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Does the Directive of the European Union on disclosure of non-financial and diversity information improve reporting?

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Abstract

Purpose – While in the past companies have voluntarily disclosed information beyond the financial bottom line, there is now a trend toward mandatory reporting in many countries. With the adoption of Directive 2014/95/EU, the European Union has taken a decisive step in this direction. However, research on the effects of these obligations is still at an early stage, particularly regarding Directive 2014/95/EU. Therefore, this paper aims to pursue the question of whether the directive has led to an improvement in reporting.

Design/methodology/approach – The authors analyzed the reporting of the EURO STOXX 50 companies before and after the directive entered into force. To evaluate the improvement, the authors assigned the individual Global Reporting Initiative indicators to the different information requirements of the directive.

Findings – Overall, the authors' study revealed an improvement in reporting. However, this does not apply to all information categories. A significant improvement can be seen regarding the information on policies and due diligence, principal risk and non-financial key performance indicators. Institutional theory suggests that the observed improvements among these reporting-experienced companies can be understood as the result of coercive pressure triggered by the directive's requirements.

Originality/value – The authors' study contributes to the debate on the impact of non-financial reporting obligations by providing empirical insights into the effects of Directive 2014/95/EU. These insights can inform political and managerial decision-making, particularly in view of increasing reporting obligations.

Keywords Content analysis, Directive 2014/95/EU, Institutional theory, Listed companies, Mandatory non-financial reporting

Paper type Research paper

1. Introduction

Over recent decades, the importance of reporting that is not limited to financial performance but also considers companies' ecological and social performance has risen sharply among all types of companies, particularly among large listed ones (KPMG, 2022). While non-listed companies often report their non-financial performance on a voluntary basis, in many

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countries large listed companies (LC) are now subject to stringent regulations that govern the non-financial reporting (NFR) requirements (GRI and University of Stellenbosch Business School, 2020).

Several years ago, the European Commission announced the need to raise the transparency of non-financial aspects to the same level in all member states to achieve harmonization of NFR. To facilitate this, Directive 2014/95/EU (ED) was passed in 2014. The directive requires large companies of public interest, including listed ones, to publish non-financial information on different topics. The member states should have transposed the directive into national law by 6 December 2016 (Directive 2014/95/EU).

The question of whether an obligation regarding NFR leads to an improvement in reporting has been raised several times in academic discourse. Several studies have investigated this question in different institutional settings. However, the research findings do not suggest a clear direction, as prior empirical studies show conflicting results (Criado-Jiménez *et al.*, 2008; Asmaranti and Lindrianasari, 2014; Chelli *et al.*, 2014; Fatima *et al.*, 2015; Arrive and Feng, 2018; Issarawornrawanich and Wuttichindanon, 2019).

Moreover, several studies have already examined the effects of ED (Caputo *et al.*, 2019; Mion and Loza Adaui, 2019; Nicolò *et al.*, 2020; Agostini *et al.*, 2021; Korca *et al.*, 2021; Matuszak and Rózanska, 2021; Posadas and Tarquinio, 2021; Carmo and Ribeiro, 2022; Lippai-Makra *et al.*, 2022). However, all such studies analyze the effects of the directive only in selected countries or sectors, or only consider a specific aspect of the directive. Therefore, there is a need to investigate the effect of the directive on all the information required by ED across the European Union (EU) and different sectors. Against this background, our study pursues the following research question:

RQ. Does the Directive of the European Union on disclosure of non-financial and diversity information improve reporting?

To answer this research question, we conducted a content analysis of the published non-financial information of the EURO STOXX 50 companies on two different dates – 2016 and 2018, before and after the directive came into force. This approach allows us to examine the impact of the directive in close temporal proximity to its entry into force. Because we aim to evaluate the impact of the directive on reporting, the information required by the directive was the starting point for the development of an evaluation tool for our investigation.

The paper is structured as follows: Section 2 *Background and hypotheses development* reviews the literature, suggests a theoretical perspective and uses it as a basis for deriving the hypotheses for our study. Section 3 *Methodology and sample* describes the research approach and the sample in detail. Section 4 *Results* presents the findings of our analysis. Finally, Section 5 *Discussion and conclusion* discusses key insights, draws a conclusion, explains the main limitations of the study and shows the need for further research.

Our investigation contributes to the debate on the effects of mandatory NFR in several ways. First, it analyzes the effects of ED on companies from different EU countries and sectors in its entirety and in a longitudinal study design. As far as we know, such an investigation has not yet been carried out in this field and thus provides novel evidence. Existing studies in this context have either examined only selected countries (Mion and Loza Adaui, 2019; Caputo *et al.*, 2019; Agostini *et al.*, 2021; Korca *et al.*, 2021; Matuszak and Rózanska, 2021; Posadas and Tarquinio, 2021; Carmo and Ribeiro, 2022; Lippai-Makra *et al.*, 2022), sectors or industries (Nicolò *et al.*, 2020; Korca *et al.*, 2021) or specific areas of the directive (Agostini *et al.*, 2021) and thus do not allow for a conclusive answer. Furthermore, it uses the Global Reporting Initiative (GRI) framework, the most widely used NFR framework worldwide (KPMG, 2022), as a basis for evaluating the improvement by assigning the individual GRI indicators to the information required by the directive. Showing how the various GRI indicators can be assigned to the information required enables report readers to obtain an overview of the company's compliance with the requirements of ED in a reasonable amount of time, by checking which indicators are reported. Finally, from a theoretical perspective, it suggests an institutional view that allows for a better understanding of the changes discovered here.

Overall, our study provides novel findings on the effects of ED that are not only relevant for academic discourse but can also serve as a basis for political and managerial decision-making, especially against the backdrop of the tightening of reporting obligations by the Corporate Sustainability Reporting Directive (Directive (EU) 2022/2464) which not only significantly expands the group of affected companies, but also expands or specifies the required reporting content.

2. Background and hypotheses development

2.1 Prior literature

From a global perspective, NFR regulations have become stricter in recent years, especially for large LC (GRI and University of Stellenbosch Business School, 2020). This trend toward mandatory reporting immediately begs the question of whether (stricter) obligations lead to an improvement in the reporting of non-financial information. However, research on this question is still at an early stage and does not provide clear empirical evidence that would conclusively support this trend toward mandatory reporting.

While some studies found a positive effect on the quantity as well as the quality of the reporting resulting from the introduction of a legal obligation (Criado-Jiménez *et al.*, 2008; Chelli *et al.*, 2014; Fatima *et al.*, 2015; Arrive and Feng, 2018), others only found an influence on the quantity (Da Silva Monteiro and Aibar Guzman, 2010; Chauvey *et al.*, 2015) and still others no effect at all (Asmaranti and Lindrianasari, 2014; Issarawornrawanich and Wuttichindanon, 2019). In contrast, only a few studies even showed that guiding principles or guidelines can have a negative effect on reporting (Alvarez, 2015; Biswas *et al.*, 2019).

This heterogeneity in the available evidence is not particularly surprising. On the one hand, the studies were carried out in different countries or regional contexts and thus observed the effects of different institutional and legal framework conditions, e.g. Australia (Adler *et al.*, 2017), the BRIC states (Arrive and Feng, 2018), France (Chauvey *et al.*, 2015) or China (Dong and Xu, 2015). On the other hand, these investigations were based on different obligations or guiding principles. While some studies investigated the effect of laws (Criado-Jiménez *et al.*, 2008; Chelli *et al.*, 2014; Chauvey *et al.*, 2015), others analyzed the effect of recommendations or guidelines (Setia *et al.*, 2015; Dumay and Hossain, 2019). In addition, some studies only focused on selected industries, e.g. financial institutions (Avrampou *et al.*, 2019) or companies from resource-intensive industries (Da Silva Monteiro and Aibar Guzman, 2010). The different methodological approaches as well as the different perceptions and definitions of quality or improvement also complicate the aim of obtaining generally valid conclusions.

The divergent findings of empirical studies also show the importance of context. Institutional and legal framework conditions are crucial, especially considering that differences in corporate sustainability can often be traced back to different institutional framework conditions (Matten and Moon, 2008). Our study focuses on the EU and the effects of ED. In a global comparison, Europe dominates the agenda for NFR, where some substantial regional differences must be mentioned (GRI and University of Stellenbosch Business School, 2020). The European Commission pointed out the need to increase the transparency of NFR to the same level in all member states to achieve harmonization a few years ago. To accomplish this goal, the ED was passed in 2014. It requires large companies of public interest, and thus also listed ones, to include non-financial information in the management report which at least refers to environmental, social and employee, human rights as well as anti-corruption and bribery matters, including a description of the business model, the policies and due diligence processes, the principal risks linked and related non-financial key performance indicators (Directive 2014/95/EU). Despite the relevance of NFR within the EU and the effects on companies that result from the implementation of the directive, the number of studies analyzing the impact of ED on the disclosure of non-financial information is still low.

Mion and Loza Adaui (2019) examined the impact of the directive on Italian and German LC. The authors concluded that there has been an improvement in reporting and that the harmonization of reporting between the two countries has progressed. In the same year, Caputo *et al.* (2019) examined the effects of the directive on Italian companies listed on the Milan stock exchange and also found an increase in the quality of the reports.

Nicolò *et al.* (2020) analyzed the integrated reporting activities of state-owned enterprises within the EU. In contrast to the two studies mentioned above, the authors concluded that no significant changes had occurred due to the introduction of the directive.

Agostini *et al.* (2021) investigated the impact of the directive on the quantity and quality of NFR regarding environmental and employee issues in Italian LC. However, the authors only observed an increase in the quantity of information reported. Based on a case study of an Italian banking group, Korca *et al.* (2021) reached a similar conclusion. The authors were able to determine an improvement in the scope of the reports due to the introduction of the obligation, but the reporting quality remained almost the same. Matuszak and Rózanska (2021) were also able to discover an increase in the extent of the reported non-financial information, particularly regarding disclosures on human rights and anti-corruption, during their investigation of Polish LC. Posadas and Tarquinio (2021) examined Spanish and Italian LC. While the Spanish companies showed an improvement in reporting, this was not the case with the Italians, where in fact, the opposite effect was found.

Lippai-Makra *et al.* (2022) investigated the impact of the directive on Hungarian companies and found a moderate improvement in quality. In the same year, Carmo and Ribeiro (2022) also reported a positive impact on reporting due to the directive in their study of listed Portuguese companies.

In summary, empirical research on the impact of the ED is still at a very early stage. All studies either examine only selected countries or sectors, or specific aspects of the directive. This makes a cross-country and cross-sectoral assessment or general statement regarding the impact of the ED impossible with the evidence currently available.

2.2 Theoretical discourse and hypotheses development

Although the question of whether an obligation leads to an improvement has not yet been conclusively clarified empirically, several theoretical lenses can be used to describe the effects of an obligation, with theories that adopt a social-political perspective being very commonly used in literature (Criado-Jiménez *et al.*, 2008; Chelli *et al.*, 2014; Chauvey *et al.*, 2015). Theories with this orientation focus on the reactions of organizations to society's expectations (Hansen and Schaltegger, 2016) and therefore consider organizations and the social, political and institutional conditions surrounding them (Deegan, 2002).

Two specific theories can be assigned to this theoretical strand, which are used particularly frequently when investigating NFR, namely, institutional theory, and legitimacy theory (Deegan, 2014). In literature, these two theoretical lenses are seen as complementary or overlapping, as the element of legitimacy is also of central importance in institutional theory, although it is viewed from a different perspective (Islam and Deegan, 2008; Chelli *et al.*, 2014; Deegan, 2014).

Institutional theory asserts that organizational structures are not the result of striving for efficiency and effectiveness but stem from the fact that organizations consider institutionalized societal expectations and accordingly orient their actions to be legitimized (Meyer and Rowan, 1977). Legitimacy is achieved when an organization's actions are in line with systems of societal norms, values and beliefs, whereas discrepancies between the respective society's value system and organizational actions or its perception can threaten legitimacy (Suchman, 1995; Deegan, 2002). Due to increased public awareness and stringent regulatory requirements, as well as the presence of powerful stakeholders or institutional actors, such as banks, regulators and the exchange supervisory authority, LC are particularly under pressure to prove that they meet societal expectations (Gallo and Jones Christensen, 2011; Khan *et al.*, 2013; De Villiers and Alexander, 2014; Cho *et al.*, 2015). ED is a current example of such regulatory requirements. Once the directive came into force, a very direct form of legitimacy pressure was imposed on the companies it affects, as non-compliance poses an immediate threat to organizational legitimacy. However, disclosing non-financial information not only helps organizations fulfill obligations, but also helps to demonstrate that their contributions to sustainable development or their actions are in line with societal expectations and can therefore confer legitimacy (Patten, 1992; Comyns and Figge, 2015).

While a strategic orientation toward legitimacy has often been used to explain voluntary reporting activities, institutional legitimacy frequently represents an explanatory theoretical approach in the context of reporting obligations (Chelli *et al.*, 2014). From a strategic perspective, legitimacy is regarded as a resource that can be influenced and consciously used by the organization (Dowling and Pfeffer, 1975), whereas an institutional perspective assumes that legitimacy cannot be influenced by the organization itself. Accordingly, from the institutional perspective, legitimacy is understood as the result of adapting to the institutional field (DiMaggio and Powell, 1983). In the context of NFR, this means that organizations interpret the statutory reporting obligations as a reflection of societal expectations and that complying with them ensures legitimacy, whereas failure to meet such obligations will threaten legitimacy and might be sanctioned (Chelli *et al.*, 2014).

Over time, striving for legitimacy leads to the homogenization of organizational rules and structures and thus also to an adjustment of NFR behavior (DiMaggio and Powell, 1983; Deegan, 2014; De Villiers and Alexander, 2014). DiMaggio and Powell (1983) describe three different mechanisms of isomorphic change – coercive, mimetic and normative isomorphism – leading to homogeneity within an organizational field. The EURO STOXX 50 companies, which in their entirety represent an established area of institutional life, not least because of the numerous institutional conditions to which they are exposed to, are the field of interest for our investigation.

Coercive isomorphism occurs when formal and/or informal pressure is exerted by other organizations or societal expectations (DiMaggio and Powell, 1983). From this perspective, ED can be understood as formal or codified coercive pressure applied to the companies affected by the directive (Pedersen *et al.*, 2013). Considering the strong public awareness of the EURO STOXX 50 companies and the powerful institutional actors they face (Gallo and Jones Christensen, 2011; Khan *et al.*, 2013; De Villiers and Alexander, 2014), it can be assumed from the perspective of institutional theory that the companies studied show an adjustment of their reporting as an initial reaction to fulfill the obligations of the directive (Pedersen *et al.*, 2013; Shabana *et al.*, 2017) and thus, an overall improvement in reporting should therefore be observed:

H1. The entry into force of the European Union Directive on the disclosure of non-financial and diversity information leads to an improvement in reporting.

In relation to NFR, Shabana *et al.* (2017) assume that this first phase of adopting the reporting behavior triggered by cohesive pressure is followed by a normative and then by a mimetic one. Normative isomorphism is understood as the result of a professionalization that, in turn, results from formal education or professional networks; hence, in this phase, knowledge about NFR spreads through institutions and networks, and the reporting practice becomes normatively sanctioned (DiMaggio and Powell, 1983; Shabana *et al.*, 2017). The GRI and its guidelines can be used as an example of normative isomorphism. Companies are looking for professional support when preparing their NFR and thus turn to the GRI. Nevertheless, it cannot be ruled out that companies follow the GRI guidelines not only because they see it as the right thing to do, but because they feel pressured to follow them (De Villiers and Alexander, 2014). In contrast, mimetic mechanisms occur when there is ambiguity or uncertainty. Organizations within a field then consciously or unconsciously begin to imitate the behavior of others whom they consider successful or legitimate (DiMaggio and Powell, 1983). Some relevant publications suggest an alternative sequence of the phases with varying levels of dominance regarding isomorphic pressures. One thing they have in common, however, is that some of the pressures occur simultaneously and/or cannot always be clearly distinguished (Pedersen *et al.*, 2013; De Villiers and Alexander, 2014).

When the ED's requirements for information to be disclosed are compared between categories, it becomes clear that some information is easier to collect or report than others. In addition, the sensitivity of the information varies substantially between categories. Furthermore, there is a long history of reporting certain information, such as environmental information. In contrast, reporting on human rights, for example, is a comparatively new form of reporting. Accordingly, it can be assumed that ED will not create coercive pressure in all information categories, but that mimetic or normative processes can be assumed for certain information, which has already led to an adoption or alignment of reporting behavior in the past. Studies on sustainability reporting were able to show that in many cases, for example, environmental issues are reported on more extensively than social issues or that strategic concepts or management approaches are reported on less (Roca and Searcy, 2012; Hahn and Lülfs, 2014). If a category is already reported comprehensively on a voluntary basis, the requirements of the directive do not exert any pressure on this category. Given all these differences, it can therefore be assumed that the improvement does not occur in all categories, but only in those in which the requirements generate pressure:

H2. The improvements in reporting do not take place in all categories of the European Union Directive.

3. Methodology and sample

3.1 Operationalization of the reporting improvement

To answer the research question, a content analysis of the published non-financial information of the EURO STOXX 50 companies was performed on two different dates, 2016 and 2018, before and after the directive came into force (Krippendorff, 1989). Content analyses have long been successfully used as a research method to evaluate companies' NFR (Wiseman, 1982; Clarkson *et al.*, 2008). Because we aim to evaluate the impact of the directive on reporting, the information required by the directive – namely information on the categories business model, policies and due diligence, principal risk, environment, social, employee matters, human rights, anti-corruption and bribery as well as non-financial key performance indicators – was the starting point for developing an evaluation tool for our investigation.

Subsequently, the corresponding GRI indicators of the G4 guidelines (GRI, 2017) and the GRI sustainability reporting standards (GRI, 2016) were assigned to these nine categories. We chose the GRI framework because it is the most widely used NFR framework worldwide. Most EURO STOXX 50 companies use it for their reporting, and the directive explicitly suggests its use among other guidelines and frameworks (Directive 2014/95/EU; KPMG, 2022). The coding based on the defined criteria – the GRI indicators – allows for quantitative evaluation of qualitative data (Abbott and Monsen, 1979; Mayring, 2000). As a transition from G4 to GRI standards took place between the two dates, only indicators contained in both guidelines, even if in a slightly modified form, were included in the investigation. This approach was taken to counteract possible bias due to the transition to the new guideline. In view of this procedure, the final catalog of criteria comprised 81 items (see Table 1).

3.2 Sample selection

The investigation was based on the reports from 2016 and 2018 – before and after the directive came into force – of all EURO STOXX 50 companies (as of July 2019). This longitudinal design allows us to examine changes in NFR behavior. The EURO STOXX 50 companies share important commonalities, making them a suitable object of investigation. Most importantly, as large companies of public interest, they are all subject to the directive. In addition, they are all listed on the same benchmark index and are subject to the same regulatory conditions. The investigated companies represent a wide range of industries, ranging from the automotive industry, the oil and gas industry, the service industry to financial institutions. Additionally, as these have their headquarters in different countries, it allows us to gain a broad and differentiated sample (see Appendix).

3.3 Data gathering and measurement of the reporting improvement

In accordance with ED as well as the supplementary guideline 2017/C215/01, both independent reports, like sustainability reports or corporate social responsibility reports, and information in the management reports were considered. Thus, cross-references and shortcuts to other information sources are also allowed.

Information on web pages was not included in our investigation, because at the time of collection of the data, many pages linked to were no longer available. An inclusion might therefore have led to bias. Furthermore, including this information would be in contradiction with the directive, which explicitly calls for availability. Codes of ethics or other corporate guidelines that are not financial year-specific were, in accordance with the directive, also not included.

After identifying the data sources to be included, the disclosed information was assessed based on our catalog of criteria (see Table 1). The criteria that can be assigned to the category business model were rated binary. All other criteria were rated in three stages, with 0 points awarded if no information was disclosed, 1 point if the company reported to some extent and 2 points if at least 50% of the information required by the GRI was reported. In total, 150 points could be achieved (12 criteria * 1 point + 69 criteria * 2 points). The comply-or-explain approach was considered in the assessment.

To obtain a detailed overview of the changes, compliance levels (CL) were calculated for each indicator, category and year of the investigation, by division of the points achieved by the number of maximum possible. In addition, a total compliance level (TCL) for each

Table 1. Content analysis criteria

Category according to the Directive 2014/95/EU	#	GRI sustainability reporting standards (2016)	G-4 guidelines
Business model	12	102-14, 102-15, 102-2, 102-3, 102-4, 102-5, 102-6, 102-7, 102-8, 102-9, 201-2, 202-1	G4-1, G4-2, G4-4, G4–5, G4-6, G4-7, G4-8, G4-9, G4-10, G4-12, G4-EC2, G4-EC5
Policies and due diligence	10	103-1, 103-2 each for environment, social, employee matters, human rights and anti-corruption and bribery	DMA-a + G4-20 + G4-21, DMA-b each for environment, social, employee matters, human rights and anti-corruption and bribery
Principal risk	11	103-3 for environment, social, employee matters, human rights and anti-corruption and bribery, 102–30, 308–1, 308–2, 414–1, 414–2, 416–1	DMA-c for environment, social, employee matters, human rights and anti-corruption and bribery, G4-46, G4-EN32, G4-EN33, G4-LA14, G4-LA15, G4-PR1
Environment	15	301–2, 301–3, 302–1, 302–4, 302–5, 304–1, 304–2, 305–1, 305–2, 305–3, 305–6, 305–7, 306–2, 306–3, 306–4	G4-EN2, G4-EN28, G4-EN3, G4-EN6, G4-EN7, G4-EN11, G4-EN12, G4-EN15, G4-EN16, G4-EN17, G4-EN20, G4-EN21, G4-EN23, G4-EN24, G4-EN25
Social	6	202–2, 413–1, 413–2, 416–2, 417–3, 418–1	G4-EC6, G4-SO1, G4-SO2, G4-PR2, G4-PR7, G4-PR8
Employee matters	11	401–1, 401–2, 401–3, 402–1, 404–1, 404–2, 404–3, 405–1,405–2, 406–1, 407–1	G4-LA1, G4-LA2, G4-LA3, G4-LA4, G4-LA9, G4-LA10, G4-LA11, G4-LA12, G4-LA13, G4-HR3, G4-HR4
Human rights	7	408–1, 409–1, 410–1, 411–1, 412–1, 412–2, 412–3	G4-HR5, G4-HR6, G4-HR7, G4-HR8, G4-HR9, G4-HR2, G4-HR1
Anti-corruption and bribery	4	205–1, 205–2, 205–3, 415–1	G4-SO3, G4-SO4, G4-SO5, G4-SO6
Non-financial key performance indicators	5	In accordance with Directive 2014/95/EU and the supplementary guideline 2017/C215/01, this category comprises company-specific performance indicators in the areas of environment, social, employee matters, human rights and anti-corruption and bribery, which are used by the companies for control purposes. Therefore, these non-financial key performance indicators were not checked against the GRI guidelines	
∑	81		

Source: Authors' own creation

company and each year also regarding the individual information categories was determined using the same procedure. Consequently, *t*-tests were conducted to check whether the differences between the two years in terms of the CL of the indicators and the TCL are statistically significant [1].

4. Results

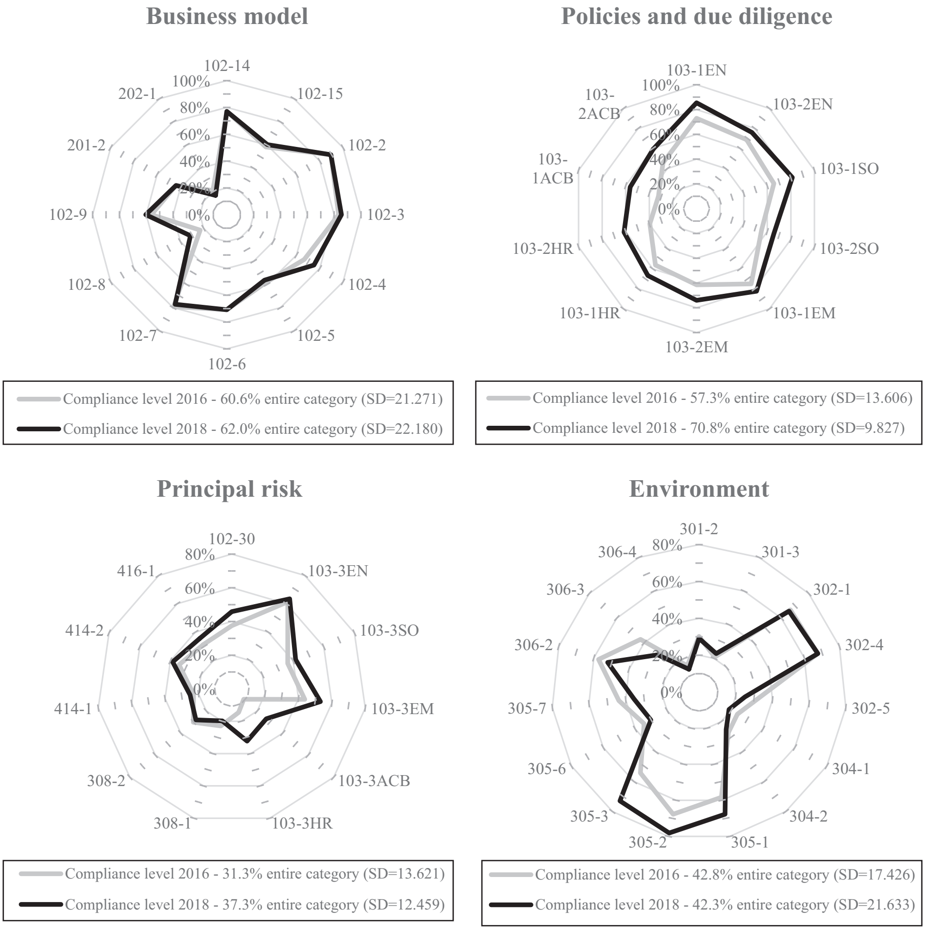
In the category of business model, substantial differences were identified. While indicator GRI 102–2 or G4-4 – activities, brands, products and services – is disclosed by almost 90% of the companies in both reporting years, indicator GRI 202–1 or G4-EC5 – ratios of standard entry-level wage by gender compared to local minimum wage – is reported by well under a quarter with a downward trend. In general, the comparison of the two years shows similar reporting patterns. The CL of the category rises from 60.6% to 62.0%. The greatest differences are found in indicators GRI 102–4 or G4-6, which require information about countries where the organizations operate, and GRI 102–8 or G4-10, which demand information on employees and other workers, with a increase of over 8 percentage points (pp) in each case (see Figure 1) (GRI, 2016, 2017).

In the category policies and due diligence, the variation between the indicators is comparatively lower. The best-rated indicator or management approach in the second year under review is GRI 103–1 or G4-21 regarding the environment – explanation of the material topic and its boundary (85.4%), whereas GRI 103–1 concerning anti-corruption and bribery scored the fewest points in both years (32.3%, 2016 and 56.3%, 2018). The category CL increased from 57.3% to 70.8%, the largest increase in the category comparison of the entire investigation. At the individual indicator level, the greatest differences with a change of more than 20 pp are shown for GRI 103–2 regarding human rights and GRI 103–1 concerning anti-corruption and bribery (see Figure 1) (GRI, 2016, 2017).

The variation of the category principal risk is at a similar level as the category policies and due diligence. The most extensively reported indicator is GRI 103–3 or G4-DMA-c concerning environment – evaluation of the management approach –, which is rated with almost two-thirds in both years. However, the least reported indicators are GRI 103–3 regarding anti-corruption and bribery in 2016 (9.4%) and GRI 308–1 or G4-EN32 – new suppliers that were screened using environmental criteria – in 2018 (19.8%). The CL of the category rises from 31.3% to 37.3%, with the largest change by far in indicator GRI 103–3 concerning anti-corruption and bribery and human rights (each 17.7 pp) (see Figure 1) (GRI, 2016, 2017).

The variation in the environment category is greater than in the two categories described above. In the year after the directive entered into force, indicator GRI 305–2 or G4-EN16, which requires information about the energy indirect GHG emissions, is rated with almost 80%, whereas indicator GRI 306–4, which demands information on the transport of hazardous waste, is the least considered in both years (15.6%, 2016 and 13.5%, 2018). A comparison of the two years of investigation shows that the CL of the category decreases from 42.8% to 42.3%. Within the entire investigation, this category is the only one with a decreasing CL, albeit only marginally. The largest difference with almost 20 pp is shown in indicator GRI 305–3 or G4- EN17, which demands information on the other indirect GHG emissions (see Figure 1) (GRI, 2016, 2017).

In the category social, the variation is lower than in the other categories. Indicator GRI 413–1 or G4-SO1 – operations with local community engagement, impact assessments and development programs – is the best rated in both years under review (27.1%, 2016 and 30.2%, 2018), whereas indicator GRI 417–3 or G4-PR7 – incidents of non-compliance concerning marketing communications – is the least considered in the second year (15.6%).



Source: Authors' own creation

Figure 1. Business model, policies and due diligence, principal risk and environment

The comparison of the CL for the two years shows only a marginal change from 20.5% to 20.8%, with indicator GRI 413–2 or G4-SO2 – operations with significant actual and potential negative impacts on local communities – showing the greatest change with over 6 pp (see Figure 2) (GRI, 2016, 2017).

Compared to the other categories, variation in the employee matters category is higher. The most extensively published indicator is GRI 404–2 or G4-LA10, which demands information on the programs for upgrading employee skills and transition assistance programs (69.8%, 2016 and 71.9%, 2018). In contrast, GRI 401–2 or G4-LA2, which require information regarding the benefits provided to full-time employees that are not provided to temporary or part-time employees, is the least considered (7.3%). The CL of the category only rises slightly from 33.2% to 34.8%. The greatest differences can be identified with more than 8 pp – one positive and one negative – for indicator GRI 401–2 and indicator GRI 407–1 or G4-HR4 – operations and suppliers – in

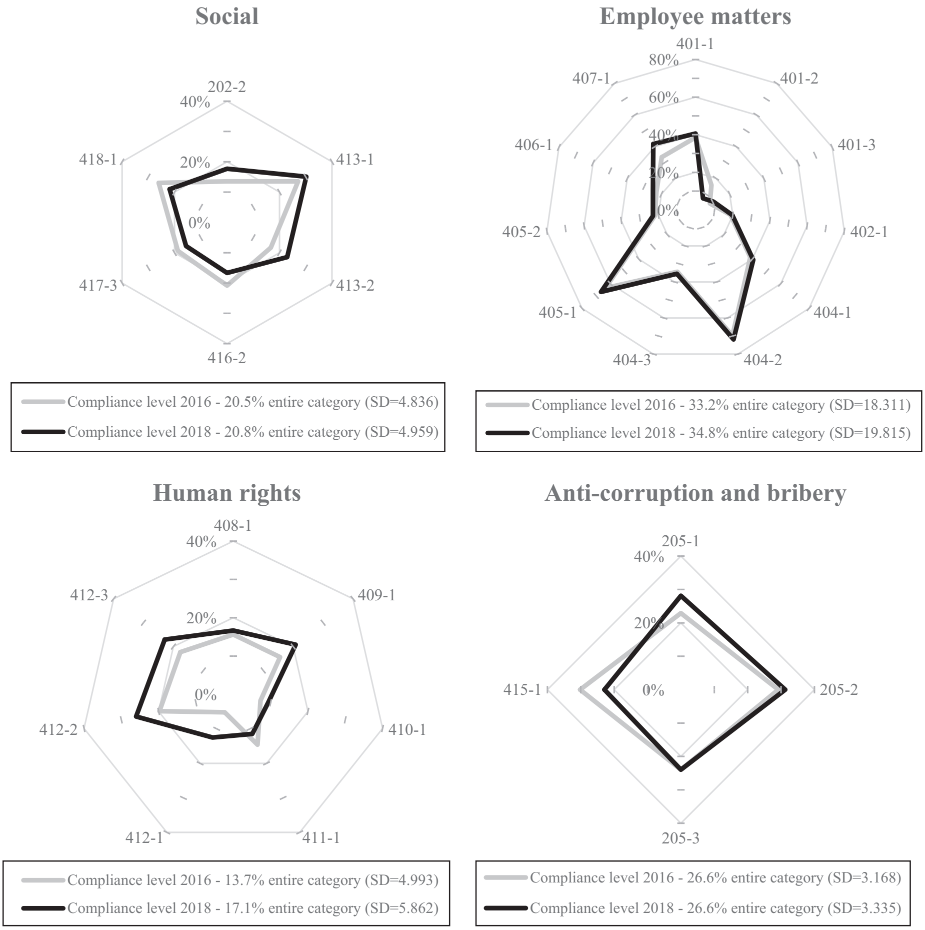


Figure 2.
Social, employee matters, human rights and anti-corruption and bribery

Source: Authors' own creation

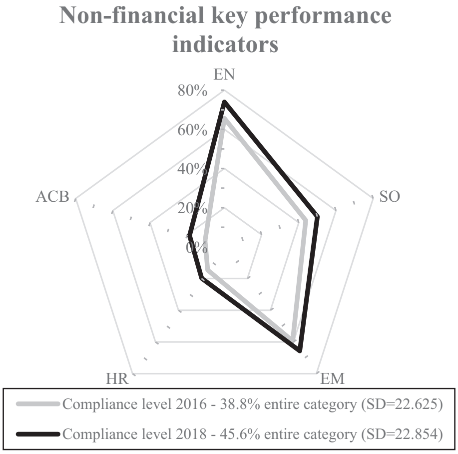
which the right to freedom of association and collective bargaining may be at risk (see Figure 2) (GRI, 2016, 2017).

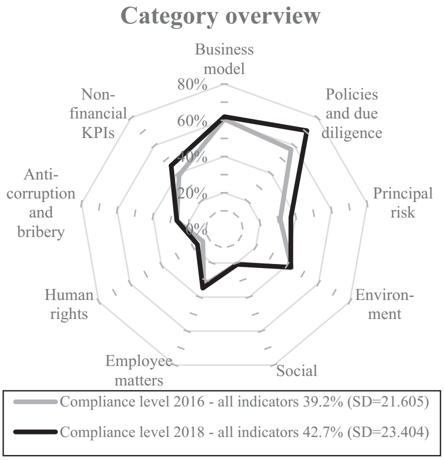
In the human rights category, the variation is comparatively lower. In both years of the study, the best-rated indicator is GRI 412–2 or G4-HR2, which demands information on employee training on human rights policies or procedures (19.8%, 2016 and 26.0%, 2018). In the second year of the investigation, information on indicator GRI 410–1 or G4-HR7 – security personnel trained in human rights policies or procedures – is the least considered. The CL increased from 13.7% to 17.1%. The greatest difference with over 7 pp is shown in indicator GRI 412–1 or G4- HR9 – operations that have been subject to human rights reviews or impact assessments (see Figure 2) (GRI, 2016, 2017).

Variation in the anti-corruption and bribery category is also at a low level. The indicator GRI 205–2 or G4-SO3 – communication and training about anti-corruption policies and procedures – is rated with almost a third, whereas indicator GRI 205–3 or G4-SO5 – confirmed incidents of corruption and actions taken – is considered roughly a quarter of the times and thus has the lowest value within the category. The CL remained at the same level (26.6%). The greatest difference with a decrease of over 7 pp is shown for indicator GRI 415–1 or G4-SO6 – political contributions (see Figure 2) (GRI, 2016, 2017).

In the category of non-financial key performance indicators, the variation is comparatively higher. The best-rated indicators relate to environmental issues (65.6%, 2016 and 74.0%, 2018). Human rights indicators are least likely to be considered in the second year of the investigation (19.8%). The CL of the category rises from 38.8% to 45.6%, with the greatest differences by far, each with over 8 pp, shown in the indicators relating to environmental as well as anti-corruption and bribery issues (see Figure 3).

Figure 3 provides an overview of the results for the individual categories in comparison and illustrates the large differences between categories. In addition, it shows that in comparison of the two reporting years, the greatest change with almost 14 pp occurs in the policies and due diligence category. It also gives an overview of changes at the company level and shows that in some cases considerable differences can be identified between the TCL of the two years under observation (see Figure 3).





Company overview

#	TCL 2016	TCL 2018	#	TCL 2016	TCL 2018	#	TCL 2016	TCL 2018	#	TCL 2016	TCL 2018
1	36.7%	40.7%	13	40.7%	20.7%	25	24.7%	27.3%	37	59.3%	60.0%
2	36.0%	34.7%	14	45.3%	53.3%	26	40.7%	40.0%	38	11.3%	32.7%
3	14.7%	13.3%	15	58.7%	48.7%	27	23.3%	11.3%	39	35.3%	40.0%
4	54.7%	60.0%	16	48.7%	47.3%	28	24.7%	22.0%	40	16.0%	24.7%
5	52.7%	53.3%	17	52.7%	66.0%	29	71.3%	64.7%	41	53.3%	58.0%
6	36.0%	37.3%	18	30.7%	32.7%	30	20.7%	36.0%	42	20.7%	40.7%
7	15.3%	32.7%	19	38.0%	39.3%	31	48.7%	48.0%	43	36.7%	35.3%
8	30.0%	29.3%	20	60.7%	66.7%	32	60.0%	76.7%	44	31.3%	44.7%
9	33.3%	32.0%	21	48.7%	56.0%	33	30.0%	26.0%	45	40.0%	42.0%
10	16.0%	30.7%	22	32.7%	30.7%	34	33.3%	34.7%	46	45.3%	52.7%
11	57.3%	47.3%	23	18.0%	20.7%	35	18.0%	36.0%	47	8.7%	28.0%
12	49.3%	55.3%	24	24.7%	32.0%	36	77.3%	76.0%	48	35.3%	37.3%

2016 - Mean = 37.4%; SD = 16.142   2018-Mean = 41.2%; SD = 15.152

Source: Authors' own creation

Figure 3. Non-financial key performance indicators, category overview and company overview

To assess whether the overall changes obtained are statistically significant (*H1*), *t*-tests were performed. It was shown that the difference in reporting considering all indicators between 2016 (Mean = 39.2%, SD = 21.605) and 2018 (Mean = 42.7%, SD 23.404) is statistically significant ($t(80) = -4.587$, $p < 0.001$), where the effect size suggests a medium to strong effect ($r = 0.456$) (Cohen, 1988; Gignac and Szodorai, 2016). The difference in the TCL, i.e. at company level, between 2016 (Mean = 37.4%, SD = 16.142) and 2018 (Mean = 41.2%, SD = 15.152) also proved to be statistically significant ($t(47) = -2.937$, $p = 0.005$). The effect size again indicates a medium to strong effect ($r = 0.394$).

To evaluate in which categories the changes in reporting behavior are significant (*H2*), *t*-tests were performed for the individual categories at company level. This showed that the difference between reporting in 2016 and 2018 in the categories of policies and due diligence, principal risk and non-financial key performance indicators can be classified as significant, with the effect size indicating a medium to strong effect in each case (Table 2). In the other categories, the changes could not be evaluated as significant (Table 3).

5. Discussion and conclusion

The aim of our investigation was to determine whether ED improved the reporting of non-financial and diversity information. Our study revealed a statistically significant improvement in reporting, which confirms not only our hypothesis *H1*, but also the first empirical findings regarding the effect of ED on particular EU member states, sectors or specific disclosure requirements and the trend toward improvement in disclosure identified therein (Caputo *et al.*, 2019; Mion and Loza Adaui, 2019; Agostini *et al.*, 2021; Korca *et al.*, 2021; Matuszak and Rózanska, 2021; Posadas and Tarquinio, 2021; Carmo and Ribeiro, 2022; Lippai-Makra *et al.*, 2022).

Policies and due diligence	$Mean_{2016} = 57.3\%$, $SD_{2016} = 31.589$/$Mean_{2018} = 70.8\%$, $SD_{2018} = 25.967$ $t(47) = -3.032$, $p < 0.005$, $r = 0.404$
Principal risk	$Mean_{2016} = 31.3\%$, $SD_{2016} = 17.996$/$Mean_{2018} = 37.3\%$, $SD_{2018} = 20.870$ $t(47) = -2.964$, $p < 0.005$, $r = 0.397$
Non-financial key performance indicators	$Mean_{2016} = 38.8\%$, $SD_{2016} = 29.904$/$Mean_{2018} = 45.6\%$, $SD_{2018} = 30.339$ $t(47) = -3.109$, $p < 0.005$, $r = 0.413$

Source: Authors' own creation

Table 2. Categories with significant differences

Business model	$Mean_{2016} = 60.6\%$, $SD_{2016} = 23.554$/$Mean_{2018} = 62.0\%$, $SD_{2018} = 20.048$ $t(47) = -0.663$, $p > 0.5$
Environment	$Mean_{2016} = 42.8\%$, $SD_{2016} = 25.009$/$Mean_{2018} = 42.3\%$, $SD_{2018} = 23.922$ $t(47) = 0.247$, $p > 0.5$
Social	$Mean_{2016} = 20.5\%$, $SD_{2016} = 23.506$/$Mean_{2018} = 20.8\%$, $SD_{2018} = 22.886$ $t(47) = -0.227$, $p > 0.5$
Employee matters	$Mean_{2016} = 33.2\%$, $SD_{2016} = 20.181$/$Mean_{2018} = 34.8\%$, $SD_{2018} = 20.507$ $t(47) = -1.061$, $p > 0.2$
Human rights	$Mean_{2016} = 13.7\%$, $SD_{2016} = 18.084$/$Mean_{2018} = 17.1\%$, $SD_{2018} = 19.274$ $t(47) = -1.411$, $p > 0.1$
Anti-corruption and bribery	$Mean_{2016} = 26.6\%$, $SD_{2016} = 27.907$/$Mean_{2018} = 26.6\%$, $SD_{2018} = 24.290$ $t(47) = 0.000$, $p > 1.0$

Source: Authors' own creation

Table 3. Categories with non-significant differences

However, in line with our hypothesis *H2*, the improvement is not evident in all information categories. While there is a significant improvement in the categories policies and due diligence, principal risk and non-financial key performance indicators, this is not the case in the other categories– i.e. business model, environment, social, employee matters, human rights and anti-corruption and bribery.

Institutional theory suggests that the coercive pressure triggered by the directive's requirements leads to an adjustment in reporting behavior, as noncompliance entails legitimacy problems and sanctions. Thus, from a theoretical perspective, the overall improvement in reporting that we revealed is expected. That coercive pressure is not exerted by all information categories of ED, however, was also to be assumed. On the one hand, the information requirements in some categories are not a novelty for companies, as they already have many years of experience in some subject areas; on the other hand, the pressure to disclose may not even be felt, as companies already publish the information voluntarily anyway.

However, that coercive pressure occurs in the categories of policies and due diligence, principal risk and non-financial key performance indicators leading to a change in reporting patterns seems obvious upon closer examination of the information required in these categories. The first two categories are information on the strategic concepts or management approaches and the risk management process with the inclusion or differentiated presentation of environmental, social, employee, human rights and anti-corruption and bribery issues. Reporting this information causes considerably more effort than, for example, simply disclosing actual performance in a particular area. Strategies or concepts for the required areas must be developed and implemented, which also entails an adaptation of existing corporate structures and processes. In addition, by disclosing this information, the company provides insights that enable an external assessment of the approach of the management to these issues, including issues in categories such as human rights or anti-corruption and bribery that are considered sensitive. When reporting was voluntary, companies could choose whether to disclose this information as well. Even if they followed the GRI guidelines, there was basically no obligation to disclose. Given the effort involved and the sensitivity of the information, it might have been opportune from a strategic perspective for certain companies not to report, at least in the short term.

The significant improvement in these categories immediately after the directive came into force can be seen as evidence that coercive pressure triggered by the directive's requirements had an effect and led to an adaptation of reporting. Companies have suddenly started reporting on GRI indicators that address these requirements, even though they were already part of the GRI guidelines before the directive was implemented. Considering that NFR is a well-institutionalized practice among EURO STOXX 50 companies, especially in line with the GRI guidelines, it is unlikely that there will be a significant change in reporting behavior immediately after the adoption of the directive, which should have nothing to do with it. At the descriptive level, however, the improvements in the two categories of policies and due diligence and principal risk, are not found equally in all areas, but the topics of human rights and anti-corruption and bribery show the greatest improvements. This indicates that reporting obligations that also standardize the content or the topics to be disclosed can lead to information being reported that would not be disclosed by companies with reporting experience in a voluntary setting. This is even though these companies would have particularly high incentives for comprehensive reporting due to their capital market orientation.

In this context, however, it must be noted that the starting levels already varied greatly between the individual categories and issues before the introduction of ED. For example, while the information required in the category business model was reported particularly extensively before the directive entered into force, the reporting level was considerably lower in other categories, such as social or anti-corruption and bribery. It must also be noted that information requirements or availability of necessary information can vary significantly. In the business model category, much of the information required can be easily obtained or is already available in any case, whereas the information for other categories, such as human rights, is often not yet available or at least not as comprehensively.

The third category where significant improvement was found – non-financial key performance indicators – is novel in that it requires company-specific indicators that are not included in the common reporting standards or guidelines used by companies. Companies that want to report are looking for professional support in the preparation of their reports and therefore resort to established guidelines, such as those of the GRI. Content that is not covered by a reporting framework, such as the category non-financial key performance indicators, represents a novelty at the beginning and therefore likewise exerts coercive pressure. However, the identification and disclosure of these indicators means that company- or industry-specific conditions are considered and can thus be conducive to the principle of materiality in reporting.

In the theoretical construct of institutionalism, however, homogenization is a dynamic process. Hence, it can be assumed that further changes in reporting behavior will occur over time. In contrast to the initial changes or reactions to the directive, these are often characterized by normative and mimetic processes (DiMaggio and Powell, 1983; Shabana *et al.*, 2017). This theoretical suggestion could help explain why we did not find significant differences in the other categories. According to the phase model of isomorphism in reporting, as proposed by Shabana *et al.* (2017), the initial phase, which is characterized by a dominance of coercive mechanisms, is followed by a normative and finally a mimetic one. In the coercive phase, companies try to maintain their legitimacy by adapting or fulfilling the requirements of the directive or a well-established reporting standard to avoid potentially negative public perception at a time of increased awareness. Subsequently, reporting is driven forward through professionalization and networks before imitation within a field occurs.

From this point of view, it could be concluded that the directive does not exert coercive pressure in the other categories, for example in the environmental category. It is not uncommon for many companies to have a long tradition in reporting on environmental topics. LC in particular have had a long tradition in environmental reporting. Hence, reporting in the environmental category may be driven by other mechanisms. There is therefore an alignment of the scope or the intensity of disclosure within a field, or, in other words, an informal standard of how companies report on environmental issues has emerged. This explanation can also be applied to the other categories in which we did not find significant improvements, especially considering that the pressure to disclose non-financial information has existed for a long time among these LC.

In conclusion, the results of our study clearly show that obligations can lead to an improvement in reporting. As a result, information that provides insights and would likely not be available without obligations is disclosed. This is even though the companies studied here have had many years of experience in NFR and the application of the GRI guidelines. In addition, the incentives for capital market-oriented companies for comprehensive disclosure are much higher compared to privately held companies with concentrated ownership, which in turn suggests comprehensive disclosure on a voluntary basis for strategic reasons. Although our findings revealed an improvement in reporting, there are also many critical voices in the literature related to reporting obligations. The negative effects identified in such critiques range from a restriction in flexibility to a reduction in reporting to a minimum standard (Schaltegger, 1997; Pedersen *et al.*, 2013). Moreover, excessively strict or detailed standardization can undermine the principle of substance over form (Frost, 2007). On the other hand, too much leeway in reporting can sometimes lead to cherry-picking or greenwashing and thus to a dilution of the principle of materiality. Legal requirements that lead to standardization or harmonization of the structure of reporting might increase the clarity and comparability of reporting. The NFR of companies often includes a large amount of information. This often makes it difficult to obtain an overview or achieve comparability, especially in combination with the different focal points of the report.

Therefore, legislators must always weigh these two lines of argument against each other. The introduction of new or revision of existing reporting obligations should always be made with care, as adjustments may be required even for companies with experience in reporting. As theory and several empirical studies suggest, including our own, companies affected by regulation respond primarily by adjusting their existing reporting to maintain legitimacy and achieve compliance with regulatory requirements.

The main limitations of our study concern the sample and method. On the one hand, the study focuses exclusively on EURO STOXX 50 companies and therefore does not consider companies that are listed on another stock exchange or not listed at all. The reason for this focus is that the EURO STOXX 50 companies are guaranteed to be affected by the directive. In addition, they already have much experience in NFR, because they are exposed to more public attention and, consequently, to greater pressure to legitimize their actions. This, in turn, suggests that the observed changes can be attributed to the effect of the directive with more confidence.

The method used by the study also has a limiting effect, especially regarding the operationalization of the reporting improvement. Improvement in reporting was assessed using a three-stage scale in almost all categories. In doing so, the assessment aimed at checking the completeness of the information required for each GRI indicator. An investigation or evaluation of other forms of improvement was not carried out.

Further research should include companies other than the EURO STOXX 50, especially those that have not had such extensive experience with reporting non-financial information but are also affected by reporting obligations. In addition, it should be analyzed whether there will be further changes in reporting behavior, as suggested by institutional theory. Overall, there is a need for further research on the impact of obligations, especially against the background of the Corporate Sustainability Reporting Directive (Directive [EU] 2022/2464), which not only significantly expands the group of companies affected but also expands or specifies the reporting content.

Notes

1. The underlying statistical hypotheses are: H_{0Stat}: There is no difference in terms of CL of the indicators/TCL of the companies between the reports from 2016 and 2018. and H_{1Stat}: There is a difference in terms of CL of the indicators/TCL of the companies between the reports from 2016 and 2018.
2. EssilorLuxottica was created in 2018 through a merger of Essilor and Luxottica. To assess the disclosed information in 2016, Essilor's reporting was used.
3. Linde merged with Praxair in 2018 and was subsequently no longer listed in the EURO STOXX. Therefore, Linde was excluded from the investigation.

4. After Total published more information on websites in 2018 compared to 2016 and information published on Web pages was not taken into account (see Chapter: 3.3 Data gathering and measurement of the reporting improvement), Total was excluded from the investigation to avoid a bias.
5. Westfield was acquired in 2018. The core company previously was Unibail-Rodamco. Unibail-Rodamco was listed on the EURO STOXX in 2016 and was therefore kept in the sample.

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Appendix

Company	Headquarters	Industry
AB InBev	Belgium	Food and beverages
Adidas	Germany	Private and household goods
Ahold Delhaize	The Netherlands	Retail
Air Liquide	France	Chemistry
Airbus	France	Industrial goods and services
Allianz	Germany	Insurances
Amadeus IT	Spain	Technology
ASML	The Netherlands	Technology
AXA	France	Insurances
BASF	Germany	Chemistry
Bayer	Germany	Pharmaceuticals and chemistry
BCO Bilbao Vizcaya Argentaria	Spain	Financial services
BCO Santander	Spain	Financial services
BMW	Germany	Automotive
BNP Paribas	France	Financial services
CRH	Ireland	Construction and materials
Daimler	Germany	Automotive
Danone	France	Food and beverages
Deutsche Post	Germany	Industrial goods and services
Deutsche Telekom	Germany	Telecommunication
Enel	Italy	Utility
Engie	France	Utility
Eni	Italy	Oil and gas
EssilorLuxottica [2]	France	Ophthalmic optics
Fresenius	Germany	Health care, medical engineering, pharmaceuticals
Société Générale	France	Financial services
Iberdrola	Spain	Utility
Inditex	Spain	Retail
ING	The Netherlands	Financial services
Intesa Sanpaolo	Italy	Financial services
Kering	France	Retail
Linde [3]	Ireland	Chemistry
LOréal	France	Private and household goods
LVMH Moet Hennessy Louis Vuitton	France	Private and household goods
Muenchener Rueck	Germany	Insurances
Nokia	Finland	Technology
Orange	France	Telecommunication
Philips	The Netherlands	Medical engineering and household goods
SAFRAN	France	Industrial goods and services
Sanofi	France	Pharmaceuticals
SAP	Germany	Technology
Schneider Electric	France	Industrial goods and services
Siemens	Germany	Industrial goods and services
Telefonica	Spain	Telecommunication
Total [4]	France	Oil and gas
Unilever	The Netherlands	Private and household goods
Univail-Rodamco [-Westfield] [5]	France	Real estate
VINCI	France	Construction and materials
Vivendi	France	Media
Volkswagen	Germany	Automotive

Source: Authors' own creation

Table A1.
Companies studied