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INSTITUTONAL ISOMORPHISM AND CSR REPORTING OF SMALL AND MEDIUM SIZED ENTERPRISES

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Institutional Isomorphism and CSR Reporting of Small and Medium Sized Enterprises

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Abstract: In this paper, we investigate the direct and indirect effects of the EU-wide mandatory CSR reporting reform (2014/95/EU). We argue and find that, in addition to direct effects, coercive pressure also has spillover effects. An example of such a spillover effect of coercive pressure due to the reform is the change in reporting behavior of firms not subject to the reform, i.e., not directly coerced by the regulation. We exploit the Swedish implementation of the reform as a natural experiment to test our hypotheses and find that firms coerced by the reform increase their CSR reporting by 3.5 issues on average. However, firms not coerced by the regulation but close to being regulated increase their CSR reporting by 5.2 issues. As such, firms close to being regulated change their behavior more at the time of the reform than do those that are actually regulated. We also find that the spillover effects are significantly higher for low than high prereform reporters. On the other hand, the direct effects on low prereform reporters are insignificant. Together, the results refine our understanding of the institutionalization process of CSR reporting in a mandatory setting. The results are robust for various model specifications and provide useful insights for regulators and managers.

Keywords: SMEs, CSR, NFRD, Isomorphism, Natural experiment, Manufacturing industry

1. Introduction

In recent years, corporate reporting of environmental, social, and governance (ESG) or sustainability-related activities (CSR hereafter)[1] has increasingly become mandated around the world (Jackson et al., 2020). One of the recent large-scale reforms of mandatory reporting of CSR issues was the European Union (EU)-wide Nonfinancial Reporting Directive 95/2014/EU (commonly known as the NFRD). Such changes in the institutional environment (i.e., moving from a voluntary to a mandatory reporting regime) exert direct coercive pressure on firms subjected to such reforms. The primary aim of this coercive pressure is to foster reporting on CSR issues among large firms and improve the comparability of their reporting (European Union, 2014). Several studies have investigated such direct effects of the NFRD (*e.g.,* Caputo et al., 2020; Carini et al., 2018; Doni et al., 2020; Fiechter et al., 2022; Hummel and Rötzel, 2019; Ren et al., 2022; Venturelli et al., 2020). However, we do not know if coercive pressures, such as from the NFRD, also have indirect effects (often referred to as spillover effects) on firms not directly affected by the new directive. For example, we do not know how the CSR reporting behavior of small and medium-sized enterprises (SMEs) that were not subject to the NFRD but operate in a similar institutional environment is affected by the new directive (Aureli et al., 2020; Ren et al., 2022). Spillover effects are common in financial regulatory reforms (Chen et al., 2013) and for various

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[1] By the term "CSR" we refer to notions, activities, policies, and intentions that firms undertake for their impact on society and the environment. There are numerous definitions of CSR in the literature, all of which are very similar; what varies is the social construct of CSR in a specific context (Dahlsrud, 2008), among other things primarily due to changing agency relationships. CSR, ESG and sustainability are often used interchangeably but encompass slightly different things; CSR is wider and more normative in nature compared to the others. Nonetheless, the term "CSR" is more frequently used in the literature to refer to environmental, social, and governance-related issues (Fifka, 2013; Hahn and Kühnen, 2013; Huang and Watson, 2015).

types of regulatory or other changes in the firms environment (Baicker, 2005; Mihaescu and Rudholm, 2020). Nonetheless, whether this also applies to CSR reporting is an outstanding empirical question.

Neo-institutional research suggests that coercive, mimetic, and normative pressures in the environment of a firm or organization drive isomorphism (DiMaggio and Powell, 1983). The NFRD is constructed in such a way that SMEs are exempt from the reform and thus face no direct coercive pressure to change their CSR reporting behavior. However, despite the exemption, some SMEs are exposed to institutional environments similar to those of large firms, such as the stock market. Therefore, they may still be influenced by these institutional environments and alter CSR reporting practices in response to coercive pressures from powerful stakeholders (e.g., shareholders and financiers, large customers, etc) other than regulators (Sari et al., 2021). We refer to this pressure as spillover coercive pressure because shareholders and financiers can generally impose firm-specific directives (Sari et al., 2021), such as by introducing mandatory CSR reporting as a financing requirement. In addition, this kind of exposure may induce mimetic pressure on SMEs' reporting behavior, as they are uncertain about how the CSR reporting required by the legislator might affect the performance of the regulated firms and whether and to what extent they should change their behavior to adapt (Shabana et al., 2017). Taken together, the reform induces forces on two groups of firms (large firms that are directly subject to the reform and SMEs that are not subject to the reform) that share the same institutional environment, and could thus also affect CSR reporting in both groups. Our study investigates this phenomenon by anchoring on institutional isomorphism theory and exploiting the Swedish implementation of the NFRD as a natural experiment.

To investigate whether firms, even if they are not directly subject to the reform, increase their CSR reporting after the reform, we exploit the change in the institutional environment due to the implementation of the NFRD in the Swedish manufacturing industry. We argue that firms directly affected by the reform will increase their CSR-reporting due to the direct coercive pressure to do so. We also argue that firms not subject to the reform but close to the thresholds of the reform are likely to increase their CSR reporting to a larger extent relative to firms further removed from the regulation thresholds due to stronger spillover coercive and mimetic pressures. After the reform, uncertainty over possible future changes in the regulation put mimetic pressure on SMEs in the spillover group, and could also make shareholders and financiers put coercive pressure on nonregulated SMEs to close the gap in CSR reporting to the regulated firms. These pressures are also likely stronger for SMEs in the quartile of the spillover group closest to the reform threshold, as they are more likely to be affected if or when the legislator changes the CSR reporting threshold. Finally, based on previous research (Fiechter et al., 2022), we also argue that firms with low CSR reporting before the reform should be affected the most by regulation such as the NFRD.

To empirically test our hypotheses, we estimate the average treatment effect of the reform using a generalized difference-in-difference (DiD) model, which allows us to test both the direct and indirect effects of the reform. The direct effect refers to the impact of coercive pressures on large firms subject to the reform. The indirect effect, on the other hand, refers to the impact of the reform on SMEs not subject to the reform. To rule out the influence of general CSR reporting trends on our results, we include a sample of international manufacturing firms (control group) from outside the EU. To measure firms' CSR activities and related reporting, we build a comprehensive CSR disclosure index by manually coding the annual reports of the sample firms. We use the sustainability standards accounting boards' (SASB) framework of material CSR issues

as a thematic framework for the content analysis and classify the substantive reporting of these CSR issues by the different groups of firms. Our sample consists of 856 annual reports from 157 manufacturing firms. Of these, 12 Swedish large firms were subject to the NFRD, 67 Swedish SMEs were not subject to the NFRD, and 78 international firms were in the control group, accounting for 71, 341, and 444 annual reports, respectively. The study period covers the years 2014 to 2020, where 2014 to 2016 are the prereform years and 2017 to 2020 are the postreform years of the NFRD.

We find that after the reform, firms not subject to the NFRD (i.e., SMEs in our sample) but close to the reform threshold increased their CSR reporting more than did firms subject to the NFRD (i.e., large firms in our sample). Specifically, we find that, on average, large firms increased their substantive reporting on 3.5 material CSR issues, while SMEs close to the reform threshold increased their reporting on 5.2 material CSR issues but from a considerably lower initial level. As such, we find support for our hypothesis that a regulatory change in the institutional environment may induce spillover coercive and mimetic pressures in addition to the direct coercive pressures of the reform. Direct coercive pressure affects firms subject to the reform, while spillover coercive and mimetic pressures affect firms not subject to the reform but in close proximity to it. We also find that the effect is substantially higher for SMEs with low prereform reporting than for SMEs and large firms with high prereform reporting. On the other hand, large firms with low prereform reporting did not significantly change their reporting behavior, contrary to the findings of Fiechter et al. (2022).

This study contributes to the literature in three ways. First, we extend the CSR reporting literature by studying the effects of a mandatory CSR reporting reform also on firms that are not directly subject to its enforcement. Accordingly, we develop a more comprehensive understanding

of the effect of mandatory CSR reporting regulations, such as the NFRD. Some previous studies have focused on voluntary CSR reporting (Christensen et al., 2021), while those that have examined mandatory CSR reporting (*e.g.,* Caputo et al., 2020; Carini et al., 2018; Doni et al., 2020; Fiechter et al., 2022; Hummel and Rötzel, 2019; Ren et al., 2022; Venturelli et al., 2020) shed light only on the direct effects of such reforms.

Second, our study contributes by adding new insights into the factors that influence SMEs' sustainability reporting behavior. It is important to understand how SMEs respond to changes in the institutional environment (Hamann et al., 2017), such as the NFRD. Moreover, while these regulations are almost always targeted toward larger listed firms and exempt SMEs to reduce their administrative burden, indirect effects such as those we find in this research are likely to increase costs and the administrative burden for SMEs as well. In addition, this study unveils how SMEs differ from large firms regarding how they report their social and environmental responsibility (Preuss and Perschke, 2010).

Third, the effects of the mandatory NFRD on firm-level CSR activities constitute an interesting issue for organization research (Jackson et al., 2020). We advance the institutional isomorphism literature on why firms respond differently to their institutional environments (Delmas and Toffel, 2008; Reid and Toffel, 2009). Specifically, we find that there are direct and spillover coercive pressures and mimetic pressures that influence the NFRD diffusion process, where direct coercive pressure affects large firms and spillover coercive and mimetic pressures affect SMEs. The reform has a larger effect on SMEs that are close to the regulation threshold than for directly regulated firms; however, the effect on SMEs is reduced and eventually becomes statistically insignificant as firms become further removed from the regulatory thresholds. A plausible explanation is that firms close to the regulation thresholds encounter more spillover

coercive and mimetic pressure than do firms further removed when the reform is introduced. For example, firms adjacent to the regulation threshold could within a short time also be included in the group of regulated firms, which increases the uncertainty for the management of the firm while also potentially affecting shareholders and financiers. With these findings, we thus provide a more refined picture of institutional isomorphism in the context of the coercive institutionalization of CSR reporting.

The remainder of the paper is organized as follows. A description of the NFRD and the Swedish setting are in section 2, theoretical underpinnings and the development of hypotheses are in section 3, the empirical design is described in section 4, the results are presented in section 5, and concluding discussions are provided in section 6.

2. NFRD and the Swedish setting

The NFRD was the first large-scale transition to mandatory reporting of CSR, affecting 28 EU member states. Most member states adopted the reform such that it only affected large firms with more than 500 employees. However, Sweden chose to implement one of the lowest threshold levels for the NFRD among the EU/EEA countries, as firms with more than 250 employees are subject to the NFRD. Other exceptions include Iceland (also greater than 250) and Greece with an extended requirement for firms with more than 10 employees. However, it must be noted here that Iceland's threshold levels for net turnover and balance sheet totals are well over Sweden's threshold, and Greece's thresholds are more geared toward micro firms. In terms of GDP, Sweden is also more comparable to other EU member states, such as Austria, Belgium, Denmark, Finland, and Ireland. Nonetheless, the employee threshold level in all of these countries is greater than 500. Therefore, the Swedish setting makes it possible to test the hypotheses developed in the following

section, especially those related to firms not subject to the NFRD and primarily consisting of SMEs. Table 1 compares the EU directive to the adaptation in Sweden.

Table 1. EU directive and adaptation in Sweden.

Scope	EU directive 2014/95/EU	Adaptation in Sweden
Size threshold for firms requiring mandatory reporting	Defined as exceeding 2 out of 3 of the following criteria for 2 successive accounting periods: average number of employees of 500 a net turnover of EUR 40 million, or a balance sheet total of EUR 20 million	Defined as exceeding 2 out of 3 of the following criteria for 2 successive accounting periods: Employees: over 250 Net turnover: over SEK 350 million (EUR 34); or Balance sheet total: over SEK 175 million (EUR 17)
Firm type	Public-interest entity 1. Trading transferable securities on the regulated market of any Member State, or 2. A credit institution, or 3. An insurance undertaking, or 4. Designated by a Member States as a public interest entity (PIE)	The reporting obligation applies to all types of firms or legal entities that fulfil at least two of the criteria regarding turnover, assets or numbers of employees, and is not limited to PIEs
Matters to include in the report	Environmental Social and employee matters Respect for human rights Anti-corruption and bribery matters	Environmental Social and employee matters Respect for human rights Anti-corruption and bribery matters
Reporting guideline	Firms must disclose, for each of the above four matters, the following information: A description of the group's business model A description of the policies pursued by the group in relation to those matters, including due diligence processes implemented The outcomes of those policies The principle risks related to matters linked to the group's operations including where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the group manages those risks Nonfinancial key performance indicators relevant to the business	The report shall contain: A description of the undertaking's business model Firm policies relating to nonfinancial matters, and the outcomes of those policies Principle risks related to nonfinancial matters and business activities Any nonfinancial KPIs which are used An explanation of the sums indicated in the financial statement which are relevant to corporate social responsibility

Swedish firms have a long-standing tradition of dealing with CSR issues due to earlier institutional changes (Gjølberg, 2009; Henriksson and Grunewald, 2020). For example, although Sweden implemented the NFRD on December 1, 2016, from 1998, Sweden required the Director's report section of the annual report to include information on environmental factors. Moreover, in 2002, the Swedish government launched the "Swedish Partnership for Global Responsibility" for Swedish firms to strengthen work on human rights, labor standards, environmental protection, and anticorruption based on the principles of the UN (Gjølberg, 2010). Since 2008, the Swedish government has required state-owned firms (and municipalities) to report on CSR issues according to the GRI standard (Swedish Ministry of Economic Affairs, 2007). Therefore, it can be argued that Swedish firms have a long-standing history of addressing CSR issues.

3. Theoretical underpinnings and hypothesis development

The diffusion of new ideas and practices among organizations within a field is a typical institutional isomorphism process (Boxenbaum and Jonsson, 2017). Institutional isomorphism accounts for why firms within a certain institutional environment act in an increasingly similar way (Meyer and Rowan, 1977), and DiMaggio and Powell (1983) propose three isomorphism pressures: coercive, mimetic, and normative.

Coercive pressure primarily stems from the demand of powerful actors for firms to adopt specific practices or otherwise face legitimacy problems or sanctions (Scott, 1995). State and regulatory agencies can coerce firms to follow regulations and guidelines (Reid and Toffel, 2009), and firms tend to comply with coercive pressure to obtain and maintain legitimacy, avoid regulatory sanctions, and be eligible for resources (Xie et al., 2020). On the other hand, mimetic pressures arise from uncertainty in the environment. To avoid uncertainty, firms are inclined to

mimic peers regarded as successful or influential in the environment. Last, normative pressures are associated with professional values and norms of what is widely considered best practices or moral duty (Suchman, 1995).

Accordingly, studies examining CSR reporting have often conceptualized its adoption and diffusion among firms as an institutionalization process driven by coercive, mimetic, and normative pressures (Shabana et al., 2017). However, most prior studies have focused on voluntary reporting (Christensen et al., 2019). In the voluntary context, coercive pressures faced by firms primarily emanate from stakeholders' increasing demand to close the gap between societal expectations and their CSR performance (Shabana et al., 2017). Firms then voluntarily engage in CSR reporting with the strategic purpose of ensuring organizational legitimacy and long-run survival (Chelli et al., 2018).

In recent years, we have witnessed the emergence of reforms mandating CSR reporting (Jackson et al., 2020) that gained momentum in part because of its advantage over voluntary reporting in promoting transparency (Chelli et al., 2018). Mandated regulations by governments generally specify uniform requirements (such as the kinds of information a firm must disclose) for all firms operating within a jurisdiction (e.g., within a country or union, such as the EU) and are enforced directly by state agencies. Therefore, firms within the jurisdiction of the reform, such as the NFRD, are likely to comply with regulatory changes to not only obtain and maintain legitimacy but also avoid regulatory sanctions (Scott, 1995). This leads to our first hypothesis:

H1: Firms subject to the NFRD on average increase their CSR reporting after the implementation of the reform, as they are coerced by regulation to do so.

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Reforms such as the NFRD are also likely to affect the perceptions of shareholders and financiers and other important stakeholders of a firm not directly affected by the regulatory change. This could push these firms to indirectly adapt to reforms, such as the NFRD, even though they have no legal obligation to do so. The pressure that emanates from primary stakeholders (e.g., shareholders or financiers, large customers, etc) may be regarded as spillover coercive pressure (Sari et al., 2021). Additionally, the NFRD infuses more complexity into the institutional environment, which increases uncertainty for firms. Such uncertainty is likely to lead to mimicking reporting behavior of regulated firms by nonregulated firms that have similar characteristics to those directly affected by the reform (DiMaggio and Powell, 1983). The uncertainty primarily emanates from what these firms should do in response to the expectations of society and stakeholders. There is increasing demand from society and stakeholders that requires firms to pay attention to the environmental and social performance of their businesses. Accordingly, even though these firms are not subject to the NFRD as such, they still need to obtain and maintain legitimacy in the eyes of stakeholders and are likely to do so by adapting their CSR reporting behavior even though they are not directly affected by regulatory changes, such as the NFRD. Shareholders and financiers could, for example, expect firms to increase their CSR reporting to maintain a competitive advantage in a business environment where increased CSR reporting could become a trend for all firms. If firms are uncertain about what is expected of them, a simple approach is to mimic what those subjected to the NFRD do to secure their legitimacy.

We argue that spillover coercive and mimetic pressures may also be contingent on the firm's distance from the regulation thresholds, and propose that firms close to the regulatory thresholds of mandatory CSR reporting face spillover coercive and mimetic pressures to a higher degree. Specifically, it is reasonable to expect that the threshold for exemption could be lowered

to cover more firms in the future considering the increasing demand from society and stakeholders regarding CSR issues. Some EU members have already applied lower thresholds for exemption, and the new EU Corporate Sustainability Reporting Directive, the CSRD, is expected to cover a wider set of firms than its predecessor, the NFRD (European Commission, 2021). Accordingly, it is very likely that firms close to the current reform threshold could be included in the mandatory reporting regulation in the near future, e.g., during the transition from the NFRD to the CSRD beginning in 2024. In addition, their proximity to the existing reform threshold also suggests a high chance for these firms to cross the critical point based on their natural growth tendency, and preparing for this early on could reduce uncertainty. Thus, spillover coercive and mimetic pressures could affect firms close to the edge of mandatory reporting, leading them to voluntarily adapt to the new regulation (Krause et al., 2019).

In contrast, firms further away from the threshold may engage less in CSR reporting because of their lower visibility and, therefore, lower susceptibility to spillover coercive and mimetic pressures. High visibility increases a firm's susceptibility to influences from the outside environment (DiMaggio and Powell, 1983). However, SMEs, compared to large firms, are less likely to be the targets of stakeholders promoting CSR, and SMEs are also less likely than large firms to be formally evaluated by stakeholders or to be discussed in the business press (Bhushan, 1989). Consequently, firms further away from the regulation thresholds are more likely to be immune from spillover coercive and mimetic pressures in their environment. Therefore, we hypothesize the following:

H2: Firms close to the NFRD reform threshold increase their CSR reporting more due to the reform than do firms further from the threshold, as they face stronger spillover coercion, or stronger mimetic pressure, to do so.

One of the main motivations for the implementation of the NFRD was that the comparability of CSR disclosures by firms in the EU needed to be increased (Fiechter et al., 2022). Specifically, the regulator noticed the heterogenity in the level and quality of existing CSR disclosures, and recognized "the need to raise to a similarly high level across all Member States the transparency of the social and environmental information provided by undertakings in all sectors" (Directive 2014/95, recital 1). As such, one goal of the new regulation was to increase the number of CSR issues reported on, especially by firms with low prereform reporting. Prior studies have also suggested that mandatory CSR reporting requirements, such as the NFRD, are positively correlated with the volume of CSR reporting at the time of implementation (Ottenstein et al., 2022), and that firms with previously low CSR reporting should be affected the most by the NFRD (Fiechter et al., 2022), leading to our third hypothesis:

H3: The NFRD reform has a more pronounced impact on firms with lower than higher prereform CSR reporting.

4. Empirical design

4.1. Sample selection

To test the hypotheses, we exploit the implementation of the NFRD in Sweden, creating a natural experiment that allows us to draw causal inferences (Pischke and Angrist, 2009). The sample consists of all Swedish-listed manufacturing firms, both large (subject to the NFRD) and SMEs

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(not subject to the NFRD), and a sample of internationally listed manufacturing firms (control group) from outside the EU. At the time of the data collection, some of the annual or sustainability reports for some SMEs in the final sample could not be retrieved either due to missing links, errors on the webpage, or other reasons beyond the control of the researchers.[2] Multiple attempts were made to collect the missing reports with partial success, which means that some firms had missing reports for some years. However, there is no reason to believe that the reports were missing systematically and thus should not significantly impact the results of the study (Greene, 2012). The financial data were collected from the Refinitiv Eikon database, and the annual and sustainability reports were hand-collected from the respective firms' websites and manually coded by research assistants and vetted by the researchers (as explained in section 4.2).

4.1.1. Treated group: Swedish large firms and SMEs

In Sweden, the NFRD was implemented on December 1, 2016, with the first reporting requirement applying to the accounting year starting in 2017 (i.e., firms exceeding the size thresholds in 2015 and 2016 were subject to the NFRD in 2017). As such, the sample period for the study is chosen to cover the years 2014 to 2020 to allow for a reasonably long pre and postreform period. During this period, 102 manufacturing firms were listed on the Stockholm stock exchange under various market caps, of which 14 were subject to the NFRD.[3] The researchers hand-collected the annual or sustainability reports for 12 and 67 unique large firms and SMEs, respectively, from firm websites. A total of 104 reports were written in English, and 330 reports were written in Swedish.

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[2] Reports for 21 SMEs were not retrievable.

[3] We also exclude two exceptionally large Swedish manufacturing firms—Volvo Group and Electrolux—to reduce the influence of extreme values in our empirical work.

Table 2 shows the sample distribution for the different groups across the study period. A total of 71, 341, and 444 reports were collected and coded for Swedish large firms, Swedish SMEs, and international firms, respectively, for 2014 to 2020.

Table 2. Sample distribution of unique manufacturing firms' annual reports.

Year	Swedish large firms	Swedish SMEs	Control group	Total
2014	9	30	52	91
2015	10	41	57	108
2016	10	49	60	119
2017	11	50	63	124
2018	12	54	71	137
2019	10	59	71	140
2020	9	58	70	137
Total	**71**	**341**	**444**	**856**

4.1.2. Control group: International firms

In the next step, the Refinitiv Eikon database was used to identify international manufacturing firms that were not cross-listed in the EU and thus not subject to the NFRD and that had an observation for the original NFRD reform variables (i.e., number of employees, total assets, and net sales) for at least two pre and postreform periods to avoid an overly unbalanced panel. A total of 114 such manufacturing firms were identified, and the annual and sustainability reports were hand collected from firm websites for 78 firms. The remaining 36 firms either had reported in a language other than English or had no accessible reports. The number of unique firms (reports) from the various jurisdictions outside the reform area was 3 (21) for Australia, 6 (42) Canada, 3 (8) China, 9 (49) Hong Kong, 2 (14) India, 2 (14) Israel, 2 (5) Japan, 1 (5) Thailand, and 50 (286)

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United States of America. Past studies that have investigated the effect of the NFRD generally used only US firms as controls (e.g., Fiechter et al., 2022). However, our setup allows for a more diverse control group, which is likely to result in more accurate estimations of the reform effect.

4.2. CSR disclosure index

The CSR disclosure index used is constructed specifically to achieve the purpose of this paper. Most previous studies in this strand of literature have used various proprietary CSR indices (e.g., Fiechter et al., 2022), such as Bloomberg; Kinder, Lydenberg and Domini Research & Analytics, and Thomson Reuters' Asset4ESG to proxy for CSR reporting across various issues. Many researchers have also used their own constructed measures (e.g., Clarkson et al., 2008). For most firms included in the analysis, no third-party rankings were available since these proprietary sources primarily rank large firms. Moreover, these proprietary indices are not always transparent (Hummel and Schlick, 2016), are often arbitrary and have high autocorrelation in rankings between the years (Li and Wu, 2020), and the ratings of the same firms across various rating agencies suffer from substantial heterogeneity (Christensen et al., 2022). Something especially problematic for the empirical design of the current study is that an increase in CSR reporting worsens the disagreement between the various rating agencies according to Christensen et al. (2022). We build our index to measure firm-level CSR-related reporting to mitigate these issues.

4.2.1. Framework for thematic analysis of CSR reporting

According to the Swedish implementation of the NFRD (Annual Accounts Act, chapter 6, paragraphs 10-11), if a firm exceeds the specified threshold levels, CSR-related information should be included in the management report section of the annual report. If such information is not

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included in the management report section, then a reference as to where such information can be found should be provided. Specifically, the information should include *how* firms work with *climate change, social conditions, human rights, corruption, and diversity*. The instructions in the NFRD on how to report on these issues are, however, rather vague and incomplete. Moreover, given that the reporting is principle-based and that the areas are very broad, firms could discuss a range of topics across these issues. Many researchers have worked around this issue by developing thematic coding schemes based on the Global Reporting Initiative guidelines or other dictionary approaches. We opt to base our coding scheme on the materiality map provided by the SASB. The SASB focuses on financially material issues that often matter the most to investors, and past studies have shown that an investor approach to determining materiality is also predominantly applied in nonfinancial reporting (Lindgren et al., 2021), primarily stemming from the long tradition of such a focus in financial reporting (Brown and Dillard, 2015; Harrison and Smith, 2015; Mitchell et al., 2015; Zeff, 1978). Past studies have also shown that investors value such information (Khan et al., 2016). The SASB framework thus allows the construction of a more comparable index for CSR reporting for the three groups of firms. Moreover, in coding, we use all CSR issues identified by the SASB to be material for any sector instead of only choosing the issues identified as material for the manufacturing sector. This to some extent mitigates the concern that issues that are material for other stakeholders are ignored. There could still be an issue if there are CSR issues not identified by the SASB as material for any sector. However, that is unlikely, as the SASB followed a rigorous consultation process to identify the CSR issues included in its materiality matrix. The SASB reporting framework identifies material CSR issues across five dimensions, which are further divided into a total of 32 subdimensions (i.e., CSR issues), as presented in Table 3.

Table 3. SASB CSR dimensions and corresponding subdimensions

SASB CSR dimensions	CSR subdimensions
Environment	*GHG emissions, air quality, energy management, water management, wastewater management, waste management, hazardous materials management, ecological impacts*
Social conditions	*community relations, customer privacy, data security, access affordability, product quality, product safety, customer welfare, selling practices,* and *product labeling*
Human capital	*labor practices, employee health safety, employee engagement, employee diversity,* and *employee inclusion*
Business model and innovation	*impacts of climate change, materials sourcing, materials efficiency, product design, product life cycle management, business model resilience,* and *supply chain management*
Leadership and governance	*business ethics, competitive behavior,* and *risk management*

4.2.2. Coding structure and descriptive statistics of CSR reporting

The reports were coded bottom-up across these 32 subdimensions, i.e., coded as "1" if a firm disclosed information and "0" otherwise. The subdimensions were then totaled across their respective higher dimensions, indicating total reporting within a dimension. We implement the coding in the following manner. For the reports of the Swedish large firms and SMEs, we first read the management report section of the annual report and consequently any other section or sources (e.g., sustainability report or firm website) that it directed to for such information. For reports in the control group, given that the firms are not subject to the NFRD, they are not required

by law to disclose any CSR information in the management section of the annual report. Thus, we use a keyword search using the 32 subdimension keywords of the SASB and then read the subsequent highlighted parts of the reports. We code the information in the following manner: in the first step, two research assistants were allocated 60 reports each at random, 20 from each group, and coded the information across the 32 subdimensions from the SASB framework. A firm received a score in any of the 32 subdimensions only when it provided substantive information regarding a particular CSR issue. CSR reporting can be symbolic, substantive or a mixture of both. Symbolic CSR reporting is ceremonial in nature, while substantive reporting can be referred to as information on actual actions or future planned actions or the results of actions (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Suchman, 1995). We consider a piece of information to be substantive when a firm provided sufficient details on a particular CSR issue, e.g., how the issue is or will be addressed or the impact or effect of an issue, and not merely for mentioning that a firm addressed one such issue or aims to address one issue in the future. Afterward, two researchers analyzed the concordance and discordance in the coding, and a third researcher was consulted in case of disagreements. Finally, the researchers randomly selected 15 reports from each of the three groups to check the consistency in coding. Table 4 below gives summary statistics of the various CSR disclosures for the different CSR dimensions and subdimensions. Our main interest variable, $CSRdisclosure_{it}$, measures the total CSR issues disclosed by firm i in year t.

On average, in the aggregate, large firms reported 19 CSR issues (out of 32) with a standard deviation of 7.6, SMEs reported 3.4 issues with a standard deviation of 4.2, and firms in the control group reported 6.1 issues with a standard deviation of 7.7.

Table 4. Descriptive statistics of CSR reporting

Variables	Swedish large firms		Swedish SMEs		Control group	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
SASB aggregate	**18.94**	**7.61**	**3.40**	**4.24**	**6.08**	**7.70**
SASB Environment	**3.58**	**1.88**	**0.47**	**1.03**	**1.00**	**1.69**
GHG emissions	*0.66*	*0.48*	*0.12*	*0.33*	*0.22*	*0.41*
Air quality	*0.27*	*0.45*	*0.03*	*0.17*	*0.07*	*0.26*
Energy management	*0.69*	*0.47*	*0.13*	*0.34*	*0.23*	*0.42*
Water management	*0.41*	*0.50*	*0.06*	*0.24*	*0.12*	*0.32*
Waste water management	*0.14*	*0.35*	*0.02*	*0.15*	*0.04*	*0.21*
Waste management	*0.75*	*0.44*	*0.06*	*0.23*	*0.15*	*0.38*
Hazardous materials management	*0.51*	*0.50*	*0.02*	*0.15*	*0.11*	*0.31*
Ecological impacts	*0.15*	*0.36*	*0.02*	*0.14*	*0.04*	*0.21*
SASB Social Capital	**3.37**	**1.78**	**0.51**	**0.96**	**1.00**	**1.57**
Community relations	*0.54*	*0.50*	*0.02*	*0.14*	*0.12*	*0.32*
Customer privacy	*0.13*	*0.34*	*0.01*	*0.08*	*0.03*	*0.16*
Data security	*0.54*	*0.50*	*0.05*	*0.22*	*0.13*	*0.34*
Access affordability	*0.21*	*0.41*	*0.05*	*0.21*	*0.08*	*0.27*
Product quality	*0.79*	*0.41*	*0.18*	*0.38*	*0.29*	*0.45*
Product safety	*0.80*	*0.40*	*0.06*	*0.25*	*0.19*	*0.40*
Customer welfare	*0.17*	*0.38*	*0.11*	*0.31*	*0.12*	*0.32*
Selling practices	*0.00*	*0.00*	*0.01*	*0.09*	*0.01*	*0.09*
Product labeling	*0.20*	*0.40*	*0.01*	*0.09*	*0.04*	*0.20*
SASB Human Capital	**3.27**	**1.50**	**0.31**	**0.90**	**0.82**	**1.52**
Labor practices	*0.46*	*0.50*	*0.02*	*0.14*	*0.10*	*0.30*
Employee health safety	*0.89*	*0.32*	*0.10*	*0.30*	*0.24*	*0.43*
Employee engagement	*0.65*	*0.48*	*0.06*	*0.23*	*0.16*	*0.37*
Employee diversity	*0.89*	*0.32*	*0.09*	*0.29*	*0.24*	*0.42*
Employee inclusion	*0.38*	*0.49*	*0.04*	*0.18*	*0.09*	*0.29*
SASB Business Model and Innovation	**3.55**	**2.12**	**0.45**	**1.03**	**0.98**	**1.74**
Impacts of climate change	*0.68*	*0.47*	*0.13*	*0.34*	*0.22*	*0.42*
Materials sourcing	*0.41*	*0.50*	*0.04*	*0.21*	*0.11*	*0.31*
Materials efficiency	*0.58*	*0.50*	*0.06*	*0.02*	*0.15*	*0.36*
Product life cycle management	*0.32*	*0.47*	*0.01*	*0.12*	*0.07*	*0.25*
Product design	*0.72*	*0.45*	*0.11*	*0.32*	*0.22*	*0.41*
Business model resilience	*0.21*	*0.41*	*0.06*	*0.23*	*0.08*	*0.28*
Supply chain management	*0.63*	*0.49*	*0.03*	*0.17*	*0.13*	*0.34*
SASB Leadership and Governance	**2.20**	**0.84**	**0.72**	**0.70**	**0.98**	**0.92**
Business ethics	*0.54*	*0.50*	*0.04*	*0.18*	*0.12*	*0.33*
Competitive behavior	*0.70*	*0.46*	*0.09*	*0.29*	*0.20*	*0.40*
Risk management	*0.96*	*0.20*	*0.59*	*0.49*	*0.66*	*0.48*

4.3. Statistical model

From the theory, we know that there are coercive, mimetic, and normative pressures driving isomorphism (DiMaggio and Powell, 1983), and our statistical model must thus control for all these pressures. The NFRD is constructed in such a way that the pressure driving isomorphism is coercive by regulation for firms above the regulation threshold. For firms in the affected geographical area but under the threshold, isomorphism can be driven by, for example, ownership or financing—which we term spillover coercion as it has its basis in regulatory reform but is not directly caused by the NFRD—or is mimetic in nature. As such, all firms in the regulated area (Sweden) are considered to be affected by the regulation, but for different reasons.

To incorporate these features into our econometric model, we create two treatment group variables, TG1 and TG2. The first, TG1, equals one for firm-years when a firm in the regulated geographical area (Sweden) is above the regulatory threshold and zero otherwise. The second, TG2, equals one for firm-years in the regulated geographical area when a firm is below the regulatory threshold and zero otherwise. As such, the first treatment variable is used to measure the impact of the introduction of the NFRD on CSR reporting when the pressure driving isomorphism is due to regulatory coercive pressure, while the second treatment variable is used to measure the impact of the introduction of the NFRD on CSR reporting when the pressure driving isomorphism is spillover coercive or mimetic pressure.[4]

We use a DiD model (Card and Krueger, 1994) in our main analysis and estimate several variants of *equation 1*, which can be written as follows:

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[4] Regarding normative pressures on firms, we regard these as more global societal trends and use time-specific fixed effects to control for their impact on CSR reporting when estimating the impact of the NFRD on the CSR reporting of Swedish firms.

$$CSRdisclosure_{it} = \beta_0 + \beta_1 TG1_i * TP_t + \beta_2 TG2_i * TP_t + \gamma_i + \gamma_t + \varepsilon_{it} \qquad (1)$$

where $CSRdisclosure_{it}$ is the total CSR issues disclosed by firm i in year t obtained through the manual content analysis; $TG1_i$ equals one for Swedish firms above the NFRD regulation size threshold and zero otherwise; $TG2_i$ equals one for Swedish firms below the NFRD regulation threshold and zero otherwise; TP_t indicates the pre and postreform periods and equals one in postreform periods and zero otherwise; γ_i are firm-specific fixed effects controlling for time-invariant heterogeneity among firms; and γ_t are year-specific fixed effects. The firm-level fixed effects thus control for possible heterogeneity among firms in all three groups (TG1, TG2 and control group firms) for variables such as growth ambitions, leadership skills, access to internal and external capital, firm's geographical location, year of firm entry, etc., given that they are (at least roughly) constant over the years under study. The year-specific effects control for global trends in CSR reporting among other time-related events that, for example, are due to normative pressures on firms.

Since we are interested in estimating the total effect of the reform on CSR reporting, our estimations do not include any control variables. The reason for this is straightforward: either the potentially included variables are completely unrelated to the treatment indicator variables and thus have no impact on the estimate of the reform effect; or they are related, causing some of the reform effects to be captured by the parameter estimates for these control variables. However, if this is the case, the parameter estimates for the treatment indicator variables no longer measure the total reform effect; instead, they measure the reform effect after controlling for the added variables, giving biased estimates of the total reform effect parameters. The issue of bad control, including

relevant references, is discussed in more detail in Appendix 2. There we also show that including control variables leads to a significant downward bias in the treatment effect estimates.

Our main parameters of interest are β_1 and β_2, which measure the reform effects in the first and second treatment groups, respectively. β_1 and β_2 measure the average change in the number of CSR issues reported on by firms in the two treatment groups relative to their own reporting in the pretreatment period and relative to the reporting of firms in the control group over the whole period under study. In applied research, this type of DiD estimator is one of the most frequently used tools for evaluating the effects of interventions on the relevant outcome variables (Abadie, 2005). The specification in *equation 1* is also used to estimate year-by-year treatment effects for TR1 and TR2 using 2014 as the base year. All these estimations are used to test *hypothesis 1*.

However, while β_2 measures the average reform effects of the NFRD on CSR reporting for the second treatment group, it is important to realize that this group is quite heterogeneous, with some firms close to the regulatory thresholds and others far from it. As such, the degree of spillover coercive and mimetic pressures driving isomorphism could differ considerably within this group of firms. Thus, we divide the second treatment group firms into quartiles based on how far they are from the regulation threshold. Firms in the fourth quartile are close to the threshold, while firms in the first are furthest from it.[5] We then run the regression:

$$CSRdisclosure_{it} = \beta_0 + \beta_1 TG1_i * TP_t + \beta_2 TG2\_Q4_i * TP_t + \beta_3 TG2\_Q3_i * TP_t +$$

$$\beta_4 TG2\_Q2_i * TP_t + \beta_5 TG2\_Q1_i * TP_t + \beta_i + \beta_t + \varepsilon_{it} \qquad (2)$$

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[5] A description of how the division into quartiles is done can be found in Appendix A2.

where the variables $TG2\_Q4_i$, $TG2\_Q3_i$, $TG2\_Q2_i$, and $TG2\_Q1_i$ are indicator variables equal to one for firms belonging to each quartile and zero otherwise. $TG2\_Q4_i$ indicates being closest to the reform threshold, while $TG2\_Q1_i$ indicates being furthest away. Thus, β_2 in *equation 2* measures the average change in reported CSR issues for the firms in the quartile closest to the regulation threshold relative to their prereform reporting and relative to the firms in the control group for the whole period under study. These estimations are used to test *hypothesis 2*.

Finally, as noted by Fiechter et al. (2022), firms subjected to the reform but with a lower level of prereform reporting might be more affected by the introduction of the NFRD (*hypothesis 3*). To investigate this issue, we follow Fiechter et al. (2022), divide our sample into low and high prereform reporting groups, and re-estimate *equation 2*. If *hypothesis 3* is true, we expect that the parameter estimates for the reform effects in the two treatment groups, TG1 and TG2, are larger when using the low prereform reporting sample than the high prereform reporting sample.

5. Results

5.1. Trend analysis

The identifying assumption in the DiD regression models presented in *equations (1)* and *(2)* is that, in the absence of treatment, the outcome variable for firms in the treatment and control groups would have exhibited parallel trends. The development of CSR reporting in the absence of the introduction of the NFRD in Sweden is of course impossible to observe empirically for the Swedish firms for the years following the reform; however, we can observe the trends in CSR reporting for both the treatment and control group firms in the years leading up to the reform.

In Figure 1, we report the average number of CSR issues for each group and year. As shown in Figure 1, the trends are parallel for all groups in the 2014 to 2015 period leading up to the reform. However, we also see that for firms in the TG1 group, i.e., firms coerced by regulation,

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CSR reporting clearly increases in 2016, one year before the regulation was implemented. A prereform adjustment of CSR reporting is also what Fiechter et al. (2022) found when studying the implementation of the NFRD across the EU. It is difficult to pinpoint the precise causes of the prereform adjustment, but possible reasons include internal learning by the affected firms, as well as the public attention raised by the passing of the directive (Fiechter et al., 2022). A possible problem arising from the prereform adjustments in the first treatment group (TR1) is that this makes us underestimate the treatment effect. As such, we also present year-by-year treatment effect estimates in Figures 2 and 3 below.
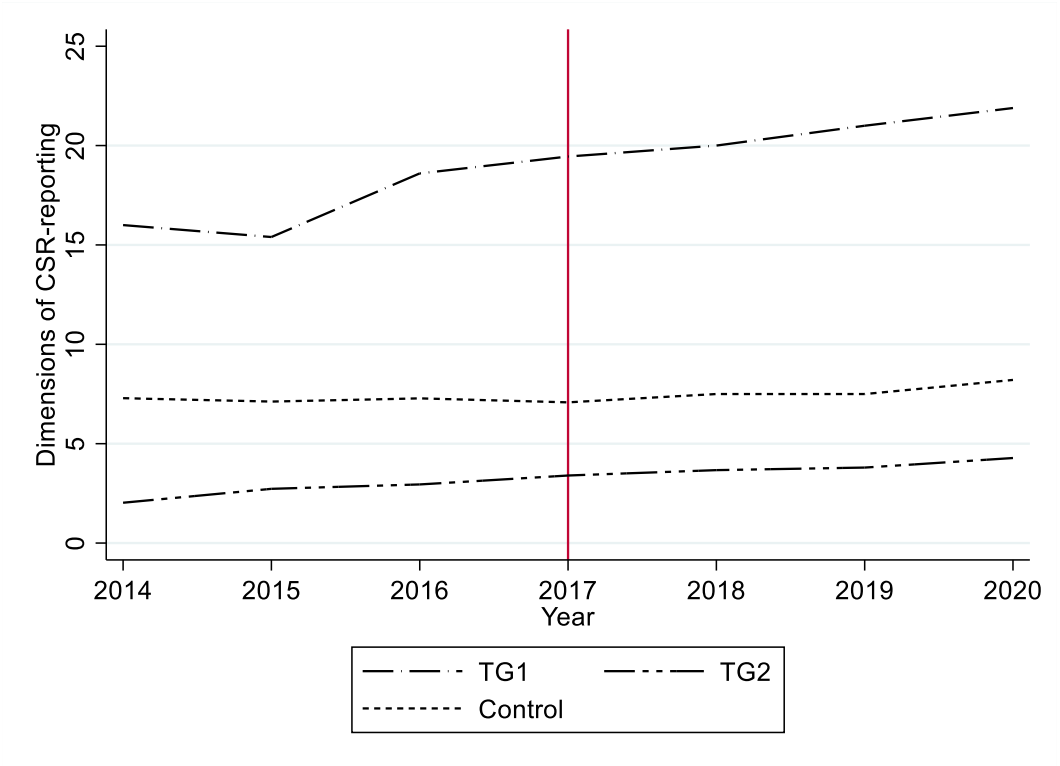
Figure 1. Trends in CSR reporting, TG1, TG2 and control**.**

5.2. Test of hypotheses

In this section, the estimation results of *equation (1)* are presented in Table 5, M1, while the results from a year-by-year treatment effect variant of *equation 1* are presented in Figures 2 and 3, respectively. Model M1 presents the estimation results using the full sample of firms. The results show that the introduction of the NFRD increased the number of CSR issues reported on for the firms coerced by regulation by, on average, 3.2 issues, while we find no significant effect of the NFRD in the second treatment group related to firms affected by spillover coercion or mimetic pressure.

These results are in line with the time trends in CSR reporting for the different groups (TR1, TR2, and Control) presented in Figure 1. We see that CSR reporting is higher after than before the introduction of the NFRD for the TR1 group. However, we see no changes in average CSR reporting in the TR2 or control groups. We also see that the firms in the TR1 group started adjusting their CSR reporting behavior in 2016, one year before the formal implementation of the NFRD in Sweden.

To investigate this further, we rerun the estimation of *equation 1*, now estimating the year-by-year treatment effects for TR1 (presented in Figure 2) and TR2 (Figure 3) using 2014 as the base year. Here, the results show an increase in CSR reporting by 2.71 issues in 2016, and the effect is statistically significant at the 5% level. The estimates of the effect for the years after the formal implementation in 2017 show that the number of CSR issues reported increased by approximately 4 in 2017, 2018, and 2020, with a somewhat higher increase of 5.07 issues in 2019. Additionally, note that since 2016 is included in the prereform period in the original estimation, the estimated reform effect in that estimation is slightly smaller than those reported year-by-year due to the prereform adjustment in 2016. In summation, we find that irrespective of whether we

make the estimations comparing pre and postreform periods or year-by-year, the large firms coerced by regulation (TR1) increase their reporting of the number of CSR issues, supporting *hypothesis 1*.

Table 5. Estimation results of the implementation of NFRD on firm disclosure.

	M1	M2	M3a	M3b
	Full sample	Firms closer to reform vs. further away from reform threshold	Firms with lower than mean disclosure in pre-NFRD period	Firms with higher than mean disclosure in pre-NFRD period
Dependent variable	*CSRdisclosure*	*CSRdisclosure*	*CSRdisclosure*	*CSRdisclosure*
$TG1_i * TP_t$	3.2074***	3.4771***	3.6287	3.7841***
	(1.0806)	(1.0750)	(2.2848)	(1.2598)
$TG2_i * TP_t$	0.5263	-	-	
	(0.3482)			
$TG2\_Q4_i * TP_t$	-	5.1797**	7.4143**	1.4880**
		(2.4725)	(3.2246)	(0.7535)
$TG2\_Q3_i * TP_t$	-	1.2897**	1.3961*	-0.3113
		(0.6330)	(0.7544)	(0.4974)
$TG2\_Q2_i * TP_t$	-	0.1994	-0.3030	0.4482
		(0.4425)	(0.5204)	(0.4733)
$TG2\_Q1_i * TP_t$	-	0.1369	-0.3168	-1.1923
		(0.2970)	(3648)	(0.7677)
Constant	6.0936***	6.0731***	2.8802***	11.1994***
	(0.2242)	(0.2254)	(0.2331)	(0.4399)
Firm-level fixed-effects	Yes	Yes	Yes	Yes
Year-specific fixed-effects	Yes	Yes	Yes	Yes
No of observations	856	856	521	335
R-squared (within)	0.1262	0.1595	0.2154	0.1722

Note: significance level of parameter estimates: *** 1%, ** 5%, and * 10%; robust standard errors in parentheses
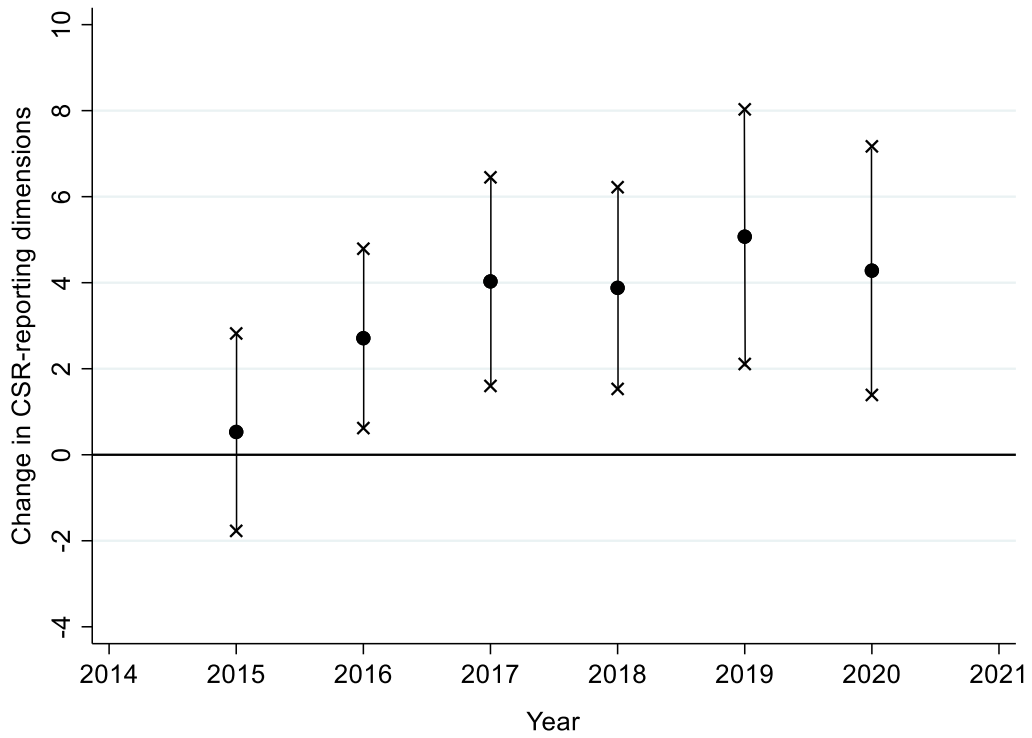
Figure 2. Estimation results of the implementation of NFRD on firm disclosure, TR1, year-by-year with 2014 as the base year.
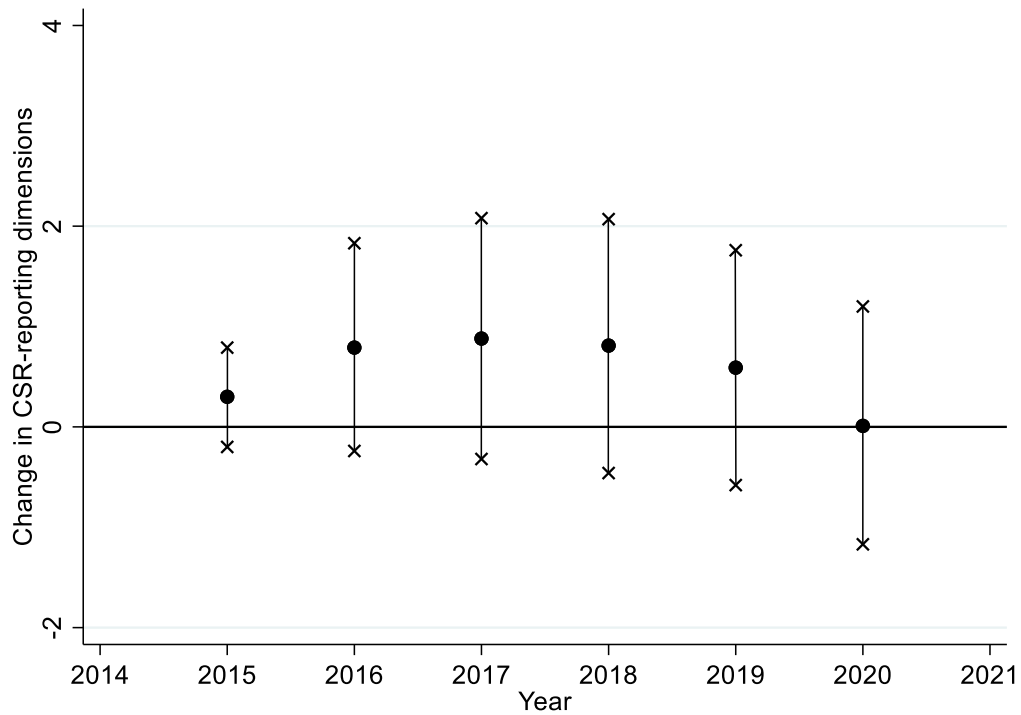
Figure 3. Estimation results of the implementation of NFRD on firm disclosure, TR2, year-by-year with 2014 as the base year**.**

However, neither of these estimations (M1 in Table 5 or Figure 3) indicates that firms not directly subjected to the reform changed behavior due to the introduction of the NFRD. Also, when grouping together all firms below the reform threshold, the second treatment group (TR2) consists of very heterogeneous firms regarding their faced isomorphic pressure. Some firms are very small in size and likely to never be subject to formal regulations, while some firms are very close to the regulation threshold and might even be on a growth path, making them likely to surpass the threshold in the coming years. Accordingly, we find it more likely that a group of firms close to the regulation thresholds change their behavior at the introduction of the NFRD than do firms far from the threshold.

To investigate this issue, we estimate *equation 2* and divided the second treatment group firm indicator (TG2) variables into quartiles (*TG2_Q4$_i$ to TG2_Q1$_i$*), where the fourth quartile (TG2_Q4$_i$) equals one for the firms closest to the NFRD regulation threshold. We choose to divide the data into quartiles since the impact on CSR reporting need not be linear (or be well-represented by any other smooth functional form) in the distance from the regulation threshold within the TR2 group, and the result from this estimation is presented in Table 5, M2. Here, we find that firms in the fourth quartile (TG2_Q4$_i$) increased their CSR reporting by 5.18 issues, while those in the third quartile (TG2_Q3$_i$) increased their reporting by 1.29 issues, both statistically significant at the 5% level. For the lower quartiles, we find no statistically significant effects, and the point estimates are also close to zero. Our results thus suggest that there are spillover coercive and mimetic pressures to increase CSR reporting for firms close to the regulation threshold but less so for firms at a distance from the regulation threshold, clearly supporting *hypothesis 2*. That the effect is larger in the fourth quartile than for firms directly affected by the regulation is likely due to differences in average CSR issues reported at the time of the new regulation. The data show that firms in the fourth quartile of the second treatment group reported on approximately 2.6 CSR issues in the preregulation period, while the directly affected firms reported on more than 15 CSR issues.

Firms with lower prereform reporting might be more affected by the introduction of the NFRD, which was also noted by Fiechter et al. (2022). To investigate this issue, they divided their sample into firms with low and high prereform reporting, and their results show that firms in the low prereform reporting group increased their reporting more due to the NFRD. We follow Fiechter et al. (2022) and divide our sample into low- and high prereform reporting groups, and the results are presented in Table 5, M3a and M3b, respectively. Contrary to Fiechter et al. (2022), we find no evidence of a stronger reform effect for low prereform reporting firms directly affected

by the new regulation (TR1). However, firms in the second treatment group with low prereform reporting and close to the regulation threshold (TG2_Q4$_i$, low) increased their CSR reporting by 7.41 issues, while those in the group of high prereform reporting (TG2_Q4$_i$, high) increased their CSR reporting by only 1.49 issues (both significant at the 5% level). For the firms in the third quartile (TG2_Q3$_i$), those in the low prereform reporting group increased their reporting by 1.40 issues, statistically significant at the 5% level, while no statistically significant effect was found for the high prereform reporting group. Our findings thus lend partial support to *hypothesis 3*, which states that firms with low initial CSR reporting are more affected by the NFRD regulation but only for nonregulated firms close to the regulatory thresholds.

6. Summary and conclusion

Institutional isomorphism attempts to explain why firms within a certain institutional environment act in an increasingly similar way due to various forms of institutional pressures (Meyer and Rowan, 1977), e.g., coercive, mimetic, and normative pressures (DiMaggio and Powell, 1983). Some have argued that those pressures are homogenous and affect all firms in an equal way (Boxenbaum and Jonsson, 2017), while others have argued that they might be heterogeneous, which could lead firms to respond differently (Greenwood et al., 2010). The demand for CSR reporting has long been in a setting where the institutional pressure was largely normative and mimetic in nature, i.e., not legally sanctioned. The EU-wide NFRD reform has, however, made CSR reporting coercive in nature. One empirical question is then whether coercive pressure affecting firms not directly subject to the reform (i.e., primarily listed SMEs in our setting), potentially interacting with mimetic pressure, could affect these firms' CSR reporting behavior. We argue this to be the case and that changes in the institutional environment for SMEs not subject to directly coercive changes such as the NFRD still have an impact on their CSR reporting.

We find that firms close to the reform threshold, but not directly subject to the reform, increased their CSR reporting more than those further removed from the reform thresholds. As such, we find support for our hypothesis that a coercive change in the institutional environment may induce both direct coercive and spillover coercive and mimetic pressures. Direct coercive pressure affects firms subject to the reform, while spillover coercive pressure and mimetic pressures affect firms that are not subject to the reform but are in proximity of the reform. In fact, we find the spillover effect to be stronger than the direct coercive effect. For example, SMEs close to the reform threshold on average increased their CSR reporting on more than 5 issues, while large firms subject to the reform on average increased their CSR reporting on more than 3.5 issues.

We also find that the reform effect is substantially higher for SMEs with low preform reporting than for SMEs and large firms with high preform reporting. On the other hand, large firms with low preform reporting did not significantly change their reporting behavior, contrary to the findings of Fiechter et al. (2022). Specifically, SMEs with low preform reporting and closest to the reform threshold increased their CSR reporting by 7.41 issues, while those in the group of high preform reporting increased reporting by only 1.49 issues. The effect diminishes as SMEs move further away from the reform threshold. Together, the results show that institutional change in CSR reporting requirements leads to heterogeneous effects (Greenwood et al., 2010), as the magnitude of the effects varied greatly both within and between the intended and unintended target groups.

These results also indicate that SMEs increase CSR reporting to manage stakeholder expectations and uncertainty after the reform. While an increase in CSR activities might be desirable, additional CSR reporting also increases the administrative burden for SMEs, and one

reason to exclude SMEs from the NFRD was to avoid placing additional administrative burden on SMEs (European Union, 2014).

Finally, together, the results raise questions about the effectiveness of such reforms, as has also been voiced in previous research (e.g., Carini et al., 2018; Venturelli et al., 2020). One of the main ambitions of the reform was to increase CSR reporting in large firms that were not considered doing enough compared to their impact on society and the environment (European Union, 2014), i.e., to get large firms with low prereform CSR reporting to change their behavior. However, our results show that the reform did not significantly affect the CSR reporting of such firms. On the other hand, the reform led SMEs not subject to the reform to increase their CSR reporting, which is likely to have increased their administrative burden and costs. These results should also be of interest to regulators and managers, especially in light of the CSRD, which not only infuses stricter coercive pressure than the NFRD but is also likely to directly affect more than 50000 European firms as opposed to some 1000 firms targeted by the NFRD. The implementation of the CSRD is then likely to also assert spillover coercive and mimetic pressures on an even wider set of firms.

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Appendices

Appendix A1. The issue of bad control

Variable selection is critical in designing well-specified empirical models (Whited et al., 2022). To get this correct, an empirical model must include all relevant variables to avoid omitted variable bias. However, including inappropriate variables might instead cause what Ayres (2005) and Whited et al. (2022) termed included variable bias, sometimes also referred to as bad control bias in the economics literature (Pischke and Angrist, 2009; Angrist and Pischke, 2015; Cinelli et al., 2022; Gelman et al., 2020; Imbens and Rubin, 2015). To avoid both issues, we follow the suggestion by Greene (2012) and Withed et al. (2022) and let theory guide what is important to include in the empirical model.

From the theory, we know that there are coercive, mimetic, and normative pressures driving isomorphism (DiMaggio and Powell, 1983), and our statistical model must thus control for all these pressures. The NFRD is constructed in such a way that for firms above the regulation threshold, the pressure driving isomorphism is coercive by regulation. For firms in the affected geographical area but under the regulation size threshold, the pressure driving isomorphism can be either coercive due to, for example, ownership of financing, or mimetic in nature. To incorporate these factors into our econometric model, we create two treatment group variables, TG1 and TG2. The first, TG1, equals one for firm-years when a firm in the regulated geographical area (Sweden) is above the regulation threshold and zero otherwise. The second, TG2, equals one for firm-years in the regulated geographical area when a firm is below the regulation threshold and zero otherwise. We regard normative pressures on firms as more of global societal trends and use time-specific fixed effects to control for their impact on CSR reporting when estimating the impact of the NFRD on the CSR reporting of Swedish firms. As such, our econometric model controls all factors important according to the theory.

However, variables controlling for firm size, profits, leverage, firm growth, etc., are often included in econometric models even if they are not part of the underlying theory. A potential problem is then that one might include variables that are themselves affected by the primary variable under study, i.e., they are themselves either mediators or outcomes of the "experiment" at hand, causing endogeneity that biases the estimate of the primary variable of interest (Pischke and Angrist, 2009).

Most previous studies on how the NFRD affects CSR reporting have included firm size and firm growth as control variables. However, firm size is paramount when creating the treatment variables of interest and are also affected by firm growth over time. We are interested in estimating the total effect of introducing the NFRD on CSR reporting. If we then also include firm size and firm growth into our model, even if it is not the exact same firm size variable used to determine the NFRD thresholds, we introduce variables that are likely mediators of the causal effect of the NFRD on CSR reporting, partially blocking the very effect we are trying to estimate (Cinelli et al., 2022). Even if size and growth are not direct mediators, they could still be descendants of the introduction of the NFRD since firms could potentially decide to opt out of treatment if near the size threshold, which then also biases our treatment effect estimates (Cinelli et al., 2022; Pearl, 2009).

Thus, our main model does not include any of the control variables common in the literature; however, to make direct comparisons to previous studies (e.g., Caputo et al., 2020; Fiechter et al., 2022; Venturelli et al., 2020) possible, we include control variables for firm size, leverage, profit, and growth and re-estimate *equations 1* and *2*. The size of the firm is controlled by using the *log of total assets,* while *leverage* is calculated as *total debt* over *total assets*. We measure *profit* as the *return on total assets*, and *growth* is calculated as the year-by-year growth in *sales* from year *t* to *t+1*. We use one-year lagged values in the estimations to reduce the risk of these variables being correlated with the error term of the regression equation. Note that the

first three of these variables all include firm size, which could cause problems according to the discussion above, while *growth* could itself be an outcome of the experiment at hand, causing bias in the estimates of the treatment effects (Pischke and Angrist, 2009).

The results from these additional estimations are reported in Table A1:1 below and show that the estimate of the impact of the treatment variable for firms directly affected by the regulation in our preferred model is reduced from 3.48 to 2.45, a reduction of 29.6%. For the treatment variables related to firms being in the quartile closest to the regulation threshold, we find a reduction from 5.18 to 3.78, equaling a reduction of the estimated treatment effect of 27.0%. As such, although the included controls were not (in most cases) statistically significant in the estimations, they still induced a more than 25% change in the estimates of the main variables of interest in our preferred model.

Table A1.1. Estimation results of the implementation of NFRD on firm disclosure, with controls.

	Full sample	Firms closer to reform vs. further away from reform threshold	Firms with lower than mean disclosure in pre-NFRD period	Firms with higher than mean disclosure in pre-NFRD period
Dependent variable	*CSRdisclosure*	*CSRdisclosure*	*CSRdisclosure*	*CSRdisclosure*
$TG1_i * TP_t$	2.0999*	2.4792*	1.4111**	2.7788*
	(1.2954)	(1.3079)	(0.6284)	(1.1302)
$TG2_i * TP_t$	0.0119	-	-	-
	(0.3032)			
$TG2\_Q4_i * TP_t$	-	3.8456*	5.9224**	1.2713
		(2.2642)	(2.8225)	(1.2693)
$TG2\_Q3_i * TP_t$	-	0.3110	0.6025	-1.4930**
		(0.5920)	(0.7285)	(0.4933)
$TG2\_Q2_i * TP_t$	-	-0.3086	-0.5445	-0.4966
		(0.4348)	(0.5604)	(0.4961)
$TG2\_Q1_i * TP_t$	-	-0.2338	-0.3879	-2.5737***
		(0.3066)	(0.4374)	(0.5268)
Size	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Leverage	-0.0500	-0.0397	0.2703	0.0179
	(0.1677)	(0.1782)	(0.7743)	(0.1653)
Profit	-0.0001	0.0008	-0.0007	4.9618*
	(0.0012)	(0.0013)	(0.0016)	(2.5768)
Growth	0.0371	0.0426*	0.0242	0.0567
	(0.0249)	(0.0228)	(0.0250)	(0.0414)
Constant	6.1714***	6.1704***	3.2695***	10.833***
	(0.2076)	(0.2063)	(0.2145)	(0.4356)
Firm-level fixed-effects	Yes	Yes	Yes	Yes
Year-specific fixed-effects	Yes	Yes	Yes	Yes
No of observations	679	679	420	259
R-squared (within)	0.0930	0.1218	0.1405	0.1925

Note: significance level of parameter estimates: *** 1%, ** 5%, and * 10%; robust standard errors in parentheses

Appendix A2. Distance to reform (i.e., NFRD threshold)

We first determine how far the firm is from the NFRD threshold in terms of the number of employees by calculating (i):

$$DistanceEmp_{it} = \frac{No\ of\ employees_{it}}{250} \qquad (i)$$

Next, we determine how far the firm is from the NFRD threshold in terms of net sales by calculating (ii):

$$DistanceSales_{it} = \frac{Net\ sales_{it}}{350\ mil} \qquad (ii)$$

Next, we determine how far the firm is from the NFRD threshold in terms of total assets by calculating (iii):

$$DistanceAssets_{it} = \frac{Total\ assets_{it}}{175\ mil} \qquad (iii)$$

Given that regulated firms need to be above the employee threshold and either one of the net sales and total assets thresholds, we define the index $DistanceDecay_i$ as follows:

$$RefDist_{it} = \frac{DistanceEmp_{it} + (DistanceSales_{it}\ OR\ DistanceAssets_{it})}{2} * 100 \qquad (iv)$$

All values of the variable $RefDist_{it}$ above 100 are set to 100. The remaining observations are divided into four quartiles for the range of values of $RefDist_{it}$ equal to 99.99-75 (Q4), 74.99-50 (Q3), 49.99-25 (Q2), and 24.99-0 (Q1). As such, firms with values in the range of 99.99-75 are closest to the NFRD threshold, while firms in the range of 24.99-0 are furthest away from the NFRD threshold. The second treatment group firm indicator variables are finally divided into these quartiles (TG2_Q4$_i$ to TG2_Q1$_i$), where the fourth quartile (TG2_Q4$_i$) equals one for the firms closest to the NFRD regulation threshold.