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# Effect of mandatory sustainability performance disclosures on firm value: Evidence from listed European firms

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[Correction added on 31 May 2024, after first online publication: Affiliation 2 was added to Madhavan Vishnu Nampoothiri in this version.]

## Abstract

Corporate Sustainability Performance (CSP) reporting is becoming increasingly important to investors who seek to identify and invest in companies that are managing their Environmental, Social and Governance (ESG) risks effectively. The European Union's Non-Financial Reporting Directive (NFRD), which was implemented in 2017, mandates that certain large companies must disclose their sustainability performance. This study examines the impact of the EU NFRD on the firm value of listed European firms using a difference-in-differences regression model. We find that the mandatory disclosure of corporate sustainability performance does not significantly affect firm value at an aggregate level. However, the results suggest minor inter-industry differences, which can be attributed to varying sustainability performance metrics across industries. These findings contribute not only to the nascent literature on mandatory sustainability disclosures but also to the deliberations of policymakers and regulators across the world who are devising and implementing mandatory corporate sustainability performance disclosure regulations.

## KEYWORDS

corporate social responsibility, ESG, firm value, mandatory disclosure, non-financial reporting, sustainability

## 1 | INTRODUCTION

Companies have long been involved in Corporate Social Responsibility (CSR) and reporting their Corporate Sustainability Performance (CSP). Critics like Milton Friedman (1970) argue that CSR is a wasteful expense that does not benefit shareholders, and that the sole purpose of a firm is profit maximization. On the other hand, proponents of stakeholder capitalism like Freeman (1984) argue that long-term shareholder wealth can be created only by considering the interests of all stakeholders. In 2019, a prominent group of CEOs in the US expressed support for a shift towards prioritizing stakeholders over shareholders (Business Roundtable, 2019).

Stakeholder capitalism is not solely driven by financial market investors but also by government regulations aiming to improve

governance and reduce information asymmetry regarding non-financial performance between market participants and other stakeholders. To ensure ideal financial markets with perfect information, countries worldwide have started implementing mandates requiring firms to disclose non-financial performance alongside financial information. European Union (EU) member countries have been at the forefront of mandatory disclosure regulations.

In October 2014, the EU issued Directive 2014/95/EU (European Union, 2014), also known as the Non-Financial Reporting Directive (NFRD, n.d.). The directive aimed to improve transparency, relevance, consistency, and comparability of non-financial information disclosed by large public interest companies and groups. Around 11,700 entities, which include listed companies, banks, insurance companies, and public-interest entities, are covered by this directive. All EU member

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states adopted the directive by 2016, making non-financial reporting mandatory for eligible European firms in 2017. The NFRD serves as the predecessor to the CSRD, which is one of the key pillars of the EU Sustainable Finance framework, with non-financial information disclosure being a foundation for this framework (European Commission, 2021).

Prior to the implementation of the NFRD in 2017, Corporate Social Responsibility (CSR) disclosures were voluntary. In 2017, of the world's top 250 revenue-generating companies, 93% had published Corporate Sustainability Performance (CSP) reports, with a significant increase in reporting over the preceding decade (KPMG, 2017). In the European Union, Corporate Social Responsibility (CSR) disclosures were voluntary until 2017. The absence of regulations allowed firms to selectively disclose Corporate Sustainability Performance (CSP), resulting in reporting practices that were mostly symbolic rather than substantive (Michelon et al., 2015). While firms that already voluntarily disclosed such information may be less affected, the implementation of the CSR disclosure mandates like the EU NFRD incurs resources and additional costs for firms reporting for the first time (Grewal et al., 2018). However, limited evidence exists regarding the effectiveness of corporate social responsibility (CSR) mandates (Christensen et al., 2021).

In this study, we investigate the impact of non-financial disclosure mandates on the value of listed European firms that had not voluntarily disclosed prior to the 2017 mandate. The analysis is conducted in two stages, initially evaluating the regulation's effect on firm value without considering industry-wide variations, which is followed by industry-specific analysis. To address our research questions, we employ difference-in-difference regression techniques, examining changes in firm value (Tobin's Q) before and after the mandatory disclosure, regulations came into effect in 2017. The control group comprises firms that voluntarily disclosed environmental and social performance in countries implementing disclosure regulations for the first time in 2017, as well as all firms in countries with pre-existing regulations. The treatment group includes firms that began disclosing environmental and social performance after the mandate's implementation.

The findings of this study indicate that the mandatory disclosure of corporate sustainability performance does not have a significant impact on overall firm value. This suggests that the costs associated with mandatory reporting are balanced by a commensurate rise in firm value, thereby alleviating concerns about a potential reduction in firm value as a result of the implementation of the disclosure regulations. However, the result of the research suggests the existence of variations in the influence of disclosure mandates on firm value among different industries. These variations can be attributed to the diverse corporate sustainability performance metrics adopted across industries, which are not currently encompassed within the framework of the EU Directive.

This study contributes to existing literature by offering empirical evidence regarding the influence of mandatory CSR reporting on the value of companies within the framework of the NFRD. By investigating the specific effects on different industries, it extends our

understanding of the linkages between disclosure requirements and firm value.

The remainder of the paper is organized as follows: Section 2 reviews the existing literature, identifies research gaps and presents the research questions. The data and methodology are described in Section 3, while the results are presented in Section 4. Section 5 discusses the results, implications, key contributions of the paper and areas for further research, and Section 6 concludes the paper.

## 2 | LITERATURE REVIEW AND RESEARCH QUESTIONS

### 2.1 | Literature review

A key objective of mandatory disclosure regulations is to reduce the information asymmetries between firms, and their investors (current and future) and other stakeholders. Corporate disclosure helps in reducing the information asymmetries in several ways, including leveling the playing field among investors, making it easier to estimate future cash flows, improving risk sharing in the economy, facilitating the monitoring of managers by outsiders and in enabling better comparison with other firms in the sector (Christensen et al., 2021). While a significant body of literature on multiple dimensions of corporate disclosure exists, the focus of our research is the effect of mandatory non-financial disclosures on firm value. These non-financial disclosures pertain to a firm's corporate sustainability performance (CSP). Even though a large number of firms have been reporting their CSP voluntarily, mandatory disclosures are a recent phenomenon.

Many firms voluntarily disclosed sustainability information to showcase their sustainability credentials and attract investors with sustainability criteria for investment, in line with signaling theory (Verrecchia, 2001). Disclosure of financially material information is crucial for reducing information asymmetry between a firm's management and the financial markets (Beyer et al., 2010; Leuz & Wysocki, 2016). Clarkson et al. (2013) and Plumlee et al. (2015) found that incremental and high-quality environmental disclosure positively influenced firm valuation for selected US firms. Bachoo et al. (2013) reported a positive association between future performance and the quality of sustainability reporting for Australian firms.

Hummel and Schlick (2016) discovered that companies with strong sustainability performance use high-quality sustainability disclosure to signal their superior performance, while those with weaker performance may resort to low-quality disclosure to conceal their true performance and maintain perceived legitimacy. Research has examined the market response to voluntary CSR disclosures and their impact on firm value. Studies by Clark and Allen (2012), and Ameer and Othman (2012) reported a positive correlation between sustainability reporting and firm value. Loh et al. (2017) concluded that sustainability reporting is positively related to firm value for Singapore-listed companies. Not all signaling in CSR has a positive impact. DesJardine et al. (2020) found that CSR signals can be costly, and activist hedge funds often target socially responsible firms.



A study of listed German firms by Velte (2017) on how the ESG performance influences the financial performance found mixed evidence. The study also analyzed the individual pillars of ESG and reported that the Governance pillar had the strongest impact on financial performance compared to the Environmental and Social pillars. Verbeeten et al. (2016) analyzed CSR disclosures of German companies and found that social information disclosure had a positive association with firm value, while environmental disclosure did not.

Most studies on the CFP-CSP relationship rely on voluntary CSR disclosures, as mandatory reporting requirements for non-financial metrics have been relatively recent. Voluntary disclosures may not be reliable or useful for investors, as firms have discretion to selectively disclose positive information (Verrecchia, 2001). In recent years, governments have mandated certain forms of CSR disclosure. The influence of mandatory non-financial disclosure on firms can be both positive and negative, affecting their overall value. Positive effects of mandatory non-financial disclosure include improved operational efficiency and enhanced social and environmental performance, such as reducing workplace accidents, employee turnover, and carbon emissions. For investors, good non-financial performance provides opportunities and risk management benefits.

However, firms may face drawbacks such as increased costs, including investments in capabilities and systems for GHG emissions accounting, as well as meeting diverse stakeholder expectations. Fiechter et al. (2022) demonstrate that anticipated reactions to the EU CSR Directive led to short-term expense increases and reduced profitability. The findings of a pioneering study on Mandatory disclosures by Ioannou and Serafeim (2017) indicate that mandatory disclosures have improved both the quantity and quality of disclosure, as well as corporate value, highlighting the effectiveness of CSR disclosure mandates. However, the impact of these mandates on smaller firms and their information asymmetry is still uncertain. Barth et al. (2017), also reported a positive correlation between mandatory CSR disclosure and firm value.

A study of Chinese listed firms that were subject to CSR reporting mandated faced a reduction in future profitability even though environmental outputs improved (Chen et al., 2018). Jackson et al. (2020) analyzed the effects of nonfinancial disclosures on CSR in 24 OECD countries and found that countries with such disclosures had more CSR activities, but it did not necessarily reduce corporate irresponsibility. Krueger et al. (2024) document a positive effect of ESG or sustainability reporting mandates on firm-level stock liquidity and supports the argument that ESG disclosure regulations improves the information environment and has beneficial capital market effects.

Regarding European Union regulations, Grewal et al. (2018) found that equity markets believed that nonfinancial disclosure regulations would impose costs on firms with weak performance and disclosure. With the regulations already in place and nonfinancial disclosures available for some years, preliminary data can now be examined to assess if market perceptions align with reality. Fiechter et al. (2022) suggested that widespread adoption of CSR disclosure mandates had real effects across industries and geographies even before the official implementation. Mittelbach-Hörmanseder et al. (2021), also reported

a negative market reaction to mandatory disclosure in the European context.

Quite a few country-specific studies analyzed the impact of the NFRD on different corporate performance. Martinez and Vazquez (2023) found that the mandatory ESG reporting improves firms' corporate performance in Sweden. Aluchna et al. (2022) found that the ESG performance of Polish firms improved after the disclosure mandates came into effect. Papa et al. (2022) observed that the quality of environmental disclosure has improved for Italian firms.

As the non-financial disclosure mandates are relatively new, existing literature lacks research on the impact of mandatory disclosures on firm value and their effectiveness as policy tools. Grewal and Serafeim (2020) identified this as an area for further investigation. Eccles et al. (2012) highlighted the potential for inconsistent and potentially misleading disclosures when sector-specific standards are lacking. Rodriguez et al. (2017) found significant variations in sustainability disclosures across different industries. Certain sectors with high levels of energy and emissions intensity may face increased stakeholder scrutiny, prompting them to actively participate in CSR activities to improve their reputation (Kilian & Hennigs, 2014) and gain legitimacy (Du & Vieira, 2012).

## 2.2 | Theoretical framework

Academic literature has extensively explored the opposing concepts of Shareholder Primacy View and Stakeholder Theory. Stakeholder theory, proposed by Freeman (1984), emphasizes the importance of considering the interests of all stakeholders for a firm's intrinsic value. In the stakeholder paradigm, the financial markets would require the right quantity and quality of non-financial information to efficiently allocate capital based on firms' environmental, social, and governance (ESG) performance. However, information asymmetry and incentive problems can hinder this process.

According to the "Information Asymmetry" theory, an imbalance of information between buyers and sellers can lead to market failure (Akerlof, 1970). In financial markets, this information asymmetry, also known as the "lemons" problem, stems from differences in information and misaligned incentives between investors and investee firms. Addressing information asymmetry requires either voluntary or mandatory information disclosure. The European Union's Non-Financial Reporting Directive (NFRD) is a regulatory response to the information asymmetry problem in financial markets. By mandating that companies disclose certain non-financial information, the NFRD aims to level the playing field between investors and investee firms, leading to more informed decision-making with regard to the non-financial or sustainability performance of the mandated firms.

Conversely, "Agency theory" states that investors, as principals, do not actively manage business ventures but rely on company executives as agents to manage the company (Jensen & Meckling, 1976). Agency problems arise when the interests of principals and agents are misaligned, potentially leading agents to make decisions that benefit themselves but harm the principals' interests. Resolving agency

conflicts requires principals to have access to financially material information, which is typically reviewed periodically by a board of directors acting on behalf of the principals. In the context of non-financial information, managers or agents of firms may have incentives to emphasize positive ESG performance or withhold negative information due to concerns about negative investor response. Mandatory CSR disclosure regulations aim to address information asymmetry and the agency problem by requiring firms to disclose standardized and easily comparable CSR or ESG performance information. In summary, these theories provide a foundation for the mandatory disclosure paradigm.

A summary of the relationships between CSR reporting and firm value as identified by some of the prior studies from 2017 is provided in Table 1 below. The research papers from 2017 were chosen because it was the year when the EU NFRD came into effect. The summary also provides the theories used in this study.

## 2.3 | Research questions

Mandatory sustainability reporting is a relatively recent development, and its full impact as a regulatory mandate remains largely unexplored. There is still a limited amount of empirical evidence available regarding the tangible impacts of CSR reporting. (Christensen et al., 2021). Mandatory disclosure regulations impose additional costs on firms, including direct costs for preparation, certification, and dissemination of accounting reports, as well as indirect costs related to proprietary concerns when the disclosed information is used by stakeholders such as suppliers, labor unions, and competitors. While the costs incurred by reporting firms are tangible and immediate, the benefits of mandatory disclosure are uncertain and not clearly established. Better-quality disclosure has the potential to yield capital-market benefits such as improved liquidity, lower cost of capital, higher asset prices (or firm value), and potentially better corporate decisions, according to Christensen et al. (2021). However, the strength of the empirical evidence supporting these effects varies based on the specific economic context or outcome. Additionally, reporting firms may perceive these costs as negatively impacting their value.

To shed light on these effects, we conduct an analysis to estimate the impact of the European Union's Non-Financial Reporting Directive (NFRD), one of the pioneering regulations in this field, on the firms subject to the mandate. The NFRD, which came into effect in 2017, serves as a valuable case study to assess the disclosure-value relationship for firms covered by the directive after implementation. The European Commission has also provided non-binding guidelines to assist companies in disclosing non-financial information in a relevant, consistent, and comparable manner. These guidelines include examples and Key Performance Indicators (KPIs) for materiality, stakeholder orientation, business model, risk management, and the five topics of environmental, social, and governance performance.

Reporting firms have discretion in determining what non-financial information to disclose and in what format, and they may choose to follow global sustainability standards. The non-financial reports are

not required to undergo auditing, with the role of auditors limited to verifying the provision of a non-financial statement or separate report. One implication of this discretion is that firms can disclose the minimum information necessary for compliance, raising questions about the usefulness of the disclosed information for investors and its impact on the value of listed firms.

In this study, we aim to address two primary research questions to understand the impact of the NFRD on firm at an aggregate level and at specific sectorial level. We analyze whether the CSR disclosure mandated by the EU NFRD has influenced firm value (Tobin's Q) in the European context. We compare the value of European firms, which already were disclosing their non-financial performance before 2017 either voluntarily or due to country specific mandates with those that were not subject to such mandates in the European Union.

To summarize, the first research question is.

**Q1.** Do mandatory non-financial disclosures influence firm value?

The EU NFRD is sector agnostic, and it does not distinguish between high energy and emissions intensity industries on the environmental dimension, and between the social performance of firms in different industries. The rationale for a uniform non-financing reporting standard could be that the reporting requirements for all the sectors are likely to be similar, or the differences between sectors are minimal.

However, Eccles et al. (2012) posit that the establishment of materiality and reporting standards should be tailored to individual sectors, as a lack of sector-specific standards can lead to inconsistent and potentially misleading disclosures. Rodriguez et al. (2017) report significant differences in the frequency, quality, and focus of sustainability disclosures among various corporate sectors.

To understand the impact of the NFRD on different industrial sectors, we pose the second research question as follows.

**Q2.** Are there differences in the influence of the non-financial disclosures on the value of firms in different sectors?

## 3 | DATA AND METHODOLOGY

### 3.1 | Data

We collect financial and corporate data from Thomson Reuters for all active companies listed on major stock exchanges in 30 countries that adopted the EU CSR Directive by 2019. The differences in Good Governance across EU countries is accounted for by classifying the EU countries into four groups based on the timeframe in which the countries became integrated with the European Union's legal and regulatory system. This classification of the 30 European countries (EU-30) used in the study is based on the study by Ardielli and Halásková (2015). The 30 countries include the original EU countries (referred to

**TABLE 1** Summary of the relationships between CSR reporting and firm value from selected papers.

Sl. No	Author	Year	Title	Journal	Significance of positive or negative relationship	Industry dimension considered?	Theory adopted
1	Barth et al.	2017	The economic consequences associated with integrated report quality: Capital market and real effects.	Accounting, Organizations and Society	A positive correlation between mandatory CSR disclosure and firm value was reported.	No	Information Asymmetry theory, behavioral theory
2	Ioannou and Serafeim	2017	The consequences of mandatory corporate sustainability reporting	SSRN Scholarly Paper	Mandatory disclosures improved both the quantity and quality of disclosure, as well as corporate value.	No	Signaling theory
3	Velte	2017	Does ESG performance have an impact on financial performance? Evidence from Germany.	Journal of Global Responsibility	The influence of ESG performance on financial performance was mixed. Moreover, the Governance pillar had the strongest impact on financial performance compared to the Environmental and Social pillars.	No	Stakeholder theory
4	Grewal et al.	2018	Market reaction to mandatory nonfinancial disclosure.	Management Science	Equity markets believed that the EU nonfinancial disclosure regulations would impose costs on firms with weak performance and disclosure.	No	Voluntary disclosure theory, socio-political theory
5	DesJardine et al.	2020	Why activist hedge funds target socially responsible firms: The reaction costs of signaling corporate social responsibility.	Academy of Management Journal.	CSR signals can be costly, and activist hedge funds often target socially responsible firms.	No	Signaling Theory
6	Jackson et al.	2020	Mandatory non-financial disclosure and its influence on CSR: An international comparison.	Journal of Business Ethics	Countries with nonfinancial disclosures had more CSR activities, but it did not necessarily reduce corporate irresponsibility.	No	Neo-institutional theory
7	Mittelbach-Hörmanseder et al.	2021	The information content of corporate social responsibility disclosure in Europe: An institutional perspective.	European Accounting Review	A negative market reaction to mandatory disclosure in the European context was reported.	No	Legitimacy Theory
8	Aluchna et al.	2022	From talk to action: The effects of the non-financial reporting directive on ESG performance.	Mediterranean Accountancy Research	ESG performance of Polish firms improved after the disclosure mandates came into effect.	No	Institutional and Strategic perspectives of Legitimacy theory
9	Fiechter et al.	2022	Real effects of a widespread CSR reporting mandate: Evidence from the European union's CSR directive.	Journal of Accounting Research	Adoption of CSR disclosure mandates had real effects across industries and geographies even before the official implementation.	Yes	Signaling



TABLE 1 (Continued)

Sl. No	Author	Year	Title	Journal	Significance of positive or negative relationship	Industry dimension considered?	Theory adopted
10	Kreuger et al.	2024	The effects of mandatory esg disclosure around the world	SSRN Scholarly Paper	ESG disclosure regulations improves the information environment and has beneficial capital market effects.	No	Disclosure Theory

TABLE 2 Country Classification.

Country classification	EU country group	Countries
A	Original 15 (EU-15)	Belgium, France, Germany, Italy, Luxembourg, Netherlands, Denmark, Ireland, United Kingdom, Greece, Portugal, Spain, Austria, Finland, Sweden
B	Enlargement of 2004 (EU-25)	Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovakia, Slovenia
C	Enlargement of 2007 and 2013 (EU-28)	Bulgaria, Romania, Croatia
D	Members of European Economic Area (EEA) (EU-30)	Norway, Iceland

as EU-15) and the countries that joined in 2004 (referred to as EU-10), forming a set of countries known as EU-25 (which includes both the original EU-15 countries and the EU-10 countries). The categories of EU country groups that joined subsequently, and those countries that are not part of the EU but are part of the European Economic Area (EEA) are detailed in Table 2.

We collect year-end data for the two years preceding and the two years following the directive's implementation in 2017. Table 3 provides the details of the number of companies for each country before and after the disclosure mandate came into effect. This list excludes firms in the financial services sector, firms, which were listed in the stock exchange after 2016, and those firms for which sustainability disclosure data for 2016 was not available.

All the companies that had voluntary disclosure of sustainability in 2016 are classified as control group whereas the ones that did not have a sustainability report are classified as treatment group. The details of the companies assigned to the control group and treatment group are available in Table 4. The treatment group includes all the firms in the 27 countries that did not voluntarily disclose their sustainability performance prior to 2017 when the disclosure mandate came into effect. The control group includes two sets of firms, which were

disclosing their sustainability performance prior to 2017. The first set of firms in the control group includes all the firms in the same 27 countries that were voluntarily disclosing their sustainability performance before 2017. The second set consists of all the companies in the 3 countries, which already had sustainability disclosure mandates (UK, France and Denmark) and are considered as having voluntarily disclosed prior to 2017.

We use the Standard Industrial Classification (SIC, [n.d.](#)) codes of the companies for the purpose of industry-wise analysis. Financial institutions (SIC 6000–6999) are excluded from the analysis because of the difference in their accounting treatment of revenues and other financial metrics compared to non-financial firms. Table 5 provides the details of the number of companies in each industry.

The summary statistics for the overall data is given in Table 6, whereas the summary statistics for the treatment group (common to both the experimental settings) and the control group for one of the experimental settings (firms from all 30 countries) are given in Tables 7 and 8.

The pairwise correlation matrix for the independent variables used in the regression is given in Table 9. The key takeaway from the correlation matrix is that Tobin's Q shows significant negative correlation with size (Revenue), Leverage (Debt-to-Equity ratio), Operational profit (EBIT) and Return on Assets (ROA).

### 3.2 | Methodology

We follow Ioannou and Serafeim (2017) and conduct a differences-in-differences analysis to estimate the impact of the regulation on the value of the treated firms (that were not disclosing prior to the mandates), using a control group consisting of firms which were already subject to similar disclosure mandates. Mandatory disclosures of Environmental and Social performance were already implemented by Denmark, France, and the UK, much before the EU Directive. Firms in these countries are hence assigned to the control group. Firms in all the other countries are assigned to the treatment group. While Sweden also had some form of mandatory disclosure since 2009, they were applicable only to state-owned companies and hence all Swedish firms were assigned to the treatment group. We use Tobin's Q as the measure of firm value, which is in line with several similar earlier studies including Ioannou and Serafeim (2017).

**TABLE 3** Country-wise company details.

Sl.No	EU country	Country classification	2015 and 2016	2018 and 2019
1	Austria	A	60	60
2	Belgium	A	102	102
3	Bulgaria	C	130	130
4	Croatia	C	66	66
5	Cyprus	B	20	20
6	Czech Republic	B	8	8
7	Denmark	A	122	122
8	Estonia	B	18	18
9	Finland	A	132	132
10	France	A	542	542
11	Germany	A	402	402
12	Greece	A	178	178
13	Hungary	B	22	22
14	Iceland	D	18	18
15	Italy	A	222	222
16	Latvia	B	4	4
17	Lithuania	B	30	30
18	Luxembourg	A	10	10
19	Malta	B	16	16
20	Netherlands	A	92	92
21	Norway	D	122	122
22	Poland	B	422	422
23	Portugal	A	62	62
24	Republic of Ireland	A	24	24
25	Romania	C	160	160
26	Slovak Republic	B	6	6
27	Slovenia	B	20	20
28	Spain	A	138	138
29	Sweden	A	376	376
30	United Kingdom	A	662	662
<b>Total</b>			<b>4186</b>	<b>4186</b>

Note: 1. Companies from the financial services sector and those with incomplete data were excluded from this dataset. 2. The 3 countries – Denmark, France and United Kingdom – had a mandatory CSR disclosure regime in place before 2017 and the firms in these countries have been used as constituents of the control group in one of the experimental settings.

**TABLE 4** Control versus Treatment group.

Group	Description	Number of firms
Treatment Group	Companies with no voluntary disclosure prior to 2017 (27 countries)	1880
Control Group 1	Companies with voluntary disclosure prior to 2017 (27 countries)	980
Control Group 2	Companies with disclosures prior to 2017 (30 countries – voluntary or mandatory)	2306

To test the impact of the disclosure mandate on firm value (Tobin's Q), we conduct the following difference-in-difference regression:

$$\begin{aligned} \text{TobinsQ}_{ijkt} = & \alpha + \beta_1 \text{Post}_t + \beta_2 \text{Treat}_{ijk} + \delta_1 \text{Post}_t \cdot \\ & \text{Treat}_{ijk} + \beta_3 \text{Revenue}_{ijkt} + \beta_4 \text{EBIT}_{ijkt} + \beta_5 \text{DebtToEquity}_{ijkt} \\ & + \beta_6 \text{EBIT}_{ijkt} + \beta_7 \text{ROA}_{ijkt} + \beta_8 \text{EBIT}_{ijkt} + D_1 \text{Industry}_j \\ & + D_2 \text{Country\_Governance}_k u_{ijt} \end{aligned} \quad (1)$$

$i^{\text{th}}$  firm,  $j^{\text{th}}$  industry and  $k^{\text{th}}$  country.

The description of each variable is given in Table 10.

**Post** is a dummy variable indicating the years after the mandate on sustainability performance disclosure came into effect. In our study, we use observations from the years 2015 to 2019, excluding 2017, which was the year when the mandate first came into effect. For the pre-mandate years (2015 and 2016), the value of the dummy variable becomes 0 and for the post mandate years (2018 and 2019),



**TABLE 5** SIC industry classification.

SIC	Description of industry	Number of firms	Percentage of Total
A (Codes: 1–9)	Agriculture, Forestry, And Fishing	70	2%
B (Codes: 10–14)	Mining	208	5%
C (Codes: 15–17)	Construction	226	5%
D (Codes: 20–39)	Manufacturing	1870	45%
E (Codes: 40–49)	Transportation, Communications, Electric, Gas, & Sanitary Services	468	11%
F (Codes: 50–51)	Wholesale Trade	200	5%
G (Codes: 52–59)	Retail Trade	274	7%
I (Codes: 70–89)	Services	870	21%
<b>Total</b>		<b>4186</b>	<b>100%</b>

Note: The financial services sector(H) and Public administration(J) are excluded.

**TABLE 6** Summary statistics.

Variables	(1) N	(2) mean	(3) median	(4) sd	(5) min	(6) max
Employees	3652	13,718	13,718	42,193	254	671,205
LogEmpl	3652	8.277	8.277	1.404	5.537	13.42
DebtToEquity	5500	86.35	86.35	690.5	-12,706	22,313
ROE	5404	-1.774	-1.774	170.1	-8233	3356
ROIC	5602	-4488	-4488	267,165	-1.903e+07	6865
ROA	5653	-16.08	-16.08	1093	-81,061	7036
Revenue	5714	2.633	2.633	10.96	0	252.6
MktCap	5634	2.418	2.418	8.338	0	143.6
TotalAssets	5712	3.856	3.856	18.44	0	475.0
EBIT	5645	0.200	0.200	0.914	-5.565	20.88
Debt	5599	1.272	1.272	7.777	0	211.1
CommonEquity	5710	1.235	1.235	4.970	-7.335	109.1
LogRevenue	5629	-1.744	-1.744	2.924	-13.39	5.532
LogMktCap	5633	-1.941	-1.941	2.790	-13.39	4.967
LogTotalAssets	5710	-1.468	-1.468	2.695	-13.82	6.163
LogEBIT	4539	-3.801	-3.801	2.560	-14.49	3.039
LogDebt	5208	-2.883	-2.883	2.972	-17.98	5.352
LogCommonEquity	5440	-2.256	-2.256	2.532	-14.58	4.692
TobinsQ	5530	6.165	6.165	317.1	0	23,530

Note: (All financial numbers are in Million Euros). This table presents the overall summary of the regression variables for the entire dataset – firms in all the 30 European countries for which disclosure data is available for the period under consideration. It also excludes firms in the financial services sector.

the dummy variable becomes 1. The parameter  $\beta_1$  captures changes in the average Tobin's Q value for control group before and after the disclosure mandate was implemented.

**Treat** is also a dummy variable that equals 1 for firms that started mandatory disclosure in 2017. These firms form the treatment group, while the control group consists of firms that were already disclosing non-financial performance information voluntarily or due to country-specific mandates before 2017. In the model, the dummy variable equals 0 for the control group. The coefficient on treatment group,  $\beta_2$ , measures the difference in the average Tobin's

Q between the control and treatment groups before the mandate came into effect in 2017.

Our primary variable of interest is the interaction term  $\delta_1$  **Post.Treat**. The estimated value of  $\delta_1$  will be differences-in-differences estimator and it measures the change in average Tobin's Q for the Treatment group due to the new disclosure mandates, provided we control the changes in average Tobin's Q in both the treatment and control groups due to other factors.

To control for differences in firms' characteristics, we include firm-level variables to account for differences in firm size (revenue),

**TABLE 7** Treatment group.

Variables	(1) N	(2) mean	(3) median	(4) sd	(5) min	(6) max
Employees	2881	17,984	17,984	47,948	261	671,205
LogEmpl	2881	8.465	8.465	1.495	5.565	13.42
ROE	3974	-4.275	-4.275	183.1	-8233	2571
ROIC	4121	-6107	-6107	311,488	-1.903e+07	6865
ROA	4164	-1.529	-1.529	184.4	-6607	7036
Revenue	4183	3.700	3.700	15.77	-4.49e-05	367.2
MktCap	4131	3.932	3.932	17.11	0	545.4
TotalAssets	4177	5.596	5.596	24.10	0	475.0
EBIT	4102	0.336	0.336	1.721	-3.445	52.94
Debt	4115	1.740	1.740	8.905	0	211.1
CommonEquity	4181	1.893	1.893	8.453	-4.945	196.6
LogRevenue	4076	-1.338	-1.338	2.853	-13.39	5.906
LogMktCap	4130	-1.588	-1.588	2.826	-12.88	6.302
LogTotalAssets	4176	-1.155	-1.155	2.756	-13.12	6.163
LogEBIT	3286	-3.380	-3.380	2.553	-12.46	3.969
LogDebt	3819	-2.579	-2.579	3.054	-17.98	5.352
LogCommonEquity	3975	-1.962	-1.962	2.592	-14.58	5.281
TobinsQ	4075	1.752	1.752	7.038	0	188.6

Note: This table presents the summary of the regression variables for the treatment group, which is common for both the experimental setups that have different control group constituents.

**TABLE 8** Control group.

Variables	(1) N	(2) mean	(3) median	(4) sd	(5) min	(6) max
Employees	2798	16,833	16,833	45,193	254	626,715
LogEmpl	2798	8.388	8.388	1.501	5.537	13.35
DebtToEquity	3989	75.93	75.93	453.4	-11,788	15,475
ROE	3971	2.987	2.987	100.3	-2344	3356
ROIC	4085	2.969	2.969	50.99	-2344	694.5
ROA	4120	-20.81	-20.81	1268	-81,061	415
Revenue	4180	3.315	3.315	13.48	0	326.4
MktCap	4126	3.575	3.575	14.76	1.53e-06	363.1
TotalAssets	4178	4.934	4.934	21.67	0	440.9
EBIT	4107	0.234	0.234	1.314	-9.351	48.23
Debt	4071	1.496	1.496	7.417	0	162.4
CommonEquity	4179	1.653	1.653	7.650	-7.335	207.4
LogRevenue	4078	-1.500	-1.500	2.912	-13.39	5.788
LogMktCap	4126	-1.649	-1.649	2.822	-13.39	5.895
LogTotalAssets	4177	-1.293	-1.293	2.713	-13.82	6.089
LogEBIT	3309	-3.578	-3.578	2.552	-14.49	3.876
LogDebt	3721	-2.753	-2.753	3.004	-14.20	5.090
LogCommonEquity	4019	-2.090	-2.090	2.543	-10.77	5.334
TobinsQ	4022	7.752	7.752	371.8	0.00340	23,530

Note: In the above table, the summary of the regression variables for the control group is presented. The control group has the firms in the 27 countries that were voluntarily disclosing sustainability information before the disclosure mandates came into effect in 2017 and also includes firms from the three countries (Denmark, France and UK) which already had a sustainability disclosure regime in place before 2017.

**TABLE 9** Pairwise correlations.

Variables	1	2	3	4	5	6
(1) TobinsQ	1					
(2) Revenue	−0.004	1				
(3) EBIT	−0.003	0.776***	1			
(4) DebtToEquity	−0.012	0.012	0.006	1		
(5) ROA	−0.305***	0.005	0.005	0.002	1	
(6) ROIC	0	0.004	0.004	−0.004	0.007	1

Note: The pairwise correlation table above is for the variables for companies as follows

- Excludes all firms in the financial services (SIC – H)
- For 2 years before and after 2017 (Before – 2015 and 2016 & after – 2018 and 2019)
- Excludes all firms for which no data was available in year 2016 that could be because they were listed in stock exchanges only after 2016 or for other reasons.

\* $p < 0.1$ .

\*\* $p < 0.05$ .

\*\*\* $p < 0.01$ .

**TABLE 10** Variables.

Sl.No	Symbol	Variable name
1	TobinsQ	Tobin's Q(=(MktCap+Debt)/Assets)
2	Revenue	Revenue (Million Euros)
3	MktCap	Market Capitalization (Million Euros)
4	TotalAssets	Total Assets (Million Euros)
5	EBIT	Earnings Before interest and Taxes (Million Euros)
6	Debt	Total Debt (Million Euros)
7	CommonEquity	Common Equity (Million Euros)
8	Employees	Employees
Ratios		
9	DebtToEquity	Leverage – Debt-to-Equity Ratio
10	ROE	Return on Equity
11	ROIC	Return on Invested Capital
12	ROA	Return on Assets
13	ESG	ESG Ratings for a firm (from Refinitiv)

profitability (EBIT), Leverage (Debt-to-Equity Ratio), and Profitability ratio (ROA). We also control the industry fixed effects and country specific good governance fixed effects using appropriate dummies.

## 4 | RESULTS

### 4.1 | Key results

To draw stronger inferences regarding the causal links between the disclosure mandates and firm value, we carry out tests under two experimental settings by adjusting standard errors for clustering using Robust Cluster variance estimator. The sample spans firms 8 industries across 30 countries, and we take the industry-country clustering to report standard error.

The results of the difference-in-difference regression using industry-country cluster standard error estimator can be seen in

Table 11. The control group for this setting includes firms in countries where sustainability disclosure mandates were already in place before 2017.

The dependent variable is regressed on multiple explanatory variables including Revenue –(proxy for size), Earnings before Interest and Tax (EBIT) (proxy for absolute profitability), Return on Assets (ROA), Return on Invested Capital (ROIC) and Debt-to-Equity ratio (leverage). Industry fixed effects are also included in the analysis while firms in the financial services industry are excluded from the analysis.

Some of the explanatory variables have a statistically significant impact on Tobin's Q and hence some of the changes in Tobin's Q can be attributed to these factors. The most prominent among these are absolute profitability, as measured by EBIT and Return on Assets(ROA) both of which have a level of positive impact on Tobin's Q with a high level of significance in almost all the regressions. On the other hand, Revenue, which indicates size, has a negative impact and is statistically significant. Leverage as measured by Debt-to-Equity Ratio also showed a negative impact. The results however suggest that the interaction term (Post  $\times$  Treat) is not significant in any of the regressions.

## 5 | IMPACT OF REGULATION ON SPECIFIC SECTORS

In the next step, we investigate the influence of the mandates on specific sectors. Table 3 provides the industry classification, and we choose 3 sectors – Manufacturing (SIC – D), Transportation, Utilities & Others (SIC – E), and Services (SIC – I), because more than 75% of all the firms belong to one of these sectors. The results of the regression for these three sectors are quite different from each other.

For the Manufacturing sector, the interaction term is positive and statistically significant in one setting when controlling for dependent variables that reflect the financial performance of the firm seen in Table 12. This indicates a positive influence of the regulation on the value of firms in this sector.

**TABLE 11** Impact of mandatory disclosure on firm value – Aggregate.

Variables	Result 1	Result 2	Result 3	Result 4
Interaction	–0.0272 –0.125	–0.177 –0.264	0.0133 –0.127	0.128 –0.167
Revenue	–0.0110*** –0.00236	–0.0132*** –0.00286	–0.0115*** –0.00275	–0.00717*** –0.00266
ROA	0.0207*** –0.00254	–0.00682 –0.0175		0.0610** –0.0239
ROIC	–0.0011 –0.00084		0.00454 –0.00521	
EBIT	0.0649* –0.0343	0.0878* –0.0458	0.0791** –0.038	0.0388 –0.0234
ESG				–0.00648*** –0.00228
DebtToEquity	–4.06e-05* –2.10E-05	–7.33e-05*** –2.80E-05	–3.43E-05 –2.22E-05	3.97E-06 –5.41E-05
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Governance Fixed Effects	Yes	Yes	Yes	Yes
Constant	0.883*** –0.165	3.066 –2.171	0.911*** –0.179	1.389*** –0.296
Observations	7767	7824	7769	2836
R-squared	0.2	0.025	0.053	0.285

Note: In the table above, the differences-in-differences, estimation of the impact of mandatory disclosure on value of listed EU firms at an aggregate level (without considering industry wide differences) is reported. Equation (1) in the text describes the full model, which includes industry fixed effects, controls for firm size, profitability and leverage, among others. \*, \*\*, \*\*\* indicate statistical significance at 10%, 5%, and 1% levels (two-tailed), respectively. The dependent variable in this estimation is Tobin's Q.

The interaction term for the sector, Transportation, Utilities & Others, is positive and statistically significant in one setting, indicating that the mandatory disclosure regulation might have some impact on the firm value for this sector Table 13.

The Services sector shows nostatistically significant impact on Tobin's Q in any setting, indicating that the additional disclosures resulting from mandates have no effect on firm value and are relatively less exposed to social issues compared to other sectors like manufacturing. As a result, the value of the additional disclosure may not be high enough to have an impact on the firm value Table 14.

## 5.1 | Robustness checks

In order to draw stronger causal inferences between firm value and mandatory disclosure, two sets of robustness checks are done. The first set involves using robust standard error estimator instead of the Robust Clustered variance estimator while keeping all other settings the same. The results of this check are similar to the main results – the interaction term (Post × Treat) has no statistically significant impact on the Tobin's Q.

In the next set of robustness checks, we modify the control group sample. In this setting, we consider only firms in the 27 countries where mandatory sustainability reporting came into effect in 2017. In

this case, the firms that voluntarily disclosed their sustainability performance are taken as the control group whereas the firms that did not voluntarily disclose the same are taken as the treatment group. The firms from the 3 countries (UK, France and Denmark) which already had disclosure mandates prior to 2017 is excluded. The results of this regression are also very similar to the main results.

## 6 | DISCUSSION

The EU Non-Financial Reporting Directive (NFRD) aims to reduce information asymmetry between firms and investors, thereby rewarding firms with better non-financial performance. Compliance with the directive incurs additional costs, including direct costs (preparation, certification, and dissemination of reports) and indirect costs (proprietary costs due to information shared with other stakeholders). The European Parliament estimated the average recurring cost for a reporting firm to be around €100,865 per year. Although the costs are tangible, the benefits of mandatory disclosure are uncertain. Potential benefits include improved liquidity, lower cost of capital, higher asset prices, and better corporate decisions. Empirical evidence supports these benefits but varies in strength based on the specific outcome. Reporting firms may perceive these costs as negatively impacting their value.

**TABLE 12** Impact of mandatory disclosure on firm value for Manufacturing Sector.

Variables	Result 1	Result 2	Result 3	Result 4
Interaction	0.124*	0.0901	0.117	0.156
	−0.0715	−0.0803	−0.0744	−0.143
Revenue	−0.0143**	−0.0171**	−0.0146**	−0.00386**
	−0.00548	−0.00649	−0.00564	−0.00173
ROA	0.00909	−0.0202***		0.114***
	−0.00903	−0.000504		−0.018
ROIC	0.000412		0.00379	
	−0.00101		−0.00273	
EBIT	0.141**	0.185**	0.146**	−0.00391
	−0.0653	−0.0799	−0.0675	−0.0174
ESG				−0.00205
				−0.00288
DebtToEquity	−8.32e-05*	−0.000127**	−8.26e-05*	−0.000116
	−4.54E-05	−5.46E-05	−4.55E-05	−0.000131
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Governance Fixed Effects	Yes	Yes	Yes	Yes
Constant	1.532***	1.695***	1.551***	1.091***
	−0.136	−0.132	−0.128	−0.226
Observations	3494	3519	3494	1281
R-squared	0.06	0.649	0.058	0.385

Note: In the table above, the differences-in-differences estimation of the impact of mandatory disclosure on value of listed EU firms in the manufacturing sector is reported. Equation (1) in the text describes the full model, which includes industry fixed effects, controls for firm size, profitability and leverage, among others. \*, \*\*, \*\*\* denote statistical significance at 10%, 5%, and 1% levels (two-tailed), respectively. The dependent variable in this estimation is Tobin's Q.

Our analysis suggests that the additional costs of mandatory disclosure are offset by a proportional increase in firm value. The results of the regression without considering industry-wide differences indicate that the disclosure regulation has no statistically significant impact on the value (Tobin's Q) of the firms in the treatment group. This finding is contrary to the findings of Mittelbach-Hörmanseder et al. (2021), Grewal et al. (2018) and Chen et al. (2018), all of which reported a negative market reaction to mandatory disclosure and with those of Ioannou and Serafeim (2017) and Barth et al. (2017), both of which reported a positive correlation between mandatory CSR disclosure and firm value.

The results for the industry-specific estimation are, however, slightly different. The influence of the regulation on the value of firms in three industries are separately estimated and the results suggest that the regulations led to a mild positive change of the Tobin's Q of firms in the manufacturing industry and the Transportation, Utilities & Others sector while there was no effect for firms in the services industry. These differences suggest that the Non-Financial Reporting Directive (NFRD) has influenced firms in different sectors in different ways.

The study's findings support the argument of Eccles et al. (2012) that the absence of sector-specific standards can result in inconsistent and potentially misleading disclosures, which may have influenced firm value differently across industries. Eccles et al. (2012) recommended that creating sector or industry specific guidelines on

identification of sustainability issues that are material to a particular sector and the Key Performance Indicators (KPIs) for reporting on them would significantly enhance the ability of companies to report on their sustainability or ESG performance.

Firms in certain sectors that are characterized by high levels of energy and emissions intensity may be subject to greater stakeholder scrutiny, leading them to engage more in corporate social responsibility (CSR) activities as a means of enhancing their reputation (Kilian & Hennigs, 2014) and obtaining legitimacy (Du & Vieira, 2012).

## 6.1 | Alternate explanation

The statistically insignificant impact observed at an aggregated level regarding the mandate can also be attributed to potential disclosure of incomplete and immaterial non-financial information. It is plausible to argue that firms may comply with the Non-Financial Reporting Directive (NFRD) mandate by providing a superficial level of information, which may lead investors to perceive the disclosed information as irrelevant and, consequently, not incorporate it in their valuation of the firms. This explanation gains credibility due to the considerable discretion granted to firms by the EU NFRD in reporting their non-financial information, potentially allowing them to meet the NFRD requirements with minimal effort and cost.

Variables	Result 1	Result 2	Result 3	Result 4
Interaction	0.232 −0.141	0.197 −0.188	0.224* −0.129	−0.464*** −0.118
Revenue	−0.0148*** −0.00278	−0.0264*** −0.00525	−0.0170*** −0.00343	−0.00771*** −0.00256
ROA	0.0461* −0.0264	−0.114*** −0.0167		0.0380** −0.0176
ROIC	−0.0395** −0.0181		−0.0213* −0.0108	
EBIT	0.0840*** −0.0254	0.221*** −0.0503	0.108*** −0.0328	0.0132 −0.0178
ESG				−0.000816 −0.0024
DebtToEquity	−1.67E-05 −1.75E-05	−2.95E-05 −3.17E-05	−1.80E-05 −1.86E-05	−7.10E-05 −6.86E-05
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Governance Fixed Effects	Yes	Yes	Yes	Yes
Constant	1.262*** −0.113	1.694*** −0.143	1.337*** −0.128	1.046*** −0.163
Observations	896	897	897	471
R-squared	0.245	0.803	0.217	0.291

**TABLE 13** Impact of mandatory disclosure on firm value for Transportation, Utilities & Related Sectors.

Note: In the table above, the differences-in-differences estimation of the impact of mandatory disclosure on value of listed EU firms in the Transportation, Utilities & Related Sector is reported. Equation (1) in the text describes the full model, which includes industry fixed effects, controls for firm size, profitability and leverage, among others. \*, \*\*, \*\*\* denote statistical significance at 10%, 5%, and 1% levels (two-tailed), respectively. The dependent variable in this estimation is Tobin's Q.

Further strengthening this argument is the fact that the reporting guidelines associated with the NFRD are non-binding, meaning that firms are not legally obligated to follow them strictly. Additionally, there is no requirement for auditing the reported key performance indicators (KPIs) or metrics, which raises concerns about the accuracy and reliability of the disclosed information. These factors contribute to the potential scenario of firms superficially complying with the NFRD mandate, further reinforcing the idea that the disclosed non-financial information may be incomplete and of questionable utility. However, this explanation is not entirely convincing due to the fact that irrespective of the quality of disclosure, the reporting firms incur non-trivial costs in order to comply with the mandatory reporting requirements.

## 6.2 | Contributions

The important theories underpinning this research study are information asymmetry and agency theory, particularly in the context of the costs associated with mandatory disclosures by firms aimed at reducing these issues. The result of the study suggests that while the intended objectives of diminishing information asymmetry and mitigating agency problems can be achieved through increased transparency and mandatory reporting, the financial benefits anticipated from

such disclosures do not uniformly materialize across reporting firms. This discrepancy is attributed to the substantial costs incurred in the process of complying with disclosure mandates. Consequently, the study highlights a critical assessment of the balance between the costs of compliance and the benefits of enhanced disclosure, suggesting that the reduction in information asymmetry and agency problems does not automatically translate into uniform financial gains for reporting entities. This insight underscores the complexity of implementing regulatory mandates aimed at improving transparency and governance in the corporate landscape.

In addition to an enhanced understanding of the two key theories highlighted above, this study offers two contributions to the extant literature. First, it expands upon the emerging research on the effects of mandatory disclosure of non-financial information, which complements previous studies that focused on voluntary disclosure. The findings enhance our understanding of the effectiveness of disclosure mandates, including their design and enforcement. Second, this paper explores the industry-wide variations in firm value resulting from industry-agnostic mandatory disclosure regulations. It serves as an exploratory examination of these differences, providing insights into this area.

The findings of our study offer practical value to regulators in countries implementing mandates similar to the EU Non-Financial Reporting Directive (NFRD) to address information asymmetry. The

**TABLE 14** Impact of mandatory disclosure on firm value for Services Sector.

Variables	Result 1	Result 2	Result 3	Result 4
Interaction8	−0.209 −0.265	−0.859 −0.799	−0.052 −0.383	−0.156 −0.43
Revenue	−0.148*** −0.043	−0.191** −0.0809	−0.163*** −0.0472	−0.0481* −0.027
ROA	0.0215*** −0.00133	0.0232*** −0.00294		0.136*** −0.0354
ROIC	−0.000848 −0.000698		0.00495 −0.00551	
EBIT	0.774*** −0.179	0.942** −0.34	0.865*** −0.2	0.236 −0.211
ESG				−0.0127 −0.00715
DebtToEquity	−1.76E-05 −9.64E-05	−8.26E-05 −0.000107	6.31E-05 −0.000129	0.000141 −0.000125
Industry Fixed Effects	Yes	Yes	Yes	Yes
Country Governance Fixed Effects	Yes	Yes	Yes	Yes
Constant	1.603*** −0.28	1.736*** −0.317	1.642*** −0.299	1.650*** −0.534
Observations	1558	1578	1559	415
R-squared	0.352	0.28	0.094	0.499

Note: In the table above, the differences-in-differences estimation of the impact of mandatory disclosure on value of listed EU firms in the Services Sector is reported. Equation (1) in Section 3.2 presents the full model and includes industry fixed effects, controls for firm size, profitability and leverage, among others. \*, \*\*, \*\*\* indicate significance at 10%, 5%, and 1% levels (two-tailed), respectively. The dependent variable in this estimation is Tobin's Q.

proposed EU Corporate Sustainability Reporting Directive (CSRD), which is an updated version of NFRD, incorporates some suggestions from our paper. While the European Sustainability Reporting Standards (ESRS) that apply to the firms that come under the ambit of CSRD are currently sector agnostic, the developer of these standards, European Financial Reporting Advisory Group (EFRAG), is drafting sector-specific standards, which could get implemented over the next few years (EFRAG, 2023).

These suggestions can serve as a template for other jurisdictions developing similar mandates. One implication of our results is the need for industry-specific non-financial disclosure mandates, allowing for meaningful and actionable performance metrics that stakeholders can utilize. Regulators responsible for setting non-financial disclosure standards should consider the importance of industry-specific standards in contrast to industry-agnostic standards like the NFRD.

### 6.3 | Limitations and future area of work

This study suffers mainly from three limitations. The first limitation is that for the difference-in-difference estimation, the control group is determined by whether a firm had disclosed non-financial information prior to 2017 or not. However, this study considers neither the quality of the disclosure nor the non-financial performance of the firm

as assessed by the disclosed information. This limitation arises because the NFRD does not stress the quality of disclosure. There is also no need for independent assurance, which limits the assessment of the quality of disclosure. While ESG ratings could be used as a proxy for quality and performance, ESG ratings themselves are not standardized and each ratings provider uses a different methodology. Moreover, most of the ESG ratings provided have limited coverage of firms.

The second limitation is that the study does not drill down further into the three components of non-financial performance, that is, Environmental, Social and Governance, due to lack of sufficiently granular data. Each of these three components is increasingly becoming assessed on individual merit. For example, the sustainability reporting standards developed by the International Financial Reporting Standards (IFRS, 2023) foundation includes a specific set of standards for Climate-related Disclosures. Future research could focus on each of the individual pillars separately.

The third limitation is that the study while the Good Governance of individual countries have been controlled for based on their entry into the European countries, the potential variations within these groups have not been considered for the study.

Further research can also expand on this topic by examining the effectiveness of non-financial disclosure mandates in countries outside the European Union, which have different approaches to



materiality of non-financial information. Additionally, future research can delve deeper into the quality of disclosure and assess the impact of individual components such as environmental, social, and governance performance. There is also an opportunity to study the academic implications of new mandates being developed for environmental performance, including climate risk mitigation, in countries like the USA, Canada, and the UK, among others. These new mandates broaden the scope for academic research in this field.

## 7 | CONCLUSION

This paper sets out to examine the impact of non-financial performance disclosure mandates on firm value as a result of the reduced information asymmetry. Using difference-in-difference regression techniques, the change in the firm value of listed European firms before and after the mandatory disclosure regulations came into effect in 2017 was analyzed. The findings of this study provide evidence that the mandatory disclosure of corporate sustainability performance does not exert a significant impact on the overall firm value. This implies that the cost of compliance is offset by a corresponding increase in firm value, thereby mitigating concerns about the potential erosion of firm value through disclosure regulations. These results contribute to assuaging apprehensions about the financial implications of mandatory CSR reporting. However, statistically significant variations in the influence of disclosure mandates on firm value at an industry level have been observed. These variations can be attributed to the diverse corporate sustainability performance metrics employed by companies in different industries. This study expands our understanding of the relationship between mandatory disclosure requirements and firm value, thereby contributing not only to academic literature but also to practitioners, especially policymakers and regulators.

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