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From talk to action: the effects of the non-financial reporting directive on ESG performance

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Abstract

Purpose – Non-financial reporting (NFR) is viewed as a major step towards organisational transparency and accountability. While the number of non-financial reports published every year has been growing exponentially over the last two decades, their quality and effectiveness in managing environmental, social and governance (ESG) performance have been questioned. Addressing these concerns, several jurisdictions, including EU Member States, introduced mandatory NFR regimes. However, the evidence on whether such regulation truly translates into enhanced ESG performance remains scarce. This paper aims to fill this gap in the literature by investigating the impact of the EU's Directive 2014/95/EU (Non-financial Reporting Directive, NFRD) on the ESG scores of Polish companies.

Design/methodology/approach – Drawing upon institutional and strategic perspectives on legitimacy theory, the authors test the relationship between the introduction of the NFRD and the ESG scores derived from the Refinitiv database, using a sample of all those companies listed on the Warsaw Stock Exchange whose disclosure allows for measuring ESG performance (yielding 171 firm-year observations from 43 companies).

Findings – This study's findings show an improvement of ESG performance following the introduction of the NFRD. The difference-in-differences approach indicates that the improvement is larger for companies that are subject to the legislation when it comes to overall ESG performance, particularly for environmental and social performance. Nonetheless, to the best of the authors' knowledge, no significant effect is found for performance in the governance dimension.

Originality/value – This study investigates the role of transnational mandatory reporting regulation in the first years of its enactment. The evidence offers insights into the effects of disclosure legislation in the context of an underdeveloped institutional environment.

Keywords ESG performance, ESG reporting, Non-Financial Reporting Directive (NFRD)

Paper type Research paper

1. Introduction

In the face of the dramatic degradation of the environment and an extreme inequality gap, which is likely to be exacerbated by the effects of the COVID-19 pandemic

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(Winston, 2020), researchers have called for a reset of neoliberal capitalism and a shift towards a more inclusive and green economy (Waddock, 2016). Companies, seen as part of society, are increasingly expected to promote social welfare and environmental justice by integrating sustainability issues into their strategies (Margolis and Walsh, 2003). Non-financial reporting (NFR) is viewed as one of the major steps towards this integration. It offers not only a stakeholder communication channel through which organisations can disclose their progress against environmental, social and governance (ESG) commitments but also operationalisation of these dimensions of corporate performance, and as such, it is expected to support sustainability transition in organisations (Hubbard, 2009).

Over the last two decades, due to institutional – both regulatory and non-regulatory – pressure for transparency and accountability (La Torre *et al.*, 2020), the number of companies reporting non-financial information has been growing exponentially. This has been accompanied by the development of global reporting standards, as well as professionalisation of the field. The rise of voluntary frameworks such as the Carbon Disclosure Project, the Global Reporting Initiative (GRI) or the Sustainability Accounting Standards Board, as well as consulting companies that support organisations in their disclosure efforts, have been crucial for strengthening the standardisation, applying rigour to the reports and promoting a common language and performance metrics (Diouf and Boiral, 2017).

Despite the growing proliferation of NFR, the literature provides strong evidence that its quality is poor (Boiral, 2013; Macellari *et al.*, 2021; Matisoff *et al.*, 2013). To support the reporting process across a broad range of organisations, the existing voluntary frameworks were developed according to a "one size fits all" approach. Nevertheless, some authors argue that the voluntary approach undermines the credibility of NFR (Kim and Lyon, 2011) and its effectiveness as a strategic tool for ESG management (Hess, 2019). Thus, researchers call for the implementation of mandatory disclosure rules supported by strong enforcement measures (Braam *et al.*, 2016; Clarkson *et al.*, 2011; Criado-Jiménez *et al.*, 2008; Frost, 2007). These calls have resulted in increasing regulatory interest in NFR, as illustrated by the recent implementation of 2014/95/EU on non-financial disclosure (Non-financial Reporting Directive, NFRD) (La Torre *et al.*, 2020). Mandatory reporting introducing minimum disclosure requirements is believed to ensure relative uniformity in reporting practices (Moneva and Cuellar, 2009; Doni and Gasperini, 2015; Lombardi *et al.*, 2021).

In spite of this, the empirical evidence as to whether the reporting regulation leads to higher quality of disclosure (Lock and Seele, 2016) and, more importantly, to an enhanced ESG performance (Hassan and Romilly, 2018; Tashman *et al.*, 2017) is tenuous. Different legislation in different institutional environments (both at the national as well as sectoral levels) may have different effects on organisational practices (Lock and Seele, 2016). The question concerning whether transnational regulation on NFR can trigger disclosure and performance improvements remains an open one. In this study, we contribute to the current understanding of the effects of NFR regulation by tracing the impact of NFRD on the ESG performance of Polish companies. Poland, with its weak institutional environment and with only 5% of listed companies voluntarily publishing non-financial reports before the introduction of the NFRD (Aluchna *et al.*, 2018; Aluchna and Roszkowska-Menkes, 2019), provides an excellent context to explore the effectiveness of coercive pressure in promoting responsible business behaviour. We operationalise ESG performance with ESG scores derived from the Refinitiv database and control for whether a given company is subject to the NFRD regulation. We test the relationship between the introduction of the NFRD and these scores on a sample of 171 firm-year observations from 43 companies publishing ESG data over the period 2014–2019.

Our findings show an improvement of ESG performance in the post-Directive period for the whole sample. The improvement is larger for companies subject to the legislation in the case of the overall ESG performance variable and in particular for environmental and social performance. We interpret these results as a positive impact of the mandatory NFR framework on ESG performance. No effect is found for performance in the governance dimension. In addition, the results indicate that the improvement of ESG performance is greater in subsequent years as compared to the first year after NFRD introduction.

The paper is organised as follows. We start with the outline of the evolution of NFR and the effects of pertinent legislation on disclosure and performance. A review of the existing literature on NFR, focusing on the premises that assume a positive role for mandatory NFR legislation of ESG performance, lays the groundwork for the development of our hypotheses. Next, we describe the research design, documenting the process behind the sample collection and the construction of variables, followed by the presentation of our results. Finally, we discuss these results, with reference to their theoretical and practical implications, and formulate a conclusion.

2. Literature review and hypotheses development

2.1 Non-financial reporting and its functions

NFR relates to a number of overlapping but non-converging terms, such as integrated reporting, sustainability reporting and corporate social responsibility (CSR) reporting (Stolowy and Paugam, 2018). Due to substantive heterogeneity in the definitions of the concepts underlying NFR, the literature does not offer any common conceptualisation of this management practice (Haller *et al.*, 2017). For the purpose of this study, we broadly define NFR following Erkens *et al.* (2015, p. 25) as "disclosure provided to outsiders of the organisation on dimensions of performance other than the traditional assessment of financial performance from the shareholders and debt-holders' viewpoint. [It] includes, but is not limited to, items related to social and environmental accounting, CSR, and intellectual capital disclosed *outside* the financial statements". As understood by the EU, NFR encompasses information relating to a company'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" (EP, 2014, p. 4). While referring to sustainability reporting, Milne and Gray (2007) note that initially the practice was viewed as a simple extension of traditional financial reporting. Information about a company's environmental and, later, social policies and programmes first started to appear in annual reports. In the late 1980s and early 1990s, organisations began to publish "stand-alone" environmental reports, followed by social reports, as a more formal commitment to corporate responsibility and sustainability. The late 1990s witnessed the rise of triple bottom line (TBL) reporting, which combined the traditional economic bottom line with information about performance in regard to the conservation of social and natural capital, affording them equal importance (Elkington, 1997). TBL has become a major non-financial disclosure approach, most commonly chosen by companies reporting within the GRI framework (Robins, 2006).

A non-financial report contains qualitative and quantitative information about a company's social and environmental policies and/or strategies, how they are integrated into business operations and their outcomes (Daub, 2007). It serves three main functions. Firstly, it has become a primary channel for communication with stakeholders (Ernst and Young and GRI, 2014). While corporate sustainability leaders harness it to signal their superior social and environmental performance and differentiate themselves from less sustainable

competitors (Hassan and Romilly, 2018; Mahoney *et al.*, 2013), sustainability laggards use it to justify their impacts and gain a social license to operate (Clarkson *et al.*, 2008; Dawkins and Fraas, 2011).

Secondly, NFR reduces information asymmetries in the capital market (Eccles and Krzus, 2010; Frias-Aceituno *et al.*, 2014). It addresses investors' demand for a transparent corporate disclosure that gives a more complete picture of organisational performance (Clayton *et al.*, 2015; Dragu and Tiron-Tudor, 2013; Eccles *et al.*, 2014). Because a growing number of investment professionals are including ESG aspects in their investment policies (Amel-Zadeh and Serafeim, 2018), NFR increases investors' confidence, optimises financing costs and increases the value of the firm (Frias-Aceituno *et al.*, 2014).

Thirdly, NFR is a creative and strategic tool (Gond and Herrbach, 2006) that allows planning organisational change for sustainability (Lozano *et al.*, 2016). NFR can be viewed as a diagnostic tool used to control whether ESG-related risks are properly addressed by the organisation, as well as a learning tool to support the process of opportunity identification and strategy design (Gond and Herrbach, 2006). Furthermore, NFR serves as a crucial signal conveyed to internal stakeholders, which increases the importance of ESG issues within the organisation (Herzig and Schaltegger, 2006). It builds employee awareness on these matters (Ceulemans *et al.*, 2015) and serves to "establish routines for considering sustainability-related information to be part of business information" (Herzig and Schaltegger, 2006, p. 304). In summary, the process of NFR includes both external communication, as well as internal processes of collection, analysis and communication of information on ESG performance. As such, it is a crucial management tool for corporate sustainability (Schaltegger *et al.*, 2006).

2.2 Voluntary frameworks and environmental, social and governance performance

One of the key milestones in the development of NFR is the rise of the GRI, which is internationally the most prominent and most widely used framework for TBL accounting (Clayton *et al.*, 2015). By setting up basic disclosure principles, as well as specific ESG performance indicators, GRI aims to promote a common language and strengthen report standardisation (Diouf and Boiral, 2017). It ultimately seeks to elevate NFR "to a level equivalent to that of financial reporting in rigor, comparability, auditability and general acceptance" (Willis, 2003, p. 234; La Torre *et al.*, 2020). However, while GRI's contribution to the increased sophistication and usefulness of NFR is unquestionable, the quality of the disclosures and the motives of the reporting organisations still raise significant concerns (Milne and Gray, 2013), casting doubts on whether the practice is fully institutionalised. The institutionalisation process includes two stages: initial adoption and institutional entrenchment. The latter stage relates to practices that are embedded in such a way "that they are likely to endure and resist pressure for change" (Zeitz *et al.*, 1999: 741). Although voluntary NFR practice is widely adopted, research provides strong empirical evidence that companies, as predicted by strategic legitimacy theory, use it symbolically as a response to changes in social awareness (Chelli *et al.*, 2014). While growing threats to corporate legitimacy motivate managers into voluntary disclose of ESG-related information (Dawkins and Fraas, 2011; Haddock, 2005; Rupley *et al.*, 2012), a decline in stakeholder pressure leads to a reduction in such disclosures (de Villiers and van Staden, 2006). Empirical studies reveal numerous shortcomings of NFR practice that point to this merely symbolic role of disclosure. Non-financial reports, including those based on GRI, show deficiencies with respect to all five attributes of information quality (Chauvey *et al.* (2015): materiality (Mio, 2010); reliability; clarity; comparability (Boiral and Henri, 2017; Vuontisjärvi, 2006; La Torre *et al.*, 2020); and neutrality (Boiral, 2013; Macellari *et al.*, 2021). NFR has been largely

used for *greenwashing*, that is, "selective disclosure of positive information about a company's environmental or social performance, without full disclosure of negative information on these dimensions, so as to create an overly positive corporate image" (Lyon and Maxwell, 2011: 9). Other authors suggest that NFR has been adopted in a symbolic manner as a box-ticking exercise that does not lead to any organisational change and has little or no impact on ESG performance (Hess, 2019). The analysis by Cho *et al.* (2012) reveals that voluntary environmental disclosure is an impression management tool that mediates the effect of poor environmental performance on environmental reputation, hindering improved future corporate environmental performance.

While NFR practice has been exploited merely as a legitimation tool (Cahan *et al.*, 2016; Diouf and Boiral, 2017), managers have not embedded it in the core organisational processes, neglecting its strategic function (Gond and Herrbach, 2006). Factors that impede the entrenchment of NFR include the overly broad flexibility of voluntary reporting frameworks, which allows for elastic conformity between organisations (Boiral and Henri, 2017). Michelon *et al.* (2015) show that GRI can have a positive impact on disclosure quality, but only on the condition that managers use it as a framework for performance-related disclosure, i.e. to present information with more focus on the outcomes of the company's actions and less on developed programmes, initiatives and policies. Because the managerial approach towards reporting is largely dominated by the latter focus, companies tend to select, adapt and modify GRI indicators according to their legitimation motives (Solomon *et al.*, 2013).

2.3 Mandatory frameworks and environmental, social and governance performance

In the accounting literature, the introduction of disclosure regulations has often been justified with the use of market failure theories (Kaplan and Ruland, 1991). From this perspective, the development of mandated disclosure is viewed as a remedy for problems associated with private underproduction of information. Given the shortcomings of voluntary disclosure guidelines and standards, the opportunistic behaviour of managers and the information asymmetry resulting from the latter, researchers emphasise the complementary role of legislation (Fortanier *et al.*, 2011) and strong enforcement mechanisms (Braam *et al.*, 2016; Clarkson *et al.*, 2011; Criado-Jiménez *et al.*, 2008; Frost, 2007; Kim and Lyon, 2011). Calls from academia are accompanied by an increasing regulatory interest in NFR. The Republic of South Africa became the first jurisdiction to mandate sustainability reporting in 2002 and integrated reporting in 2010. Similar non-financial disclosure regulations were also introduced (either as parliamentary regimes or stock exchange listing rules) in, among others, Australia, Canada, China, the European Union, Malaysia, Norway, Singapore and the UK. The idea behind the introduction of NFR requirements is to reduce information asymmetry; to help stakeholders, including investors, civil society organisations, consumers and governments to evaluate corporate non-financial performance; and thus to enforce the development of a responsible approach to business among companies (EC, 2022).

Nonetheless, "a priori there is no clear justification for corporate disclosure regulation. It is an empirical question of relative costs and benefits" (Watts and Zimmerman, 1986, p. 178). While the costs include the extra monitoring of agents, the benefits relate to decreased information asymmetry (Gwilliam *et al.*, 2005), a more accurate investment risk estimation and capital allocation and social benefits arising from more responsible business behaviour. However, the literature on the effects of NFR legislation on disclosure practice and ESG performance provides inconsistent evidence. Critics harness a strategic legitimacy perspective (Chelli *et al.*, 2014) and argue that companies obliged by law to disclose ESG-related information merely seek regulatory approval and limit their reporting practice to

minimal compliance (Gong *et al.*, 2018). As a result, mandatory reporting may be limited in improving the quality of non-financial disclosure (Carungu *et al.*, 2021). The evidence from China (Wang and Bernell, 2013), Norway (Vormedal and Ruud, 2009), Portugal (Acerete *et al.*, 2019), Spain (Criado-Jiménez *et al.*, 2008) and the USA (Peters and Romi, 2013) show that despite the introduction of NFR legislation companies use various impression management and concealment strategies to avoid transparency and attain legitimacy (Chelli *et al.*, 2014). In a similar vein, Stubbs *et al.* (2013) show that mandatory reporting encourages a compliance culture with a focus on operational activities and a desire to mitigate institutional pressures and separate them from corporate strategy and decision-making. Chelli *et al.* (2018) find that mandatory parliamentary regimes complemented by voluntary GRI standards have a positive impact on the scope of reporting among companies. However, this does not translate into higher disclosure quality, which, as we argue, is crucial to exploiting the strategic functions of NFR. Moreover, a study on UK-based publicly listed companies provides limited evidence that mandatory carbon reporting is driving any substantial reductions in emissions (Tang and Demeritt, 2018).

An alternative view on the effectiveness of NFR mandates in terms of ESG transparency and performance improvements is offered by institutional legitimacy theory (Chelli *et al.*, 2014). Through the institutional lens legitimacy is seen "as a set of constitutive beliefs" shared to the same extent by external stakeholders as well as by managers (Suchman, 1995, p. 576). Legitimacy determines an organisation's structure, practices, identity and sense of existence. As such, it is used as a synonym for institutionalisation. Within this tradition "organizations, managers, performance measures, and audience demands [are considered] as being both products and producers of larger, institutionalized cultural frameworks" (Suchman, 1995, p. 577). Coercive pressures exerted by regulations are perceived by managers as an accurate representation of such a framework that defines "explicit terms of social contract" (Chelli *et al.*, 2014, p. 291) and encourages legitimacy maintenance (in contrast to legitimacy repairing as a central idea in strategic legitimacy theory) through conformity. And indeed, a number of empirical studies shows that the introduction of mandatory environmental reporting has a positive lasting influence on both the quantity (Fontana *et al.*, 2015; Frost, 2007; Silva Monteiro and Aibar Guzmán, 2010) and quality of environmental disclosures (Chelli *et al.*, 2014; Fatima *et al.*, 2015; Frost, 2007).

Furthermore, evidence from China shows that mandatory CSR reporting generates positive externalities (Chen *et al.*, 2018). The study reveals that Chinese companies subjected to reporting legislation recorded less pollution and fewer workplace fatalities. The evidence concerning the beneficial effects of mandatory reporting comes also from EU member states, particularly from Italy (Lombardi *et al.*, 2021). Due to increased transparency, stakeholders can more easily identify companies with poor ESG performance. Thus, mandatory disclosure facilitates political and social scrutiny and pressure on sustainability laggards, forcing them to increase ESG-related investment and, as a result, improve their performance. In line with this reasoning, we formulate the following hypotheses:

H1. Mandatory non-financial reporting is positively associated with ESG performance.

H1a. Mandatory non-financial reporting is positively associated with environmental performance.

H1b. Mandatory non-financial reporting is positively associated with social performance.

H1c. Mandatory non-financial reporting is positively associated with governance performance.

However, we note that in line with the strategic legitimacy perspective legislation can also trigger decoupling processes (Meyer and Rowan, 1977) within NFR, i.e. a situation where, for impression management purposes, companies disclose data only on positive performance, while omitting information on negative impacts or else disclose commitments that are not reflected in actual operations. Nonetheless, even if companies – to comply with disclosure requirements – resort to decoupling, institutionalists argue that this is merely a temporary phase in the institutionalisation process (Haack *et al.*, 2012). Coupling processes can be triggered by outsiders enforcing compliance on organisations, as well as by internal stakeholders experiencing identity transformation (Fiss and Zajac, 2006). The longer the company reports, the greater the potential for the emergence of internal identity conflicts, but also for interactions with external stakeholders and, as a result, a greater chance of triggering coupling processes (Haack *et al.*, 2012). Thus, we expect that the positive effects of reporting legislation on ESG performance will increase over time and formulate the following hypotheses:

H2. The positive effect of mandatory non-financial reporting on ESG performance is stronger in subsequent years than in the first year.

H2a. The positive effect of mandatory non-financial reporting on environmental performance is stronger in subsequent years than in the first year.

H2b. The positive effect of mandatory non-financial reporting on social performance is stronger in subsequent years than in the first year.

H2c. The positive effect of mandatory non-financial reporting on governance performance is stronger in subsequent years than in the first year.

3. Institutional background

NFR has become a mainstream practice among the world's largest companies, yet its adoption in less advanced economies remains low. Data on Poland for the pre-Directive period indicate a significant challenge with regards to the quality and scope of non-financial disclosure by listed companies. In particular, during 2014–2016 formal reports were published by 26 out of 471 (5%) of listed companies, with only 16 of them adopting GRI standards and 10 providing assurance by an independent external auditor (Aluchna *et al.*, 2018; Aluchna and Roszkowska-Menkes, 2019). Thus, despite the fact that only 150 companies are subject to the NFRD, the enactment of the legislation of mandatory NFR brought significant change to the Polish stock market.

The NFRD (EP, 2014) was viewed as a step towards addressing social and environmental challenges (EC, 2017) and introduced rules on the disclosure of non-financial and diversity information by large companies (Doni and Gasperini, 2015; La Torre *et al.*, 2020). Formally, it amended the Accounting Directive 2013/34/EU. In Poland, regulation by NFRD was introduced into the national laws in Poland with the Amendment of Accounting Act of 15 December 2016, Amending the Accounting Act 61. According to the legislation, companies are required to include, on a report-or-explain basis, non-financial statements in their annual reports from 2017 onwards. Neither the use of sustainability reporting standards nor external assurance of the non-financial data is required by the directive. Under NFRD, large companies must publish reports on the policies they implement in relation to:

- environmental matters;
- social matters and treatment of employees;

- respect for human rights;
- anti-corruption and bribery; and
- diversity on company boards (in terms of age, gender, educational and professional background).

The rules on NFR currently apply to large public-interest companies with more than 500 employees and include listed companies, banks, insurance companies and other companies designated by national authorities as public-interest entities. In June 2017, the European Commission published its non-mandatory guidelines to help companies disclose environmental and social information (EC, 2017). Two years later, in June 2019, the European Commission published guidelines on reporting climate-related information, offering a new supplement to the existing guidelines on NFR (EC, 2019).

While the NFRD gives companies significant flexibility to disclose relevant information in the way they consider most useful, on 21 April 2021 the European Commission adopted a proposal for a corporate sustainability reporting directive. It would amend the existing reporting requirements of the NFRD with the intent to strengthen the reporting regime. In particular, the proposal:

- extends the scope to all large companies and all companies listed on regulated markets (except listed micro-enterprises);
- requires an audit (assurance) of the reported information;
- introduces more detailed reporting requirements and a requirement to report according to mandatory EU sustainability reporting standards; and
- requires companies to digitally "tag" the reported information so it is machine readable and feeds into the European single access point envisaged in the capital markets union action plan.

4. Research design

4.1 Sample and variables

We derive the information on ESG performance from a database by Refinitiv (EIKON). We constructed the sample in the following way: we identified all companies listed on the Warsaw Stock Exchange for whom Refinitiv provides ESG performance data for the period of 2014–2019 (Refinitiv, 2020). We chose a six-year period to investigate disclosure practices over the three years prior to the enacted NFRD and for three years afterwards. We did not include earlier periods, because these data would not produce a sufficient number of observations, due to the paucity of non-financial disclosure by WSE-listed companies at that time.

ESG performance is our explained variable. We use Refinitiv ESG scores, which reflect the company's ESG performance, commitment and effectiveness, based on the self-reported non-financial information categorised into three dimensions – ESG information. The data set provided by Refinitiv captures over 450 company-level ESG measures, of which a subset of 186 of the most comparable and material metrics per industry determine the overall company assessment and scoring process. Refinitiv calculates ESG information based on disclosures from company annual reports, CSR reports and corporate websites, as well as from stock filings using measures that reflect on comparability, impact, data availability and industry relevance, with the adoption of weights to capture industry specificities. The measures are formulated into three pillar scores and a final ESG score. The environmental

component of ESG includes information about resource use, emissions and environmental innovations. The social component of ESG covers information on aspects related to community, human rights, product responsibility and workforce. The governance component of ESG comprises performance of management, shareholder rights and protection and CSR strategy. The Refinitiv methodology is designed to objectively measure a 'company's relative ESG performance. We acknowledge, however, some shortcomings of the performance scoring. More specifically, while the disclosure of immaterial data points does not affect the assessment, the lack of information on highly relevant aspects has a negative impact on the 'company's score. Nevertheless, being comparable across various industries and company sizes, Refinitiv scores serve as a sufficient proxy of ESG performance for our market-wide sample. We discuss this topic further in the research limitations section.

The enactment of NFRD regulation serves as the explanatory variable. We use a binary variable to denote the period of mandatory NFR legislation in action (2014–2016 vs 2017–2019), as well as a binary variable to indicate each year of the analysis. Additionally, we introduced a dummy variable for each of the sample companies to denote if the company was subject to NFRD legislation.

4.2 Methodology

We construct the model with ESG performance (ESG) as the explained variable and NFRD variable (NFRD) as the explanatory variable. We also use a dummy depicting whether a company is subject to mandatory NFR (NFRD_sub) and investigate the interaction between the enactment of the NFRD and being subject to the directive (NFRD# NFRD_sub). The intention here is to assess the variation in the differences of ESG responses between companies subject and not subject to the directive on mandatory NFR. We added variables to control for the company size and financial performance. We used the following models to test our hypotheses:

ESG/Environmental/Social/Governance performance = f(NFRD, NFRD_sub, NFRD# NFRD_sub, Ln_Assets, ROA)

where: ESG/Environmental/Social/Governance performance = ESG/Environmental/Social/Governance score, according to Refinitiv's methodology.

To test hypotheses *H2*, *H2a*, *H2b* and *H2c*, we use a binary variable to denote each year of the analysis. Our goal is to verify whether the positive effect of mandatory reporting is stronger for ESG performance and its components in the subsequent years than in the first year. We also added variables to control for the company size and financial performance. We used the following models to test our hypotheses:

ESG/Environmental/Social/Governance performance = f(Year, Ln_Assets, ROA)

where: ESG/Environmental/Social/Governance performance = ESG/Environmental/Social/Governance score, according to Refinitiv's methodology and Year = 2015, 2016, 2017, 2018, 2019.

Finally, we collect data on the general company characteristics, including size (assets) and financial performance (ROA), which, in line with the literature (Chen *et al.*, 2018; Graafland and Smid, 2019; Marquis *et al.*, 2016), serve as control variables. Overall, we obtain a sample of 43 companies and a total of 171 firm-year observations. Table 1 presents the list of variables used in the analysis.

Variable	Definition of variables
ESG	ESG performance according to Refinitiv methodology combining environmental, social and governmental dimension
Environmental	Environmental performance according to Refinitiv methodology including measures of resources, emissions and environmental innovations
Social	Social performance according to Refinitiv methodology including measures of workforce, human rights, community and product safety
Governance	Governance performance according to Refinitiv methodology including measures of management, shareholders and CSR strategy
Ln_Assets	Natural logarithm of assets
ROA	Financial performance measured by return on assets
NFRD	Binary variable denoting the existence of mandatory NFR legislation (0 for 2014–2016 and 1 for 2017–2019)
NFRD_sub	Binary variable denoting the fact of a company being subject to mandatory NFR legislation (0 for no and 1 for yes)

Table 1.
Variables used in the analysis

4.3 Descriptive statistics

Table 2 provides descriptive statistics to present the overall characteristics of the sample companies.

As shown in the overall score of ESG performance is 39.28, followed by an environmental score of 29.39, a social score of 37.06 and a governance score of 47.48. The sample companies reveal variations in size and financial performance. In addition, we report descriptive statistics on Ln_Assets and ROA for companies which are either subject or not subject to NFRD, showing that companies covered by the legislation are larger and reveal weaker financial performance. In Table 3, we report the sample companies breakdown by sector, showing that 30% of our sample operates in the financial sector, followed by 25% of firms operating in energy and materials and 23% in industrials.

Next, in Table 4, we present the evolution of ESG disclosure and ESG scores, broken down into the three components of ESG scores.

As shown in Table 4, the number of companies that publish ESG information nearly doubled from 23 in 2014 to 43 in 2019. With regard to the disclosure evolution, the largest growth is noted between 2018 and 2019. Parallel to the increase in the number of reporting companies, we also observe an increase in the overall ESG score, from 34 points to nearly 43 points in 2019. While we note the highest growth in performance in the social dimension

Variable	Observations	Mean	Median	SD	Min	Max
ESG	171	39.28	36.91	18.58	6.46	88.64
Environmental	171	29.39	22.72	25.43	0	87.78
Social	171	37.06	33.56	22.44	2.21	90.58
Governance	171	47.48	46.29	21.60	9.67	93.66
Ln_Assets	258	23.16	23.15	1.68	15.23	26.56
Ln_Assets for companies under NFRD	237	23.28	23.15	1.68	15.23	26.56
Ln_Assets for companies not under NFRD	21	21.85	23.35	1.04	20.84	23.87
ROA	258	4.14	3.48	7.87	−24.17	75.42
ROA for companies under NFRD	237	3.93	3.48	7.67	−24.17	75.42
ROA for companies not under NFRD	21	6.59	3.30	9.77	−12.80	32.66

Table 2.
Descriptive statistics

(from nearly 29 points in 2014 to 44 points in 2019), over the analysed period, we observe a drop in the governance dimension (from 50 points in 2014 to 48 points in 2019).

Next, we analyse the evolution of distinct dimensions of ESG, as presented in Figures 1, 2 and 3.

As shown in Figure 1, we observe an increase in performance in selected aspects of the environment component. While the lowest performance scores in absolute terms are seen for environmental innovation, this area recorded the largest percentage growth. Also, an improvement in resource use and emission is observed.

Figure 2 presents the growth in performance of selected aspects of the social component. The lowest scores are observed for human rights and product responsibility, yet these areas also see the largest percentage growth. The performance in the area of workforce and community reveals a moderate improvement.

As shown in Figure 3, performance in the governance component indicates relative stability, in particular for management and CSR strategy. Strikingly, we note a decrease in shareholder protection and rights. Table 5 presents the mean values of ESG performance and its components with regard to year and sector of operation.

Sector	No. of sample companies	No. of observations	(%) of sample
Energy and materials	11	66	25.00
Industrials	10	57	21.50
Consumer	5	36	14.00
IT and telecom	4	27	10.00
Financial	13	78	29.50

Table 3. Breakdown of sample companies by sector of operation

Year	ESG disclosure (no. of firms)	ESG	Environment	Social	Governance
2014	23	34.39	18.81	28.92	50.30
2015	22	32.61	21.57	29.04	44.48
2016	25	36.68	25.71	34.27	45.53
2017	27	40.40	30.96	36.79	49.97
2018	31	39.92	35.70	41.64	45.50
2019	43	42.80	35.64	44.03	48.51

Table 4. Evolution of ESG disclosure and ESG scores (2014–2019)

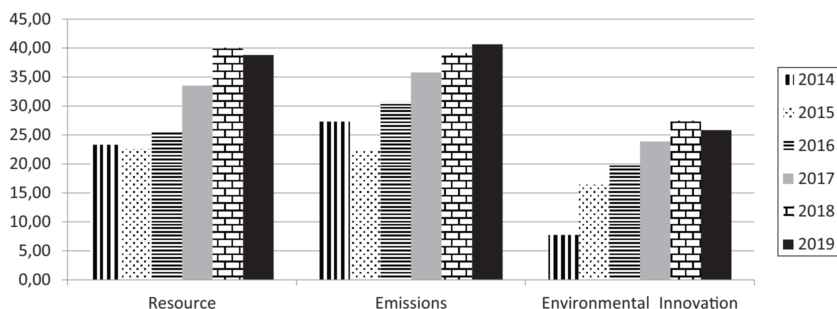

Figure 1. Environmental component

The correlation matrix is presented in Table 6.

Table 5 does not reveal any unexpected links between the analysed variables – the strongest correlation is noted between the overall ESG performance and its ESG components. We also observe a correlation between ESG performance and company size measured by assets (Ln_Assets), which is to be expected.

5. Results

We tested our hypotheses by studying the entire population of WSE listed companies that reported ESG performance for the period 2014–2019, and so the natural assumption was to use the fixed effects panel model, grouped by company (to control for individual company effects). To further decide between fixed effects and random effects models we ran the Hausman test, which rejected the null hypothesis at a p-value of 0.01, confirming the choice

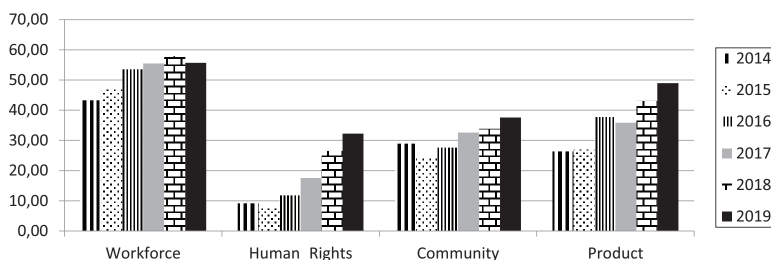

Figure 2.
Social component

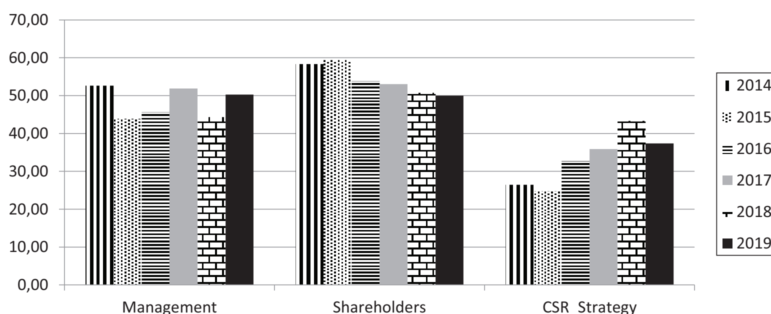

Figure 3.
Governance component

	ESG	Environmental	Social	Governance
Sector				
Energy and materials	37.17	37.03	36.88	45.51
Industrials	32.41	35.15	25.37	40.22
Consumer	36.84	23.43	36.67	48.73
IT and telecom	36.68	27.22	47.73	33.03
Financial	43.42	26.06	39.60	55.81
Industry				
Non-financial	36.74	31.42	35.51	42.37
Financial	43.42	26.06	39.60	55.82

Table 5.
ESG performance in sectors and years

of the fixed effects model. The fixed effects model allows us to control the analysis for individual firm characteristics. This approach enables us to capture the internal company variability of size and financial performance and to relate changes in ESG performance with the year the NFRD was enacted. We did not include the sector of operation as a control variable, because the sector was constant for each company during the entire period of its observation and thus could not be included in the fixed effects panel model. The sector effect is fully incorporated in the estimated individual effect for each company.

We distinguish between the period before and after the implementation of mandatory NFR under the Directive. For this purpose we use the variable denoting the enactment of NFRD. In addition, because some of the sample companies are not subject to the NFRD legislation, we note this fact by means of a dummy variable. As a robustness check to the findings of the previously estimated fixed effects panel model, we use a pooled difference-in-differences model without control variables. Calculations were run with STATA17 software.

We test hypothesis *H1*, which assumes a positive association between ESG performance and the enactment of mandatory non-financial legislation, using the difference-in-differences panel model with fixed effects. We also delineated ESG performance across three components – environmental, social and governance performance. The results are presented in Table 7.

As shown in Table 7, the difference-in-differences analysis reveals a statistically significant and positive association between overall ESG performance and the NFRD dummy representing the pre- and post-directive periods. The interaction term between NFRD and NFRD_sub variables (the difference-of-differences effect of the NFRD introduction and then being subject to it) is statistically significant and shows that following the introduction of the directive the ESG performance increased more in those companies subject to it. This evidence provides support for hypothesis *H1* and indicates that ESG performance improved over two periods – the pre- and post-directive. The increase is stronger for companies which adopt mandatory NFR. This finding suggests that ESG performance improved in response to the direct coercive regulatory pressures ensuing from the implementation of NFRD legislation. In Table 6, we present the results of the difference-in-differences analysis for the separate components of ESG. In particular, the NFRD legislation is positively associated with social performance and governance performance for the overall sample. However, we find that companies which are subject to NFRD demonstrate a statistically significant improvement in environmental and social performance after its introduction. We interpret these results as support for hypothesis *H1a* (a positive association between mandatory NFR and environmental performance) and hypothesis *H1b* (a positive association between mandatory NFR and social performance),

Variable	ESG	Environmental	Social	Governance	NFRD	ROA
Environmental	0.757*	–	–	–	–	–
Social	0.911*	0.701*	–	–	–	–
Governance	0.617*	0.150	0.336*	–	–	–
NFRD	0.209	0.238	0.231	0.028	–	–
ROA	−0.074	−0.040	−0.013	−0.160	0.072	–
Ln_Assets	0.519*	0.378*	0.433*	0.372*	0.198	−0.321*

Note: *Denotes significance at 0.001

Table 6.
Correlation matrix

Table 7. Results of the panel model estimation on ESG performance and its components (difference-in-differences, fixed effect model)

Variable	ESG (p-values) (SE, t)	Environmental (p-values) (SE, t)	Social (p-values) (SE, t)	Governance (p-values) (SE, t)
1.NFRD	4.41 (0.003)** (1.39, 3.16)	0.67 (0.781) (2.39, 0.28)	5.21 (0.047)** (2.55, 2.04)	2.71 (0.000)*** (1.46, 4.94)
1.NFRD_sub	−6.17 (0.008)** (2.22, −2.78)	−10.15 (0.207) (7.91, 1.28)	−7.52 (0.040)* (3.54, −2.12)	−7.59 (0.369) (8.36, −0.91)
NFRD#NFRD_sub 11	6.10 (0.002)** (1.86, 32.8)	12.34 (0.040)** (4.01, −3.07)	7.81 (0.008)* (2.79, −2.80)	−1.99 (0.412) (2.40, −0.83)
Ln_Assets	2.36 (0.000)*** (0.37. 6.39)	5.23 (0.000)*** (0.71, 7.40)	3.58 (0.008)*** (0.71, 5.06)	−0.52 (0.337) (0.53, −0.97)
ROA	−0.21 (0.05)* (0.10, −1.97)	−0.08 (0.670) (0.18,−0.43))	−0.30 (0.125) (0.19, −1.57)	−0.27 (0.010)* (0.10, −2.71)
Cons	−15.45 (0.07)' (8.52, −1.81))	−90.84 (0.000)*** (18.44, −4.93)	−46.19 (0.007)** (16.43, 2.81)	64.42 (0.00)** (16.11, 4.00)
N	171	171	171	171
Within R-squared	0.48	0.43	0.47	0.09
Overall R-squared	0.17	0.15	0.15	0.02

Notes: We report results of the model estimations with p-values, standard errors (SE) and t-statistics (t). Significance level ***0.001, **0.01; *0.05; ‘0.1; robust standard error in parentheses

whereas there is no support for hypothesis *H1c* (a positive association between mandatory NFR and governance performance) is observed.

Furthermore, as a robustness check, we estimated a pooled difference-in-differences analysis without control variables to reveal average scores for companies in the control group, which are not subject to the directive, and for companies in the treated group, which have to follow the legislation in the two respective periods (the pre-directive period of 2014–2016 and the post-directive period of 2017–2019). Specifically, we observe a slight rise in ESG performance from 18.65 in the pre-directive period to 19.28 in the post-directive period for the control group, and a larger rise from 36.71 in the pre-directive period to 43.96 in the post-directive period in the treated group. An increase is also observed for environmental performance and social performance. These results are presented in Table 8, grouped according to their respective ESG components.

As shown in Table 8, the difference-in-differences analysis confirms that the effect of introducing the NFRD for ESG reporting is larger for companies subject to this directive. The Diff-in-Diff estimate is not statistically significant, due to large variability in the ESG reporting levels between companies (this between-company variability is taken into account in the fixed effects panel data model presented in Table 6, and therefore, the NFRD#NFRD_sub 11estimate of the parameter is significant). It is also apparent from Table 7 that, on average, companies subject to the directive have a significantly higher ESG reporting level, both before and after the directive was introduced, than their counterparts who were not subject to it. Such a large difference may be explained by the fact that the companies subject to the directive are slightly larger on average, as reported in Table 2. This difference is controlled for in the panel model by introducing a control variable and estimating it as a fixed effects model, thus capturing individual company effects in the estimate of their individual constant terms. Moreover, because the directive was published in 2014 and came into force in 2017, we expect that companies subject to NFRD were likely to have anticipated the obligation to report ESG information and performance and to have responded accordingly.

We additionally ran two types of models (not reported in detail because their results were consistent with the main analysis). Firstly, we ran a fixed effects panel model for the sub-sample of companies that provided reports prior to the introduction of the NFRD framework. The results show that the enactment of NFRD is associated with better ESG performance in overall terms, as well as for each of its three components – ESG. Secondly, we constructed a model which excluded companies from the financial sector. The findings reveal the enactment of NFRD is associated with better overall ESG and environmental performance, is positively correlated with social performance at a level of 0.1 and unrelated to governance performance. In sum, these findings are consistent with our base model.

Next, we tested hypothesis *H2*, which assumes that the positive effect of mandatory NFR on ESG performance is stronger in subsequent years than in the first year. In addition, in hypotheses *H2a*, *H2b* and *H2c* we decompose ESG performance into environmental performance, social performance and governance performance, expecting that the effect in the subsequent years after enactment of the NFRD will be stronger than in the first year. To verity these hypotheses, we run the panel fixed effects pooled model estimation on the sub-sample of companies subject to NFRD legislation. The results are presented in Table 9.

Table 9 indicates that with regard to the overall ESG measure there is a statistically significant and positive association between the ESG performance variable and the year dummy variables for 2018 and 2019, while no statistically significant result is noted for 2017. This evidence supports hypothesis *H2*, suggesting the stronger impact of NFRD legislation in subsequent years after its enactment. Moreover, in the case of environmental

Table 8. Results of the difference-in-difference pooled model of ESG performance and its components

Outcome variable	ESG (p-values) (SE, t)	Environmental (p-values) (SE, t)	Social (p-values) (SE, t)	Governance (p-values) (SE, t)
Before the NFR Directive (2014–2016)				
Control (not subject to NFRD legislation)	18.65	5.32	15.45	36.66
Treated (subject to NFRD legislation)	36.71	24.31	32.85	48.07
Diff (C-T)	18.01 (0.007)** (6.51, 2.77)	18.99 (0.037)* (9.02, 2.11)	17.41 (0.030)* (7.97, 2.18)	11.41 (0.157) (8.03, 1.42)
N	171	171	171	171
Control (not subject to NFRD legislation	8	8	8	8
Treated (subject to NFRD legislation)	62	62	62	62
After the NFR Directive (2017–2019)				
Control (not subject to NFRD legislation)	19.28	6.54	16.87	29.97
Treated (subject to NFRD legislation)	43.96	36.17	42.91	49.12
Diff (C-T)	24.67 (0.001)** (7.29, 3.38)	29.63 (0.030)* (10.10, 2.93)	26.04 (0.004)** (8.93, 2.92)	19.15 (0.0.35) * (8.99, 2.13)
Diff-in-Diff	6.61 (0.499) (9.78, 0.68)	10.65 (0.433) (13.54, 0.72)	8.63 (0.477) (11.96, 0.72)	7.75 (0.522) (12.06, 0.64)
N	171	171	171	171
Control (not subject to NFRD legislation)	6	6	6	6
Treated (subject to NFRD legislation)	95	95	95	95
R-squared	0.14	0.12	0.12	0.15

Notes: We report results of the model estimations with p-values, standard errors (SE) and t-statistics (t). Significance level ***0.001, **0.01; *0.05; ‘0.1; standard deviation in parentheses

Table 9. Results of the fixed effect panel model estimation on ESG performance and its components for the sub-sample of companies subject to NFRD

Variable	ESG (p-values) (SE, t)	Environmental (p-values) (SE, t)	Social (p-values) (SE, t)	Governance (p-values) (SE, t)
Year 2015	−6.97 (0.013)** (2.77, −2.52)	−7.19 (0.148) (4.93, −1.46)	−5.52 (0.160) (3.91, −1.41)	−9.01 (0.017)** (3.70, −2.43)
Year 2016	−2.98 (0.276) (2.73, −1.09)	−5.16 (0.290) (4.86, −1.06)	−1.58 (0.682) (3.84, −0.41)	−5.54 (0.132) (3.34, −1.52)
Year 2017	3.11 (0.277) (2.85, 1.09)	2.93 (0.565) (5.08, 0.58)	5.27 (0.193) (4.02, 1.31)	−1.67 (0.662) (3.81, −0.44)
Year 2018	4.77 (0.000)* (2.79, 1.71)	7.21 (0.150) (4.97, 1.45)	8.15 (0.041)* (3.93, 2.07)	−2.60 (0.488) (3.73, −0.70)
Year 2019	10.33 (0.000)*** (2.73, 3.79)	11.72 (0.018)** (4.86, 2.41)	15.41 (0.000)*** (3.84. 4.01)	1.72 (0.472) (3.65, 0.47)
Ln_Assets	3.45 (0.000)*** (0.82, 4.23)	6.76 (0.000)*** (1.45, 4.65)	4.52 (0.000)*** (1.15, 3.93)	0.79 (0.472) (1.09, 0.72)
ROA	−0.15 (0.200) (0.11, −1.29)	−0.01 (0.959) (0.21, −0.05)	−0.23 (0.155) (0.16, −1.43)	−0.24 (0.117) (0.15, −0.58)
Cons	−42.37 (0.019* (17.80, −2.38)	−130.98 (0.000)*** (31.71, −4.13)	−72.03 (0.005)** (25.08, −2.87)	33.23 (0.165) (23.79, 1.40)
N	157	157	157	157
Within R-squared	0.58	0.48	0.55	0.16
Overall R-squared	0.22	0.15	0.17	0.06

Notes: We report results of the model estimations with p-values, standard errors (SE) and t-statistics (t). Significance level ***0.001, **0.01; *0.05; ‘0.1; robust standard error in parentheses

performance we find a statistically significant and positive effect for 2019, whereas in the case of social performance the statistically significant and positive result is noted for 2018 and 2019. This provides support for hypotheses *H2a* and *H2b*. We interpret these results as evidence for the stronger impact of NFRD legislation in subsequent years. No support is noted for hypotheses *H2c*, because there is no effect for governance performance.

We additionally ran two types of models (not reported). We ran a model for the sub-sample of companies that provided reports before the NFRD framework was introduced. The results show the statistically significant and positive effect in 2017, 2018 and 2019 for ESG overall performance and in 2018 for social performance. No effect was noted for environmental and governance performance. Furthermore, we constructed a model excluding companies from the financial sector. The results revealed a statistically significant and positive effect in 2019 for ESG overall performance, in 2017, 2018 and 2019 for environmental performance, in 2018 and 2019 for social performance and no statistically significant effect for governance performance. Overall, these findings are consistent with our base model.

6. Discussion and conclusion

Recently, the focus of research into NFR has shifted from voluntary towards mandatory reporting as a reaction to regulatory changes and legislative initiatives (Fortanier *et al.*, 2011; Doni and Gasperini, 2015), with the EU NFRD serving as an important example of this change (Lombardi *et al.*, 2021). The implementation of NFRD across 27 member states is expected to improve the scope and quality of reporting, particularly with regard to companies which were lagging behind more transparent peers. This is often the case for companies that operate in countries where NFR remains in its infancy, is perceived as an additional cost or is not under pressure from powerful and influential stakeholders, such as NGOs. The ultimate goal of NFRD is to encourage companies to develop a responsible approach to business and trigger improvements in both transparency as well as ESG performance (La Torre *et al.*, 2020).

The literature supports the effect of mandatory NFR on the scope (but not necessarily the quality) of disclosure (Carungu *et al.*, 2021; Chelli *et al.*, 2018; Criado-Jiménez *et al.*, 2008; Frost, 2007), while also recognising some limitations of the introduced legislation (Baret and Helfrich, 2019; La Torre *et al.*, 2020). Nevertheless, there is a gap in the existing literature as to the effects of NFR legislation on corporate ESG performance (Tang and Demeritt, 2018).

We contribute to the literature on NFR by addressing this gap and testing the first group of hypotheses, assuming a positive link between mandatory NFR and overall ESG performance, as well as its ESG dimensions on a sample of 43 companies. The results of the panel model reveal that ESG performance is higher for the period after the implementation of the NFRD in comparison to the pre-directive period. The difference-in-differences analysis reveals that the improvement is larger for companies subject to the legislation in terms of the overall ESG performance and environmental and social dimensions, in particular. However, no link is found for governance performance. We associate this result with the fact that while Polish companies were lagging behind their EU peers with regard to social and environmental disclosure prior to the introduction of NFRD, corporate governance best practice has been well institutionalised in this market, with the respective guidelines published by WSE back in 2002. A relatively higher mean governance Refinitiv score for our sample supports this argument.

The results appear to be particularly important for contexts similar to the Polish institutional environment, characterised by a low pre-directive record of NFR, with only 5% of listed companies publishing non-financial reports in 2016 (Aluchna *et al.*, 2018; Aluchna and Roszkowska-Menkes, 2019). As we recognise that the NFRD effect may be delayed in the subsequent years of observations (and the practice of mandatory sustainability

reporting) as a result of decoupling processes, we tested the second group of hypotheses, which assume that the positive effect of NFR legislation and ESG performance is stronger in subsequent years (2018 and 2019) than in the first year. Similarly to the first group of hypotheses, we examined the overall ESG performance and its individual components – environmental, social and governance performance. The analysis was conducted on the subsample of companies subjected to the legislation. The results support our assumptions – there is no statistically significant effect in the first year of NFRD enactment in all of the areas under consideration, i.e. in terms of overall ESG performance and the separate ESG components. We note a positive association between overall ESG performance and the year dummy of 2018 and 2019, which represent the second and third year of enactment of mandatory NFR legislation. In addition, a positive link between environmental performance and the year dummy is noted for 2019, whereas for social performance it is for the year dummy 2018 and 2019. We do not find a positive NFRD effect in the case of governance performance.

In summary, we interpret the results as evidence for a positive effect of mandatory non-financial disclosure legislation. Our findings are in line with the evidence from China provided by Chen *et al.* (2018). In particular, overall ESG performance and social performance improved in the second and third years after the implementation of the NFRD. The effect for environmental performance is noted for the third year of mandatory sustainability legislation. This delay in performance improvement may suggest that companies require time to introduce transparency principles into organisational structures. The evidence from the UK market provided by Tang and Demeritt (2018) support this argument. The authors find that while the obligation of carbon reporting among UK-based publicly listed companies has triggered changes to internal business processes, it did not lead to the effective curbing of greenhouse gas emissions themselves. Internal change is a prerequisite for a company to exert a positive impact on its environment, but there might be a delay between organisational change and enhanced sustainability performance in the long term. Following the premise by Fiss and Zajac (2006), companies may reveal the effect of coupling processes motivated by external compliance pressure and internal stakeholders experiencing identity transformation.

The results offer evidence of the promising role of mandatory frameworks in countries characterised with underdevelopment of voluntary non-financial disclosure. They provide support for the institutional perspective on legitimacy that is perceived not as a strategic resource, but as a set of beliefs constituting organisations and their practice. Our findings suggest that transnational legislation promoting sustainability logic has potential to redefine the business-society contract, even in environments strongly dominated by market logic and focused on self-interest and shareholder value maximisation (Kok *et al.*, 2017; Thornton *et al.*, 2012). This potential, as we can observe using the example of NFRD, can be fulfilled without the introduction of any strong enforcement mechanisms. Though, as noted above, conformity with the new social norms may require time for coupling processes to occur. In this context our study provides support for arguments on the temporary character of decoupling, viewed merely as a phase in the institutionalisation process (Haack *et al.*, 2012).

Our paper reveals some limitations. Firstly, due to the infancy of sustainability disclosure in Poland and limited availability of data, we analyse a small sample of companies covered by the new legislation on mandatory reporting and examine three years of reporting practice under the regime of NFRD. Possible further research should investigate a larger population of companies and analyse the regulation effect in a longitudinal study. Secondly, we examined a single-country sample of companies which revealed relative underdevelopment of both sustainability reporting (Aluchna and Roszkowska-Menkes, 2019)

and sustainability performance. Thus, our analysis is based on observations with a relatively low base level from which a profound improvement is more likely. We recognise that the performance improvement may not remain linear, and the strength of the legislation effect may change over time. Furthermore, with a greater number of companies disclosing sustainability performance in a comparable format, the strength and direction of the effect of NFRD may be different. Thirdly, our analysis uses ESG performance scores that are affected by companies' disclosure levels. As such, it does not allow us to fully distinguish between the legislation's effect on reporting practice and its impact on actual performance. Acknowledging this limitation, we encourage further studies that validate our conclusions with more in-depth, qualitative investigation as to what extent regulatory efforts to promote NFR alter organisational strategies and processes. Finally, the possibility of testing the effect of sustainability reporting regulation on sustainability performance in different institutional environments offers interesting avenues for further research.

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