Harmonizing the Information Environment:

Do Firms Connect Financial and Nonfinancial Reporting?

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ABSTRACT

Around the world, the demand for corporate *nonfinancial* information is steadily increasing. In addition, corporate stakeholders require consistency of financial and nonfinancial disclosures. Therefore, we ask whether introducing *nonfinancial* reporting mandates alters firms' *financial* information provision. Using 63 country-level nonfinancial reporting mandates in a global sample of firms, we show that, on average, corporate earnings guidance is reduced in response to these mandates. At the same time, firms increase the average amount of non-earnings guidance. The effects vary with firms' disclosure incentives. First, when stakeholder pressure is high, firms do not reduce earnings guidance levels and increase non-earnings guidance to a larger extent. Second, firms increase non-earnings guidance levels more when proprietary costs are low. Third, firms providing nonfinancial information before the mandate do not alter their financial guidance. In additional tests, we find that the documented effects are largely driven by environmental, rather than social or governance mandates. The results are robust to using the EU's NFRD as an alternative shock.

KEYWORDS

Guidance; ESG; Regulation; Disclosure

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1. Introduction

Governments around the world are increasingly implementing reporting mandates for nonfinancial information. Ideally, nonfinancial reporting improves transparency and encourages companies — through various channels — to adopt practices that contribute positively to society. In addition, newly implemented nonfinancial reporting mandates alter the set of publicly available corporate information. As stakeholders require consistent disclosure that connects the dots between financial and nonfinancial reporting, we ask whether the introduction of *nonfinancial* reporting mandates alters firms'*financial* information provision.

Standard setters are likely to face an information problem regarding firms' cost-benefit trade-offs regarding their disclosures (Christensen, Hail, & Leuz, 2021). Our question helps to address this problem by shedding light on the potential externalities of additional nonfinancial reporting mandates.

We have two competing mechanisms in mind. First, recently introduced nonfinancial reporting mandates are highly complex (Wagenhofer, 2024), increasing investors' processing costs to get a holistic view of the firm. Supporting this theory, a vast literature explores voluntary disclosure as a means for firms to mitigate increased complexity arising from additional financial reporting requirements (e.g., Bischof & Daske, 2013; Guay, Samuels, & Taylor, 2016; X. Li & Yang, 2016). This literature describes voluntary (financial) and mandatory (financial) disclosure as *complements*, by showing that mandatory reporting requirements lead to increased voluntary disclosure. It is ex-ante unclear whether the adoption of nonfinancial reporting mandates has similar effects. We hypothesize that the sheer complexity added to the corporate information environment by nonfinancial reporting mandates motivates firms to increase voluntary disclosure frequency and change its content to help investors connect the dots between financial and nonfinancial reporting.

Second, and contrary to the first channel, nonfinancial reporting mandates could add valuable information to financial statements, reducing the need for additional voluntary guidance for investors. The view of voluntary and mandatory (*financial*) disclosure being *substitutes* is supported theoretically (Einhorn, 2005) and empirically

(Noh, So, & Weber, 2019). For this second mechanism, it is ex-ante unclear whether nonfinancial reporting mandates can play a similar role as financial reporting mandates in substituting voluntary (financial) disclosure.

We employ a cross-country difference-in-differences analysis, exploiting the introduction of national nonfinancial reporting mandates and examine the effects on firms' voluntary financial reporting. We identify 63 countries introducing nonfinancial reporting mandates between 2004 and 2022 using the Carrots & Sticks database. Another 21 countries without such a mandate complete our sample. We avoid potential confounding events coinciding with the national introduction of nonfinancial reporting mandates by combining the staggered nature of their adoption with a strict fixed-effects structure, including firm- and year-fixed effects.

Using nonfinancial reporting mandates in a global setting carries several advantages in identifying the effects of nonfinancial reporting on voluntary disclosure. First, we avoid confounding events that would be of concern in single-country studies, as nonfinancial reporting mandates are adopted at different points in time in different countries. Second, we avoid the lack of an adequate control group, which is prevalent in single-country studies where frequently only firms exceeding certain size thresholds are exposed to nonfinancial reporting regulations. Finally, studying *mandatory* nonfinancial reporting helps avoid the self-selection issues inherent in studies assessing the effects of*voluntary* nonfinancial reporting.

We find that firms do not significantly adjust overall financial guidance levels as a reaction to nonfinancial reporting mandates. However, we find significant changes in firms' average disclosure levels when separating earnings guidance and financial guidance containing non-earnings measures (e.g., revenue guidance, capital expenditure guidance, or cash-flow guidance). First, we find that following a nonfinancial reporting mandate, firms substantially *reduce* earnings guidance while at the same time *increase* non-earnings guidance, on average. We interpret this effect as a shift in stakeholders' information demand, which induces firms to focus on non-standard metrics that gain importance for stakeholders when combined with newly available nonfinancial metrics.

In additional tests, we explore determinants of the presented effects by conducting a series of sample splits. We thereby account for the information environment firms

operate in before being affected by a nonfinancial reporting mandate. The idea is that, generally, firms weigh the costs and benefits of disclosure before releasing information voluntarily (Leuz & Wysocki, 2016).

First, we study whether firms with different levels of pre-mandate stakeholder pressure adjust their disclosure differently in response to a nonfinancial reporting mandate. We find that firms with low stakeholder pressure (i.e., low analyst following and low institutional ownership) reduce earnings guidance, on average, when facing a nonfinancial reporting mandate. For firms facing high stakeholder pressure, we document no significant effects. We conjecture that these latter firms cannot easily reduce their earnings guidance, as stakeholder pressure to disclose is high. For non-earnings guidance, we see no significant differences between the groups, i.e., firms increase non-earnings guidance independently of ex-ante stakeholder pressure, on average, after being affected by a nonfinancial reporting mandate. This finding aligns with the idea of capital market benefits of increased disclosure.

Second, we test whether firms are hesitant to provide non-earnings guidance if they face higher proprietary costs of voluntary disclosure. We argue that firms facing low competition have lower proprietary costs. In line with this argument, we find that, on average, firms facing low competition pre-mandate increase non-earnings guidance more strongly than their high-competition peers.

Third, firms with higher exposure to nonfinancial reporting mandates shift financial disclosure from earnings to non-earnings measures more strongly. Our explanation for this pattern is that these firms need to adjust the reporting of financial information so it is connected with the newly mandated nonfinancial reporting.

Lastly, we differentiate between environmental, social, and governance (ESG) regulations. Our results indicate that regulations with an environmental focus primarily drive the previously described effects. We conjecture that environmental regulations could shift stakeholders' information demand and induce firms to focus more on non-traditional measures, as environmental matters are prominently discussed publicly, e.g., by the media. In contrast, social and governance matters receive lower public attention.

Our study makes several contributions. First, we contribute to the growing liter-

ature on the consequences of mandatory corporate nonfinancial reporting. Prior studies document desired and intended consequences, such as an increased volume and quality of ESG information (Ioannou & Serafeim, 2019), more long-term oriented investments (Gibbons, 2023), better environmental performance (Chen, Hung, & Wang, 2018; Fiechter, Hitz, & Lehmann, 2022; Jouvenot & Krueger, 2019; Tomar, 2023), and higher stock market liquidity (Krueger, Sautner, Tang, & Zhong, 2021). To date, the effect of nonfinancial reporting mandates on firms' overall information environment has yet to be explored. We aim to fill this gap by empirically documenting changes in financial reporting after adopting a nonfinancial reporting mandate.

Second, we contribute to the literature on the interplay between mandatory reporting and voluntary financial disclosure. The empirical evidence on this relationship documents a complementary role of voluntary disclosure in some settings (e.g., Ball, Jayaraman, & Shivakumar, 2012; Guay et al., 2016; X. Li & Yang, 2016) and a substitutive function in others (e.g., Noh et al., 2019). Our findings add to this literature by providing evidence that not only financial but also nonfinancial reporting mandates can be an important determinant of firms' voluntary disclosure decisions.

Third, we contribute to the literature that considers voluntary disclosure globally, going beyond the well-studied corporate information environment in the United States. Conceptually closest to our paper is the study by X. Li and Yang (2016), documenting the positive effects of mandatory IFRS adoption worldwide on management guidance. Further studies document societal trust (Guan, Lobo, Tsang, & Xin, 2020), country-level institutions (W. Li, Ng, Tsang, & Urcan, 2019), and foreign institutional investors (Tsang, Xie, & Xin, 2019) as determinants of management forecasts. We extend this literature by documenting nonfinancial reporting mandates as an additional determinant of firms' issuance of management forecasts.

Our study also informs policymakers as we add a new angle to the debate of extending financial reporting regulation in order to achieve connectivity between financial and nonfinancial reporting (e.g. Müller, Ormazabal, Sellhorn, & Wagner, 2024). The concern driving the debate is that firms provide two sets of financial and nonfinancial statements that are not sufficiently connected to each other. We show that firms change their financial voluntary disclosure in response to the mandated issuance of

nonfinancial information. We conjecture they do so to achieve higher connectivity of their financial reports and the newly mandated nonfinancial reports, in line with the result that firms increase their issuance of non-earnings metrics (e.g., revenues and capital expenditures) that are likely more relevant in connection with nonfinancial reports.

2. Literature and Hypotheses

2.1. Real Effects of Nonfinancial Reporting Mandates

We start our literature section by reviewing the growing body of literature analyzing the intended and unintended consequences of nonfinancial reporting mandates. Christensen et al. (2021) discuss that when it comes to driving change in corporations concerning ESG outcomes, disclosure mandates carry the apparent political advantage to appear less intrusively into firms' business than regulation prescribing particular actions. Studies documenting desired and intended consequences include Ioannou and Serafeim (2019), who show that in a "first stage," such mandates improve firm transparency by increasing the amount and quality of ESG information. The more indirect (and politically intended) "second stage" becomes apparent from the real economic effects of increased transparency through mandatory nonfinancial reporting regulation.

Among these intended economic consequences of nonfinancial reporting regulations, researchers document increased work safety (Christensen, Floyd, Liu, & Maffett, 2017), more long-term oriented investments (Gibbons, 2023), better environmental performance (Chen et al., 2018; Fiechter et al., 2022; Jouvenot & Krueger, 2019; Tomar, 2023), and higher stock market liquidity (Krueger et al., 2021). Finally, there are spillovers of firms' adoption of ESG policies to other firms through different channels, such as lending (Wang, 2023), board connections (Iliev & Roth, 2023), and supply chains (Schiller, 2018).

However, Christensen et al. (2021) caution that disclosure mandates can carry unintended consequences. For *financial* reporting mandates, these consequences are discussed in more detail by Dranove and Jin (2010) or Leuz and Wysocki (2016). Evidence on unintended consequences is still scarce for *nonfinancial* reporting mandates.

For example, Bartram, Hou, and Kim (2022) show that financially constrained firms shift emissions to states without regulations and increase their emissions in total. Similarly, regulated firms divest assets, leading to a mechanical but not actual decrease in carbon emission (Ecker & Keeve, 2023).

Taken together, nonfinancial reporting mandates appear to be effective in influencing corporate action toward greater environmental protection, social issues, and governance. However, the discussion shows that they require careful economic analysis, including an analysis of spillover effects and potential unintended consequences.

2.2. Effects of Nonfinancial Reporting Mandates on Voluntary Financial Reporting

In this section, we formulate the hypotheses concerning the effects of nonfinancial reporting mandates on financial voluntary disclosure. Early theoretical frameworks suggest that a firm's decision to disclose voluntarily depends on the costs and benefits of revealing private information. Verrecchia (1990) posits that firms are motivated to reduce information asymmetries using disclosure, particularly when the market benefits of disclosure outweigh the ones of nondisclosure. X. Li and Yang (2016) extend this idea by emphasizing that the impact of mandatory reporting standards on voluntary disclosure depends on how these standards modify firms' reporting incentives.

On the one hand, and contrary to the goals of sustainability reporting standards laid out by various regulators, adding immaterial nonfinancial disclosure increases the complexity of the information environment (Christensen et al., 2021; Dhaliwal, Radhakrishnan, Tsang, & Yang, 2012; Wagenhofer, 2024). Wagenhofer (2024) highlights the complexity of recently introduced nonfinancial reporting standards. One illustrative example of the complexity introduced by nonfinancial reporting standards is the first draft of the "European Sustainability Reporting Standards" (ESRS). The extensive disclosure requirements (over 1,144 data points in ESRS) potentially hinder investors' comprehension, increasing their information processing costs and diminishing the utility of financial reports.

Voluntary disclosure in the form of additional and complementary guidance to investors can help to overcome this complexity. The complementary role of voluntary

disclosure in mitigating complexity introduced by financial reporting standards is documented empirically by X. Li and Yang (2016), Guay et al. (2016), and Ball et al. (2012). Bischof and Daske (2013) provide further evidence of a (one-time) mandate triggering (follow-up) voluntary disclosure in the setting of the European Union's bank stress tests. Following this argumentation, we formulate the first hypothesis:

H1: *Ceteris paribus, nonfinancial reporting mandates increase firms' voluntary financial disclosure.*

On the other hand, nonfinancial reporting mandates could affect firms' voluntary disclosure by reducing the complexity of the information environment. As intended by standard-setters, corporate nonfinancial reporting should provide valuable information to stakeholders to understand the impact of companies on their environment and vice versa (double materiality)[1]. Ideally, this leads to the provision of investor-relevant information, carrying benefits in capital markets and improving corporate decision-making.

In line with additional mandatory reporting reducing information asymmetries, Diamond and Verrecchia (1991) suggest this could lead to reduced voluntary disclosure[2]. The diminished marginal benefits of additional disclosures and reduced market pressures are potential reasons. Empirical evidence supports the substitutive role of reporting mandates. Noh et al. (2019) document that increased reporting mandates lead to lowered voluntary reporting. In sum, (nonfinancial) reporting mandates can reduce the complexity of firms' information environment and reduce the benefits of additional voluntary disclosure.

H2: *Ceteris paribus, nonfinancial reporting mandates decrease firms' voluntary financial disclosure.*

Another takeaway from the discussion above is that firms' disclosure decisions,

[1] See `https://finance.ec.europa.eu/news/commission-adopts-european-sustainability-reporting-standards-2023-07-31_en` for details.

[2] Further theoretical contributions in this spirit include Jung and Kwon (1988) and Verrecchia (1990, 2001).

and therefore their reaction to a nonfinancial reporting mandate, can depend on their information environment. Like every economic agent, firms generally weigh the costs and benefits of their decisions. This applies equally to the decision to disclose information voluntarily (Leuz & Wysocki, 2016). Among the major benefits of voluntary disclosure are the so-called capital markets benefits that arise as firms reduce information asymmetries and allow investors to make better capital allocation decisions (e.g., Verrecchia, 1982, 2001). Conversely, a high indirect cost of disclosure arises when firms disclose strategically valuable information to the public, potentially harming the disclosing entity's competitive position (e.g. Clinch & Verrecchia, 1997; Newman & Sansing, 1993). We explore these two ideas and state the following additional hypothesis.

H3: *Ceteris paribus, the complementary/substitutive relationship of nonfinancial reporting mandates and financial disclosure depends on stakeholder pressure and the competitive environment firms are in.*

Our question of how *nonfinancial* reporting mandates affect voluntary financial disclosure differs from the previous literature on *financial* reporting mandates, as both types of mandates are distinctly different. These differences start with the fundamental objectives of each reporting type. While financial reporting informs investors, nonfinancial reporting is additionally politically intended to influence management behavior. Further differences are the measurement units (monetary vs. non-monetary) and aggregation or a lack thereof (which is inherently problematic with different underlying measurement units). Wagenhofer (2024) provides this continued list of differences, making the point that financial and nonfinancial reporting differ. Therefore, it is not necessarily clear that implications arising from financial reporting mandates for voluntary disclosure equally hold for nonfinancial reporting mandates.

3. Data and Empirical Strategy

3.1. Nonfinancial Reporting Mandates

To explore whether firms are subject to mandatory nonfinancial reporting regulations, we rely on data collected by the "Carrots & Sticks" database (www.carrotsandsticks.net). The database was first published in 2006 and is an initiative by the UN Environment Programme and KPMG International, later joined by the Global Reporting Initiative and the University of Stellenbosch. It provides an overview of sustainability reporting standards, initially covering 19 countries in 2006 and expanding to 84 countries by 2020. As of October 2023, the database extended its coverage to over 130 countries, constantly revising its methodology and policy analysis[3].

Gibbons (2023), Wang (2023), and Krueger et al. (2021) have utilized earlier versions of the database. We follow the approaches of these papers to generate our set of nonfinancial reporting mandates. Table 1 summarizes our strategy and selection procedure. We start by downloading information on all 2,461 so-called "instruments," i.e., sustainability reporting standards and voluntary guidelines, as of October 2023. We then only keep instruments that are classified by the database to be (i) mandatory, (ii) national, and (iii) effective starting in 2005 or later. The latter criterion is not only due to data limitations but also aligns with the Kyoto Protocol, which entered into force in 2005. Following this, many countries increased their efforts to counter climate change, part of which is the implementation of nonfinancial reporting regulations. This procedure leaves us with 787 candidate regulations from 99 countries.

[Table 1 ABOUT HERE]

We walk through each country's regulations in the subsequent hand-collection procedure, starting with the earliest effective one. We select regulations that contain some disclosure component towards the public. We do not consider specialized regulations, for example focusing on waste disposal and wastewater handling, as these do not necessarily trigger information collection and might apply only to particular firm

[3]See `https://www.carrotsandsticks.net/about-carrots-sticks/` for details.

types. Further, we do not consider regulations that affect only specific companies (e.g., the financial industry or public authorities).

In the final selection steps, we drop regulations from a few countries with no or low COMPUSTAT coverage (see following subsection) and Japan, as the provision of management guidance, our primary outcome of interest, is mandatory there (see, e.g., Guan et al., 2020; Tsang et al., 2019). Our final set of 63 country-level regulations is detailed in Appendix Table 2. For another 21 countries covered by Carrots & Sticks, we did not identify a relevant reporting mandate during our sample period. We include these countries in our sample to serve as a control group.

3.2. Sample Construction

Next, we turn to constructing our global sample of firm-year observations. We start with Standard & Poor's (S&P) COMPUSTAT Database and combine the files for North America and the Global file from 2004 to 2022. We then merge this file based on firms' fiscal years and unique identifiers to the Capital IQ Key Developments (CIQ) database for the same period, which is equally provided and maintained by S&P. While COMPUSTAT is our source for firm financials, CIQ is our source for management guidance data, following the literature that explores voluntary disclosure in international settings (e.g., Cao, Myers, Tsang, & Yang, 2017; Guan et al., 2020; X. Li & Yang, 2016; Tsang et al., 2019).

[Table 2 ABOUT HERE]

We follow a series of sample selection steps, as illustrated in Table 2, where we exclude firm-year observations from our sample based on several criteria: (i) firms based in Japan, due to the mandatory management guidance there (e.g., Guan et al., 2020); (ii) firms lacking the financial information required to calculate our control variables; (iii) firms based in countries with a nonfinancial reporting mandate at some point in time but lacking firm-financial data before the mandate, as suggested by Callaway and Sant'Anna (2021); and (iv) firms based in countries with fewer than 100 firm-year observations in total, following Guan et al. (2020)[4]. After applying these

[4]Our sample selection is not based on criteria related to our disclosure measures from CIQ. Following X. Li

steps, we have 331,131 firm-year observations for 28,751 firms across 84 countries. The distribution of firm-years by country is displayed in Table 3.

[Table 3 ABOUT HERE]

To proxy for voluntary disclosure, we follow prior literature using the frequency and issuance of management guidance (Guay et al., 2016; X. Li & Yang, 2016). We rely on the CIQ database, which provides critical events on a company level, such as M&A activities, changes of board members, earnings announcements, or management guidance. Each event is classified into one of more than 100 event types, assigned a calendar date, and given a short verbal description (headline). For our primary outcome variable of interest (*All Financial Guidance*), we use event type 29 (Corporate Guidance – New/Confirmed). This item covers not only earnings guidance but also guidance on other financial metrics, such as sales, capital expenditure, or dividends. Items are counted in the respective year and then added up. Stable coverage of these items starts after 2004, so we base our sample on the period after that year. This variable construction follows a large body of literature using CIQ to proxy corporate voluntary disclosure (e.g., Aobdia, 2018; Barth, Cahan, Chen, & Venter, 2017; Oesch & Urban, 2022; Tsang et al., 2019).

In the second step, we differentiate financial guidance into earnings and non-earnings guidance. We use the highly standardized headline provided by S&P for each corporate event. We define guidance as earnings guidance whenever the headline text contains one of the terms "earning", "loss", "ebit", or "ebt". The remaining guidance is labeled non-earnings guidance. The two variables *Earnings Guidance* and *Non-Earnings Guidance* then contain the count of the earnings and non-earnings guidance items for the respective firm-year.

To obtain firm financials and identifying information, we use S&P's COMPUSTAT database. To control for firm performance, we define return on assets as the ratio of net income to total assets (*ROA*). Further, we generate two indicator variables, one for loss years, i.e., when net income is negative (*Loss*), and one for earnings increases,

and Yang (2016), we treat firm-years without management guidance as non-guiding firms. This is possible because COMPUSTAT and CIQ belong to S&P and share the firm identifier (GVKEY), allowing us to link the databases safely. The underlying argument is that S&P's analysts follow a firm once it appears in COMPUSTAT. Therefore, we can confidently interpret the absence of entries in the CIQ database as non-disclosure.

i.e. when net income in year t is larger than in year t-1 (*Earnings Increase*). To control firm operations' volatility, we define *Earnings Volatility* as the standard deviation of net income scaled by total assets over five years (minimum: three years) prior to year t. To control for the information demand a firm faces, we define *Size* as the natural logarithm of total assets and *leverage* as the sum of long-term debt and current debt divided by total assets. As firms also might increase voluntary disclosure when issuing equity (*Equity Issue*), we create a binary variable that indicates if the number of shares outstanding increases by 20% or more from year t to year t+1. We include an indicator variable for firms audited by a *Big Auditor*. All continuous disclosure and control variables are winsorized at the 1st and 99th percentiles to control for outliers and database errors.

Lastly, we generate event indicators based on the timing of nonfinancial reporting mandates. The overall indicator *NFR-Mandate* equals one in the year before a nonfinancial reporting mandate becomes effective in the respective firms' country of incorporation (to account for anticipation effects) and all consecutive years. We also define single event-year indicators. For example, $D^{1}_{i,t}$ equals one only in the year after a nonfinancial reporting mandate became effective. We create these indicators for years (t-4) to (t+4) and subsume all years prior to (later than) that in the indicators $D^{-5}_{i,t}(D^{5}_{i,t})$. We omit the indicator for year t-2 as it will econometrically serve as the baseline year for comparison.

We generate some additional variables for cross-sectional splits. We measure analyst following and institutional ownership to proxy for the information demand and stakeholder pressure a firm faces. We define *Analyst Following* as the number of analysts following a firm in the respective year as documented in the Institutional Brokers' Estimate System (I/B/E/S). For firm-years where we do not observe analyst following, we assume analyst following to be zero. We define *Institutional Ownership* as the percentage of outstanding shares held by institutional investors, equally obtained from I/B/E/S. Finally, to proxy for the competitive environment of a firm, we measure market concentration by calculating the Herfindahl Hirschmann Index (*HHI*) for each firm's industry in the respective year. We obtain the sales variable and the 2-digit Standard Industrial Classification (SIC) from COMPUSTAT. For each of the three

split variables, we allocate firms to two groups (high and low), depending on the values of the variable, compared to other firms in the same country in the year prior to a nonfinancial reporting mandate. The average value of the split variables is used for firms whose country does not introduce a mandate in our sample period.

3.3. Empirical Strategy

Different countries implement mandatory nonfinancial reporting regimes at different points in time, which resembles a "staggered treatment" of firms with shocks to their information environment. These country differences, together with more structured availability of information on worldwide nonfinancial reporting mandates, have been exploited in the recent past to study the effects of nonfinancial reporting mandates on different outcome variables (e.g., Gibbons, 2023; Krueger et al., 2021; Wang, 2023).

We follow this approach, which carries several advantages to mitigate endogeneity concerns. First, when studying regulations within single countries, usually all firms are affected simultaneously, making single-country studies vulnerable to confounding events, such as other regulations implemented around the mandate of interest. In our design, firms in different countries are affected by regulations in different years, making the influence of confounding events on our results unlikely.

Second, nonfinancial reporting mandates are often firm-size specific, i.e., they affect firms that are above or below certain thresholds regarding, for example, the number of employees or market value. Hence, the control group usually consists of firms in the same country on the other side of the threshold, making them systematically different from affected firms.

Third, as an alternative to the former point, firms in other unaffected countries can be used as a control group in single-country studies. However, systematically different political sentiments might trigger a nonfinancial reporting regulation together with economic or geographical conditions. Our cross-country study relies on firms from a very diverse set of countries, making systematic institutional differences less likely to be a driver of results. Finally, the effects of nonfinancial reporting are frequently studied where nonfinancial reporting is voluntary or industry-specific, which is prone to the self-selection of firms into reporting decisions. Exploiting nonfinancial reporting

mandates helps us to overcome this issue.

While cross-country studies with a staggered adoption of regulation are frequently used to avoid these endogeneity problems (e.g., Christensen, Hail, & Leuz, 2013; Gibbons, 2023), the standard implementation of difference-in-differences analyses with staggered treatment timing has been questioned econometrically (e.g., Baker, Larcker, & Wang, 2022; Callaway & Sant'Anna, 2021; Sun & Abraham, 2021). Therefore, we closely follow Sun and Abraham (2021) by using the *EventStudyInteract* package programmed by Sun (2021). Sun and Abraham (2021) propose interaction-weighted estimators to estimate dynamic treatment effects. We estimate treatment effects separately for yearly cohorts of the panel data and then average the treatment effects. This approach is robust to treatment effects heterogeneity and designed to address weaknesses of the classic staggered difference-in-difference estimations with two-way fixed effects (Sun & Abraham, 2021). We observe average treatment effects in a first estimation, following Baker et al. (2022). Therefore, we create a binary treatment variable (*NFR-Mandate*) equal to one in the year before a country adopted a mandatory nonfinancial reporting regime and all following years. We estimate the interaction-weighted regression using the aggregate binary treatment variable as follows.

$$VolDisc_{it} = \alpha_i + \gamma_t + \beta_1 NFR\text{-}Mandate_{it} + CONTROLS + \varepsilon_{it} \tag{1}$$

Thereby, $VolDisc_{it}$ is the respective voluntary disclosure measure, α_i and γ_t are firm and year fixed-effects, respectively, and CONTROLS is our vector of control variables, which are described in detail in the previous section.

Further, we generate ten indicator variables for the relative treatment years to analyze the exact timing of effects. The indicators start at five years prior to treatment ($D_{i,t}^{-5}$) until five years after treatment ($D_{i,t}^{5}$). No indicator is generated for the year two years prior to the treatment. Further, we bunch all years that are more than five years ahead of (after) treatment into $D_{i,t}^{-5}$ ($D_{i,t}^{5}$). We estimate the following equation for firm i and year t.

$$VolDisc_{i,t} = \alpha_i + \gamma_t + \beta_1 D_{i,t}^{-5} + \cdots + \beta_3 D_{i,t}^{-3} + \beta_4 D_{i,t}^{-1} + \cdots + \beta_{10} D_{i,t}^{5} + CONTROLS + \varepsilon_{i,t} \quad (2)$$

In sum, equation (1) allows us to measure the average effect of country-level nonfinancial reporting mandates on firms' voluntary disclosure, while equation (2) allows us to observe the timing of treatment effects. Finally, we cluster standard errors on the country-industry and year-level, using two-digit standard industrial classifications (SIC-2). This approach is similar to the approach by X. Li and Yang (2016), who exploit national regulations in an international setting using disclosure outcomes, as we do. Alternatively, prior literature in international settings clusters standard errors at the firm-level (e.g., Daske, Hail, Leuz, & Verdi, 2008; Gibbons, 2023). We provide additional results using alternative cluster levels.

4. Results

4.1. Descriptive Statistics

Descriptive statistics are presented in Table 4, Panel A. Regarding our key variable of interest, approximately 65% of the firm-years are affected by a nonfinancial reporting mandate and are thus considered "treated". The average firm has 0.68 management guidance issuances per year, with about 71% related to earnings figures and the remainder related to non-earnings figures. Additional descriptive statistics for the control variables and those used for the cross-sectional splits are also presented in Table 4, Panel A.

Table 4, Panel B shows the guidance levels according to group classifications based on our split variables. For instance, firms with low analyst following and institutional ownership provide guidance approximately half as often as firms with high analyst following and institutional ownership. Firms with low or high competition offer, on average, a similar number of management guidance announcements per year. Detailed variable definitions are in Appendix Table 1.

[Table 4 ABOUT HERE]

4.2. Nonfinancial Reporting Mandates and Management Guidance

We present our main results in Table 5. We estimate equation (1) to assess whether firms change their financial guidance after being affected by a nonfinancial reporting mandate. Column (1) reveals that, taking all financial guidance together, on average, no significant change in disclosure behavior after mandate adoption can be observed. However, turning to Columns (2) and (3), we observe differential disclosure reactions when observing earnings and non-earnings guidance separately. The coefficient estimate of *NFR-Mandate* in Column (2) implies that firms provide earnings guidance, on average, 0.13 times less often per year after being affected by a nonfinancial reporting mandate. In relative terms, this reflects a reduction of earnings guidance by 30 percent when compared to the sample mean. For guiding non-earnings metrics, the mean effect is positive (Column 3) with 0.12 additional annual issuances of non-earnings guidance (65% increase).

The coefficient estimates for our control variables align with existing literature, indicating that firm size and being audited by one of the big auditors are positively associated with voluntary disclosure. In contrast, earnings volatility and equity issuance are negatively related to the frequency of management guidance (see, e.g., Krueger, Sautner, & Starks, 2020; X. Li & Yang, 2016). All specifications include firm-fixed effects to control for unobservable firm characteristics that do not change over time and year-fixed effects to control for time-variant heterogeneity, such as general macroeconomic conditions. We omit the treatment indicators and country-specific control variables in our specification, as the fixed effects subsume them. We apply a two-way clustering of standard errors at the country-industry and year level.[5]

The effect sizes appear plausible when compared to prior literature. Guay et al. (2016) report a guidance increase of 20% to 40% (0.5 to 1.15 annual forecasts) among U.S. firms when the information environment becomes more complex due to the adoption of SFAS 133 and SFAS 157. Tsang et al. (2019) document that a 10%

[5]Our results remain robust when applying a different clustering of standard errors at the country and year or firm and year levels, tabulated in Appendix Table 4.

increase in institutional ownership leads to a 20% increase in guidance frequency (0.1 forecasts) in a global sample. Finally, X. Li and Yang (2016) find that guidance triples (0.63 forecasts) for international firms adopting IFRS. Our documented effects are relatively similar to the first two studies. At the same time, it seems plausible that the substantial regulatory change of IFRS adoption has a more significant impact on firms' information environment complexity and, consequently, their guidance decisions.

[Table 5 ABOUT HERE]

The assumption of parallel trends is crucial to difference-in-differences estimation. The assumption states that the difference between the treatment and control group would have remained constant over time without treatment. Since this assumption is hypothetical and cannot be directly tested, we use the observation of trends in the two groups before treatment as the best available test. Therefore, we estimate equation (2) with yearly event indicators before and after treatment. Results are graphically displayed in Figure 1. The x-axis plots event time relative to the national adoption of a nonfinancial reporting mandate, while the y-axis plots absolute effect sizes (number of guidance issuances). To account for the anticipation of nonfinancial reporting mandates, which are often known in advance, we define the year two years prior to the adoption date as our baseline [6].

Figure 1, Panel (a) presents the results using earnings guidance as the dependent variable. In line with our expectations, we observe a guidance reduction in the year before the mandate and the subsequent years (t, t+1 through t+3) relative to the two years before the mandate becomes effective (t-2). Importantly, we cannot observe significant differences in years 4 through 2 before the mandate, indicating an absence of different trends between the groups before treatment. The guidance pattern observed for earnings guidance is inverse for non-earnings guidance in Panel (b). Here, we observe an increase in the year of and the years following the implementation of the nonfinancial reporting mandates.

[Figure 1 ABOUT HERE]

[6] This strategy follows Fiechter et al. (2022) who analyze the effectiveness of the EU's Nonfinancial Reporting Directive (2014/35/EU)

In sum, we find evidence for both H1 and H2. First, firms seem to increase non-earnings financial guidance (e.g., revenues, capital expenditure, or cash-flow guidance) to complement the mandatory reporting of nonfinancial measures (H1). We conjecture that firms try to build a connection between financial and nonfinancial reporting using these non-earnings metrics. Guay et al. (2016) proposes a similar mechanism for financial reporting mandates.

Second, firms reduce earnings guidance after a nonfinancial reporting mandate comes into effect (H2). We interpret the findings as traditional earnings guidance might become less critical when investors increasingly focus on nonfinancial metrics. In parallel, to understand nonfinancial metrics and goals, non-earnings financial guidance might gain importance for them. For example, the promise of a firm to invest in green technologies might gain credibility when accompanied by a forecast of capital expenditures. In contrast, earnings might not be the most revealing performance indicator in times of high investment, and earnings forecasts paint an overly pessimistic picture of firm performance. Revenue forecasts, instead, might reveal that revenues remain stable despite lower earnings due to high investments.

4.3. Stakeholder Pressure

Next, we turn to H3, which focuses on the varying information environments in which firms operate. First, we focus on capital market benefits (e.g., Leuz & Wysocki, 2016). These might be particularly large if firms attract large investors with their disclosures (e.g. Diamond & Verrecchia, 1991). Similarly, once firms attract large investors and their attention, these investors might call for increased disclosure to keep information asymmetries and thus the negative economic consequences of capital misallocation low (Lev, 1988).

Consider firms whose information environment is characterized by stakeholder pressure, e.g., due to substantial institutional ownership and a high coverage by financial analysts. These firms might be inclined to maintain a high level of earnings guidance while simultaneously starting to provide non-earnings information to meet the altered information demands of their stakeholders due to a nonfinancial reporting mandate. Because these sophisticated stakeholders can exert pressure on the firm, they

cannot easily substitute earnings guidance with non-earnings guidance; instead, they complement both types. Therefore, we argue that firms with high analyst following or institutional ownership prefer to complement non-earnings and earnings guidance after a nonfinancial reporting mandate becomes effective, whereas firms with lower stakeholder pressure substitute one type of guidance for the other.

To test this idea, we split our sample firms into two groups. Firms are classified as having low analyst following (institutional ownership) if they fall within the bottom half of firms within their country of incorporation regarding overall analyst following (institutional ownership) in the year before the respective mandate. We then estimate equation 1 for both subsamples. Table 6, Panel A, Columns (1) and (3) provide empirical evidence supporting our hypothesis. Firms with low analyst following and institutional ownership significantly reduce their earnings guidance by 38 percent and 26 percent (coefficient estimate: -0.13 and -0.11), respectively. We do not observe a significant change in earnings guidance for firms with high analyst following and institutional ownership after adopting a nonfinancial reporting mandate.

Table 6, Panel B, Columns (1) and (2), presents the results on non-earnings financial guidance. We find that firms with low analyst following increase non-earnings guidance by 58 percent, and those with high analyst following increase it by 26 percent after a nonfinancial reporting mandate becomes effective. However, the effect is insignificant at conventional levels for firms with a high analyst following. Similarly, firms increase their non-earnings guidance regardless of institutional ownership, with firms having low (high) institutional ownership increasing non-earnings guidance by 30 percent (38 percent)[7]. Taken together, we interpret these results as evidence that firms with low stakeholder pressure substitute earnings with non-earnings guidance. In contrast, firms with high stakeholder pressure complement earnings and non-earnings guidance.

[Table 6 ABOUT HERE]

[7]Note that absolute coefficient sizes in Table 6 seem to deviate from the relative values indicated in this subsection. This is because we calculate relative effect sizes compared to the sample means for the separate groups, as reported in Table 4, Panel B

4.4. Proprietary Disclosure Costs

As a significant determinant on the cost side of corporate voluntary disclosure, we identify competition and related proprietary costs of disclosure (e.g., Clinch & Verrecchia, 1997; Newman & Sansing, 1993) in H3. The idea is that disclosing strategically valuable information might be detrimental to firms' value in the presence of competitors. Therefore, when firms consider increasing disclosure, after being affected by a nonfinancial reporting mandate, indirect disclosure costs might play a role in firms' decision to issue additional guidance.

To test whether proprietary disclosure costs affect firms' decisions to provide non-earnings guidance, thereby aiding the interpretation of disclosure mandated by a nonfinancial reporting mandate, we split our sample into firms operating in lowly and highly concentrated industries in their country of incorporation. We measure industry concentration using the Herfindahl-Hirschman Index (HHI; Herfindahl, 1950; Hirschman, 1964). Firms with a low HHI are characterized by high competition and vice versa. We argue that firms operating in highly competitive environments may be reluctant to disclose non-earnings information to maintain their competitive edge.

In Table 7, Columns (3) and (4), we document, in line with this conjecture, that firms operating in low-competition environments significantly increase their non-earnings guidance by 79 percent, whereas the coefficient for their high-competition counterparts is only marginally significant and lower in absolute and relative effect size. For both groups, we find a significant decrease in earnings guidance following the adoption of a nonfinancial reporting mandate (see Columns (1) and (2) of Table 7). This finding is intuitive because proprietary disclosure costs should in principle not influence the reduction of previously disclosed information. These findings suggest that firms operating in highly competitive environments face higher proprietary disclosure costs, making them reluctant to provide non-earnings measures that competitors could use in conjunction with the disclosures mandated by the nonfinancial reporting mandate.

[Table 7 ABOUT HERE]

4.5. Exposure to the nonfinancial reporting mandate

For our last cross-sectional test, we analyze whether exposure to a nonfinancial reporting mandate affects the type of information provided in management guidance. We use the London Stock Exchange Group's (LSEG—formerly Thomson Reuters) ESG rating to classify firms as exposed to a mandate if no ESG rating was available prior to the adoption of the mandate. This classification is based on LSEG's ESG rating calculation methodology, which relies on companies' own ESG disclosures (Refinitiv, An LSEG Business, 2022). Therefore, we assume a firm provided voluntary ESG disclosure before the mandate if an ESG rating was available.

We hypothesize that firms with voluntary ESG disclosure prior to the nonfinancial reporting mandate will not adjust the type of information provided in management guidance as the change in their information environment is smaller than for firms without prior to the mandate voluntary ESG disclosure. In line with this argument, Table 8, Columns (2) and (4), shows that a nonfinancial reporting mandate has no significant effects on earnings and non-earnings guidance for these firms. In contrast, firms without prior voluntary nonfinancial reporting disclosure reduce earnings guidance by 34 percent and increase non-earnings guidance by 70 percent.

These results highlight that firms only adjust their guidance if the disclosure mandated by the nonfinancial reporting mandate is new for stakeholders. If exposure to the nonfinancial reporting mandate is limited in the way that firms already disclosed the mandated information before the mandate, providing non-earnings metrics to stakeholders is less critical, as voluntary disclosure might be already available.

[Table 8 ABOUT HERE]

4.6. Influence of Regulation Type

Lastly, we examine the different types of nonfinancial reporting mandates, classifying them as Environmental (E), Social (S), or Governance (G) regulations.[8] Given that E and S mandates differ significantly from financial reporting regulations, we hypothesize that these drive the shift from earnings to non-earnings guidance. Additionally,

[8]The classification can be found in the last column of Appendix Table 2 behind each regulation.

these mandates receive more media and public attention, which could lead to higher scrutiny and demand for non-earnings information by shareholders. G mandates are often issued in combination with financial regulations or as part of general revisions of Generally Accepted Accounting Principles (GAAP) (e.g., amendments to the "code de commerce" in France and the "Amendment to the Danish Financial Statement Act" in 2022).

In Table 9, Columns (1) and (2), we document that both E and S mandates are associated with a reduction in earnings guidance by 28 percent and 21 percent, respectively. The number of non-earnings guidance increases significantly, doubling after the adoption of an E mandate (108 percent). This effect highlights that mandates requiring environmental information necessitate additional guidance for interpretation. We do not find a significant increase in non-earnings guidance for G regulations. We interpret these results as evidence that different types of mandates lead to different types of additional information required by stakeholders.

[Table 9 ABOUT HERE]

4.7. Robustness Tests

As a robustness test and to strengthen our inferences, we repeat our analysis using the framework of Fiechter et al. (2022). We limit the sample to one nonfinancial reporting mandate, the EU's Non-Financial Reporting Directive (NFRD, 2014/95/EU), which simultaneously affects firms in several countries. The mandate bacame effective in 2017 in the European Union (EU) to increase firms' ESG transparency by requiring large listed firms to prepare ESG reports. We test whether this directive affected firms' voluntary financial disclosure. We estimate equation (1) for EU firms and use as a control group either never-treated firms (our control group in earlier tests) or U.S. firms (the control group of Fiechter et al., 2022).

In Columns (1) and (2) of Table 10, we do not find significant effects of the NFRD on earnings guidance independent of the control group used. However, in Columns (3) and (4), we document that firms increase non-earnings guidance significantly[9]. By

[9]The p-value in Column (3) is 0.11.

focusing on the NFRD and limiting our sample to EU companies, we provide additional empirical evidence that, following the adoption of the mandate, firms provide more non-earnings guidance in response to a nonfinancial reporting mandate.

Some additional robustness tests are tabulated in Appendix Table 3. In Panel A, we use a balanced (i.e., limited) sample, as recommended for the estimation method of our choice by Sun and Abraham (2021). Results remain unchanged. In Panel B, we employ alternative outcome measures, namely, management earnings and capital expenditure forecasts from the I/B/E/S database and earnings conference calls from CIQ, obtaining qualitatively similar results. Finally, results are robust to different choices of standard error clustering (Appendix Table 4) and using as an alternative estimation method the group-time average treatment effects regressions, as proposed by Callaway and Sant'Anna (2021) (Appendix Table 5).

[Table 10 ABOUT HERE]

5. Conclusion

This study provides evidence on the effects of nonfinancial reporting mandates on firms' voluntary disclosure. We document, on average, increases in financial guidance of non-earnings measures and a parallel reduction of earnings guidance by affected firms. This result suggests a complementary role of mandatory (nonfinancial) and voluntary (financial) disclosure, with firms reacting to the increased complexity of their information environment by providing additional relevant guidance to their stakeholders while ceasing to provide metrics of potentially decreased importance.

These effects are moderated by the information environment of a firm. Firms with low stakeholder pressure, characterized by lower analyst following and institutional ownership, tend to substitute earnings guidance with non-earnings guidance. Conversely, firms facing higher stakeholder pressure, due to substantial institutional ownership and high analyst coverage, are more likely to complement earnings guidance with non-earnings guidance. Likewise, firms' with higher proprietary disclosure costs are less likely to increase non-earnings guidance following the implementation of a nonfinancial reporting mandate. In contrast, firms in low-competition environments

are more inclined to increase such disclosures. Lastly, firms with prior voluntary ESG disclosure do not significantly change their earnings or non-earnings guidance following the mandate, as their information environment remains relatively unchanged.

In further tests, we show that the effects of nonfinancial reporting mandates are largely driven by E-, rather than S- and G-regulations. Our findings remain qualitatively similar when limiting the sample to the EU's NFRD regulation.

Our results can inform regulators and policymakers by showing how mandatory nonfinancial reporting interacts with firms' voluntary financial disclosure. This finding adds to the current debate of whether firms' financial and nonfinancial reporting are sufficiently connected or whether the disclosure of nonfinancial information should be mandated in financial statements to increase connectivity of the two (e.g., Müller et al., 2024). Our findings suggest that such a mandate might not be necessary, given that firms appear to adjust financial disclosures by themselves to additional nonfinancial information. Further, our findings can be informative for standard setters as they face an information problem regarding firms' cost-benefit tradeoffs concerning their disclosures (Christensen et al., 2021). Our paper sheds light on some of these tradeoffs.

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Appendix

Appendix Table 1 Variable Definitions

Panel A: Disclosure Variables

Variable Name	Definition
All Financial Guidance	Absolute frequency of financial management guidance in the respective firm's fiscal year, based on S&P's Capital IQ Key Developments database. The variable is based on item 29 (Corporate Guidance – New/Confirmed).
Earnings Guidance	Variable based on *All financial Guidance*. Based on guidance headlines provided by the database, guidance is defined as earnings guidance, if the headline contains one of the terms "earning", "loss", "ebit", "ebt". Otherwise, guidance is classified as "non-earnings guidance". This variable counts the frequency of earnings guidance within the respective firm-year.
Non-Earnings Guidance	Variable based on *All financial Guidance*. Based on guidance headlines provided by the database, guidance is defined as earnings guidance, if the headline contains one of the terms "earning", "loss", "ebit", "ebt". Otherwise, guidance is classified as "non-earnings guidance". This variable counts the frequency of non-earnings guidance within the respective firm-year.

Panel B: Control Variables

Variable Name	Definition
ROA	Return on assets calculated as a firm's net income (COMPUSTAT item "NI") divided by total assets (COMPUSTAT item "AT").
Size	Firm size calculated as the natural logarithm of a firm's total assets (COMPUSTAT item "AT").
Loss	Indicator variable for loss years equal to one if a firm's net income (COMPUSTAT item "NI") is smaller than zero. Zero otherwise
Big Auditor	Indicator variable equal to one if the COMPUSTAT auditor classification (COMPUSTAT item "AU") equals 01, 03, 04, 05, 06 or 07. Zero otherwise. Auditors are associated with the classification as follows: (01) Arthur Anderson, (03) Coopers & Lybrand (04) Ernst & Young, (05) Deloitte, (06) KPMG and (07) PricewaterhouseCoopers.
Leverage	Leverage ratio calculated as the sum of long-term debt (COMPUSTAT item "DLTT") and current debt (Compustat item "DLC") divided by total assets (COMPUSTAT item "AT").
Earnings Volatility	Standard deviation of annual earnings (COMPUSTAT item "NI") scaled by total assets (Compustat item "AT") over the five years (with a minimum of three years) prior to year of interest.
Earnings Increase	Indicator variable being 1 if earnings (COMPUSTAT item "NI") of the year of interest are higher than earnings of the previous year, 0 otherwise.
Equity Issue	Indicator variable being one if the number of shares outstanding (COMPUSTAT item "CSHOI") increases by more than 20% in the subsequent year.

Appendix Table 1 Variable Definitions (cont'd)

Panel C: Event and Split Variables

Variable Name	**Definition**
NFR-Mandate	Indicator variable being one starting in the year before the effective year of the respective country's nonfinancial disclosure mandate and all years after. Disclosure mandates are retrieved from the Carrots and Sticks database as of October 2023 and subsequently hand-selected. Thereby, the first mandate that plausibly affects' firms' internal information collection processes in each country after 2005 is retained. The selection was done independently by two researchers and differences in classification resolved afterwards.
Event year (t+x)	Indicator variable being one in the indicated year x relative to the effective year of the respective country's nonfinancial disclosure mandate. Disclosure mandates are retrieved from the Carrots and Sticks database as of October 2023 and subsequently hand-selected. Thereby, the first mandate that plausibly affects' firms' internal information collection processes in each country after 2005 is retained. The selection was done independently by two researchers and differences in classification resolved afterwards.
Analyst Following (High & Low)	Within-country ranking of firms according to their analyst following. Analyst following is retrieved from Refinitiv. Firms in countries affected by a nonfinancial reporting mandate in year t are ranked according to their analyst following in year $t-1$ and then partitioned in one of two groups. Firms in countries not affected by a nonfinancial reporting mandate are ranked based on their average analyst following over time.
Institutional Ownership (High & Low)	Within-country ranking of firms according to their institutional ownership. Institutional ownership is retrieved from Refinitiv. Firms in countries affected by a nonfinancial reporting mandate in year t are ranked according to their analyst following in year $t-1$ and then partitioned in one of two groups. Firms in countries not affected by a nonfinancial reporting mandate are ranked based on their average institutional ownership over time.
HHI (High & Low)	Within-country ranking of firms according to their industry's market concentration measured by the Herfindahl Hirschmann Index (HHI), based on firms' sales and two-digit Standard Industrial Classification (SIC) in the year before a regulation became effective, both obtained from COMPUSTAT. Firms in countries not affected by a nonfinancial reporting mandate are ranked based on their average score over time.

Appendix Table 2 Nonfinancial Reporting Mandates

Country	Regulation	Year	ID	E-S-G
Argentina	General Resolution 606/2012 Corporate Governance Code	2012	6-13	G
Australia	National Greenhouse and Energy Reporting Act. No. 175	2007	8-64	E
Austria	Section 243 UGB management report	2005	9-1	ESG
Bahrain	Corporate Governance Code	2010	12-3	G
Bangladesh	Corporate Governance Code of 2018	2018	13-3	G
Belgium	The 2009 Belgian Code on Corporate Governance	2009	16-1	G
Brazil	Federal Senate Senate Bill No. 289	2012	22-56	ESG
Canada	National Instrument 58-101: Disclosure of Corporate Governance Practices	2005	29-36	G
Chile	General Standard No. 341	2012	32-9	G
China	Guidelines on Social Responsibility for Listed Companies on the Shenzhen Stock Exchange	2006	33-4	ESG
Colombia	External Circular 028	2014	34-9	G
Croatia	Decision on the Promulgation of the Law on Air Protection	2011	39-8	E
Cyprus	Law 51(I) of 2017 An Act to Amend the Companies Act	2017	41-6	G
Czech Republic	Government Regulation No. 145/2008 Coll. establishing a list of pollutants and threshold values and data required for reporting to the integrated environmental pollution register	2008	42-18	E
Denmark	Act Amendment to the Danish Financial Statement Act	2007	43-5	G
Egypt	Egyptian Corporate Governance Code	2016	48-2	G
Estonia	Corporate Governance Recommendations	2006	52-2	G
Finland	Emissions Trading Act	2011	57-25	E
France	Code de commerce	2022	58-55	G
Germany	Amendment to the German Corporate Governance Code - The Cromme Code	2005	63-12	G
Ghana	Mandatory Disclosure items for public companies in Ghana	2016	64-8	ESG
Greece	Law 3487/2006 - Government Gazette 190	2006	65-1	ES
Hong Kong	Companies Ordinance (Cap. 622)	2014	75-3	E
Hungary	314/2005. (XII. 25.) Government decree on the environmental impact assessment and the unified environmental use licensing procedure	2005	76-10	E
Iceland	Act amending the Annual Accounts Act, no. 3/2006	2016	77-4	ESG
India	Notification of the Environment (Protection) Rules	2006	78-33	E
Indonesia	Indonesia's Code of Good Corporate Governance	2006	79-8	G
Ireland	Safety, Health and Welfare at Work Act	2005	82-32	S
Italy	Legislative Decree 9 April 2008, n. 81. Implementation of article 1 of the law of 3 August 2007, n. 123	2008	85-47	S
Jordan	Jordanian Corporate Governance Code 2011	2011	88-7	G
Kenya	The Capital Markets Act	2012	90-22	G
Kuwait	The Executive Bylaws Module Fifteen Corporate Governance	2015	95-3	G
Luxembourg	The X Principles of Corporate Governance of the Luxembourg Stock Exchange (3rd Edition 2013)	2013	105-6	G
Malaysia	Malaysian Code on Corporate Governance	2007	109-12	G
Malta	ACT to introduce amendments to the Companies Act and to other Laws and to implement Directive 2014/95/EU.	2016	112-5	ESG
Mexico	General Law of Commercial Companies	2009	116-14	G
Morocco	Guide to Corporate Social Responsibility Companies and ESG reporting	2016	122-1	ESG
Netherlands	Decision Notice on Diversity Policy	2016	128-32	S
Nigeria	National Code of Corporate Governance	2016	133-4	G
Norway	Changes to Norwegian Code of Practice for Corporate Governance	2011	136-14	G
Pakistan	Statutory Notifications (S.R.O)	2009	138-3	ESG

Note: Nonfinancial reporting mandates by Country, adopted between 2005 and 2022. Regulation descriptions are from carrots & sticks and translated to English where necessary. Year indicates the effective year of the respective mandate, ID refers to unique regulation ids assigned by Carrots & Sticks and is reported for transparency and replicability. E-S-G refers to the classification of standards into Environmental (E), Social (S) or Governance (G) standards and combinations thereof.

Appendix Table 2 Nonfinancial Reporting Mandates (cont'd)

Country	Regulation	Year	ID	E-S-G
Peru	Law 29783 on Safety and Health at Work	2012	143-22	S
Philippines	Revised Code of Corporate Governance	2009	144-5	G
Poland	Act on providing information on the environment and environmental protection, public participation in environmental protection and on environmental impact assessment	2008	145-18	E
Portugal	Social Balance	2005	146-37	S
Qatar	Governance Code for Companies & Legal Entities Listed on the Main Market	2016	148-4	G
Russia	Corporate Governance Code	2014	150-2	G
Saudi Arabia	Corporate Governance Regulations in the Kingdom of Saudi Arabia	2006	155-3	G
Singapore	Practice Note 7.6 Sustainability Reporting Guide	2016	160-15	E
South Africa	Companies Act 71	2009	166-5	ESG
Spain	Law 1/2005, of March 9, which regulates the trading system for greenhouse gas emission rights	2005	168-54	E
Sri Lanka	Listing Rules of Colombo Stock Exchange	2019	169-8	G
Sweden	Swedish Code of Corporate Governance of 2008	2008	171-2	G
Switzerland	Directive on Information relating to Corporate Governance	2018	172-3	G
Taiwan	Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies, 2015	2015	174-3	ESG
Thailand	The Principles of Good Corporate Governance For Listed Company's	2006	177-4	G
Turkey	Environment Law No. 2872 (1983)	2006	180-12	E
United Arab Emirates	Decision No. (32/R) of 2007 concerning on Corporate Governance Code for Joint-Stock Companies and Institutional Discipline Criteria	2007	183-1	G
United Kingdom	Equality Act	2006	184-22	S
United States	40 CFR Parts 86 87 89 et al Mandatory Reporting of Greenhouse gases	2009	185-5	E
Vietnam	Environmental & Social Disclosure Guide	2014	190-2	ES
Zambia	The Companies Bill	2016	192-2	G
Zimbabwe	Zimbabwe National Code of Corporate Governance	2015	193-1	G

Note: Nonfinancial reporting mandates by Country, adopted between 2005 and 2022. Regulation descriptions are from carrots & sticks and translated to English where necessary. Year indicates the effective year of the respective mandate, ID refers to unique regulation ids assigned by Carrots & Sticks and is reported for transparency and replicability. E-S-G refers to the classification of standards into Environmental (E), Social (S) or Governance (G) standards and combinations thereof.

Appendix Table 3 Balanced Sample and Alternative Outcome Measures

Panel A: Balanced Sample Tests

Dependent Variable: As indicated in model title

	(1) ***All Financial Guidance***	(2) ***Earnings Guidance***	(3) ***Non-Earnings Guidance***
NFR-Mandate	-0.0199	-0.172***	0.153***
	(-0.66)	(-5.28)	(3.54)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	139,716	139,716	139,716
R^2	0.675	0.651	0.399

Panel B: Alternative Outcome Measures

Dependent Variable: As indicated in model title

	(1) ***Management Earnings Guidance (I/B/E/S)***	(2) ***Management CapEx Forecasts (I/B/E/S)***	(3) ***Earnings Conference Call Frequency***
NFR-Mandate	-0.203*	0.0431	-0.230***
	(-1.76)	(0.64)	(-5.45)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	60,039	60,039	329,466
R^2	0.693	0.598	0.814

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021) using a strongly balanced sample (Panel B: full sample). Dependent variable: count of financial management guidance in the respective firm-year: Column (1) - All Financial Guidance, Column (2) - Earnings Guidance, Column (3) - Non-Earnings Guidance (Panel B: Column (1) - count of management earnings forecasts obtained from the I/B/E/S Guidance database. Column (2) - count of management capital expenditure forecasts obtained from the I/B/E/S Guidance database. Column (3) - frequency of earnings conference calls from CIQ Key Developments, item 48 "Earnings Calls") Independent variables of interest: cumulated post-event indicator (NFR-Mandate) being one the year prior a firm's country introduced a nonfinancial reporting mandate. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on country-industry and year level. *, ** and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Appendix Table 4 Alternative Clustering

Panel A: Clustering on the Firm and Year Level

Dependent Variable: As indicated in model title

	(1) ***All Financial Guidance***	(2) ***Earnings Guidance***	(3) ***Non-Earnings Guidance***
NFR-Mandate	-0.0116	-0.132***	0.123***
	(-0.59)	(-5.05)	(4.06)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Firm, Year	Firm, Year	Firm, Year
N	329,466	329,466	329,466
R^2	0.678	0.646	0.428

Panel B: Clustering on the Country and Year Level

Dependent Variable: As indicated in model title

	(1) ***All Financial Guidance***	(2) ***Earnings Guidance***	(3) ***Non-Earnings Guidance***
NFR-Mandate	-0.0116	-0.132***	0.123*
	(-0.38)	(-3.06)	(1.96)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country, Year	Country, Year	Country, Year
N	329,466	329,466	329,466
R^2	0.678	0.646	0.428

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021) using a strongly balanced sample (Panel B and C: full sample). Dependent variable: count of financial management guidance in the respective firm-year: Column (1) - All Financial Guidance, Column (2) - Earnings Guidance, Column (3) - Non-Earnings Guidance. Independent variables of interest: cumulated post-event indicator (NFR-Mandate)being one the year prior a firm's country introduced a nonfinancial reporting mandate. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm (Panel B: country) and year level. *, ** and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Appendix Table 5 Alternative Estimation Method: Group-Time Average Treatment Effects Regressions

Panel A: Balanced Sample

Dependent Variable: As indicated in model title

	(1) ***All Financial Guidance***	(2) ***Earnings Guidance***	(3) ***Non-Earnings Guidance***
NFR-Mandate	-0.0400	-0.117***	0.081***
	(-1.42)	(-4.80)	(6.09)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Firm, Year	Firm, Year	Firm, Year
N	139,716	139,716	139,716

Panel B: Full Sample

Dependent Variable: As indicated in model title

	(1) ***All Financial Guidance***	(2) ***Earnings Guidance***	(3) ***Non-Earnings Guidance***
NFR-Mandate	-0.0177	-0.091***	0.074***
	(-0.90)	(-5.57)	(8.06)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Firm, Year	Firm, Year	Firm, Year
N	309,252	309,252	309,252

Note: Aggregated group-time average effects of treatment on the treated (ATT), estimating equation (1) following the methodology lined out by Callaway and Sant'Anna (2021). Dependent variable: count of financial management guidance in the respective firm-year: Column (1) - All Financial Guidance, Column (2) - Earnings Guidance, Column (3) - Non-Earnings Guidance. Independent variables of interest: cumulated post-event indicator (NFR-Mandate) being one the year prior a firm's country introduced a nonfinancial reporting mandate. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on country-industry and year level. *, ** and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. Balanced z-statistics in brackets.

Tables and Figures

Table 1. Selection of Nonfinancial Reporting Mandates

Sampling Step	***Number of Regulations***
All Instruments	2,461
(Voluntary instruments)	(1,358)
(Regional and international instruments)	(54)
(Instruments effective before 2005)	(262)
Candidate Regulations	787
(Hand collection)	(706)
Selected Regulations	81
(Country outside COMPUSTAT)	(9)
(Japan)	(1)
(Country with less than 100 firm-year obs.)	(8)
Final ESG Regulations	63

Note: Sample selection process of ESG reporting mandates from the Carrots & Sticks database (`www.carrotsandsticks.net`) as of October 2023. The hand collection involves manual screening of regulations in each country in the database and selecting the first mandatory regulation after 2005 with sufficient scope to plausibly stimulate firm-internal information acquisition procedures.

Table 2. Sample Selection

Sampling Step	***Number of Firm Years***	***Number of Firms***
COMPUSTAT universe 2004-2022	710,503	62,497
(Japanese firms)	(57,111)	(4,373)
(Missing control variables)	(222,932)	(13,797)
(No coverage pre-regulation)	(98,210)	(15,462)
(Countries with ¡ 100 firm-year obs.)	(1,119)	(114)
Final sample	331,131	28,751

Note: Sample selection procedure, starting from a consolidated version of the COMPUSTAT North America and COMPUSTAT global databases.

Table 3. Country-Distribution of Sample

Country	*Firm Years*	*Country*	*Firm Years*
Argentina	926	Latvia	270
Australia	14,488	Lithuania	430
Austria	542	Luxembourg	453
Bahrain	228	Malaysia	11,167
Bangladesh	1,083	Malta	158
Belgium	1,139	Marshall Islands	520
Bermuda	9,000	Mauritius	389
Botswana	139	Mexico	1,207
Brazil	3,906	Morocco	302
British Virgin Islands	859	Netherlands	1,766
Canada	10,992	New Zealand	1,557
Cayman Islands	11,295	Nigeria	999
Chile	1,880	Norway	1,938
China	22,691	Oman	1,013
Colombia	411	Pakistan	2,887
Croatia	658	Palestine	145
Cyprus	744	Peru	1,079
Czech Republic	152	Philippines	2,275
Denmark	889	Poland	2,474
Egypt	949	Portugal	340
Estonia	198	Qatar	291
Finland	1,708	Russia	1,448
France	8,245	Saudi Arabia	389
Germany	4,427	Singapore	8,097
Ghana	123	Slovenia	312
Greece	987	South Africa	2,891
Guernsey	244	South Korea	14,507
Hong Kong	2,001	Spain	258
Hungary	164	Sri Lanka	2,553
Iceland	125	Sweden	3,811
India	29,932	Switzerland	2,886
Indonesia	3,384	Taiwan	23,049
Ireland	812	Thailand	5,489
Isle of Man	157	Tunisia	222
Israel	4,477	Turkey	944
Italy	2,107	United Arab Emirates	401
Jamaica	312	United Kingdom	12,591
Jersey	554	United States	70,454
Jordan	1,218	Venezuela	105
Kazakhstan	172	Vietnam	2,688
Kenya	433	Zambia	134
Kuwait	1,124	Zimbabwe	367

Note: Sample composition by companies' country of incorporation on COMPUSTAT. Countries indicated by iso3-country codes with the total number of firm-year observations.

Table 4. Summary Statistics

Panel A: Full Sample

	N	*Mean*	*StD*	*P10*	*P25*	*P50*	*P75*	*P90*
Treatment								
NFR-Mandate	331,131	0.65	0.48	0.00	0.00	1.00	1.00	1.00
Disclosure Variables								
All Fin. Guidance	331,131	0.68	1.40	0.00	0.00	0.00	1.00	3.00
Earnings Guidance	331,131	0.48	1.11	0.00	0.00	0.00	0.00	2.00
Non-Earn. Guidance	331,131	0.19	0.63	0.00	0.00	0.00	0.00	1.00
Control Variables								
Size (ln)	331,131	7.06	3.01	3.21	5.10	7.10	8.83	10.85
ROA	331,131	-0.04	0.33	-0.17	-0.02	0.03	0.07	0.12
Big Auditor	331,131	0.49	0.50	0.00	0.00	0.00	1.00	1.00
Leverage	331,131	0.25	0.27	0.00	0.04	0.19	0.36	0.52
Earnings Increase	331,131	0.56	0.50	0.00	0.00	1.00	1.00	1.00
Earnings Volatility	331,131	0.16	0.55	0.01	0.02	0.04	0.09	0.24
Loss	331,131	0.70	0.46	0.00	0.00	1.00	1.00	1.00
Equity Issue	331,131	0.10	0.31	0.00	0.00	0.00	0.00	1.00
Split Variables								
Analyst Following (#)	331,131	1.86	4.61	0.00	0.00	0.00	1.00	7.00
Inst. Ownership (%)	228,727	28.29	31.51	0.59	3.75	14.99	44.61	82.46
HHI	331,131	0.28	0.26	0.05	0.09	0.19	0.38	0.69
ESG Rating (Yes/No)	331,131	0.11	0.32	0.00	0.00	0.00	0.00	1.00

Panel B: Financial Guidance by Subsample

	Subsample = Low/No			***Subsample = High/Yes***		
Split Variable	***N***	***Mean (EG)***	***Mean (NEG)***	***N***	***Mean (EG)***	***Mean (NEG)***
Analyst Following	216,006	0.34	0.12	84,044	0.91	0.37
Inst. Ownership	98,107	0.41	0.16	101,289	0.93	0.36
HHI	160,032	0.52	0.18	139,694	0.48	0.21
ESG Rating	293,136	0.38	0.14	37,995	1.32	0.54

Note: Panel A: Summary statistics for treatment, disclosure, control, and split variables. Sample period 2004-2022. Number of available observations, mean, standard deviation, and percentiles. Panel B: mean of *Earnings Guidance* (EG) and *Non-Earnings Guidance* (NEG) by subgroup used for cross-sectional splits. All variables are defined in Appendix Table 1.

Table 5. Management Guidance Frequency and Nonfinancial Reporting Mandates

Dependent Variable: Financial Guidance Frequency, as Indicated in Column Title			
	(1)	(2)	(3)
	All Financial Guidance	***Earnings Guidance***	***Non-Earnings Guidance***
NFR-Mandate	-0.0116	-0.132***	0.123***
	(-0.41)	(-4.59)	(3.45)
Size	0.0844***	0.0492***	0.0332***
	(7.84)	(7.58)	(4.94)
ROA	-0.000463	0.00865	-0.00815
	(-0.04)	(0.95)	(-1.03)
Big Auditor	0.0267**	0.0119	0.0148*
	(2.45)	(1.39)	(1.84)
Leverage	0.0247	0.00753	0.0125
	(1.04)	(0.44)	(0.93)
Earnings Increase	-0.00374	-0.00557	0.00141
	(-0.44)	(-0.71)	(0.35)
Earnings Volatility	-0.0285***	-0.0261***	-0.00303
	(-3.48)	(-3.96)	(-0.78)
Loss	0.0194	0.0193*	-0.000316
	(1.54)	(1.75)	(-0.05)
Equity Issue	-0.0153**	-0.00558	-0.00864
	(-2.47)	(-0.96)	(-1.67)
Constant	0.0646	0.210***	-0.137**
	(0.76)	(4.04)	(-2.76)
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	329,466	329,466	329,466
R^2	0.678	0.646	0.428

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Dependent variable: count of financial management guidance in the respective firm-year: Column (1) - All Financial Guidance, Column (2) - Earnings Guidance, Column (3) - Non-Earnings Guidance. Independent variables of interest: Cumulated post-event indicator (NFR-Mandate) being one the year prior to a firm's country introduced a nonfinancial reporting mandate. Control variables, as indicated in models. All variables are defined in Appendix Table 1. Firm- and year-fixed effects included two-way clustering on country-industry and year-level. *, ** and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Table 6. Management Guidance Frequency and Nonfinancial Reporting Mandates by Stakeholder Pressure

Panel A: Earnings Guidance

Dependent Variable: Earnings Guidance Frequency

	Pre-Mandate Analyst Following		***Pre-Mandate Institutional Ownership***	
	(1)	(2)	(3)	(4)
	low	*high*	*low*	*high*
NFR-Mandate	-0.128***	0.00754	-0.105***	-0.0443
	(-6.81)	(0.10)	(-4.94)	(-0.61)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	215,502	83,935	98,014	101,157
R^2	0.587	0.672	0.559	0.665

Panel B: Non-Earnings Guidance

Dependent Variable: Non-Earnings Guidance Frequency

	Pre-Mandate Analyst Following		***Pre-Mandate Institutional Ownership***	
	(1)	(2)	(3)	(4)
	low	*high*	*low*	*high*
NFR-Mandate	0.0697***	0.0944	0.0476*	0.138*
	(3.17)	(1.45)	(1.77)	(1.93)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	215,502	83,935	98,014	101,157
R^2	0.409	0.410	0.406	0.408

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Dependent variable: count of new management guidance in the respective firm-year, Panel A - Earnings Guidance, Panel B - Non-Earnings Guidance. Independent variables of interest: Cumulated post-event indicator (NFR-Mandate) being one the year prior a firm's country introduced a nonfinancial reporting mandate. Columns (1) through (4) display estimates for the sample split into different groups based on Analyst Following (1), (2) and Institutional Ownership (3), (4) levels pre-mandate and within country. Control variables, as indicated in models. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm and year level. *, **, and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Table 7. Management Guidance Frequency and Nonfinancial Reporting Mandates by Competitive Pressure

Dep. Variable:	***Earnings Guidance***		***Non-Earnings Guidance***	
Note: low HHI = high Competition	(1) *low HHI*	(2) *high HHI*	(3) *low HHI*	(4) *high HHI*
NFR-Mandate	-0.109***	-0.153***	0.0831*	0.165***
	(-3.21)	(-5.04)	(1.85)	(4.46)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	159,735	139,379	159,735	139,379
R^2	0.664	0.627	0.410	0.436

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Dependent variable: count of new management guidance in the respective firm-year, Columns (1) and (2) - Earnings Guidance, Columns (3) and (4) - Non-Earnings Guidance. Independent variables of interest: Cumulated post-event indicator (NFR-Mandate)being one the year prior a firm's country introduced a nonfinancial reporting mandate. Columns (1) through (4) display estimates for the sample split into different groups based on market concentration measured with the Herfindahl Hirschmann Index pre-mandate and within country. Control variables, as indicated in models. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm and year level. *, **, and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Table 8. Management Guidance Frequency and Nonfinancial Reporting Mandates by Pre-Mandate Voluntary ESG Disclosure

Dep. Variable:	***Earnings Guidance***		***Non-Earnings Guidance***	
	(1) *No ESG-Rating*	(2) *ESG-Rating*	(3) *No ESG-Rating*	(4) *ESG-Rating*
NFR-Mandate	-0.131***	0.0224	0.0985***	0.0865
	(-5.24)	(0.23)	(3.35)	(0.91)
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	291,489	37,977	291,489	37,977
R^2	0.616	0.641	0.419	0.388

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Dependent variable: count of new management guidance in the respective firm-year, Columns (1) and (2) - Earnings Guidance, Columns (3) and (4) - Non-Earnings Guidance. Independent variables of interest: Cumulated post-event indicator (NFR-Mandate) being one the year prior a firm's country introduced a nonfinancial reporting mandate. Columns (1) through (4) display estimates for the sample split into different groups based on the existence of an ESG rating for the respective firm on Thomson Reuters Refinitiv pre-mandate and within country. Control variables, as indicated in models. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm and year level. *, **, and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

Table 9. Management Guidance Changes by Regulation Type

Panel A: Earnings Guidance

Dependent Variable: Earnings Guidance Frequency

	(1) ***E-Regulations***	(2) ***S-Regulations***	(3) ***G-Regulations***
NFR-Mandate	-0.134***	-0.103***	-0.114***
	(-3.08)	(-4.40)	(-4.49)
Controls	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	237,127	125,954	176,657
R^2	0.669	0.514	0.534

Panel B: Non-Earnings Guidance

Dependent Variable: Non-Earnings Guidance Frequency

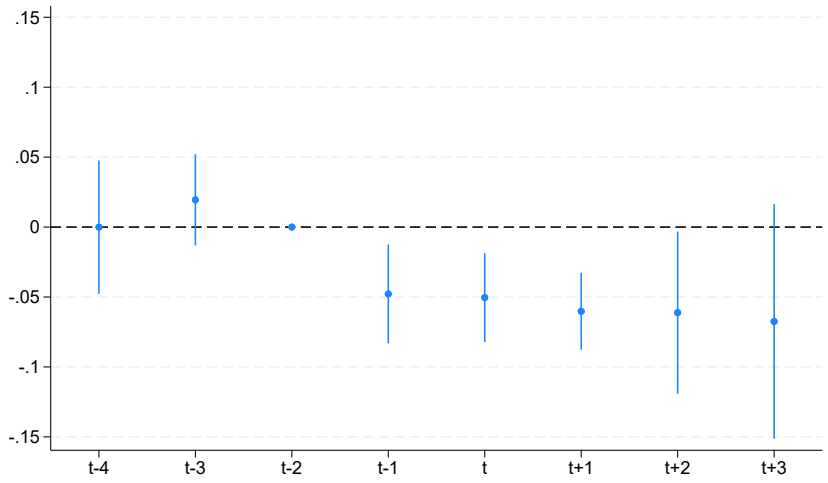
	(1) ***E-Regulations***	(2) ***S-Regulations***	(3) ***G-Regulations***
NFR-Mandate	0.205***	0.0379***	-0.0167
	(4.70)	(4.99)	(-0.89)
Controls	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	237,127	125,954	176,657
R^2	0.437	0.468	0.458

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Panel A (Panel B): Dependent variable: earnings (non-earnings) guidance frequency in the respective firm-year. Independent variables of interest: Cumulated post-event indicator (NFR-Mandate) being one the year prior a firm's country introduced a nonfinancial reporting mandate. Column (1) includes only firms whose country imposed an environmental (E) reporting mandate. Column (2) includes only firms whose country imposed a social (S) reporting mandate. Column (3) includes only firms whose country imposed a governance (G) reporting mandate. All analyses include in addition firms of countries that did not impose an E-, S-, or G-reporting mandate during our sample period. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm and year level. *, ** and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.

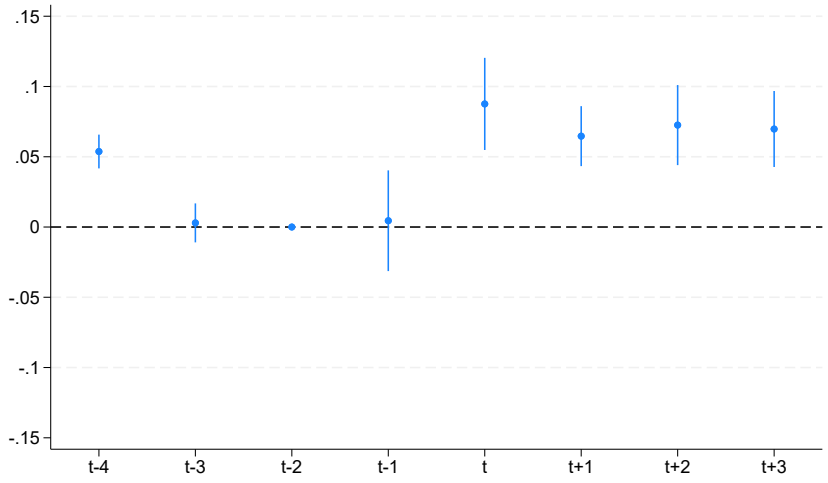
Table 10. Robustness Test: EU's Non-Financial Reporting Directive (2014/95)

Dependent Var.:	***Earnings Guidance***		***Non-Earnings Guidance***	
	(1)	(2)	(3)	(4)
POST2016 x EU	-0.120	0.0280	0.0299	0.0944**
	(-1.05)	(0.67)	(1.74)	(2.75)
Control Group	Never-Treated	USA	Never-Treated	USA
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Clustering	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year	Country-Industry, Year
N	59,877	60,852	59,877	60,852
R^2	0.642	0.721	0.528	0.492
DV-Mean	0.62	1.58	0.19	0.42

Note: Results from interaction weighted regressions of equation (1), following Sun and Abraham (2021). Dependent variable (Columns 1 & 2) count of new management guidance in the respective firm-year, (Columns 3 & 4) count of revised and confirmed management guidance in the respective firm-year. Independent variables of interest: Cumulated post-event indicator (POST2016xEU) being one if a country is member of the European Union and the firm-year is 2016 or later. Sample reduced to years 2011 through 2022 following Fiechter et al. (2022). The row *DV-Mean* displays the mean of the dependent variable in the respective regression. All variables are defined in Appendix Table 1. Firm- and year fixed effects included, two-way clustering on firm and year level. *, **, and *** indicate statistical significance on 10%, 5% and 1%-levels, respectively. T-statistics in brackets.



(a) Earnings Guidance



(b) Non-Earnings Guidance

Figure 1. Management Guidance Frequency and Nonfinancial Reporting Mandates
Note: Graphical display of coefficient estimates from interaction weighted regression of equation (2), following Sun and Abraham (2021). X-axis: event time, y-axis: effect size (absolute number of disclosures). Underlying regression details: dependent variable: Guidance Frequency (Panel (a) Earnings Guidance, Panel (b) Non-Earnings Guidance); independent variables of interest: single-year event indicators, year t being the year of a nonfinancial reporting mandate in the respective firm's country. Indicator for year t-2 is omitted; indicators for all relative years are included in the regression. All variables are defined in Appendix Table 1. Control variables, firm- and year-fixed effects, and two-way clustering on country-industry (2-digit) and year level are included. Displayed confidence intervals are at the 5% level.