to perform standardization before PCA. Data are standardized to zero mean and unit variance to make them comparable, and to prevent those variables with more extensive ranges from outweighing those with small ranges and leading to biased results [49]. Formally:

$$i = \frac{x_i - \mu_i}{\sigma_i}, \quad (1)$$

where

x_i = observed value of the variable i (i.e., number of indicators reported by the company for the topic-specific disclosure i);

μ_i = mean of the variable i ;

σ_i = standard deviation of the variable i .

The next step is the covariance matrix computation, aimed at identifying any correlations between all the possible pairs of variables constituting the input dataset. The covariance matrix is a $p \times p$ symmetric matrix, where p is the number of topic-specific disclosures. Successively, we compute the eigenvectors and eigenvalues of the covariance matrix to determine the principal components of our dataset. Eigenvectors represent the direction of the axes in the matrix. Eigenvalues are the coefficients associated with each eigenvector and give the amount of variance (i.e., information) carried in the data along such axes. The eigenvectors with the highest eigenvalues are, therefore, the principal components. The loading of the PCs is calculated as follows:

$$l_{kl} = \sqrt{\lambda_k e_{kl}}, \quad (2)$$

where

l_{kl} = loading of the PCs;

λ_k = eigenvalue of the component k ;

e_{kl} = eigenvector related to component k ;

l = number of selected components.

Afterward, weighting factors are computed for each topic-specific disclosure by aggregating the information contained in the selected PCs [51]. In this way, the disclosures are given a weight of importance based on the variance characterizing the values observed for each of them. It follows that

weighting factors are used to calculate a final synthesized index [22] that gives information about the amount of nonfinancial information disclosed by the studied companies, simultaneously considering the relevance given to each type of data based on the PCA method. Specifically, the disclosure index is built for each company by summing the product of the standardized values associated with each topic-specific disclosure by the corresponding weighting factors. Formally:

$$DI_j = \sum_{i=1}^n w_i D_i, \quad (3)$$

where

DI_j = disclosure index for company j ;

n = total number of topic-specific disclosures;

w_i = weighting factor for topic-specific disclosure i ;

D_i = number of GRI indicators disclosed for topic-specific disclosure i (standardized value).

4. Results

The empirical investigation employs descriptive statistics and multivariate analysis to explore the evolution in levels of nonfinancial disclosure after the publication of Directive 2014/95/UE and its transposition into the Italian regulations. In both analyses, we measure the extent of disclosure by considering the GRI indicators that, according to the GRI, can be used to comply with all aspects of the regulations on nonfinancial and diversity information [45]. A frequency-based analysis is carried out at an aggregate level for 2016, 2017, and 2018, followed by the development of a composite disclosure indicator that allows for examining the changes that occurred during these years at the level of the individual company.

4.1. The Adoption of GRI Disclosures before and after the Legislative Decree 254/2016

A frequency-based analysis is first performed for the five categories corresponding to the sustainability matters required by the EU Directive. Specifically, we have divided the quantity of GRI indicators disclosed by the entire sample for each category by the maximum possible number of indicators that the whole sample could disclose [52]. Next, a more in-depth analysis was carried out by verifying frequencies related to the use of each topic-specific disclosure included in the categories mentioned above. Descriptive statistics obtained from the first step of the frequency-based analysis are shown in Table 4.

In 2016, companies disclosed, on average, 47.72% of the total indicators. Employees and Anticorruption and bribery, with a frequency higher than 50% (59.2% and 58.3%, respectively), represent the most reported topic, while the Human rights (HR) indicators are those less frequently disclosed (27.5%).

The results changed significantly in 2017, during the first year of reports published following the Decree. The average quantity of indicators reported decreased to 37.4%, and no category reached a frequency of 50%. The most disclosed indicators were those concerning Employees and Anticorruption and bribery, but the latter exceeded the former in 2017 (45% versus 48.2%). The results also show poor disclosure of HR indicators, whose frequency dropped from 27.5% to 22%. Our results concerning the general reduction of indicators reported and the low number of HR indicators disclosed confirm what was found in other studies [13].

In 2018, the average value of 38.2% rose slightly in comparison with 2017, but this still indicates a decline in indicators reported when compared with 2016 (Table 4). However, this decrease does not affect the Employees and HR topic-specific disclosure, for which we detected an increase in the percentage of information reported when compared to 2017, but a decrease in comparison to 2016. This increase mainly concerns the HR indicators (22% in 2017 and 26.1% in 2018) and is probably

due to the GRI Standards adopted by companies. Indeed, in 2018 all companies belonging to our sample drew up their NFI reports in accordance with the GRI Standards and no longer used the G4. Indeed, the transition from the G4 to the GRI Standards has affected disclosure, with implications for reporting requirements [46]. As highlighted in Table 3, the rationalization of information, and a change in the location of some indicators, has produced a lower number of HR topic-specific disclosures, thus facilitating the achievement of a higher frequency.

Table 4. Descriptive statistics on the use of the five categories of GRI indicators in 2016, 2017, and 2018.

		Frequency	Percentage	
Environmental	2016	552	43.6%	
	2017	475	36%	
	2018	488	35.7%	
Social	2016	57	50%	
	2017	41	36%	
	2018	41	36%	
Employees	2016	494	59.2%	
	2017	444	45%	
	2018	528	46%	
Human rights	2016	213	27.5%	
	2017	143	22%	
	2018	152	26.1%	
Anticorruption and bribery	2016	133	58.3%	
	2017	110	48.2%	
	2018	108	47.4%	
		Min.	Max.	Mean
	2016	27.5%	59.2%	47.72%
	2017	22%	48.2%	37.4%
	2018	26.1%	47.4%	38.2%

Figure 2 shows the changes that occurred in company disclosure over the three years analysed. In 2017, a more pronounced decrease can be observed for disclosures involving Occupational health and safety (a reduction of 22%). Moreover, companies considerably reduced the quantity of Water and effluents and Local Communities indicators, decreasing their use by 15% and 14%, respectively. In 2018, a reduction occurred for indicators related to Freedom of association, which were down by 30% compared to 2017 and by 26% compared to 2016.

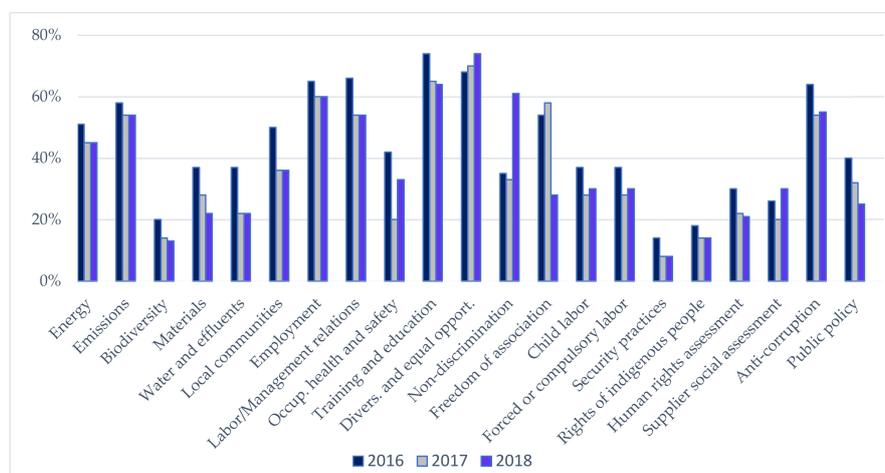


Figure 2. Frequency percentage of GRI indicators disclosed in 2016, 2017, and 2018.

Table 5 further emphasizes the changes in NFI disclosure after the new regulations came into force. In this table, the GRI disclosures related to each element of the directive are distributed into frequency classes, showing the quantity of companies belonging to each class in 2016, 2017, and 2018.

Table 5. Frequency distribution of the quantity of GRI indicators disclosed in 2016, 2017, and 2018.

Environmental						
No. of Indicators	2016		2017		2018	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0–3	5	9%	5	9%	5	9%
4–7	17	30%	26	45%	22	39%
8–11	18	31%	13	23%	17	30%
12–15	8	14%	9	16%	7	12%
16–19	5	9%	1	2%	4	7%
20–24	4	7%	3	5%	2	3%
Social						
No. of Indicators	2016		2017		2018	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0	16	28%	25	44%	25	44%
1	25	44%	23	40%	23	40%
2	16	28%	9	16%	9	16%
Employees						
No. of Indicators	2016		2017		2018	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0–2	2	3%	0	0%	0	0%
3–5	4	7%	15	26%	10	18%
6–8	25	44%	22	39%	21	37%
9–12	15	26%	12	21%	9	16%
13–16	11	20%	8	14%	15	26%
17–20	0	0%	0	0%	2	3%
Human Rights						
No. of Indicators	2016		2017		2018	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0–1	17	30%	28	49%	27	48%
2–3	16	28%	15	26%	13	23%
4–5	10	18%	5	9%	7	12%
6–8	7	12%	6	11%	8	14%
9–11	4	7%	3	5%	2	3%
12–14	3	5%	0	0%	0	0%
Anticorruption						
No. of Indicators	2016		2017		2018	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
0	9	16%	3	5%	3	5%
1	9	16%	23	40%	23	40%
2	8	14%	14	25%	16	28%
3	16	28%	9	16%	7	12%
4	15	26%	8	14%	8	14%

A further comparison between NFI disclosure levels before and after the adoption of the Italian Decree is carried out by means of a *t*-test. The *t*-test analysis led to a better understanding of whether the differences between companies' disclosure are statistically significant. As shown in Table 6, significant differences in disclosure levels are found between 2016 and 2017 and between 2016 and 2018 (significant at the 1% and 10% level, respectively), namely in relation to the transition from voluntary to compulsory reporting. Unsurprisingly, the differences observed in disclosure levels between 2018 and 2017 were statistically insignificant. Indeed, during these years the same regulatory regime was in force.

Table 6. *T*-test results.

	<i>t</i>	<i>p</i> -Value
2016 versus 2017	3.6432	0.0003
2016 versus 2018	1.8628	0.0626
2017 versus 2018	−1.5532	0.1205

4.2. Construction of the Disclosure Index

We constructed a disclosure index to develop a ranking of the companies according to the extent of NFI disclosed before and after the entry into force of the Decree. The identity of companies was anonymized to ensure confidentiality by numbering them from 1 to 57. Using PCA, we determined the loadings of principal components for each topic-specific disclosure presented in Table 3.

4.2.1. PCA Results

Tables 7–9 show the values of loadings calculated for each topic-specific disclosure reported in 2016, 2017, and 2018, respectively. Moreover, the proportion of variance explained by each principal component, the cumulative proportion carried in the overall index, and the weighting factors obtained for each standard are shown. The number of principal components retained in the analysis should be able to explain a satisfactory percentage of variance, approximately equal to 70% [48]. In our case, this percentage has been achieved by retaining six PCs over the three years analysed.

Table 7. PCA results for 2016.

Topic-Specific Disclosures	PC1	PC2	PC3	PC4	PC5	PC6	Weighting Factors
Energy	0.213	0.356	0.095	0.129	0.011	0.126	0.201
Emissions	0.205	0.366	0.071	0.02	−0.024	−0.032	0.172
Biodiversity	0.176	−0.009	0.05	0.563	0.043	−0.414	0.114
Materials	0.221	0.296	−0.104	0.371	0.000	−0.174	0.175
Water and Effluents	0.151	0.15	0.298	0.149	0.105	0.395	0.18
Local Communities	0.254	0.034	−0.211	0.108	−0.067	0.295	0.129
Employment	0.227	0.172	0.066	−0.295	0.106	−0.044	0.12
Labour/Manag. Relations	0.164	0.142	0.392	−0.058	−0.105	−0.159	0.118
Occup. Health and Safety	0.243	0.106	−0.224	−0.216	0.252	0.268	0.126
Training and Education	0.151	0.279	−0.198	−0.284	0.258	−0.264	0.076
Div. and Equal Opportunity	0.111	0.187	0.468	−0.172	0.142	0.014	0.129
Non-discrimination	0.222	−0.215	0.322	0.02	−0.173	0.225	0.096
Freedom of Association	0.231	−0.178	0.039	−0.164	−0.342	−0.266	0.014
Child Labour	0.25	−0.317	0.188	0.036	0.149	−0.095	0.077
Forced or Compulsory Labour	0.232	−0.362	0.187	0.019	0.143	−0.049	0.061
Security Practices	0.228	−0.142	−0.216	−0.057	0.443	−0.133	0.071
Rights of Indigenous Peoples	0.289	−0.205	−0.145	−0.155	0.132	−0.042	0.068
Human Rights Assessment	0.248	−0.275	−0.047	0.057	0.01	0.244	0.077
Supplier Social Assessment	0.223	−0.022	−0.28	0.346	−0.085	0.132	0.108
Anti-corruption	0.211	0.081	−0.208	−0.148	−0.494	0.205	0.057
Public Policy	0.251	0.011	−0.08	−0.214	−0.393	−0.314	0.037
Proportion of variance	32%	14%	7%	7%	5%	5%	
Cumulative proportion	32%	46%	53%	60%	65%	70%	

Table 8. PCA results for 2017.

Topic-Specific Disclosures	PC1	PC2	PC3	PC4	PC5	PC6	Weighting Factors
Energy	0.292	0.098	0.094	0.002	0.165	0.342	0.208
Emissions	0.291	0.176	0.098	-0.030	0.014	0.205	0.196
Biodiversity	0.164	-0.052	-0.279	-0.490	-0.143	-0.024	-0.008
Materials	0.230	0.076	-0.133	-0.328	-0.432	-0.097	0.048
Water and Effluents	0.197	0.001	-0.065	-0.248	0.464	0.044	0.108
Local Communities	0.220	0.121	0.119	0.249	-0.153	-0.110	0.147
Employment	0.222	0.108	-0.254	0.327	0.213	-0.087	0.144
Labour/Manag. Relations	0.168	0.239	-0.343	0.228	-0.015	-0.407	0.08
Occup. Health and Safety	0.297	0.116	-0.017	0.130	-0.070	0.275	0.192
Training and Education	0.199	0.322	-0.105	0.134	0.141	-0.203	0.147
Div. and Equal Opportunity	0.109	0.166	-0.373	-0.103	0.196	0.372	0.071
Non-discrimination	0.140	-0.232	0.081	0.443	-0.192	0.191	0.087
Freedom of Association	0.253	-0.082	0.193	-0.139	0.116	-0.089	0.128
Child Labour	0.207	-0.482	-0.129	0.087	0.142	-0.202	0.03
Forced or Compulsory Labour	0.173	-0.501	-0.139	0.042	0.056	-0.254	-0.005
Security Practices	0.216	-0.171	0.332	-0.001	-0.163	0.135	0.117
Rights of Indigenous Peoples	0.252	-0.225	0.183	-0.155	0.187	0.082	0.12
Human Rights Assessment	0.284	-0.047	-0.013	0.163	-0.156	0.097	0.148
Supplier Social Assessment	0.079	-0.204	-0.452	-0.051	-0.326	0.179	-0.05
Anti-corruption	0.207	0.211	0.208	-0.097	-0.364	-0.185	0.11
Public Policy	0.223	0.102	0.253	-0.190	0.139	-0.372	0.123
Proportion of variance	36%	10%	7%	7%	5%	5%	
Cumulative proportion	36%	46%	53%	60%	65%	70%	

Table 9. PCA results for 2018.

Topic-Specific Disclosures	PC1	PC2	PC3	PC4	PC5	PC6	Weighting Factors
Energy	0.2780	0.2690	0.0227	0.0889	0.0236	0.0819	0.199
Emissions	0.2768	0.2481	0.0796	0.1896	0.0016	0.1665	0.213
Biodiversity	0.2130	-0.0421	0.1214	-0.2298	0.4009	-0.1021	0.116
Materials	0.1909	0.2453	-0.0502	-0.1210	0.2878	0.3373	0.168
Water and Effluents	0.2063	0.0346	-0.1078	0.0087	0.4950	-0.2698	0.119
Local Communities	0.2062	0.1560	0.0598	-0.4063	-0.0370	0.0284	0.097
Employment	0.1770	0.1684	-0.3484	0.2827	-0.3134	-0.2629	0.059
Labour/Manag. Relations	0.1833	0.1256	0.1541	-0.3018	0.0360	-0.2160	0.088
Occup. Health and Safety	0.1249	-0.0911	0.1189	-0.5353	-0.2895	-0.2231	-0.030
Training and Education	0.1394	0.2866	0.4008	0.2793	-0.1408	-0.0721	0.164
Div. and Equal Opportunity	0.0821	0.2622	-0.4081	-0.2136	-0.1824	-0.3928	-0.018
Non-discrimination	0.2874	-0.1360	-0.0261	0.1016	-0.1834	0.0595	0.111
Freedom of Association	0.1603	-0.1453	-0.3657	-0.0638	-0.2206	0.1975	0.006
Child Labour	0.2588	-0.3390	-0.0024	0.1836	0.0309	-0.2504	0.068
Forced or Compulsory Labour	0.2588	-0.3390	-0.0024	0.1836	0.0309	-0.2504	0.068
Security Practices	0.1009	-0.3984	0.0521	-0.2225	-0.2095	0.3554	-0.026
Rights of Indigenous Peoples	0.2604	-0.2424	0.1760	0.0862	-0.0505	0.0369	0.108
Human Rights Assessment	0.3032	-0.0335	-0.1407	0.0271	0.0275	0.1834	0.145
Supplier Social Assessment	0.2039	-0.0647	-0.4180	-0.0151	0.2401	0.2379	0.082
Anti-corruption	0.2061	0.2814	0.0771	-0.0222	-0.2852	0.2262	0.146
Public Policy	0.2761	-0.0617	0.3251	0.0471	-0.0521	-0.0751	0.150
Proportion of variance	34%	12%	7%	6%	6%	5%	
Cumulative proportion	34%	46%	53%	59%	65%	70%	

4.2.2. Disclosure Index

To calculate the disclosure index, we used the six PCs selected, weighted by their proportion of variance. The value of the index can be positive or negative, making it difficult to interpret. Therefore, a standardized index was developed by applying Equation (1). This implies that positive values are higher than the mean (which is zero), while negative values are below average. Table 10 shows the disclosure index and the resulting position in the rankings for each company in 2016, 2017, and 2018. The higher the value assumed by the index, the higher the level of NFI disclosed by the company.

Table 10. Disclosure index in 2016, 2017, and 2018.

Company *	2016		2017		2018	
	Disc. Index	Ranking	Disc. Index	Ranking	Disc. Index	Ranking
Company 1	−0.193	26	0.402	15	0.214	17
Company 2	1.640	4	1.249	9	1.465	8
Company 3	−2.088	57	−0.966	52	−0.820	47
Company 4	1.614	5	1.023	10	1.630	7
Company 5	−0.829	49	−0.835	49	−0.901	51
Company 6	−0.282	30	−0.526	36	−0.513	34
Company 7	0.526	15	1.948	7	0.858	10
Company 8	−1.344	55	−0.620	41	−0.649	41
Company 9	−0.245	29	0.091	19	−0.773	46
Company 10	0.634	13	0.309	16	−0.652	43
Company 11	−1.112	53	−0.615	40	−0.863	50
Company 12	0.072	24	0.658	12	0.524	14
Company 13	−0.285	31	−0.561	38	−0.251	26
Company 14	−0.142	25	0.030	20	−0.028	18
Company 15	−0.655	41	−0.040	22	−0.215	25
Company 16	−0.775	45	−0.454	31	−0.842	49
Company 17	−0.775	46	−0.267	24	−0.932	53
Company 18	−1.576	56	−0.284	25	−0.279	28
Company 19	−0.795	48	−0.978	53	−0.976	54
Company 20	−1.169	54	−0.436	29	−0.533	36
Company 21	0.486	16	2.284	2	1.641	6
Company 22	−0.193	27	−0.802	46	−1.051	56
Company 23	1.794	3	0.881	11	−0.095	22
Company 24	−0.911	50	−0.468	32	−0.513	33
Company 25	−0.967	51	−0.820	48	−0.680	44
Company 26	−0.675	42	−0.438	30	−0.037	19
Company 27	−0.554	38	−0.480	34	−0.824	48
Company 28	−0.641	40	−0.313	26	−0.273	27
Company 29	1.427	7	−0.767	45	−0.378	30
Company 30	−1.068	52	−0.748	44	−0.923	52
Company 31	1.032	10	−0.886	51	−1.201	57
Company 32	1.461	6	1.959	5	2.080	3
Company 33	1.255	9	2.803	1	2.670	2
Company 34	−0.460	35	−0.999	54	−0.601	37
Company 35	−0.726	43	−0.669	43	−0.691	45
Company 36	−0.769	44	−0.580	39	−0.369	29
Company 37	−0.319	33	0.199	18	−0.053	20
Company 38	0.391	18	−1.068	57	1.412	9
Company 39	−0.778	47	−0.470	33	−0.128	23

Table 10. Cont.

Company *	2016		2017		2018	
	Disc. Index	Ranking	Disc. Index	Ranking	Disc. Index	Ranking
Company 40	−0.222	28	−0.539	37	−0.462	32
Company 41	0.108	23	0.469	14	0.808	11
Company 42	0.140	22	−0.391	27	−0.058	21
Company 43	0.763	12	−0.234	23	−0.652	42
Company 44	2.698	1	2.035	3	2.905	1
Company 45	0.333	19	−0.411	28	−0.426	31
Company 46	−0.460	36	−0.870	50	−0.629	38
Company 47	2.548	2	0.277	17	0.423	16
Company 48	−0.394	34	−0.516	35	−0.646	40
Company 49	−0.308	32	−1.048	56	−0.643	39
Company 50	−0.472	37	−0.666	42	−0.522	35
Company 51	0.554	14	−1.020	55	0.760	12
Company 52	0.264	21	0.003	21	−0.195	24
Company 53	−0.583	39	−0.815	47	−0.988	55
Company 54	0.415	17	1.954	6	1.872	5
Company 55	1.372	8	1.421	8	0.579	13
Company 56	0.932	11	1.990	4	1.943	4
Company 57	0.308	20	0.620	13	0.482	15

* The name of each company is listed in Appendix A.

As the above table shows, the number of companies achieving negative values of their disclosure index increases, over the years, from 33 companies in 2016 to 36 in 2017 and 40 in 2018. In 2016, the highest value was reached by company 44 with an index equal to 2.698, while company 3 received the lowest score (−2.088).

In 2017, company 33 was at the top of the rankings with an index amounting to 2.803, while company 38 was last with a negative disclosure index equal to −1.068. Furthermore, 29 companies moved up in the rankings, 24 companies went down, and four maintained the same position. For 31 companies, the value of the index increased, while for the other 26 it decreased. However, by comparing the values assumed by the index in 2016 and 2017, we detected that for companies performing worse, the value of the index decreased to a greater extent than it increased for companies performing better. Specifically, for companies that dropped in the ranking, the index diminished on average by 0.72, while for those rising in the rankings, it increased by 0.6 on average. Moreover, if we compare companies with the same ranking in 2016 and 2017, we observe that the disclosure index in 2017, compared with the one in 2016, decreased for 63% of companies.

In 2018, company 44 again rose to the top of the rankings with an index of 2.905, while company 31 was ranked last, obtaining a value equal to −1.201. In comparison with 2016, 29 companies improved their ranking, 26 companies lost position, and two kept the same position. However, for the two companies that rose in the rankings (companies 42 and 50), the value of the index decreased. Consequently, their rise was not due to an increased extent of nonfinancial disclosure, but to the sharp decline in the index suffered by some of the companies that fell in the rankings (see, for example, companies 23, 29, 31, and 47). Moreover, even in 2018, the disclosure index decreased for companies with lower performance to a larger extent than it increased for those performing better. In particular, the index dropped by 0.66 on average and increased by 0.55 on average. Additionally, by comparing companies that had the same position in 2016 and 2018, the value of the index in 2018 was lower than

the one in 2016 for 60% of companies. Compared with 2017, 24 companies moved up the rankings, 31 companies went down, and two maintained the same position. For the two companies that rose in the standings (companies 14 and 54), and for the two companies that did not move (companies 8 and 56), the index decreased. They probably maintained these positions because of the sharp drop suffered by companies 7, 10, and 23.

The disclosure index built using PCA not only allowed us to verify the consequences of nonfinancial reporting regulations in Italy, but also contributed to the assessment of the disclosure performance of each company by identifying its strengths and weaknesses [22]. For example, company 38 had the worst ranking in 2017 (see Table 10). As seen in Table 8, Occupational Health and Safety, Energy, Emissions, and Human Rights Assessment had the highest values for the first component, PC1 (which is the one that explains the highest variance). Therefore, in this case, disclosures relating to these four topics have a high relevance and can lead companies to assess their approach to reporting those indicators.

5. Discussion and Conclusions

In 2017 some Italian companies were obliged, for the first time, to report NFI following the Decree implementing the EU Directive on NFI. The adoption by the Italian government of a strict regulation in an area dominated mainly by voluntary disclosure created a new “rule of game” [12]. Therefore, the main goal of the current study was to examine how this new regulation on NFI is influencing the disclosure of Italian companies regarding the sustainability matters required by the EU Directive. To this end, we have verified the sustainability indicators that companies used to answer the requests of the Decree after it entered into force. These reporting practices were compared with those in 2016. The multivariate analysis of PCA was used, and a composite sustainability index was constructed to classify companies according to the quantity of nonfinancial information disclosed in their reports. This index was calculated for 2016, 2017, and 2018, making it possible to compare not only the disclosure level of the different companies included in the sample, but also the disclosure level of an individual company before and after the entry into force of the Decree. In this way, a benchmark and ranking of the company’s sustainability performance was produced.

The results of our analysis show the trends in the companies’ disclosure index. We detected that the number of companies that had a negative value for the disclosure index increased over the years, from 33 companies in 2016, to 36 in 2017, and 38 in 2018. Comparing the data from 2016 with those of the following two years, most companies moved up the rankings. However, it is appropriate to underline that, if we compare companies with the same ranking in 2016, 2017, and 2018, we can detect that the value of the disclosure index decreased for the majority (for 63% of companies in 2017 and for 60% in 2018). Our results confirm the findings of previous studies related to the quantity of information disclosed by companies in the first year of adoption of the Decree, showing significant differences in the sustainability matters disclosed before and after the Decree [13,15]. As noted above, 2018 was the second year of adoption of the Decree in Italy. By comparison with 2017, no significant changes occurred, though there was a slight reduction in the quantity of indicators reported, and the changes in the disclosure ranking of companies were confirmed. Referring to this last point, our analysis shows that only 24 companies improved their ranking in 2018 compared to 2017.

We can provide different interpretations of the results obtained, by evaluating this change positively or negatively.

In the former case, the reduction in the disclosure index value could be the expression of companies’ desire to rationalize their disclosure, focusing only on the topics indicated by the Decree. However, one of the goals of the EU Directive was to improve transparency on NFI, and NFI reports can play a role in helping to achieve this goal [53,54]. Thus, companies may have decided to focus their reports only on information material for companies and stakeholders, and therefore, to achieve this goal, were reviewing the content of the NFI reports. Furthermore, previous studies about the mandatory reporting of NFI observed that the adoption of a new law could encourage the standardization of reports [54,55]. Nevertheless, the law leaves companies free to choose the guidelines or standards

and/or their application levels for NFI reports. This situation influences the responses to pressure, the quantity of information disclosed, and thus our results.

Based on our analysis, the widespread changes in the values of the disclosure indices and the disclosure rankings depict an NFI reporting reality that is still evolving.

The results of our study may also be regarded as indicative of a cautious approach to reporting, given the new law and the provision of formalized controls and sanctions [13]. In this sense, coercive isomorphism, resulting from formal pressures exerted by the new law on NFI reporting, encourages the systematization of NFI matters disclosed by companies.

On the other hand, looking at the negative side, the reduction in disclosure could be considered an indicator of mere compliance to the Decree by companies that could avoid reporting more than what is necessary to meet the law. Following this interpretation, the Decree might be considered an “end in itself,” an expression of a tick-the-box mentality [39] rather than part of a process to enhance transparency, as is the aim of the Directive. According to this perspective, our conclusions could support the view that the company’s goal in disclosure was not accountability, but only to comply with the letter of the law. Therefore, based on the existing literature on institutional theory and corporate social responsibility, it is reasonable to assume that companies’ NFI reporting is only a response to recent pressure from the EU and the Italian government. Moreover, the risk is that companies could “just adapt their current reporting practices to comply with the Directive and maintain a ‘business as usual’ approach” [56] (p. 615).

Our paper has theoretical implications. It supports an understanding of the effects produced by mandatory nonfinancial reporting on companies’ disclosure. Consequently, our research can be embedded in a larger literature that has analysed the strengths and weaknesses of mandatory nonfinancial disclosure. However, this is the first study that used multivariate PCA analysis to document the effects of the Decree on NFI. This analysis allowed us to construct a composite sustainability index that includes a comprehensive analysis of the sustainability performance of Italian companies adopting the Decree and the benchmark and ranking of the company’s sustainability performance. Furthermore, our study contributes to the research on the institutionalisation of new practices in response to a new law [57].

Our results, showing the current state of NFI reporting, can have implications for policymakers, especially as the European Commission is reviewing the nonfinancial reporting Directive as part of a broader consultation strategy to improve disclosure practices on NFI [26].

Furthermore, our findings can have managerial implications, represented by the opportunity for managers to appraise the performance of their companies, comparing it with that of other companies for the same period.

In terms of generalization, the sample only includes Italian companies, and thus our findings cannot be extended to companies in different geographical settings. Our results are related to the two years of adoption of the new reporting requirements; however, the impact of a new law will only be observable after a number of years. Therefore, it would be desirable to extend the analysis to evaluate companies’ disclosure index in the following years. It might also be interesting to use multiple sources of data (e.g., questionnaires, interviews) and to investigate the effects that a company’s variables and institutional factors can have on the quantity and quality of NFI information disclosed.

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Appendix A

Table A1. Companies and corresponding numbers.

1	A2A	32	Intesa Sanpaolo
2	Acea	33	Iren
3	Amplifon	34	Isagro
4	Ansaldo Sts	35	Italgas
5	Ascopiave	36	La Doria
6	Astm	37	Leonardo
7	Atlantia	38	Moncler
8	Autogrill	39	Mondadori Editore
9	Banca Carige	40	Monrif
10	Banca Generali	41	Ovs
11	Banca Mediolanum	42	Panariagroup Industrie Ceramiche
12	Bper Banca	43	Piaggio & C
13	Brembo	44	Pirelli & C. SpA
14	Buzzi Unicem	45	Prysmian
15	Cementir Holding	46	Saipem
16	Cir	47	Salini Impregilo
17	Cofide	48	Salvatore Ferragamo
18	Credito Valtellinese	49	Servizi Italia
19	Diasorin	50	Sias
20	Edison Rsp	51	Snam
21	Enel	52	Sogefi
22	Eni	53	Sol
23	Erg	54	Telecom Italia
24	Esprinet	55	Terna – Rete Elettrica Nazionale
25	Fiera Milano	56	Ubi Banca
26	Fnm	57	Unicredit
27	Gedi Gruppo Editoriale		
28	Generali		
29	Hera		
30	Igd Siiq		
31	I.M.A. Industria macchine automatiche		

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