

The Impact of Mandatory Sustainability Reporting on Institutional Investment: The Role of Reporting Location

Finance Working Paper N° 1036/2025

February 2025

Mark DeFond

University of Southern California and ECGI

Mingyi Hung

The Hong Kong University of Science and Technology

Emily Jing Wang

The Hong Kong University of Science and Technology

© Mark DeFond, Mingyi Hung and Emily Jing Wang 2025. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

This paper can be downloaded without charge from:
http://ssrn.com/abstract_id=5135434

www.ecgi.global/content/working-papers

ECGI Working Paper Series in Finance

The Impact of Mandatory Sustainability Reporting on Institutional Investment: The Role of Reporting Location

Working Paper N° 1036/2025

February 2025

Mark DeFond
Mingyi Hung
Emily Jing Wang

We thank the following for their helpful comments: Elizabeth Gordon (discussant), Shuqing Luo, Guoman She, Shiheng Wang, and workshop participants at City University of Hong Kong, Hong Kong University of Science and Technology, Singapore University of Social Sciences, University of Hong Kong, and the 2023 Haskayne and Fox Accounting conference. We thank Xin Chen, Jin Deng, Chao Jin, Srijith Kannan, Wenjing Liu, and Liyuqi Yang for their excellent research assistance.

© Mark DeFond, Mingyi Hung and Emily Jing Wang 2025. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Abstract

We investigate whether foreign institutional investors respond to the sustainability disclosures mandated by the EU's Non-financial Reporting Directive, and whether disclosure location affects their response. We find that foreign institutions increase ownership in companies affected by the mandate and that the increase is greater in countries that locate the sustainability disclosures within their annual reports, referred to as combined reporting. This is consistent with combined reporting reducing investors' disclosure processing costs by providing timelier disclosure and better integration of sustainability and financial information. We further find that the increase in ownership is greater in countries that experience a larger increase in the number of firms issuing combined reports, consistent with combined reporting increasing comparability of the sustainability disclosures. Our findings suggest that the location of sustainability reporting plays an important role in cross-border investment decisions, which provides policy implications for the implementation of global sustainability disclosure regulation.

Keywords: NFRD, sustainability reporting, ESG, institutional investors, disclosure processing costs

JEL Classifications: F30, G30

Mark DeFond*

A. N. Mosich Chair in Accounting
University of Southern California,
3670 Trousdale Pkwy
Los Angeles, CA 90089, United States
phone: +1 213 740 5016
e-mail: defond@usc.edu

Mingyi Hung

Fung Term Professor of Accounting
The Hong Kong University of Science and Technology
Clearwater Bay
Kowloon, Hong Kong
e-mail: acmy@ust.hk

Emily Jing Wang

Assistant Professor
The Hong Kong University of Science and Technology
Clearwater Bay
Kowloon, Hong Kong
e-mail: emily.wang@ust.hk

*Corresponding Author

The Impact of Mandatory Sustainability Reporting on Institutional Investment: The Role of Reporting Location

Mark DeFond

University of Southern California

Mingyi Hung

The Hong Kong University of Science and Technology

Emily Jing Wang

The Hong Kong University of Science and Technology

November 2024

ABSTRACT

We investigate whether foreign institutional investors respond to the sustainability disclosures mandated by the EU's Non-financial Reporting Directive, and whether disclosure location affects their response. We find that foreign institutions increase ownership in companies affected by the mandate and that the increase is greater in countries that locate the sustainability disclosures within their annual reports, referred to as combined reporting. This is consistent with combined reporting reducing investors' disclosure processing costs by providing timelier disclosure and better integration of sustainability and financial information. We further find that the increase in ownership is greater in countries that experience a larger increase in the number of firms issuing combined reports, consistent with combined reporting increasing comparability of the sustainability disclosures. Our findings suggest that the location of sustainability reporting plays an important role in cross-border investment decisions, which provides policy implications for the implementation of global sustainability disclosure regulation.

Acknowledgments: We thank the following for their helpful comments: Elizabeth Gordon (discussant), Shuqing Luo, Guoman She, Shiheng Wang, and workshop participants at City University of Hong Kong, Hong Kong University of Science and Technology, Singapore University of Social Sciences, University of Hong Kong, and the 2023 Haskayne and Fox Accounting conference. We thank Xin Chen, Jin Deng, Chao Jin, Srijith Kannan, Wenjing Liu, and Liyuqi Yang for their excellent research assistance.

The Impact of Mandatory Sustainability Reporting on Institutional Investment: The Role of Reporting Location

I. INTRODUCTION

The growing global focus on sustainability has triggered a worldwide demand for non-financial reporting. While most large corporations have responded by voluntarily disclosing environmental and social information, critics argue that managers “cherry-pick” the information, resulting in inconsistent and noncomparable disclosures (Gensler 2021a). To enhance investors’ ability to assess climate-related risks and opportunities, the SEC recently mandated climate-related disclosures (SEC 2024). This regulation follows the passage of the European Commission’s Non-financial Reporting Directive (NFRD), which mandates sustainability reporting in the EU (EC 2014). An objective of the NFRD is to make sustainability information more useful for investors and other stakeholders by improving its consistency and comparability. The NFRD’s effectiveness, however, is highly debated. In contrast to financial disclosures, NFRD disclosures do not have to be audited and lack a standardized framework, giving managers discretion in what and where to disclose (Frank Bold 2017; EC 2021). A particularly contentious issue is whether to require companies to include the disclosures in their annual reports (combined reporting) or allow stand-alone reports. In this study, we investigate whether institutional investors respond to the NFRD mandate and how disclosure location affects their response.

A growing literature finds that information about sustainability performance affects investors’ assessment of firm value (Lins, Servaes, and Tamayo 2017; Krueger, Sautner, and Starks 2020).¹ Research also finds that investment decisions are affected by disclosure processing costs, which

¹ As with prior literature, we use the terms non-financial reporting, corporate social responsibility (CSR) reporting, sustainability reporting, and environmental, social, and governance (ESG) reporting interchangeably. Because the “G” in ESG overlaps with traditional corporate governance related to shareholder protection, we follow this literature by focusing on the environmental and social (E&S) components (Liang and Renneboog 2017; Lins et al. 2017).

include the costs of becoming aware of, acquiring, and interpreting firm disclosures (Blankespoor et al. 2019; Blankespoor, deHaan, and Marinovic 2020). Starting in 2017, the NFRD requires large EU listed companies to disclose activities on environmental protection, social responsibility and treatment of employees, respect for human rights, and anti-corruption. If the NFRD disclosures provide useful information, they should reduce investors' disclosure processing costs by making it less costly to become aware of and acquire the information. This should reduce the costs of investing in EU companies, increasing their appeal to investors. Thus, our first hypothesis predicts that foreign institutional ownership in EU companies increases following the NFRD.

We investigate foreign institutional investors because, compared with retail investors, institutional investors have more resources to search for, acquire, and process information, and are more likely to use company disclosures in making their investment decisions (Bradshaw, Bushee, and Miller 2004). Foreign investors also face higher disclosure processing costs when compared to domestic investors, due to less familiarity with the local environment and fewer interactions with local managers and analysts. This is consistent with research that finds foreign institutional investors make fewer cross-border investments and respond to regulation that increases financial disclosures (DeFond et al. 2011; Florou and Pope 2012; Yu and Wahid 2014).

Nevertheless, foreign institutional investors may not respond to the NFRD mandate due to differences between NFRD disclosures and financial disclosures. First, the NFRD disclosures are not required to be audited, which may reduce their credibility.² Second, the disclosures do not have to follow a standardized reporting framework (EC 2021), allowing management discretion to characterize their disclosures. Third, most large EU companies voluntarily disclosed sustainability information prior to 2017, which may have already met shareholders' needs.

² The NFRD requires auditors to check whether the required disclosures are provided, but does not require an audit (EC 2021). Only three countries require the NFRD information to be assured (France, Italy, and Spain).

A particularly controversial feature of the NFRD disclosures is their location. EU countries can choose whether the disclosures must be combined with the annual report, or whether they can instead be issued as a stand-alone report. One advantage of stand-alone reporting is that it gives companies more flexibility in tailoring the disclosures to their needs (Ward 2016). Stand-alone reports may also make information more salient to investors, improving their ability to identify relevant sustainability issues (ERM 2020). In addition, if non-financial and financial information is inherently different, combining them may confuse investors. Further, because annual reports are already long and complex, including NFRD disclosures may lead to information overload, and even obscure the relevance of the ESG disclosures (Ward 2016).³ Similar criticism of combined reports arose prior to the SEC's climate-related disclosure mandate (API 2022).

Despite the above criticism, institutional investors generally express a preference for combined reports (DBEIS 2016; EPRS 2021). They argue that one advantage of combined reports is that they result in timelier disclosure of sustainability information. This should reduce investors' costs of processing the information by making it easier to integrate the sustainability disclosures with the company's financial information (PRI 2016). Proponents also argue that including the sustainability information alongside the financial information reduces both search costs and the costs of integrating the information (EC 2021). Finally, stand-alone reports have been criticized for their emphasis on marketing, rather than meeting investors' needs (SASB 2016).

Disclosure location can reduce disclosure processing costs by increasing investors' awareness of the information and decreasing information acquisition costs (Blankespoor et al. 2020). As compared with stand-alone reports, we expect combined reporting to reduce investors' disclosure processing costs by providing timelier disclosure and facilitating the integration of sustainability

³ These arguments are also consistent with experimental evidence that finds investors view sustainability information to be more relevant when it is included in a stand-alone report (Bucaro, Jackson, and Lill 2019).

and financial information. Thus, our second hypothesis predicts that the increase in foreign institutional ownership following the NFRD mandate is larger among companies in countries that require combined reports as compared to countries that allow stand-alone reports.

We test our predictions using a difference-in-differences (DiD) research design that compares the change in institutional ownership among EU firms (treatment firms) during the two years before and after the NFRD adoption in 2017, with a sample of non-EU firms (benchmark firms). Our full sample consists of 2,260 treatment firm-years for 602 unique firms and 8,434 benchmark firm-years for 2,292 unique firms. Since our treatment and benchmark firms may differ systematically, we also use a propensity-score-matched sample. We examine two years before and after the adoption to reduce the influence of confounding events and control for each company's sustainability performance since it may be affected by the disclosures.

Consistent with our first hypothesis, we find an increase in foreign institutional ownership following the NFRD mandate. Relative to the benchmark firms, foreign ownership in the treatment firms increases by 1.07 percentage points, equivalent to a 5.52% increase in investment by foreign institutional investors. This result is robust to using alternative dependent variables, extending the sample period, restricting treatment and benchmark firms to the same legal origin, and excluding influential countries. Consistent with our second hypothesis, we also find that the increase in foreign institutional ownership is stronger in countries that require combined reports.

Next, we provide evidence on two channels through which combined reporting reduces investors' information processing costs. First, we identify the filing dates of the annual financial reports and the stand-alone reports from countries that allow stand-alone reports, both before and after the NFRD mandate. Consistent with combined reporting resulting in timelier sustainability disclosures, we find that following the NFRD mandate, stand-alone reports are, on average,

disclosed 39 days after the release of the financial reports.

Second, we use textual analysis to examine a small subsample of companies that issued stand-alone reports during the pre-NFRD period but were mandated to issue combined reports during the post-NFRD period. We find that the post-NFRD combined reports provide a greater number of E&S disclosures than either the pre-NFRD stand-alone reports or annual reports. This is consistent with combined reports increasing the amount of sustainability information that is included in the annual reports, and with more sustainability information in combined reports than in stand-alone reports. Increasing the amount of sustainability information in the annual report should decrease investors' costs of integrating the non-financial information with the financial information. Interestingly, we also find that pre-NFRD annual reports have more E&S information than the pre-NFRD stand-alone reports, and most of the information in the pre-NFRD stand-alone reports is unrelated to E&S disclosures. This is consistent with existing financial reporting standards requiring firms to disclose business activities that have a material impact on their financial condition, and with a large portion of the stand-alone reports being devoted to marketing. However, due to the small sample size, these findings should be interpreted with caution.

We also expect combined reporting to improve the comparability of sustainability information, because it should reduce the costs to investors of benchmarking sustainability information across companies and within companies over time. Improved comparability benefits investors by further reducing their disclosure processing costs and the larger the increase in combined reports, the greater the benefit. Consistent with our expectations, the increase in foreign ownership is greater in the countries with larger increases in the number of combined reporting companies.

We further expect the increase in comparability to benefit all companies that issue combined reports, including those that were already issuing combined reports prior to the NFRD mandate in

countries that allow stand-alone reports following the mandate. This is because companies that were issuing combined reports before the mandate are expected to continue issuing combined reports after the mandate and the mandate should improve the uniformity of the information they disclose, thereby improving their comparability. In addition, the demand for (and hence supply of) combined reports is likely to increase following the NFRD.⁴ As a result, these companies should experience an increase in comparability after the NFRD. Our analysis confirms this expectation.

Finally, we find that our results are not driven by changes in the quantity or quality of the sustainability disclosures, as captured by Bloomberg's ESG, E, and S disclosure scores. In addition, the increase in foreign ownership is higher among independent institutional investors, consistent with our expectation that these institutions respond strongly to disclosure regulations (DeFond et al. 2011; Yu and Wahid 2014), and cater to the social preferences of their clients (Dyck et al. 2019). The increase in foreign ownership is also higher among firms with high pre-NFRD ESG performance, likely because it is less costly for these firms to maintain responsible ESG practices, making them more appealing to foreign institutional investors (Dhaliwal et al. 2011).

We contribute to the literature in two primary ways. First, we add to the research that examines the effect of disclosure regulation on investment decisions. While prior studies find that mandatory IFRS adoption increases foreign institutional ownership (DeFond et al. 2011; Florou and Pope 2012; Yu and Wahid 2014), this literature may not generalize to the NFRD disclosures. Unlike financial disclosures, non-financial disclosures lack a standardized disclosure framework, are not required to be audited, and vary in disclosure location.

Second, we extend the growing literature on the economic outcomes of mandatory non-financial disclosure (Christensen et al. 2017; Chen, Hung, and Wang 2018; Grewal, Riedl, and

⁴ This is consistent with our analysis in Table 6 which finds that the number of combined reporters in countries that allow stand-alone reports increased by 31% following the NFRD.

Serafeim 2019; Fiechter, Hitz, and Lehmann 2022; Krueger et al. 2024). Our setting is most closely related to Grewal et al. (2019) and Fiechter et al. (2022). Grewal et al. document a negative stock market reaction to the NFRD's passage, and Fiechter et al. find an improvement in ESG performance in anticipation of its implementation. We also complement Krueger et al. (2024), who investigate the effect of mandatory ESG reporting on global stock market liquidity. Our study examines the “real effects” of ESG disclosures by investigating how the mandate affects institutional investors' investment decisions.⁵

Our study is also related to Gibbons (2024), who finds that intuitional ownership increases in response to country-specific E&S disclosure mandates from 2000 to 2016. We contribute to his study by examining a different set of regulations, addressing a different research question, and documenting another mechanism that explains why sustainability information attracts investors. The regulations examined in Gibbons (2024), which predate the NFRD, are heterogeneous across countries and tend to be limited in scope. In contrast, the NFRD is a supra-national sustainability disclosure regulation of unprecedented scope covering a comprehensive range of E&S disclosures (Fiechter et al. 2022). We also differ by examining foreign institutional investors, who are more sensitive to information asymmetry and face higher disclosure processing costs. Finally, our inferences differ from those in Gibbons (2024). Gibbons (2024) concludes that his results are explained by a “clientele” effect that attracts long-term-oriented investors who find E&S disclosures appealing. We conclude that combined reporting, which reduces disclosure processing costs, explains why the sustainability disclosures in the NFRD mandate attract foreign institutional investment. Thus, we make a novel contribution to the literature with implications for the SEC's

⁵ In a single-country study, Yu and Zheng (2020) find that both foreign and domestic institutional ownership increases following China's 2008 CSR disclosure mandate that requires firms to issue a CSR report. Our study differs from this study by examining whether disclosure location and cross-country variation affect foreign investment following EU's NFRD mandate.

and ISSB's recent sustainability disclosure mandate (Gensler 2021b; ISSB 2023).

II. INSTITUTIONAL BACKGROUND AND EMPIRICAL PREDICTIONS

Institutional Background

To improve the quality of non-financial information, the EU adopted the NFRD (Directive 2014/95/EU), which requires public companies with more than 500 employees to issue a non-financial statement containing environmental and social information beginning in fiscal year 2017. The NFRD requires companies to prepare a non-financial report that discloses information on environmental protection, social responsibility and treatment of employees, respect for human rights, and anti-corruption. For each category, companies must report their policies, the outcomes of their policies, the associated risks, and key non-financial performance indicators. Appendix A provides a summary of the NFRD requirements.

Before the NFRD, companies provided non-financial information through annual reports, stand-alone reports, investor briefs, and press releases (Carrots & Sticks 2020). Due to the wide variation in business practices, the NFRD allows member states to choose between requiring the sustainability disclosures within the annual report (combined reporting), or allowing a stand-alone report.⁶ In adopting the NFRD, France, Greece, Hungary, Malta, the Netherlands, and the U.K. require combined reporting, while all other countries allow stand-alone reporting.⁷

The Effects of Sustainability Disclosure on Institutional Investment

Institutional investors are likely to find sustainability disclosures useful in valuing firms because environmental and social issues can affect a company's performance and risk profile (IMF

⁶ Note that one of the goals of the NFRD is to have a double materiality view regarding of reporting location. This view includes financial materiality (information relevant to financial performance) and impact materiality (information on firms' external impact on the environment and society).

⁷ See the 2017 annual report of Carrefour, a French company, for an example in a country that requires combined reporting (https://www.carrefour.com/sites/default/files/2020-01/Carrefour-registration-document-2017-EN_0.pdf). See the 2017 annual report of BASF, a German company, for an example of a company that voluntarily includes the disclosure within the annual report (<https://report.basf.com/2017/en/servicepages/downloads.html>).

2019). Poor ESG performance may make companies more susceptible to environmental disasters, such as toxic spills, and extreme weather can lead to large financial losses. Conversely, companies with strong ESG performance may have a more motivated workforce and greater trust between firms and stakeholders, which may lead to improved financial performance. The usefulness of sustainability information in valuation is consistent with studies finding that firms with stronger ESG performance enjoy higher stock returns during financial crises (Lins et al. 2017).

As of 2020, global sustainability investment was USD 35.3 trillion, accounting for 35.9% of all professionally managed assets worldwide (GSIR 2020). Many institutional investors consider sustainability issues in managing their portfolios and high-quality information is necessary for implementing sustainability investing strategies, such as ESG integration, norm-based screening, and impact investing. In addition, based on concerns that fund managers exaggerate sustainability claims, regulators increasingly pressure fund managers to provide more credible sustainability information (Ochoa 2021).

Investors are likely to find the NFRD useful if it reduces their information processing costs, which include information awareness and acquisition costs as well as the costs of interpreting how the information affects firm value (Blankespoor et al. 2020). We expect foreign institutional investors to find the NFRD particularly beneficial because foreign investors incur higher information processing costs than domestic investors, who have greater access to local information (Kang and Stulz 1997; Chan, Covrig, and Ng 2005). For example, they can more easily contact domestic managers and analysts. Foreign investors also face higher costs of integrating disclosure information, due to unfamiliarity with local business practices and culture (Yu and Wahid 2014). These disadvantages increase the benefits of the disclosure mandate to foreign investors, consistent with mandatory IFRS adoption increasing foreign mutual fund ownership but not domestic mutual

fund ownership (DeFond et al. 2011).

If the NFRD reduces foreign investors' disclosure processing costs, it should also increase foreign institutional ownership. Thus, our first hypothesis (in alternative form) is:

Hypothesis 1: Foreign institutional ownership increases following the NFRD mandate.

However, there are several reasons why the NFRD may not affect foreign institutional ownership. First, the NFRD disclosures are not required to be audited (EC 2021). Second, the NFRD does not require a standardized reporting framework, giving managers significant reporting flexibility. Third, many EU companies voluntarily disclose sustainability information prior to 2017.

The Effects of Disclosure Location

Research finds that disclosure location affects disclosure processing costs because it is costly to be aware of, acquire, and integrate company disclosures, even for professional investors (Blankespoor et al. 2020). A contentious issue surrounding the NFRD disclosures is their location. The NFRD allows countries to choose whether to require combined reports or allow stand-alone reports. The NFRD allows stand-alone reports because there is wide variation in sustainability issues across companies and stand-alone reports allow greater “flexibility” in tailoring the disclosures to their specific situation (EPRS 2021). Stand-alone reports may also make it easier for investors to identify relevant sustainability issues, because they do not have to sort through the financial data in the combined reports.⁸ Additionally, if the nature of non-financial and financial information is fundamentally different, combining them may confuse investors. Further, because annual reports are very long and complex, including the NFRD disclosures, which are quite detailed, may result in information overload, and even obscure the relevance of the ESG

⁸ Based on the 2020 investor survey by ERM, the top four most useful sources of corporate ESG information are corporate ESG ratings, direct engagement with companies, corporate sustainability reports, and in-house research (ERM 2020). Notably, this top list does not include ESG disclosure in filings for securities authorities, which only 18% of investment professionals find useful.

disclosures (Ward 2016). The benefits of stand-alone reports are also consistent with experimental evidence that finds investors view sustainability information to be more relevant when it is in stand-alone reports (Bucaro et al. 2019).

Combined versus stand-alone reporting was also a contentious issue in the SEC's recent climate-related disclosure regulation. While the SEC regulation requires combined reporting, many commentators were opposed. One criticism is that if detailed climate information is required to be disclosed in Form 10-K, it would overshadow and dilute other critical company information, which would "confuse, not clarify, information presented to investors" (Business Roundtable 2022). Another concern is that combined reporting would not allow enough time for companies to include reliable information, thereby reducing the quality of information provided to investors (Chevron 2022; U.S. Chamber of Commerce 2022).

Despite the above concerns, institutional investors generally support combined reporting (DBEIS 2016). They argue that combined reports result in timelier sustainability disclosures, which reduce investor's processing costs by making it easier to use the information to interpret the company's financial disclosures. A concern with the lack of timeliness of stand-alone reports is that investors will not give them the same level of attention as they do to the financial reports (Frank Bold 2017). This issue is noted in Christensen, Serafeim, and Sikochi (2022), who find that stand-alone reports are often posted on companies' websites months after the release of their annual reports.

Proponents of combined reporting also argue that embedding the non-financial information within the annual report reduces investors' search costs, as well as the costs of integrating the information. This was the conclusion of the Climate Disclosure Standards Board, whose 2021 review of the NFRD recommended that companies include climate-related information in their

annual reports to ensure that the information is considered alongside the company's financial performance (CDSB 2020). The enhanced ability of investors to integrate sustainability disclosures is the primary reason that SEC Chairman Gary Gensler advocates combined reporting (Gensler, 2021a, 2021b, 2022), arguing that investors should be able to find “...information in one place, rather than having to piece together information from different locations...”.

Finally, proponents of combined reporting criticize stand-alone reports for emphasizing marketing materials directed at non-shareholders. The SASB referred to stand-alone reports as “glossy, attractive publications, often developed in consultation with a company’s marketing department...[and] do not produce investor-grade information,...” (SASB 2016, pp 9-10).

The above arguments suggest that it is ultimately an empirical question whether investors will find combined reports more useful than stand-alone reports. However, given the preferences expressed by institutional investors (DBEIS 2016; EPRS 2021) and the theoretical arguments that combined reports reduce investors’ disclosure processing costs, we expect that institutional investors are likely to prefer combined reports. Thus, our second hypothesis (in alternative form):

Hypothesis 2: Firms in countries that require combined reports experience a greater increase in foreign institutional ownership following the NFRD mandate as compared with firms in countries that allow stand-alone reports.

Another benefit of combined reporting is that it should improve sustainability reporting comparability because combined reports make it easier for investors to assess and benchmark sustainability risks across companies and within companies over time.⁹ An increase in sustainability reporting comparability should also further reduce disclosure processing costs. Thus,

⁹ The GRI’s definition of “sustainability reporting comparability,” which we adopt, is the extent to which sustainability disclosures enable stakeholders to analyze changes in the organization’s ESG performance over time, and that supports comparisons with other organizations (GRI 2016). We expect the benefits of comparability to apply to combined reporting rather than stand-alone reporting because the benefits of comparability should be limited to settings in which the disclosure location reduces investors’ disclosure processing costs.

the larger the increase in the number of companies that issue combined reports following the mandate, the greater the ability of investors to benchmark the combined sustainability information, and the higher the benefits from sustained reporting comparability.¹⁰

Moreover, the increase in sustainability reporting comparability should benefit all companies that issue combined reports, including companies that were already issuing combined reports before the NFRD, and even in countries that allow stand-alone reporting. This is because companies that were issuing combined reports before the NFRD are expected to continue issuing combined reports after the mandate and the information contained in the combined reports must uniformly include all of the items required by the mandate, thereby increasing their comparability. In addition, the number of combined reporters is expected to increase following the NFRD. This is consistent with anecdotal evidence that firms voluntarily adopt combined reporting to meet investor demand. For example, Boliden, a Swedish company, stated in its 2015 annual report “They [investors] want to see CSR information integrated into commercial results, signaling integration into business decisions and monitoring.” As a result, these companies should experience an increase in comparability when there is an increase in companies issuing combined reports after the NFRD.

III. SAMPLE AND DATA

Sample

We obtain institutional ownership from Thomson Reuters Global Ownership for 2015 to 2019, which consists of institutional equity holdings, including common shares, American Depositary Receipts, and Global Depositary Receipts. It also allows us to identify investors’ country and type.

¹⁰ While existing studies document the benefits of comparability for shareholders and market intermediaries (De Franco, Kothari, and Verdi 2011), it is possible that comparability can have unintended negative consequences for some firms, such as constraining firms’ ability to choose tax strategies (or, some ESG practices) that deviate significantly from its industry peers (Hong, Ryou, and Srivastava 2023).

We merge this data with the ESG performance data from Refinitiv (formerly Asset4), accounting data from Worldscope, and stock returns data from Datastream. Following prior literature, we exclude observations with negative book equity and financial firms (one-digit SIC of 6).

The NFRD applies to EU firms with more than 500 employees and total assets above EUR 20 million or net turnover above EUR 40 million. Thus, we require our sample to meet these thresholds.¹¹ The NFRD adoption deadline is December 6, 2016 and eligible EU firms must provide non-financial information for fiscal years starting January 1, 2017. This creates ambiguity about whether the transition year (fiscal years ending between December 2016 and November 2017) falls under the pre- or post-NFRD period. Thus, we exclude the transition year and code the first adoption year (*Year 1*) as firm observations with fiscal year-ends from December 2017 through November 2018. Each firm-year observation is matched with the firm's year-end institutional ownership after the earnings announcement to allow investors sufficient time to observe the disclosures. For example, a firm that announces its earnings in March 2018 for the fiscal year 2017 is matched with its institutional ownership measured at the end of 2018. Finally, we require each firm to appear at least once in the two years before and after NFRD adoption.

Table 1, Panel A presents the number of sample firms and observations by country. Our four-year panel data comprises 2,260 treatment firm-years for 602 unique firms domiciled and listed in the EU; and 8,434 benchmark firm-years for 2,292 unique non-EU firms. The U.K. has the largest number of firm-years (789) among the EU countries, while Malta has the lowest (3). The U.S. has the largest number of firm-years (3,546) among non-EU countries, while Argentina, the Cayman Islands, and Panama have the lowest (3 each). Panel B shows the distribution by year.

¹¹ These thresholds are EU-wide minimum criteria set out by the NFRD. EU countries may expand the scope in their national transpositions of the NFRD. For example, Belgium imposed smaller size thresholds of either total assets over EUR 17 million or net turnover over EUR 34 million. To facilitate comparability among treatment firms, and between treatment firms and benchmark firms, we apply the EU-wide criteria.

We also construct a propensity-score-matched sample by using logit to regress all firms in *Year -1* on the number of analysts following (*Nanalyt*), log of market capitalization (*Size*), return on equity (*ROE*), recent stock returns (*Returns*), and the book-to-market ratio (*Book-to-market*). Treatment firms are matched to benchmark firms with the closest propensity score in the same Fama-French-12 industry, without replacement. Following prior studies (Austin 2011), we set the caliper to 30% of the standard deviation of the predicted propensity score, resulting in a caliper width of approximately 0.03, yielding 553 matched firms, over four years, resulting in 2,078 treatment firm-years and 2,036 benchmark firm-years. While matching increases comparability it reduces sample size. Thus, we use both the full and matched samples to draw our inferences.

Descriptive Statistics

Table 2, Panel A shows that average foreign institutional ownership is 19.31% for the treatment firms and 12.61% for the benchmark firms in the full sample. Panel B shows that average foreign institutional ownership is 19.17% for the treatment firms and 13.28% for the benchmark firms in the matched sample. All continuous variables are winsorized at the top and bottom 1%.

IV. RESEARCH DESIGN AND EMPIRICAL RESULTS

Hypothesis Test of the Effect of the NFRD on Foreign Institutional Ownership

We test our first hypothesis using the following DiD regression model:

$$\begin{aligned} Foreign\ IO(\%)_{i,t} = & \beta_0 + \beta_1 Treat_i \times Post_{i,t} + \sum \beta_i Control\ Variables + Industry\ FE \\ & + Country\ FE + Year\ FE + \varepsilon_{it} \end{aligned} \quad (1)$$

where i and t denote firm and year, respectively. Our dependent variable $Foreign\ IO(\%)_{i,t}$ is the percent of market capitalization held by foreign institutional investors, multiplied by 100. $Treat$ equals one for treatment firms and zero for benchmark firms. The benchmark firms control for systematic changes other than the NFRD. $Post$ is an indicator variable equal to one during the post-

NFRD period (fiscal year-end December 2017 and after) and zero otherwise. Our variable of interest is $Treat \times Post$, which captures the change in foreign institutional ownership for the treatment firms, relative to the benchmark firms. Our first hypothesis predicts a positive coefficient on the interaction term, β_1 . Because prior literature finds an association between institutional ownership and ESG performance (Dhaliwal et al. 2011), we control for ESG performance. Following Dyck et al. (2019), we use the log of ESG performance score from Refinitiv.

We also control for several firm-level variables (DeFond et al. 2011): *Nanalyst*, number of analysts following; *Size*, log of market capitalization; *ROE*, return on equity; *Returns*, annual returns over the prior fiscal year; *Return Variation*, standard deviation of monthly returns over the year; *LEV*, total liabilities over total assets; *Div Yield*, dividends divided by market capitalization; *Book-to-market*, book value of equity divided by market capitalization; *EP Ratio*, net income divided by market capitalization; *Sales Growth*, annual sales growth rate; *Turnover*, total share volume divided by shares outstanding; *Cash*, cash and short-term investments divided by total assets; *Closely Held*, shares held by insiders divided by total outstanding shares; *Market Index*, equal to one if the firm is in a market index; *Big 4 Auditor*, equal to one if the firm uses a Big 4 auditor; and *ADR*, equal to one if the firm issues ADR shares. We also include *GRI/OECD*, an indicator equal to one if the firm uses GRI standards or OECD guidelines (Fiechter et al. 2022). Appendix B provides variable definitions. We include fixed effects for industry (Fama and French 12 industries), country, and year and adjust standard errors by country cluster.

Table 3, Panel A presents the results from estimating Equation 1. Columns 1–2 report the results for the full sample and Columns 3–4 show the results for the matched sample. Columns 1 and 3 present a baseline DiD specification that regresses foreign institutional ownership on *Treat*, *Post*, and $Treat \times Post$ without country and year fixed effects. Columns 2 and 4 report our main

specification that includes country and year fixed effects and suppresses the coefficients on *Treat* and *Post* because there is no within-country variation of *Treat* and no within-year variation of *Post*. Consistent with our first hypothesis, the coefficient on $Treat \times Post$ is positive and significant in all columns. The coefficient on $Treat \times Post$ in Column 2 indicates that the NFRD increases foreign institutional ownership by 1.065 percentage points, representing a 5.52% increase (1.065%/19.31%). We also find that foreign institutional ownership is higher among firms with better ESG performance, more analysts following, larger size, higher ROE, and lower leverage.

The positive coefficient on *Treat* in Column 1 indicates that foreign institutional ownership is higher in the treatment firms than in the benchmark firms pre-NFRD. The coefficient on *Treat* in Column 3 is insignificant at conventional levels, indicating that matching successfully eliminates the pre-NFRD difference in foreign institutional ownership.

Because the increase in ownership in Columns 1-4 could be due to portfolio-wide increases in foreign investors, Columns 5-6 reports the portfolio weights of foreign institutional investors (Yu and Wahid 2014). We first compute the ratio of the market value of each firm held by foreign institutional investors, divided by the market value of all stocks held by all institutional investors that invest in the firm at year-end.¹² We then compute the under or overweighting of the focal firm by scaling this ratio by the benchmark weight, which is the float-adjusted market value of the firm divided by the float-adjusted market value of the global market portfolio.¹³ Because the portfolio weighted measure controls for the asset size of institutional investors, portfolio rebalancing due to

¹² For example, assume that Canadian and Japanese institutional investors own a market value of \$2 million and \$1 million of a French firm, respectively. Canadian investors hold a market value of \$800 million across all stocks in their holdings while Japanese investors hold a market value of \$400 million for their entire portfolio. The ratio obtained from the first step of the calculation is $(2+1)/(800+400)=0.0025$.

¹³ Following Yu and Wahid (2014), we define float shares as market shares excluding block-holder holdings, which is proxied by the percentage of closely held shares from Worldscope.

changes in asset size does not change the weight.¹⁴ The coefficient on $Treat \times Post$ in both columns is positively significant, indicating that foreign institutional investors allocate more weight to treatment firms after the NFRD.

Panel B of Table 3 assesses the parallel trends assumption (Bertrand and Mullainathan 2003) by replacing *Post* with *Year -1* as the benchmark year and indicator variables for *Year -2*, *Year 1*, and *Year 2*. Columns 1 and 2 report the results in the full and matched samples, respectively. For brevity, we do not tabulate the coefficient estimates of the control variables. Column 1 shows that while there is no significant change in foreign institutional ownership in *Year -2* relative to *Year -1*, there are significant increases in foreign institutional ownership in *Year 1*, and *Year 2*, consistent with the parallel trends assumption.

As Fiechter et al. (2022) find that EU firms start to increase ESG activities before the adoption of the NFRD, we extend the pre-NFRD period to include *Year -3* and *Year -4*, with *Year -3* coinciding with the passage of the NFRD on April 15, 2014 (Armstrong et al. 2022). As with our four-year panel data, we exclude the transition year and require firms to have at least one observation in the four years preceding, and the two years after NFRD adoption. Columns 3-4 of Panel B show the timing effect of the NFRD over the extended period $[-4, 2]$ in the full and matched samples. In both samples the interactions between *Treat* and the year indicators are insignificant in the pre-NFRD period and significantly positive in the post-NFRD period. This indicates that the increase in foreign institutional ownership occurs after the NFRD, consistent with the parallel trends assumption. Figure 1 provides a visual representation of the parallel trends.

Recall that we exclude the transition year in our main analysis due to ambiguity about whether

¹⁴ The number of observations drops from 10,694 to 10,661 in the full sample and from 4,114 to 4,097 in the matched sample due to missing weight values. When no foreign investors hold the firm's stock, the market value of all stocks held by all foreign institutional investors that invest in the firm (i.e., the denominator in the first step of the weight calculation) becomes zero, which we treat as a missing weight value.

it belongs to the pre- or post-period. While the EU member countries need to transpose the NFRD by December 2016, the mandate does not become effective until December 2017. Krueger et al. (2024) code 2016 as the post-NFRD period, but one could argue that it falls under the pre-NFRD period in terms of the disclosure requirement. Columns 5 and 6 show additional parallel trends analyses including Year 0. We find that the coefficient on the interaction term is significant in *Year 0* with the other interaction coefficients retaining similar magnitudes and significance levels. Finally, we perform a placebo test by assigning the window $[-4, -3]$ as the pre-NFRD period and $[-2, -1]$ as the post-NFRD period. The results, reported in Columns 7 and 8 of Panel B, find no change in foreign institutional ownership after the pseudo-adoption of the NFRD. Overall, the tests in Table 3 provide robust evidence that the NFRD increases foreign institutional ownership.

Robustness Checks

Panel C of Table 3 presents the results of several robustness checks. Columns 1 and 2 assess whether our results hold across shareholder-oriented and stakeholder-oriented countries. Following Liang and Renneboog (2017), we use common-law legal origin to capture shareholder orientation and civil-law legal origin to capture stakeholder orientation.¹⁵ We find that foreign institutional ownership significantly increases after the NFRD, regardless of legal origin.

Column 3 excludes the three largest countries in our sample (the U.S., the U.K., and Japan), and finds similar results. Column 4 excludes firms in the U.S. and Canada from the benchmark sample because they are saturated with institutional capital (Aggarwal et al. 2011), which limits the growth of institutional investment, and finds similar results. Column 5 excludes France, Italy, and Spain, which require independent assurance of the NFRD disclosures, and finds similar results.

Finally, Column 6 replaces the dependent variable with domestic institutional ownership and

¹⁵ In additional analysis (untabulated), we find that within EU countries, the country-level correlation between the country's legal origin and whether the country requires combined reporting is insignificant at 0.03.

finds that the coefficient on the interaction term is insignificant at conventional levels. Thus, unlike foreign institutional ownership, we do not observe a significant increase in domestic institutional ownership following the NFRD. This is consistent with domestic institutional investors having information advantages over foreign institutional investors, reducing the effects of the NFRD in their investment decisions.

Hypothesis Test of the Role of Disclosure Location

Table 4 reports the effects of the combined reporting requirement on the association between foreign institutional ownership and NFRD adoption. Columns 1 and 3 include treatment firms domiciled and listed in countries that require combined reports, and Columns 2 and 4 include the remaining treatment firms in countries that allow stand-alone reports. Because we include all benchmark firms in each subsample, the sum of the number of observations across the two subsamples is greater than the number of observations in the full and matched samples in Table 3. For both samples, the coefficient on $Treat \times Post$ is significantly positive in countries that require combined reports. We also find a marginally significant positive coefficient on $Treat \times Post$ in the matched subsample of companies in countries that allow stand-alone reports (Column 4). However, chi-square tests of the difference between the coefficients on $Treat \times Post$, across the countries that require combined reports and those that allow stand-alone reports, are statistically significant in both the full and matched samples. Thus, the results in Table 4 support our second hypothesis by finding that the impact of the NFRD on foreign institutional ownership is stronger in countries that require combined reports.

Disclosure Timeliness and Content Conditional on Reporting Location

We find that foreign institutional investment is stronger in countries that require combined reports. We conjecture that this occurs because combined reporting results in timelier disclosure

of sustainability information to investors, and because combined reports improve investors' ability to integrate sustainability information with financial information. In this section we examine evidence to corroborate our conjecture.

To investigate the timeliness of the non-financial disclosures we identify the filing dates of the annual financial reports and the stand-alone sustainability reports from the Refinitiv Global Filings database for all EU firms in countries that allow stand-alone reports, both before and after the NFRD. If a firm has multiple documents for the same report type during an event-year (e.g., annual reports in different languages), we use the earliest document. Out of 289 firms from countries allowing stand-alone reports, we are able to retrieve the filing dates of both the annual reports and stand-alone sustainability reports for 164 firms in Year -1, 189 firms in Year 1, and 188 firms in Year 2. Panel A of Table 5 presents statistics on the filing lag, in days, of the stand-alone reports relative to the annual reports. These statistics tell us how many days investors have to wait, after the annual report filing, to access the stand-alone report. As expected, we find a significant delay between the issuance of financial reports and sustainability reports. On average, stand-alone reports are disclosed 50 days after the release of annual financial reports before the NFRD, 39 days in the first year after the NFRD, and 30 days in the second year.

Next, we use textual analysis to examine how E&S content differs across disclosure locations. We retrieve the annual reports and stand-alone reports in the Refinitiv Global Filings database for the 158 firms that did not issue a combined report in Year -1 but were required to do so in Year 1.¹⁶ To ease comparison, we include only firms with a stand-alone report and an annual report in Year -1, and a combined report in Year 1, all in English, which results in a sample of 72 firms.

¹⁶ We use the Corporate Register to identify whether the firm has a combined report in Year -1. The Corporate Register collects non-financial reports worldwide, including stand-alone reports and those included in annual reports. To be included by the Corporate Register, the report must contain a minimum of six pages of relevant non-financial information or integrate financial and non-financial information throughout the report.

The sample attrition is primarily due to the limited availability of stand-alone reports in Year -1. For each report, we measure the volume of all types of disclosures by counting the total number of sentences (*# of Sentences*) and the total number of words (*# of Words*). We assess the volume of E&S disclosures by counting the number of E&S-related sentences (*# of E&S Sentences*) and the number of words in these sentences (*# of Words in E&S Sentences*). A sentence is classified as E&S-related if it contains keywords from the E&S dictionary developed by Lin et al. (2024).

Table 5, Panel B presents the results of this analysis. We make three observations. First, not surprisingly, the *# of Sentences* and *# of Words* indicate that the combined reports in the post-NFRD period are substantially longer than the annual reports from the pre-NFRD period. This is consistent with the post-NFRD combined reports including more information than the pre-NFRD annual reports. Second, based on the *# of E&S Sentences* and *# of Words in E&S Sentences*, the combined reports have more E&S-related sentences as well as more words in these sentences than either stand-alone reports or pre-NFRD annual reports. This suggests that the combined reports increase the amount of sustainability information that companies include in their annual reports, and that there is more sustainability information in combined reports than in stand-alone reports. Having more sustainability information in the annual report should decrease investors' costs of integrating the non-financial information with the financial information. Third, comparing the *# of Sentences* with the *# of E&S sentences* contained in the stand-alone reports, most of the words in the stand-alone reports are not strictly related to E&S topics, consistent with these reports focusing on marketing, rather than substantive E&S disclosures.

In summary, the analysis in Table 5 supports the notion that combined reports reduce investors' disclosure processing costs through timelier sustainability disclosures and by increasing the

amount of E&S disclosures in the annual report, making it easier for investors to integrate sustainability information with financial information.

Disclosure Location and Change in Comparability

In Section II we argue that an additional benefit of combined reporting is an increase in sustainability reporting comparability following the NFRD. The larger the increase in the number of companies that issue combined reports following the mandate, the greater the ability of investors to benchmark the combined sustainability information. As a result, the increase in foreign investment should be larger in countries that experience larger increases in the number of companies that issue combined reports. We test this by repeating the Table 4 analysis after including the change in sustainability reporting comparability (*ChgComp*), which equals the firms in each country that issue combined reports in the year after the NFRD (*Year 1*), minus the firms that issue combined reports in the year before the mandate (*Year -1*). In contrast to output-based measures that infer comparability from returns measures (De Franco et al. 2009; Yip and Young 2012), we use an input-based measure that directly captures the number of firms using combined reports. We identify the number of combined reporters in *Year -1* using the Corporate Register. In countries that require combined reports, we assume all companies comply with the requirement and count the number of combined reporters in *Year 1* as the number of firms issuing annual reports in the country-year. In countries that allow stand-alone reports, we identify the number of combined reporters in *Year 1* using the Corporate Register.

Table 6, Panel A presents the change in comparability by country, separately for countries that require combined reports or allow stand-alone reports. The top four countries with the largest change in sustainability reporting comparability are the U.K., France, the Netherlands, and Greece. While all of these countries require combined reports, *ex-ante* it is unclear whether this

requirement would result in a large increase in comparability. For example, if most U.K. firms voluntarily issued combined reports before the NFRD, then the change in comparability after the NFRD would be small. We also find that while the mean *ChgComp* equals 25.83 in countries that require combined reports, it is only 1.93 in countries that allow stand-alone reports. In addition, among the countries that allow stand-alone reports, the number of combined reporters increased by 31% following the mandate (from 88 to 115). This increase is consistent with our conjecture that the demand for combined reports is likely to increase following the NFRD.

Table 6, Panel B reports the results of this analysis. The analysis includes the same benchmark firms and control variables as in Equation (1). The coefficient on *Treat*×*Post* shows the main effect of the NFRD on foreign institutional ownership, and *Treat*×*Post*×*ChgComp* captures whether the effect of the NFRD on foreign investment is affected by the country-level change in sustainability reporting comparability. We also partition firms by whether the country requires combined reports. However, as discussed, an increase in sustainability reporting comparability should reduce disclosure processing costs irrespective of whether the country requires combined reports. Thus, we do not expect the benefits from increased comparability to accrue only to companies in countries that require combined reports.

Columns 1 and 2 report the results for the full sample and Columns 3 and 4 show the results for the matched sample. We find that the coefficients on *Treat*×*Post*×*ChgComp* are significantly positive in countries that require combined reports and insignificant in countries that allow stand-alone reports. However, chi-square tests of the difference between the coefficients on the three-way interaction terms, across countries that require combined reports and those that allow stand-alone reports, are statistically insignificant. Thus, as expected, the effects of increased comparability are similar across countries that require combined reporting and countries that allow

stand-alone reporting. We conjecture that the coefficients on the three-way interaction terms are insignificant for countries that allow stand-alone reports because the change in comparability (*ChgComp*) tends to be small in those countries (with a mean of 1.93, as compared with a mean of 25.83 in countries that require combined reports, as reported in Panel A).

Analysis of Companies that Issued Combined Reports Prior to the NFRD

Our analysis in Panel B of Table 6 finds that companies benefit from an increase in comparability, irrespective of whether the company's country requires combined reports. We further expect the benefits from increased comparability to accrue to all companies that issue combined reports after the NFRD, including companies that issued combined reports before the NFRD. Companies that issued combined reports before the NFRD should benefit because they are expected to continue issuing combined reports and the NFRD should improve the similarity in the information they disclose. We also expect the demand for combined reports to increase following the NFRD. As a result, companies that issued combined reports before the NFRD should benefit from an increase in comparability following the NFRD.

Table 7, Panel A presents a two-by-two analysis of whether the sample firms are listed and domiciled in a country that requires combined reports, and whether the firm issued a combined report in the year before the NFRD (*Year -1*). Among the countries that require combined reports, the number of companies that issued combined reports before the NFRD is similar to those that did not (155 and 158). In contrast, in countries that allow stand-alone reports, the number of companies that issued combined reports is much fewer than those that did not (88 and 201).

Table 7, Panel B reports the results of our analysis after partitioning the treatment firms on whether their country requires combined reports, and whether they issued a combined report before the NFRD (*Year -1*). We include all benchmark firms in each subsample. As expected, we find a

significantly positive coefficient on $Treat \times Post$ in countries that require combined reports, regardless of whether the company issued a combined report before the NFRD (Columns 1 and 2 for the full sample, and Columns 5 and 6 for the matched sample).¹⁷ Also as expected, we find a significantly positive coefficient on $Treat \times Post$ in countries that allow stand-alone reports, but only among the firms that issue combined reports prior to the NFRD.¹⁸ Thus, as conjectured, our analysis finds that the benefits from increased comparability accrue to all companies that issue combined reports after the NFRD, including companies that issued combined reports before the NFRD. Overall, these findings further support our second hypothesis by finding additional evidence that combined reporting facilitates investors' decision making.

V. ADDITIONAL ANALYSES

Analysis of Changes in Disclosure

A large literature finds that increased financial disclosure attracts foreign investment (Covrig, DeFond, and Hung 2007; Florou and Pope 2012). Thus, our results on combined reporting may be explained by increased sustainability disclosures. We test this by repeating our primary analysis after conditioning our treatment firms on whether their average post-NFRD sustainability disclosures increase compared to their average pre-NFRD disclosures. We measure the extent of companies' sustainability disclosures using Bloomberg's disclosure scores for overall ESG practices, as well as for the E and S pillars (Christensen et al. 2022). These scores standardize the

¹⁷ In additional analysis (untabulated) for countries that require combined reports, we find no evidence indicating an increasing or decreasing trend in foreign institutional ownership prior to the NFRD, except for mandatory combined reporting firms that did not issue a combined report in Year -2 in the full sample. We conjecture that this may be because Year -2 is the year of the passage of the directive (2014), so these firms may take some actions that caused a short-lived increase relative to the full set of benchmark firms. This difference disappears in the matched sample.

¹⁸ We classify firms into countries that require combined reports if they are domiciled and primarily listed in those countries. All other treatment firms are classified into countries that allow stand-alone reports. However, some firms in the latter group may have equity shares cross-listed in countries that require combined reports, and therefore may be under pressure to issue combined reports. As a robustness check, we eliminate treatment firms that are cross-listed in countries that require combined reports (using data from Datastream). This analysis continues to find that in countries that allow stand-alone reports, foreign institutional ownership increases only in firms that issue combined reports prior to the NFRD.

disclosures of over 100 sustainability data points from various sources, including annual reports, sustainability reports, regulatory filings, and company websites. They arguably reflect both the quantity and quality of sustainability disclosures regardless of disclosure locations because Bloomberg tailors a company's score based on data relevant to the company's industry.¹⁹

Table 8, Panel A reports the distribution of the treatment firms that report an increase in their sustainability data point disclosures above the pre-NFRD average. Out of the 580 treatment firms covered by Bloomberg, 419 increase their ESG disclosures following the NFRD, and most increase both their E disclosures (381 out of 570) and S disclosures (311 out of 578).²⁰

Table 8, Panel B reports the results. We include all benchmark firms in each subsample and the same control variables as in Table 3, as well as industry, country, and year fixed effects. Columns 1-6 report the results for the full sample, and Columns 7-12 show the results for the matched sample. In all columns, the coefficient on $Treat \times Post$ is significantly positive, suggesting that the increase in foreign institutional ownership is not explained by increases in the companies' sustainability disclosures following the NFRD.²¹

One possible explanation for the results in Panel B of Table 8 is that the increase in sustainability data point disclosures is relatively modest following the NFRD. We test this in Panel C by regressing the disclosures on $Treat \times Post$. Columns 1-3 and 4-6 report the results for the full sample and the matched sample. We find no significant change in disclosure following the NFRD for all three disclosure categories, consistent with the change in disclosure being small.²²

¹⁹ Leuz and Verrecchia (2000, footnote 1) notes "the theory is sufficiently broad as to allow the notion of 'increased levels of disclosure' to be interpreted as either an increase in the quantity of disclosure or an increase in the quality of disclosure (or both)."

²⁰ Our sample is reduced slightly due to missing Bloomberg ESG disclosure data.

²¹ A Wald test (untabulated) finds the differences in the coefficients are insignificant for all three measures.

²² As a sensitivity test, we also measure sustainability disclosures by the weighted environmental disclosure ratio from the S&P Trucost database. The Trucost ratio captures the relative importance of the various environmental disclosures by explicitly considering the cost of each indicator. The ratio is calculated as the direct external

To ensure that increased disclosures do not drive the increase in foreign institutional ownership in firms from countries requiring combined reporting (our second hypothesis), Panel D restricts treatment firms to those that do not increase sustainability data point disclosures after the NFRD. We then replicate the Table 4 analysis, including both treatment and benchmark firms, and partition treatment firms based on whether their countries require combined reporting. As in Table 4, we find that foreign institutional ownership increases only in countries that require combined reporting. Overall, Table 8 finds that our primary results on combined reporting are unlikely to be explained by increases in companies' sustainability disclosures following the NFRD.

Heterogeneity across Foreign Institutional Investors

To corroborate our inference on disclosure processing costs, we conduct analyses conditional on the type of institutional investor. Different types of institutional investors vary in their approaches to processing sustainability information. If the NFRD reduces investors' disclosure processing costs, we expect its effect to be greater among foreign independent institutional investors (i.e., mutual fund managers and investment advisors) (Aggarwal et al. 2011). Prior studies suggest that these investors base their investment on detailed analysis of disclosures and respond strongly to changes in disclosure (DeFond et al. 2011; Yu and Wahid 2014). They also need to cater to both the financial and social demands of their clients to attract capital (Dyck et al. 2019). In contrast, pension funds tend to be long-term oriented, and may not react immediately to increased disclosures associated with the NFRD. Hedge funds typically focus on short-term financial returns.²³ Thus, we expect foreign independent institutions to be more sensitive to the

environmental costs associated with each relevant key indicator that a company actually discloses, divided by the direct external environmental costs associated with all of the key indicators the company could have disclosed, as estimated by Trucost. The results from this analysis are similar to those reported in Panels B and C of Table 8.

²³ Using the Global Ownership database, we code "Investment Advisor" (OwnTypeCode=107 and 113), which includes mutual fund managers, as independent institutional investors. We code "Pension Fund" (OwnTypeCode=110) as pension fund investors, and "Hedge Fund" (OwnTypeCode=106) as hedge fund investors. We examine these three types of investors to facilitate comparison with the prior literature.

NFRD mandate than pension funds and hedge funds.

Table 9, Panel A presents our results after disaggregating foreign institutional ownership by whether the investors are independent institutions, or pension or hedge funds. We find a significantly positive coefficient on $Treat \times Post$ for independent institutions (Columns 1 and 3), and an insignificant coefficient for pension funds and hedge funds (Columns 2 and 4). Further, consistent with our expectations, the coefficients on $Treat \times Post$ are significantly larger among the independent institutions than among the pension and hedge funds.²⁴

Heterogeneity across Firms with Different Sustainability Performances

We expect that firms with stronger sustainability performance find it less costly to maintain responsible ESG practices. As a result, they should be more appealing to foreign institutional investors when the NFRD facilitates incorporating sustainability information in investment decisions. Consistent with this expectation, Grewal et al. (2019) show that the negative market reaction to the passage of the NFRD is concentrated among firms with weak sustainability performance. Dhaliwal et al. (2011) find that voluntary sustainability disclosures are associated with a subsequent lower cost of equity only among firms with strong sustainability performance.

We assess the impact of the NFRD conditional on pre-NFRD sustainability performance by partitioning the treatment firms based on whether their ESG score in the year before the NFRD is higher than the median. Table 9, Panel B reports the results. We include all benchmark firms in each subsample. We find a significant positive increase in foreign institutional ownership after the NFRD for treatment firms with above-median pre-NFRD ESG performance in both the full and matched samples. Conversely, the impact of the NFRD is either insignificant in the full sample

²⁴ In additional analysis (untabulated), we validate the parallel trends assumption by finding that the increasing trend in investments from independent institutions becomes significant only after the NFRD over an extended window of $[-4, 2]$ years.

(Column 2) or marginally positive in the matched sample (Column 4) for treatment firms with below-median pre-NFRD sustainability performance. In addition, a chi-square test finds that the coefficients on $Treat \times Post$ are marginally significantly larger among the above-median ESG performers than among the below-median sustainability performers. These results indicate that the increase in foreign institutional ownership after the adoption of mandatory sustainability disclosure regulation is larger among firms with above-median prior sustainability performance.

VI. CONCLUSION

Using a DiD design, we find that foreign institutional ownership increases after the NFRD mandate and that the increase is greater among EU countries that require combined reporting. This is consistent with combined reporting lowering investors' disclosure processing costs by providing timelier sustainability disclosures and easier integration of sustainability and financial information. We also find that the increase in foreign institutional ownership is larger among the companies that experience greater improvement in comparability in these countries, consistent with improved comparability helping to explain the increase in foreign investment.

We contribute to the literature by documenting the effects of the widespread adoption of the NFRD sustainability reporting mandate, as well as the location of the disclosures, on cross-border investment decisions. Our findings suggest that the EU's adoption of mandatory sustainability reporting, when disclosed within the annual report, reduces disclosure processing costs for foreign institutional investors. These findings highlight the importance of the disclosure location and provide potential policy implications for the formation and design of global sustainability reporting standards.

REFERENCES

- Accountancy Europe. 2017. Member State Implementation of Directive 2014/95/EU.
- Aggarwal, R., I. Erel, M. Ferreira, and P. Matos. 2011. Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics* 100, 154–181.
- API (American Petroleum Institute). 2022. SEC Release No. 33-11042; File No. S7-10-22. Letter to SEC in response to SEC's proposed climate disclosure regulation. June 17.
- Armstrong, C., D. Kepler, D. Samuels, and D. Taylor. 2022. Causality redux: The evolution of empirical methods in accounting research and the growth of quasi-experiments. *Journal of Accounting and Economics* 74, 101521.
- Austin, P.C. 2011. Optimal caliper widths for propensity-score matching when estimating differences in means and differences in proportions in observational studies. *Pharmaceutical Statistics* 10, 150–161.
- Bertrand, M., and S. Mullainathan. 2003. Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy* 111, 1043–1075.
- Blankespoor, E., E. deHaan, and I. Marinovic. 2020. Disclosure processing costs, investors' information choice, and equity market outcomes: A review. *Journal of Accounting and Economics* 70, 101344.
- Blankespoor, E., E. deHaan, J. Wertz, and C. Zhu. 2019. Why do individual investors disregard accounting information? The roles of information awareness and acquisition costs. *Journal of Accounting Research* 57, 53–84.
- Bradshaw, M.T., B.J. Bushee, and G.S. Miller. 2004. Accounting choice, home bias, and U.S. investment in non-U.S. firms. *Journal of Accounting Research* 42, 795–841.
- Bucaro, A.C., K.E. Jackson, and J.B. Lill. 2020. The influence of corporate social responsibility measures on investors' judgments when integrated in a financial report versus presented in a separate report. *Contemporary Accounting Research* 37, 665–695.
- Business Roundtable. 2022. SEC Release No. 33-11042; File No. S7-10-22. Letter to SEC in response to SEC's proposed climate disclosure regulation. June 17.
- Carrots & Sticks. 2020. Sustainability reporting policy: Global trends in disclosure as the ESG agenda goes mainstream. KPMG, GRI, UNEP, and University of Stellenbosch.
- CDSB. 2020. Falling short? Why environmental and climate-related disclosures under the EU Non-Financial Reporting Directive must improve. Climate Disclosure Standards Board.
- Chan, K., V. Covrig, and L. Ng. 2005. What determines the domestic bias and foreign bias? Evidence from mutual fund equity allocations worldwide. *The Journal of Finance* 60, 1495–1534.
- Chen, Y.C., M. Hung, and Y. Wang. 2018. The effect of mandatory CSR disclosure on firm profitability and social externalities: Evidence from China. *Journal of Accounting and Economics* 65, 169–190.
- Chevron. 2022. SEC Release No. 33-11042; File No. S7-10-22. Letter to SEC in response to SEC's proposed climate disclosure regulation. June 17.
- Christensen, H.B., E. Floyd, L.Y. Liu, and M. Maffett. 2017. The real effects of mandated information on social responsibility in financial reports: Evidence from mine-safety records. *Journal of Accounting and Economics* 64, 284–304.
- Christensen, D., G. Serafeim, and A. Sikochi. 2022. Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The Accounting Review* 97, 147–175.

- Covrig, V., M. DeFond, and M. Hung. 2007. Home bias, foreign mutual fund holdings, and the voluntary adoption of International Accounting Standards. *Journal of Accounting Research* 45, 41–70.
- DBEIS, 2016. The Non-Financial Reporting Directive: The Government Response to the consultation on implantation of the Directive. Department for Business, Energy & Industrial Strategy. November 2016.
- DeFond, M., X. Hu, M. Hung, and S. Li. 2011. The impact of mandatory IFRS adoption on foreign mutual fund ownership: the role of comparability. *Journal of Accounting and Economics* 51, 240–258.
- De Franco, G., S.P. Kothari, and R. Verdi. 2011. The benefits of firm comparability. *Journal of Accounting Research* 49, 895–931.
- Dhaliwal, D., O. Li, A. Tsang, and Y. Yang. 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86, 59–100.
- Dyck, A., K.V. Lins, L. Roth, and H.F. Wagner. 2019. Do institutional investors drive corporate social responsibility? International evidence. *Journal of Financial Economics* 131, 693–714.
- EC (European Commission). 2014. Directive 2014/95/EU of the European Parliament and of the Council.
- EC (European Commission). 2021. Commission Staff working document: Impact assessment accompanying the document Proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting
- EPRS (European Parliamentary Research Service). 2021. Non-financial reporting directive.
- ERM. 2020. Rate the raters 2020: Investor survey and interview results. ERM SustainAbility Institute, March 2020.
- Fiechter, P., J.-M. Hitz, and N. Lehmann. 2022. Real effects of a widespread CSR reporting mandate: Evidence from the European Union's CSR directive. *Journal of Accounting Research* 60, 1499–1549.
- Florou, A. and P. Pope. 2012. Mandatory IFRS adoption and institutional investment decisions. *The Accounting Review* 87, 1993–2025.
- Frank Bold. 2017. Comparing the implementation of the EU Non-Financial Reporting Directive in the UK, Germany, France and Italy. Frank Bold, November 2017.
- Gensler, G. 2021a. Prepared remarks before the principles for responsible investment “climate and global financial markets” Webinar, Washington, D.C., July 28.
- Gensler, G. 2021b. Gensler prefers corporate climate change disclosure in annual reports. Thomas Reuters, October 22.
- Gensler, G. 2022. SEC Chair Gensler Speaks Further on Climate-Risk Disclosure Proposal. The Columbia Law School Blue Sky Blog, October 22.
- Gibbons, B. 2024. The financially material effects of mandatory nonfinancial disclosure. *Journal of Accounting Research* 62, 1711–1754.
- Grewal, J., E. Riedl, and G. Serafeim. 2019. Market reaction to mandatory nonfinancial disclosure. *Management Science* 65, 2947–3448.
- GRI. 2016. GRI 102: General disclosures 2016. Global Reporting Initiative.
- GSIR. 2020. Global sustainable investment review. Global Sustainable Investment Alliance.
- Hong, H.A., J.W. Ryou, and A. Srivastava. 2023. Financial statement comparability and corporate tax strategy. *European Accounting Review* 32, 85–112.

- IMF (International Monetary Fund). 2019. Global Financial Stability Report. October 2019.
- ISSB (International Sustainability Standards Board). 2023. IFRS S1: General requirements for disclosure of sustainability-related financial information.
- Kang, J.K. and R. Stulz. 1997. Why is there a home bias? an analysis of foreign portfolio equity ownership in Japan. *Journal of Financial Economics* 46, 3–28.
- Krueger, P., Z. Sautner, and L.T. Starks. 2020. The importance of climate risks for institutional investors. *The Review of Financial Studies* 33, 1067–1111.
- Krueger, P., Z. Sautner, D. Tang, and R. Zhong. 2024. The effects of mandatory ESG disclosure around the world. *Journal of Accounting Research* 62, 1795–1847.
- Leuz, C. and R.E. Verrecchia. 2000. The economic consequences of increased disclosure. *Journal of Accounting Research* 38 (Supplement), 91–124.
- Liang, H. and L. Renneboog. 2017. On the foundations of corporate social responsibility. *The Journal of Finance* 72, 853–910.
- Lin, Y., R. Shen, J. Wang, J., and Y. Yu. 2024. Global evolution of environmental and social disclosure in annual reports. *Journal of Accounting Research* 62, 1941–1988.
- Lins, K., H. Servaes, and A. Tamayo. 2017. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance* 72, 1785–1824.
- Ochoa, F. N. 2021. Europe’s ‘Green’ disclosure rules give fund investors clarity – and confusion. *The Wall Street Journal*, June 25.
- PRI. 2016. Letter from Principles for Responsible Investment, NFRC-A call for views on effective reporting alongside proposals to implement EU requirements.
- SASB. 2016. Re: Concept Release on Business and Financial Disclosure Required by Regulation S-K. Comment letter, Sustainability Accounting Standards Board. <https://www.sec.gov/comments/s7-06-16/s70616-25.pdf>
- SEC. 2024. SEC Adopts Rules to Enhance and Standardize Climate-Related Disclosures for Investors. <https://www.sec.gov/news/press-release/2024-31>
- U.S. Chamber of Commerce. 2022. SEC Release No. 33-11042; File No. S7-10-22. Letter to SEC in response to SEC’s proposed climate disclosure regulation. June 17.
- Ward, T. 2016. Letter from Quoted Companies Alliance, NFRC-A call for views on effective reporting alongside proposals to implement EU requirements. April, 15.
- Yip, R., and D. Young. 2012. Does mandatory IFRS adoption improve information comparability? *The Accounting Review* 87, 1767–1789.
- Yu, G. and A. Wahid. 2014. Accounting standards and international portfolio holdings. *The Accounting Review* 89, 1895–1930.
- Yu, W., and Y. Zheng. 2020. Does CSR reporting matter to foreign institutional investors in China? *Journal of International Accounting, Auditing and Taxation* 40, 100322.

APPENDIX A
Summary of EU's Non-financial Reporting Directive (NFRD)

Topic	NFRD and key state-specific requirements for sample countries
Scope	Large companies with listed securities, large banks, and large insurance companies, with greater than 500 employees and with either total assets above EUR 20 million or net turnover above EUR 40 million.
Timeline	Applies to companies under the scope of the NFRD for the financial year starting on January 1, 2017.
Reporting location	• Annual report, or a separate stand-alone report if the Member State allows. • France, Greece, Hungary, Malta, the Netherlands, and the U.K. require the information to be included in the annual report (as part of the management report/strategic report).
Reporting content	Information must be provided, at a minimum, for the following issues: • Environment • Social & employee • Human rights • Anti-corruption & bribery For each issue, disclose the following: business model, policies including due diligence procedure, outcomes, risks and risk management, and key performance indicators.
Reporting framework	An international, EU-based, or national reporting framework.
Audit and Assurance	• Auditor checks that the company has complied with including the required disclosures. The content is not required to be audited unless required by the Member State. • France, Italy, and Spain require verification by an independent assurance service provider.

Sources: Accountancy Europe (2017) and EC (2021)

APPENDIX B

Variable Definitions

Variables	Description
<i>Variables of Interest</i>	
Foreign IO (%)	Foreign institutional ownership, defined as the total market value of shares owned by foreign institutional investors divided by the total market value of the firm at the end of the year, and multiplied by 100. Source: Global Ownership.
Treat	Indicator variable that is equal to one if a firm is domiciled and listed in one of the EU countries, and zero if the firm is neither domiciled nor listed in the EU. Source: Datastream.
Post	Indicator variable that is equal to one starting from the fiscal year end in December 2017, and is equal to zero otherwise. Source: Worldscope.
Over/Underweight of Foreign Investors	Investment weight of the firm in foreign institutional investors' portfolios relative to the global market portfolio. First, for each firm-year, compute the ratio of the market value of the firm held by foreign institutional investors over the market value of all stocks held by institutional investors from foreign countries that invest in this firm. Second, calculate the benchmark weight by dividing the float-adjusted market value of the firm by the float-adjusted market value of the global portfolio, which consists of all firms covered by Global Ownership and Worldscope with non-missing float data. Third, divide the ratio from the first step by the benchmark weight. Source: Global Ownership and Worldscope.
# of Sentences	Total number of sentences in the report.
# of Words	Total number of words in the report.
# of E&S Sentence	Total number of E&S related sentences, identified as those containing words from the E&S dictionary developed by Lin et al. (2024).
# of Words in E&S Sentence	Total number of words in E&S related sentences.
ChgComp	The change in country comparability is calculated as the number of firms using a combined report in the country right after the NFRD (<i>Year 1</i>) minus the number of such firms immediately before the NFRD (<i>Year -1</i>). Source: Corporate Register.
ESG Disclosure	A score that measures the extent of a firm's environmental, social, and governance (ESG) disclosure, expressed on a scale from 0.1 to 100. Source: Bloomberg.
E Disclosure	A score that measures the extent of a firm's environmental disclosure, expressed on a scale from 0.1 to 100. Source: Bloomberg.
S Disclosure	A score that measures the extent of a firm's social disclosure, expressed on a scale from 0.1 to 100. Source: Bloomberg.
Foreign Independent Institutions (%)	Percentage ownership by foreign mutual fund managers and investment advisors (OwnerTypeCode=107 and 113), multiplied by 100. Source: Global Ownership.
Foreign Pension and Hedge Funds (%)	Percentage ownership by foreign pension funds (OwnerTypeCode=110) and hedge funds (OwnerTypeCode=106), multiplied by 100. Source: Global Ownership.
Domestic IO (%)	Domestic institutional ownership, defined as the total market value of shares owned by domestic institutional investors divided by the total market value of the firm at the end of the year, and multiplied by 100. Source: Global Ownership.

Control Variables

Ln (ESG Score)	Log of the overall environmental, social, and governance (ESG) performance score. Source: Asset4.
Nanalyst	Number of distinct analysts who make an EPS forecast over the fiscal year. Source: I/B/E/S.
Size	Log of market capitalization denominated in USD. Source: Worldscope.
ROE	Net income before extraordinary items divided by book value of common equity. Source: Worldscope.
Returns	Buy-and-hold returns over the fiscal year. Source: Datastream.
Return Variation	Standard deviation of monthly stock returns over the fiscal year. Source: Datastream.
LEV	Total liabilities divided by total assets. Source: Worldscope.
Div Yield	Total cash dividends divided by the market capitalization at the fiscal year-end. Source: Worldscope.
Book-to-market	Book value of common equity divided by market capitalization at the fiscal year-end. Source: Worldscope.
EP Ratio	Net income divided by market capitalization at the fiscal year-end. Source: Worldscope.
Sales Growth	Annual sales growth. Source: Worldscope.
Turnover	Total share volume over the fiscal year divided by shares outstanding. Source: Datastream and Worldscope.
Cash	Cash and short-term investment divided by total assets. Source: Worldscope.
Closely Held	Number of shares held by insiders divided by the number of shares outstanding. Source: Worldscope.
Market Index	Indicator variable equal to one if the firm is included by any stock market index. Source: Worldscope.
Big 4 Auditor	Indicator variable equal to one if the firm is a client of a Big 4 auditor. Source: Worldscope.
ADR	Indicator variable equal to one if the firm issues ADR shares. Source: Thomson Reuters and the websites of Citi Bank, the Bank of New York Mellon, and J.P. Morgan.
GRI/OECD	Indicator variable equal to one if the non-financial statement is compliant with the GRI standards or OECD Guidelines for Multinational Enterprises. Source: Asset4.

FIGURE 1

Effects of the NFRD on Foreign Institutional Ownership over Time

This figure illustrates the effects of the NFRD on foreign institutional ownership over time as reported in Table 3, Panel B. We exclude the transition year (*Year 0*) and set *Year -1* as the benchmark year. The solid points represent the point estimates and the lines indicate 90% confidence intervals.

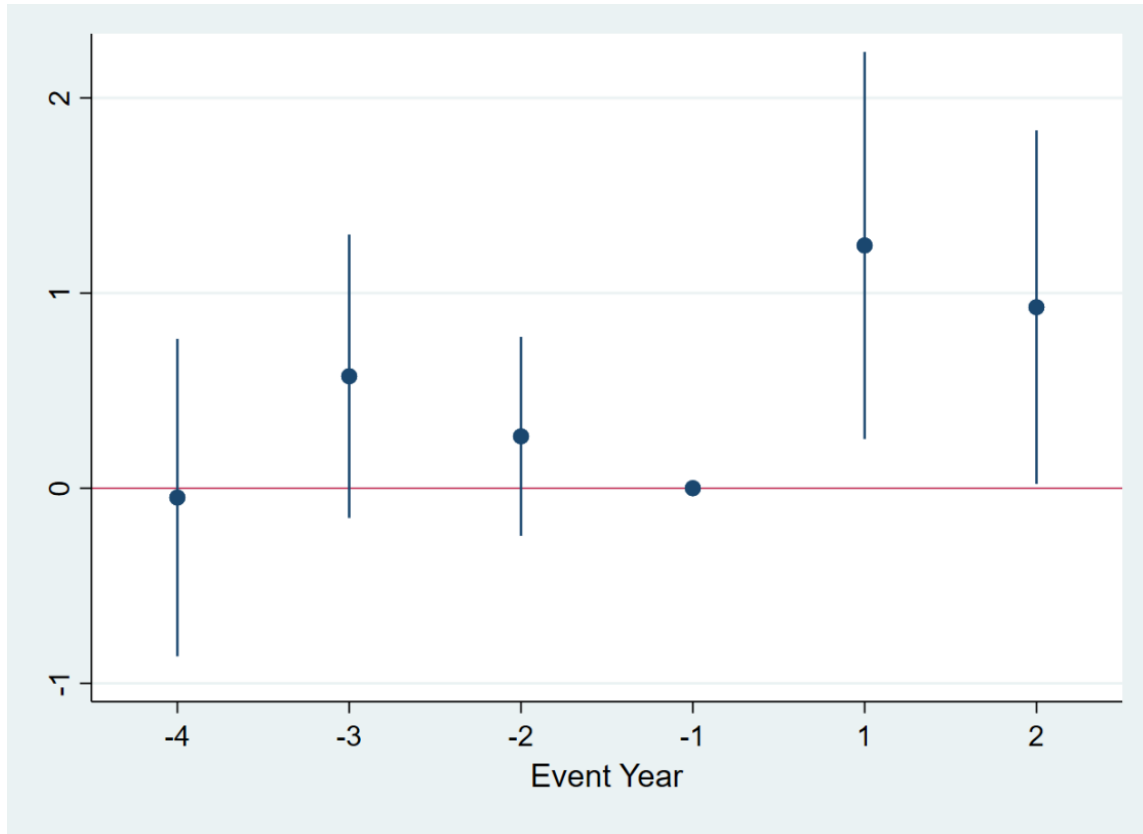


TABLE 1
Sample Distribution

Panel A reports the sample distribution for treatment and benchmark countries. Panel B reports the number of observations by event year.

Panel A: Distribution by Economy

Treatment Firms			Benchmark Firms					
	N. of Firms	N. of Obs		N. of Firms	N. of Obs		N. of Firms	N. of Obs
Austria	10	38	Argentina	1	3	Malaysia	29	108
Belgium	16	60	Australia	109	391	Mexico	24	92
Cyprus	1	4	Bermuda	9	31	Morocco	1	4
Czech Republic	2	8	Brazil	35	131	New Zealand	18	62
Denmark	19	69	Canada	137	525	Norway	15	56
Finland	24	94	Cayman Islands	1	3	Panama	1	3
France	70	275	Chile	14	55	Papua New Guinea	1	4
Germany	69	237	China	120	458	Philippines	15	54
Greece	10	37	Colombia	2	8	Russia	19	68
Hungary	3	12	Hong Kong	82	322	Saudi Arabia	1	4
Ireland	16	61	India	74	285	Singapore	17	64
Italy	24	92	Indonesia	28	108	South Africa	74	281
Luxembourg	6	23	Israel	11	43	Switzerland	44	165
Malta	1	3	Japan	358	1,405	Taiwan	11	40
Netherlands	24	87	Kenya	1	4	Thailand	5	19
Poland	16	64	Korea	6	21	Turkey	16	60
Portugal	6	24	Macau	3	11	U.S.	1,010	3,546
Spain	32	124				Total	2,292	8,434
Sweden	44	159						
U.K.	209	789						
Total	602	2,260						

Panel B: Sample Distribution by Event Year

Event Year (Fiscal year-end of financial data)	Treatment Firms	Benchmark Firms	Full sample
Year -2 (Dec 2014 to Nov 2015)	498	1,753	2,251
Year -1 (Dec 2015 to Nov 2016)	600	2,254	2,854
Year 1 (Dec 2017 to Nov 2018)	597	2,255	2,852
Year 2 (Dec 2018 to Nov 2019)	565	2,172	2,737
Total	2,260	8,434	10,694

TABLE 2
Summary Statistics

This table presents the descriptive statistics of the main variables for our regression analysis. Panel A reports the statistics of the full sample and Panel B reports the statistics of the propensity-score-matched sample. See Appendix B for variable definitions.

Panel A: Full Sample

	Treatment Firms				Benchmark Firms			
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev
Foreign IO (%)	2,260	19.31	17.82	10.78	8,434	12.61	10.56	9.80
Ln (ESG Score)	2,260	4.01	4.08	0.37	8,434	3.71	3.81	0.52
Nanalyst	2,260	10.29	10.00	6.09	8,434	8.76	8.00	5.95
Size	2,260	22.25	22.22	1.44	8,434	22.27	22.23	1.35
ROE	2,260	0.12	0.12	0.21	8,434	0.12	0.11	0.21
Returns	2,260	0.06	0.05	0.30	8,434	0.07	0.04	0.33
Return Variation	2,260	0.08	0.07	0.03	8,434	0.08	0.08	0.04
LEV	2,260	0.57	0.58	0.17	8,434	0.52	0.53	0.19
Div Yield	2,260	0.03	0.02	0.02	8,434	0.02	0.02	0.02
Book-to-market	2,260	0.59	0.45	0.51	8,434	0.61	0.47	0.53
EP Ratio	2,260	0.03	0.05	0.13	8,434	0.03	0.05	0.13
Sales Growth	2,260	0.05	0.04	0.14	8,434	0.08	0.06	0.17
Turnover	2,260	0.96	0.57	2.43	8,434	1.85	1.11	2.81
Cash	2,260	0.11	0.09	0.08	8,434	0.14	0.10	0.13
Closely Held	2,260	0.26	0.19	0.24	8,434	0.22	0.10	0.25
Market Index	2,260	0.84	1.00	0.37	8,434	0.74	1.00	0.44
Big 4 Auditor	2,260	0.89	1.00	0.31	8,434	0.90	1.00	0.30
ADR	2,260	0.84	1.00	0.37	8,434	0.36	0.00	0.48
GRI/OECD	2,260	0.56	1.00	0.50	8,434	0.39	0.00	0.49
Over/Underweight of Foreign Investors	2,251	0.51	0.50	0.24	8,410	0.59	0.48	0.41
ESG Disclosure	2,180	41.68	41.74	12.26	8,229	31.41	29.34	14.17
Environmental Disclosure	2,141	34.15	34.15	15.70	6,429	27.83	27.91	17.72
Social Disclosure	2,165	45.35	43.86	13.65	7,718	31.04	28.07	15.82
Foreign Independent Institutions (%)	2,260	16.67	15.25	9.86	8,434	10.38	8.40	8.55
Foreign Pension and Hedge Funds (%)	2,260	0.70	0.37	1.05	8,434	0.75	0.43	1.06
Domestic IO (%)	2,260	10.29	5.23	11.53	8,434	35.20	10.81	36.92

TABLE 2, CONTINUED

Panel B: Matched Sample

	Treatment Firms				Benchmark Firms			
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev
Foreign IO (%)	2,078	19.17	17.72	10.82	2,036	13.28	11.03	10.65
Ln (ESG Score)	2,078	4.00	4.07	0.37	2,036	3.72	3.80	0.52
Nanalyst	2,078	9.80	9.00	5.86	2,036	9.88	9.00	6.17
Size	2,078	22.19	22.14	1.44	2,036	22.20	22.20	1.36
ROE	2,078	0.12	0.12	0.21	2,036	0.13	0.12	0.22
Returns	2,078	0.05	0.04	0.29	2,036	0.09	0.06	0.34
Return Variation	2,078	0.08	0.07	0.03	2,036	0.08	0.07	0.04
LEV	2,078	0.57	0.58	0.17	2,036	0.53	0.55	0.19
Div Yield	2,078	0.03	0.03	0.02	2,036	0.02	0.02	0.02
Book-to-market	2,078	0.60	0.46	0.51	2,036	0.60	0.43	0.56
EP Ratio	2,078	0.03	0.05	0.13	2,036	0.03	0.04	0.13
Sales Growth	2,078	0.05	0.04	0.15	2,036	0.08	0.06	0.17
Turnover	2,078	0.98	0.56	2.53	2,036	1.91	1.13	2.99
Cash	2,078	0.11	0.08	0.08	2,036	0.13	0.09	0.13
Closely Held	2,078	0.25	0.17	0.24	2,036	0.21	0.08	0.25
Market Index	2,078	0.83	1.00	0.38	2,036	0.73	1.00	0.45
Big 4 Auditor	2,078	0.89	1.00	0.31	2,036	0.91	1.00	0.29
ADR	2,078	0.83	1.00	0.37	2,036	0.33	0.00	0.47
GRI/OECD	2,078	0.54	1.00	0.50	2,036	0.39	0.00	0.49
Over/Underweight of Foreign Investors	2,070	0.51	0.49	0.24	2,027	0.62	0.52	0.42
ESG Disclosure	1,998	41.23	40.50	12.21	1,987	30.82	28.51	14.02
E Disclosure	1,959	33.50	33.33	15.65	1,554	26.00	24.81	17.34
S Disclosure	1,983	45.00	43.86	13.43	1,868	31.53	28.07	16.03
Foreign Independent Institutions (%)	2,078	16.53	15.08	9.89	2,036	10.95	8.81	9.35
Foreign Pension and Hedge Funds (%)	2,078	0.70	0.36	1.06	2,036	0.80	0.46	1.11
Domestic IO (%)	2,078	10.83	5.75	11.76	2,036	37.06	13.69	37.41

TABLE 3

Adoption of the Non-financial Reporting Directive (NFRD) and Foreign Institutional Ownership

This table presents the results of the NFRD mandate on foreign institutional ownership. Panel A reports the estimates of our baseline regressions. Our primary measure *Foreign IO* (%) is the percentage of foreign institutional ownership, multiplied by 100. *Treat* is the indicator for firms domiciled and listed in EU countries. *Post* is the indicator variable for the post-NFRD period. We also use the *Over/Underweight of Foreign Investors* to capture the over/underweight of foreign institutional investors in their portfolio holdings relative to the global market portfolio as an alternative measure of investment decision. Panel B shows the effect of the NFRD over time and a placebo test. Panel C presents robustness checks of the baseline regressions of foreign institutional ownership and reports the results of the NFRD on domestic institutional ownership. See Appendix B for definitions of other variables. *t* statistics are reported in parentheses, based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Impact of the NFRD on Foreign Institutional Ownership

Dep. Var. =	Foreign IO (%)				Over/Underweight of Foreign Investors			
Sample =	Full Sample		Matched Sample		Full Sample		Matched Sample	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat	4.041** (2.32)		3.077 (1.66)		0.001 (0.02)		-0.057 (-0.95)	
Post	1.048*** (4.90)		0.707* (1.90)		0.025*** (2.75)		0.005 (0.28)	
Treat x Post	1.380*** (2.74)	1.065** (2.30)	1.746*** (3.08)	1.402*** (2.98)	0.021* (1.79)	0.032** (2.64)	0.040** (2.29)	0.051*** (3.09)
Ln (ESG Score)	1.736** (2.59)	1.193** (2.15)	1.978** (2.21)	1.311* (1.88)	0.065*** (2.82)	0.053** (2.67)	0.050* (1.85)	0.050** (2.30)
Nanalyst	0.200** (2.31)	0.262*** (3.06)	0.126 (1.16)	0.260*** (2.69)	0.013*** (3.34)	0.011*** (6.28)	0.009** (2.62)	0.010*** (3.46)
Size	0.425 (1.37)	0.781* (1.98)	0.839 (1.38)	0.994* (1.68)	0.047** (2.21)	0.023 (1.28)	0.058*** (2.90)	0.029 (1.51)
ROE	3.566*** (3.86)	3.122*** (3.75)	4.161*** (3.66)	3.846*** (4.14)	0.172*** (4.40)	0.139*** (7.16)	0.170*** (3.45)	0.133*** (3.19)
Returns	-0.269 (-0.73)	-0.791** (-2.17)	-0.199 (-0.43)	-0.428 (-1.04)	-0.066*** (-5.70)	-0.022* (-1.71)	-0.053*** (-3.09)	-0.015 (-0.97)
Return Variation	13.365 (1.19)	8.491 (0.82)	20.418* (1.87)	17.526 (1.59)	0.217 (0.59)	-0.130 (-0.39)	0.265 (0.80)	0.191 (0.62)
LEV	-8.011***	-6.660***	-10.250***	-8.836***	-0.119***	-0.198***	-0.203***	-0.266***

	(-2.87)	(-2.98)	(-2.89)	(-3.19)	(-2.74)	(-4.50)	(-3.74)	(-4.44)
Div Yield	1.813	-12.623	-13.401	-12.028	-0.896**	-0.496*	-1.428***	-0.653*
	(0.15)	(-1.02)	(-0.85)	(-0.99)	(-2.09)	(-1.97)	(-3.36)	(-1.81)
Book-to-market	-0.443	-1.121**	-1.138**	-2.105***	-0.057**	-0.017	-0.056***	-0.038*
	(-0.79)	(-2.47)	(-2.24)	(-4.34)	(-2.62)	(-1.05)	(-2.78)	(-1.76)
EP Ratio	-5.541**	-3.279**	-4.513*	-3.358*	-0.194**	-0.142**	-0.152*	-0.124*
	(-2.22)	(-2.04)	(-1.92)	(-1.87)	(-2.40)	(-2.37)	(-2.01)	(-1.74)
Sales Growth	2.503**	0.436	2.311*	-0.231	0.010	0.015	-0.033	-0.023
	(2.48)	(0.81)	(1.78)	(-0.21)	(0.25)	(0.84)	(-0.61)	(-0.64)
Turnover	-0.225*	-0.044	-0.206*	-0.032	0.005	0.001	0.007*	0.002
	(-1.96)	(-0.66)	(-1.86)	(-0.29)	(0.89)	(0.68)	(1.89)	(0.83)
Cash	1.659	2.174	2.047	1.059	0.118	0.138**	0.150	0.139*
	(0.86)	(1.66)	(0.93)	(0.67)	(1.31)	(2.54)	(1.46)	(1.88)
Closely Held	-13.086***	-18.019***	-17.149***	-22.132***	0.058	0.182***	0.017	0.123**
	(-4.97)	(-7.65)	(-6.66)	(-11.50)	(1.32)	(3.17)	(0.29)	(2.67)
Market Index	1.120**	0.849**	1.463*	1.095*	-0.053	0.031***	-0.030	0.026*
	(2.03)	(2.13)	(1.98)	(1.93)	(-1.63)	(2.77)	(-1.19)	(1.72)
Big 4 Auditor	0.139	0.101	-1.103	-1.757***	0.070*	0.026	0.006	-0.066***
	(0.16)	(0.23)	(-1.16)	(-2.88)	(1.88)	(1.25)	(0.17)	(-3.30)
ADR	3.637**	1.105	4.841***	1.739*	-0.183***	-0.005	-0.103*	0.012
	(2.41)	(1.47)	(4.01)	(1.83)	(-2.75)	(-0.16)	(-1.82)	(0.31)
GRI/OECD	0.650	-0.203	0.696	-0.262	-0.051**	-0.009	-0.040*	-0.008
	(1.04)	(-0.38)	(0.89)	(-0.46)	(-2.43)	(-0.54)	(-1.83)	(-0.52)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	10,694	10,694	4,114	4,114	10,661	10,661	4,097	4,097
Adj. R ²	0.263	0.486	0.330	0.530	0.218	0.378	0.207	0.361

TABLE 3, CONTINUED

Panel B: Impact of the NFRD over Time

Dep. Var. =	Foreign IO (%)							
Event Window =	[-2, 2], excl. t=0		[-4, 2], excl. t=0		[-4, 2], incl. t=0		Placebo Test [-4, -1]	
Sample =	Full	Matched	Full	Matched	Full	Matched	Full	Matched
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat x Year -4			-0.048 (-0.10)	0.095 (0.18)	-0.076 (-0.16)	0.051 (0.11)		
Treat x Year -3			0.574 (1.32)	0.291 (0.65)	0.605 (1.42)	0.309 (0.69)		
Treat x Year -2	0.263 (0.83)	0.105 (0.24)	0.266 (0.87)	0.121 (0.29)	0.285 (0.94)	0.117 (0.31)		
Treat x Year 0					0.796** (2.22)	0.996*** (2.94)		
Treat x Year 1	1.318** (2.22)	1.570** (2.24)	1.244** (2.10)	1.534** (2.16)	1.244** (2.17)	1.491** (2.28)		
Treat x Year 2	1.042* (1.91)	1.320** (2.66)	0.928* (1.71)	1.319** (2.58)	0.943* (1.81)	1.310*** (2.71)		
Treat x Placebo Post							-0.100 (-0.29)	-0.054 (-0.16)
Other variables	Controls, Industry FE, Country FE, Year FE							
Observations	10,694	4,114	14,509	5,657	17,356	6,743	8,851	3,528
Adj. R ²	0.486	0.530	0.474	0.523	0.476	0.529	0.463	0.502

Panel C: Robustness Checks

Dep. Var. =	Foreign IO (%)					Domestic IO (%)
	Common Law Countries	Civil Law Countries	Excl. influential countries (U.S., UK, and Japan)	Excl. U.S. and Canada	Excl. countries with assurance requirements (France, Italy, and Spain)	Full Sample
	(1)	(2)	(3)	(4)	(5)	(6)
Treat x Post	2.146*** (8.94)	0.994* (2.02)	0.875** (2.06)	1.350*** (2.88)	1.342*** (2.88)	-0.498 (-0.73)
Other variables	Controls, Industry FE, Country FE, Year FE					
Observations	6,546	4,148	4,954	6,623	10,203	10,694
Adj. R ²	0.491	0.512	0.509	0.537	0.479	0.915

TABLE 4

Impact of NFRD on Foreign Institutional Ownership: The Role of Disclosure Location

This table presents the results on the impact of the NFRD on foreign institutional ownership conditional on countries that require combined reporting. We partition treatment firms based on whether the firm is domiciled and listed in a country that requires combined reports. We include all benchmark firms in each subsample. *Foreign IO (%)* is the percentage of foreign institutional ownership, multiplied by 100. *Treat* is the indicator for firms domiciled and listed in EU countries. *Post* is the indicator variable for the post-NFRD period. See Appendix B for definitions of other variables. *t* statistics are reported in parentheses, based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dep. Var. =	Foreign IO (%)			
Sample =	Full Sample		Matched Sample	
	Countries that require combined reports	Countries that allow stand-alone reports	Countries that require combined reports	Countries that allow stand-alone reports
	(1)	(2)	(3)	(4)
Treat x Post	1.607***	0.480	2.007***	0.809*
	(3.16)	(1.11)	(4.01)	(1.77)
Test of diff in coefficient on				
Treat x Post	Col (1) vs Col (2): $\chi^2= 3.179^*$		Col (3) vs Col (4): $\chi^2= 3.531^*$	
Other variables	Controls, Industry FE, Country FE, Year FE			
Observations	9,623	9,505	3,191	2,959
Adj. R ²	0.454	0.468	0.494	0.527

TABLE 5

Disclosure Characteristics across Disclosure Locations

Panel A shows the summary statistics of filing lags, in days, for stand-alone reports relative to annual reports for EU firms from countries that allow stand-alone reports. Panel B shows the summary statistics for the E&S disclosures for EU firms that did not issue combined reports in Year –1 but are from countries that require combined reports. Each firm is required to have a stand-alone report and an annual report in Year –1 as well as an annual report at Year 1 from Refinitiv. *# of Sentences* is the total number of sentences. *# of Words* is the total number of words. *# of E&S Sentences* is the number of E&S sentences and *# of Words in E&S Sentences* is the total words within them.

Panel A: Time Lags of Stand-alone Reports Relative to Annual Reports

	N	Mean	Q1	Median	Q3	Std Dev
Year –1	164	50.34	0	28	80	62.99
Year 1	189	38.51	0	20	59	52.09
Year 2	188	30.24	-1	7	55	45.44

Panel B: Analyses of Contents, Stand-alone Reports versus Annual Reports

	Report	N	Mean	Q1	Median	Q3	Std Dev
# of Sentences	Stand-alone Report, Year –1	72	786	351	622	1,141	602
	Annual Report, Year –1	72	3,688	2,620	3,277	4,389	1,390
	Combined Report, Year 1	72	4,052	3,058	3,703	4,668	1,434
# of Words	Stand-alone Report, Year –1	72	17,788	7,626	14,271	25,091	13,413
	Annual Report, Year –1	72	87,409	60,288	79,411	105,409	33,324
	Combined Report, Year 1	72	96,351	72,339	88,421	114,263	35,025
# of E&S Sentences	Stand-alone Report, Year –1	72	234	91	167	344	185
	Annual Report, Year –1	72	283	119	193	426	216
	Combined Report, Year 1	72	340	153	239	472	253
# of Words in E&S Sentences	Stand-alone Report, Year –1	72	6,242	2,326	4,416	9,072	4,815
	Annual Report, Year –1	72	8,365	3,423	5,867	12,501	6,309
	Combined Report, Year 1	72	10,044	4,740	6,911	14,501	7,512

TABLE 6

Disclosure Location and Changes in Comparability

Panel A tabulates changes in comparability, measured by the number of firms from the same country using a combined report. Panel B shows the analysis conditional on changes in comparability. See Appendix B for definitions of variables. *t* statistics are reported in parentheses, based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Number of Combined Reporters and Change in Sustainability Reporting Comparability by Country

	N, Year = -1	N, Year =1	Diff. (ChgComp)		N, Year = -1	N, Year =1	Diff. (ChgComp)
Countries of domicile that require combined reports				Cyprus	0	0	0
Malta	0	0	0	Ireland	6	6	0
Hungary	2	3	1	Austria	3	4	1
Greece	0	10	10	Portugal	3	4	1
Netherlands	13	23	10	Belgium	9	11	2
France	42	70	28	Spain	9	12	3
U.K.	98	204	106	Poland	2	5	3
Subtotal/mean	155	310	25.83 (Mean)	Germany	25	30	5
Countries of domicile that allow stand-alone reports				Italy	1	7	6
Czech Republic	1	0	-1	Sweden	17	26	9
Finland	7	6	-1	Subtotal/mean	88	115	1.93 (Mean)
Denmark	5	4	-1				
Luxembourg	0	0	0	Total/mean	243	425	12.15 (Mean)

Panel B: The Change in Reporting Comparability and the Change in Foreign Investment

Dep. Var. =	Foreign IO (%)			
Sample =	Full Sample		Matched Sample	
	Countries that require combined reports	Countries that allow stand-alone reports	Countries that require combined reports	Countries that allow stand-alone reports
	(1)	(2)	(3)	(4)
Treat x Post	0.068	0.385	0.493	0.773*
	(0.11)	(1.06)	(0.86)	(2.01)
Treat x Post x ChgComp (β_1)	0.020***	0.024	0.019***	0.009
	(3.07)	(0.55)	(3.08)	(0.23)
Test of diff in coeff. on β_1	Col (1) vs Col (2): χ^2 = 0.009		Col (3) vs Col (4): χ^2 = 0.060	
Other variables	Controls, Industry FE, Country FE, Year FE			
Observations	9,623	9,505	3,190	2,959
Adj. R ²	0.454	0.468	0.494	0.527

TABLE 7

Analyses of Companies that Issued Combined Reports Prior to the NFRD

This table analyzes the impact of the NFRD on foreign institutional ownership conditional on country-level requirements and firm-level pre-NFRD adoption of a combined report. Panel A tabulates the frequency of these two aspects. Panel B partitions treatment firms based on whether it is domiciled and listed in a country that requires combined reports and whether it issued a combined report immediately before the NFRD (Year -1). We include all benchmark firms in each subsample. *Foreign IO (%)* is the percentage of foreign institutional ownership, multiplied by 100. *Treat* is the indicator for firms domiciled and listed in EU countries. *Post* is the indicator variable for the post-NFRD period. See Appendix B for definitions of other variables. *t* statistics are reported in parentheses, based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Two-by-two Frequency Table of Companies that Issued Combined Reports Before the NFRD, by Countries that Require Combined Reports

	Countries that require combined reports	Countries that allow stand-alone reports	Total
Issued a Combined Report before NFRD	155	88	243
Did NOT issue a Combined Report before NFRD	158	201	359
Total (# treatment firms)	313	289	602

Panel B: Analysis of Companies that Issued Combined Reports Prior to the NFRD

Dep. Var. =	Foreign IO (%)							
Sample =	Full Sample				Matched Sample			
	Countries that require combined reports		Countries that allow stand-alone reports		Countries that require combined reports		Countries that allow stand-alone reports	
Issued a combined report before NFRD?	Yes	No	Yes	No	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat x Post	2.419** (2.57)	0.827** (2.71)	1.077** (2.01)	0.146 (0.36)	2.947*** (3.64)	1.169*** (3.27)	1.322* (1.95)	0.489 (1.18)
Other variables	Controls, Industry FE, Country FE, Year FE							
Observations	9,027	9,030	8,762	9,177	2,615	2,612	2,323	2,672
Adj. R ²	0.441	0.436	0.436	0.457	0.478	0.473	0.477	0.512

TABLE 8

Analyses Conditional on Increases in Sustainability Data Point Disclosures

This table reports an analysis of the impact of the NFRD on foreign institutional ownership, conditional on changes in disclosures. We measure sustainability data point disclosure using the scores for ESG, E, and S disclosures from Bloomberg. Panel A shows the distribution of the treatment firms that increase their disclosure above the pre-NFRD average. Panel B reports the regression results conditional on whether treatment firms' average post-NFRD sustainability data point disclosures are higher than their pre-NFRD average. *Foreign IO (%)* is the percentage of foreign institutional ownership, multiplied by 100. *Treat* is an indicator for firms domiciled and listed in EU countries. *Post* is an indicator variable for the post-NFRD period. Panel C presents the regression results of the changes in sustainability data point disclosures around the NFRD, using continuous measures of the disclosure scores. Panel D includes only treatment firms with no increase in ESG disclosures and partitions treatment firms by whether it is domiciled and listed in a country that requires combined reports. We include all benchmark firms in each subsample and all regressions include control variables as in Table 3, as well as industry, country, and year fixed effects. See Appendix B for definitions of other variables. *t* statistics are reported in parentheses, based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Frequency Table of Disclosure Changes among Treatment Firms

	All countries			Countries that require combined reports			Countries that allow stand-alone reports		
	ESG	E	S	ESG	E	S	ESG	E	S
Increase in disclosure	419	381	311	212	202	143	207	179	168
No increase in disclosure	161	189	267	96	104	164	65	85	103
Total (# treatment firms)	580	570	578	308	306	307	272	264	271

Panel B: Analysis Conditional on Increase in Sustainability Data Point Disclosures

Dep. Var. =		Foreign IO (%)										
Sample =		Full Sample					Matched Sample					
Increase?	ESG Disclosure		E Disclosure		S Disclosure		ESG Disclosure		E Disclosure		S Disclosure	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Treat x Post	1.258**	0.945**	1.173**	1.293***	1.062*	1.173**	1.626***	1.516***	1.462***	1.698***	1.456**	1.464***
	(2.33)	(2.24)	(2.36)	(2.79)	(1.96)	(2.55)	(3.08)	(3.01)	(2.94)	(3.03)	(2.52)	(3.04)
Other var.	Controls, Industry FE, Country FE, Year FE											
Observations	9,806	8,832	7,862	7,137	8,891	8,710	3,444	2,528	2,882	2,185	2,950	2,769
Adj. R ²	0.483	0.445	0.481	0.440	0.468	0.460	0.531	0.483	0.529	0.474	0.521	0.506

TABLE 8, CONTINUED

Panel C: Sustainability Data Point Disclosures following the NFRD

Sample =	Full Sample			Matched Sample		
Dep. Var. =	ESG Disclosure	E Disclosure	S Disclosure	ESG Disclosure	E Disclosure	S Disclosure
	(1)	(2)	(3)	(4)	(5)	(6)
Treat x Post	-0.300	-0.375	-0.658	-0.413	-0.360	-0.344
	(-0.53)	(-0.47)	(-1.42)	(-0.82)	(-0.54)	(-0.58)
Other variables	Controls, Industry FE, Country FE, Year FE					
Observations	10,409	8,570	9,883	3,985	3,513	3,851
Adj. R ²	0.707	0.578	0.623	0.737	0.633	0.645

Panel D: Analysis Conditional on Countries that Require Combined Reports for Treatment Firms with No Increase in ESG Disclosure

Dep. Var. =	Foreign IO (%)			
Sample =	Full Sample		Matched Sample	
Partition =	Countries that require combined reports	Countries that allow stand-alone reports	Countries that require combined reports	Countries that allow stand-alone reports
	(1)	(2)	(3)	(4)
Treat x Post	1.234***	0.527	1.894***	0.888
	(3.66)	(0.77)	(5.96)	(0.87)
Other variables	Controls, Industry FE, Country FE, Year FE			
Observations	8,586	8,475	2,334	2,181
Adj. R-squared	0.438	0.433	0.472	0.459

TABLE 9
Heterogeneity across Investors and Companies

This table presents the results of the heterogeneous impact of the NFRD across investors and firms. Panel A reports the results of the impact of the NFRD on foreign institutional ownership disaggregated by whether the investor is an independent institution, or a pension or hedge fund. Panel B partitions treatment firms by whether their ESG performance immediately before the NFRD is above the median among the treatment firms. We include all benchmark firms in each subsample. *Foreign IO (%)* is the percentage of foreign institutional ownership, multiplied by 100. *Treat* is the indicator for firms domiciled and listed in EU countries. *Post* is the indicator variable for the post-NFRD period. See Appendix B for definitions of other variables. *t* statistics, reported in parentheses, are based on standard errors clustered by country. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Analysis of Foreign Independent Institutions

Sample =	Full Sample		Matched Sample	
Dep. Var. =	Foreign Ind. Institutions (%)	Foreign Pension and Hedge Funds (%)	Foreign Ind. Institutions (%)	Foreign Pension and Hedge Funds (%)
	(1)	(2)	(3)	(4)
Treat x Post (β_1)	1.049*** (2.48)	0.037 (0.97)	1.348*** (3.05)	0.062 (1.31)
Other variables	Controls, Industry FE, Country FE, Year FE			
Test of diff in β_1	Col (1) vs Col (2): $\chi^2 = 6.265^{**}$		Col (3) vs Col (4): $\chi^2 = 9.601^{***}$	
Observations	10,694	10,694	4,114	4,114
Adj. R ²	0.479	0.258	0.529	0.212

Panel B: Analysis of Firms with Different ESG Performance

Dep. Var. =	Foreign IO (%)			
Sample =	Full Sample		Matched Sample	
Partition =	High Prior ESG Performance	Low Prior ESG Performance	High Prior ESG Performance	Low Prior ESG Performance
	(1)	(2)	(3)	(4)
Treat x Post (β_1)	1.379*** (3.02)	0.722 (1.21)	1.765*** (3.88)	1.114* (1.82)
Other variables	Controls, Industry FE, Country FE, Year FE			
Test of diff in β_1	Col (1) vs Col (2): $\chi^2 = 3.218^*$		Col (3) vs Col (4): $\chi^2 = 2.827^*$	
Observations	9,579	9,549	3,077	3,073
Adj. R ²	0.471	0.450	0.521	0.495

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities*.

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

ECGI Working Paper Series in Finance

Editorial Board

Editor	Nadya Malenko, Professor of Finance, Boston College
Consulting Editors	Renée Adams, Professor of Finance, University of Oxford Franklin Allen, Nippon Life Professor of Finance, Professor of Economics, The Wharton School of the University of Pennsylvania Julian Franks, Professor of Finance, London Business School Mireia Giné, Associate Professor, IESE Business School Marco Pagano, Professor of Economics, Facoltà di Economia Università di Napoli Federico II
Editorial Assistant	Asif Malik, Working Paper Series Manager

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html