Mandatory ESG Reporting and Cross-Listing Activities: Worldwide Evidence

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Abstract

Using a large international dataset, this study documents that the country-level adoption of mandatory ESG reporting requirement facilitates domestic firms' cross-listing activities. Cross-sectional analyses reveal that this effect is more pronounced for opaque firms, those with a higher dependence on external financing, those with higher ex-ante agency costs, and for firms headquartered in home countries with a weak legal environment. Results of additional analyses reveal that firms are more likely to cross-list to countries that also have an active ESG mandate in place, countries where domestic firms have a higher ESG performance, and in developed capital markets. We further find that cross-listing firms are likely to attract a greater number of institutional investors and reduce their cost of debt after post-ESG mandate cross-listing. Finally, we document a heightened response for firms with pre-mandate voluntary ESG disclosures and a weaker response when the mandate is non-government issued.

Keywords: cross-listing; mandatory reporting; non-financial reporting; ESG disclosure.

Data availability: Data are available from the public sources cited in this text.

1. Introduction

Despite increasing demand for environmental, social, and governance (ESG) disclosure (Brooks and Oikonomou 2018; Marti and Gond 2018; Chen et al. 2020; Christensen et al. 2021; Gillan et al. 2021), investors frequently complain about the inadequate supply and quality of ESG information that firms provide voluntarily (EY 2020; Ilhan et al. 2021). In response, governments and regulatory institutions around the globe introduced mandatory ESG reporting requirements (Halbritter and Dorfleitner 2015; Grewal et al. 2019; Krueger et al. 2024; Wang 2023), which increased the supply and quality of first-hand corporate issued ESG data (Krueger et al. 2024). These mandates carry significant implications for corporate transparency, governance, and accountability, as firms' non-financial behavior becomes much more observable to investors which, in turn, reduces information asymmetries. This should render firms comparatively more transparent and arguably decrease investment barriers for outside investors. In this paper, we investigate these investment consequences more directly and question whether these reduced investment barriers influence cross-listing decisions.

Prior research has mainly focused on studying firm's ESG activities and performance in determining a plethora of capital allocation decisions for domestic as well as foreign investors (Dhaliwal et al. 2011, 2012; Boubakri et al. 2016; Dyck et al. 2019; Muslu et al. 2019; Chen et al. 2020; Deloitte 2020; Frost et al. 2022; Tsang et al. 2024). Anecdotal evidence already suggests that ESG reporting can serve as a useful screening tool for investors in facilitating the investment decision-making process (Deloitte 2020). Notably, Boubakri et al. (2016) document a positive association between firms' corporate social responsibility (CSR) performance and cross-listing activities. Yet, our paper significantly departs from these studies by shifting the focus from voluntary disclosure practices—or ratings provided by external rating agencies—by studying the

required introduction of first-hand corporate issued information through institutional mandates. This distinction is vital, because mandatory disclosure practices reduce the discretion with which firms can tailor and present their non-financial performance in a beneficial manner (so called "green-washing") (see Li et al. 1997; Fairfax 2022). Since mandated reporting provides a stricter set of dimensions that needs to be reported on, this arguably results in higher levels of trustworthiness (Krueger et al. 2024), and arguably more negative information being revealed on average (Grewal et al. 2019). The extent to which findings about how curated ESG information affects capital markets carry over to mandatory ESG reporting is thus ex-ante unknown. Moreover, the introduction of these mandates provides us with an interesting quasi-natural setting by which gauge the impact of ESG disclosure on corporate outcomes more causally, rather than through correlational analyses as is the case with studies on voluntary ESG reporting and ESG rating agencies.

Our focus on firms' cross-listing behavior is all the more important as it constitutes a significant corporate decision, allowing firms to overcome financing barriers and access a significantly wider pool of investors, thereby expanding their equity financing possibilities. Pertaining to domestic firms, cross-listed firms experience higher future performance (Doidge et al. 2004), lower capital costs (Hail and Leuz 2009), enhanced analyst coverage (Lang et al. 2003), as well as improved transaction volumes in their own domestic home markets (Foerster and Karolyi 1998). Cross-listing also brings about strategic advantages, facilitating global expansion as well as mergers (Tolmunen and Torstila 2005; Hasan et al. 2011), improving their reputation and visibility (Saudagaran and Biddle 1995; Khanna et al. 2004). Against this backdrop, firms suffer from a liability of foreignness in the foreign due to the geographic distance between their activities and the investors, the unfamiliarity of investors with the domestic market conditions, as

well as legitimacy challenges (see Zaheer 1995), which may affect valuation and cost of equity (Bell et al. 2012). In sum, the accompanying information asymmetry concerns for investors, may hamper the attractiveness and success of cross-listing (French and Poterba 1991).

Our research question is further motivated by ambiguous theoretical predictions about the influence mandatory ESG reporting may have on the decision to cross-list. ESG mandates arguably increase the supply and improve the quality and comparability of ESG information (Krueger et al. 2024; Fairfax 2022), which improves firms' ESG information transparency and should thus decrease the relative monitoring costs for investors. On the one hand, this may actually lower firm incentives to engage in cross-listing to begin with: prior research puts forth that reduced ESG information asymmetry increases access to external capital and at a lower cost relative to the home markets (Dhaliwal et al. 2011). Firms may thus have weaker incentives to cross-list their securities in foreign markets as they benefit from enhanced domestic market liquidity improvements. On the other hand, the reduction of monitoring costs realized by mandatory ESG reporting may be more beneficial for foreign investors who traditionally suffer from more information asymmetry than their domestic colleagues, which traditionally serves as an important barrier to cross-border equity-holding decisions (Kang and Stulz 1997; Bradshaw et al. 2004; Khanna et al. 2004; Hong et al. 2014; Lundholm et al. 2014; Yu and Wahid 2014). From the vantage point of the costliness of disclosures, given that domestic ESG mandates strengthen firms' ESG disclosure practices, the relative costs of adhering to foreign ESG standards may even become comparatively lower, reducing barriers to cross-listing. This theoretical ambiguity is particularly salient with regard to mandatory ESG reports due to the reduced possibility of presenting favorable information

We empirically investigate this question using a sample of 336,334 firm-year observations, comprising 30,626 distinct firms located across 63 countries–39 of which mandate ESG reporting

requirements throughout our sample period–from 1997 to 2019. We examine the staggered adoption of ESG mandates by exploiting a difference-in-differences (DID) research design, and find that firms are more likely to cross-list their securities on foreign stock exchanges after their home countries implement ESG mandates.[1] This finding is consistent with the argument that the mandatory ESG reporting requirements adopted by many countries decreases investors' monitoring costs and thus thereby facilitating firms' cross-listing decisions. To ensure the causality of our findings, we conduct parallel trend analyses and find no significant change in firms' cross-listing activities in the pre-ESG mandate years. Our findings are thus unlikely to be driven by differences in other factors during the period before the adoption of ESG mandates. These results are also robust to various other tests and methodologies.[2]

Next, we investigate several cross-sectional moderators to gain further insights into the effects of ESG mandates on firms' cross-listing incentives. First, consistent with the marginal benefits of monitoring power improvements being higher in firms with ex-ante lower levels of information asymmetry, we observe a stronger effect of ESG mandates on the cross-listing activities of firms with high information asymmetry. Second, we showcase that ESG mandates have a more pronounced effect on the cross-listing activities of firms with a strong demand for external capital. Third, consistent with Liao et al. (2021), we document that the adoption of ESG mandates has a stronger effect on the cross-listing activities of firms with higher ex-ante agency costs. Finally, we conjecture that the effect of ESG mandates on firms' cross-listing activities may vary with the strength of the legal environment in their home country (Ioannou and Serafeim 2012; Christensen

[1] Our regressions include both firm and year fixed effects to ensure that our findings are less likely to be caused by any time-invariant unobservable characteristics of firms or time trends.

[2] More precisely, our results are robust to using a stacked DID method, using restricted samples, adopting alternative home country definitions, using alternative dependent variables and regression specifications, controlling for confounding regulatory changes, and placebo testing.

et al. 2013; Liao et al. 2021; Tsang et al. 2021), and document that–compared to countries with strong legal environment–firms in countries with a weak legal environment are more likely to cross-list their shares.

In additional analyses, we investigate the impact of ESG mandates on firms' cross-listing venue choices. We demonstrate that firms are more inclined to cross-list in foreign countries with mandatory ESG disclosures, those with a high level of ESG awareness and requirements, and countries with well-developed capital markets. We further shed light on the consequences of ESG-mandated cross-listing, as these firms experience a subsequent reduction in their cost of debt, and an increase in institutional ownership. We further show that the cross-listing likelihood increases more strongly for firms that were already producing ESG reports voluntarily prior to the introduction of the ESG mandate, and study the importance of mandate design characteristics on cross-listing outcomes.

Our findings make two major contributions. First, we contribute to the growing literature on the consequences of ESG mandates (Christensen et al. 2021; Krueger et al. 2024). Christensen et al. (2021) observe that despite the growing trend in the adoption of ESG mandates globally, there is relatively little empirical evidence for the real effects of ESG mandates. To the best of our knowledge, we are the first to examine an important but previously unexplored consequence of ESG mandates, namely firms' cross-listing activities. Our paper also identifies important country-, industry-, and firm-level factors with the potential to explain the heterogeneity in the effect of ESG mandates affect firms' cross-listing activities.

Second, we contribute to the literature on the determinants of cross-listing. Previous literature finds that information barriers present an important factor hindering firms' cross-listing activities (Cooper and Kaplanis 1994; Kang and Stulz 1997; Coval and Moskowitz 1999), and mainly

examines the impact of financial information disclosure standards on determining cross-listing outcomes (Bradshaw et al. 2004; Chen et al. 2015). There are some studies examining the effect of firms' ESG information environment on cross-listing decision (Ilhan et al. 2021; Marshall et al. 2022), and our findings contribute hereto by suggesting that the mandated firm-level ESG information environment in the home country is a strong catalyst for cross-listing, thereby increasing the supply of cross-border capital to firms domiciled in countries with ESG mandates.

The remainder of this paper is organized as follows. In Section 2, we discuss the institutional setting and develop our hypotheses. Section 3 presents the data and methodology. Section 4 presents the main results, the robustness tests, and our cross-sectional analyses. Section 5 concludes.

2. Institutional background and hypothesis development

2.1 The rise of mandatory ESG reporting requirements

In 2020, global ESG assets surpassed US$35 trillion, accounting for 36% of all professionally managed assets, underscoring the demand for comparable and credible information about firms' ESG activities in making their investment decisions (Cohen et al. 2015; Amel-Zadeh and Serafeim 2018; Fairfax 2022).[3,4] In addition to its direct usefulness to investors, ESG reports are of importance to a variety of other stakeholders such as customers (Lacey and Kennett-Hensel 2010; Servaes and Tamayo 2013), financial analysts (Dhaliwal et al. 2012; Muslu et al. 2019), debt holders (Tan et al. 2020), business press (Cahan et al. 2015), managers (Christensen 2016), auditors (Chen et al. 2016), employees (Greening and Turban 2000), competitors (Ryou et al. 2022), and the broader community (Chen et al. 2018).

[3] See, https://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf

[4] ESG assets are on track to exceed US$50 trillion by 2025, which represents more than a third of the projected $140.5 trillion in total global assets under management, according to Bloomberg Intelligence's ESG 2021 Midyear Outlook report.

A large number of firms provide ESG information on a voluntary basis (Dhaliwal et al. 2011, 2012; Liao et al. 2021), yet it is challenging to compare voluntary ESG reports across countries, industries, firms, and years. Firms may use such disclosures for impression management purposes by strategically disclose positive ESG information to their investors while underemphasizing negative facts (i.e., cherry-picking positive information) (Li et al. 1997; Fairfax 2022). These credibility and comparability concerns are further compounded by the long-horizon nature of ESG information and the wide variety of non-financial dimensions firms can disclose about (Ramanna 2013; Chen et al. 2016). Consistent with this perspective, Muslu et al. (2019) find that voluntary ESG disclosures can vary significantly in terms of quantity and quality across firms.

In response to these concerns and the increasing demand for ESG reports from stakeholders, regulators have started mandating ESG reports.[5] Such mandates provide guidelines for firms in preparing their ESG disclosures in terms of which ESG risks and opportunities to report, which ESG topics are relevant to investors and should be disclosed, and where and how such information should be presented (Christensen et al. 2021). Krueger et al. (2024) document that these mandates carry important stock market liquidity implications as analysts tend to provide more accurate and less dispersed earnings forecasts while firms exhibit lower levels of stock price crash risk after the implementation of ESG mandates in their home country.

2.2 ESG mandates and firms' cross-listing activities

Cross-listing occurs when a firm lists its common shares on a foreign stock exchange, in addition to those listed on the firm's primary stock exchange in its home country, allowing firms to tap into

[5] For example, the Singapore Exchange introduced sustainability reporting on a "comply-or-explain" basis to its listing rules in June 2016. These reports are intended to complement its listed issuers' financial reporting by showing how their material ESG risks and opportunities are being managed, thereby enabling a more holistic assessment of equity issuers' financial prospects and management quality. The US Securities and Exchange Commission also requests information on ESG issues that are relevant to investors' investment decision-making (Coates 2021).

the investor base of other markets. International cross-listing activities have become increasingly popular, resulting in significant value increases and improvements in liquidity (Foerster and Karolyi 1998). Despite these benefits for firms, investors typically exhibit a home bias in their asset allocation decisions in that they underweight foreign stocks in their portfolio and typically overweigh the securities of their home country (French and Poterba 1991). This liability of foreignness stems from a variety of factors, among which higher information acquisition and processing costs of foreign investors relative to domestic ones (Kang and Stulz 1997; Bradshaw et al. 2004; Khanna et al. 2004; Hong et al. 2014; Lundholm et al. 2014; Yu and Wahid 2014).

It is ex-ante unclear whether and in what direction mandated ESG reporting would affect firms' decision to cross-list. On the one hand, there are several reasons as to why ESG information and mandates can help resolve information asymmetries and thus reduce cross-listing barriers. First, ESG information directly helps increase firms' transparency about their non-financial performance and activities, but is also useful to understand for gauging long-run firm behavior. As mentioned by KPMG (2013, p. 9), ESG reporting "is essential to convince investors that your business has a future beyond the next quarter or the next year", thereby solidifying its usefulness for investors in determining firms' business models and corporate endeavours, and consequently future firm performance. According to Marano et al. (2017, p. 387) "reporting on CSR also provides host country and global stakeholders with additional information for evaluating the firm in a more rational manner", since such reports provide "useful information to foreign stakeholders in order to facilitate a less-biased assessment of the firm than stereotyping based on home-country institutional voids" (Marano et al. 2017, p. 390). These benefits should arguably become more pronounced with mandatory ESG information, as there is an implicit institution mandating the

content and type of information provided by firms, reducing firms' capacity of myopically disclosing positive information, while rendering reports more comparable (Fairfax 2022).

Second, ESG reports also carry indirect benefits for investors as they facilitate better corporate practices by reducing corporate misconduct (Christensen 2016), help signal managerial integrity (Kim et al. 2012; Deng et al. 2013; Hoi et al. 2013), and can aid in building a reputation for social responsibility (Choi and Wang 2009). Bushman and Smith (2001) and Lambert et al. (2007) suggest that higher quality voluntary disclosures help firm outsiders (such as investors) to effectively monitor managers, reducing concerns about managerial opportunism. It is therefore not surprising that Marano et al. (2017) and Mithani (2017) document that firms' ESG activities including ESG reporting can play an important role in mitigating the investor home bias, thus rendering firm's cross-listing activities more lucrative. We believe that all these direct and indirect investor benefits are even more pronounced for mandatory ESG reports, as the information provided is institutionalized and formatted. For instance, Krueger et al. (2024) argue that ESG mandates result in firms providing high-quality and comparable ESG reports, which would allow foreign investors to more objectively gauge the firm's behavior.

Finally, from the vantage point of the firm, enhanced disclosure practices are often considered a barrier to cross-listing. Saudagaran and Biddle (1995) maintain that firms are less likely to cross-list on foreign stock exchanges with more stringent disclosure levels than those of their home country (see also Pagano et al. 2002; Fernandes and Giannetti 2014). In fact, according to Radebaugh et al. (1995), disclosure costs are the primordial reason behind the low number of German firms being cross-listed in the U.S. Given that mandatory ESG reports arguably up the ante in terms of required domestic disclosure practices, this should render additional foreign requirements significantly less consequential. That is, as the domestic disclosure requirement

increase, the marginal costs of additional disclosure demanded by foreign entities becomes comparatively less costly.

All else equal, we expect a significant reduction in the information asymmetry between firms and their foreign investor base, which in turn increases the attractiveness of cross-listing as a means by which to raise equity. Hence, we obtain our hypothesis H1a:

Hypothesis 1a: *Following the implementation of ESG mandates in their home countries, firms are more likely to cross-list compared with firms in countries without ESG mandates.*

On the other hand, ESG mandates may also hamper firms' willingness to cross-list. The various benefits of ESG reported cited above, also positively influences domestic investors, which reduces firms' cost of capital in the home market (Dhaliwal et al. 2011). Given the improved domestic market capital conditions, it is plausible that firms will face lower incentives to cross-list their securities on foreign stock exchanges after their home countries adopt ESG mandates. We thus pose the alternative view that:

Hypothesis 1b: *Following the implementation of ESG mandates in their home countries, firms are less likely to cross-list compared with firms in countries without ESG mandates.*

3. Research design

3.1 Research model

To investigate whether and how the implementation of ESG mandates affects firms' cross-listing activities, we estimate the following staggered DID linear probability model:

$$CL_{FIRM_{i,c,t+1}} = \alpha_0 + \beta_1 MESG_{c,t} + \beta_2 Size_{i,c,t} + \beta_3 ROA_{i,c,t} + \beta_4 Sale\ Growth_{i,c,t} + \beta_5 Leverage_{i,c,t} + \beta_6 Cash_{i,c,t} + \beta_7 Capex_{i,c,t} + \beta_8 Age_{i,c,t} + \beta_9 Interest_{i,c,t} + \beta_{10} Accruals_{i,c,t} + \beta_{11} MtB_{i,c,t} + \beta_{12} Big\ N_{i,c,t} + \beta_{13} HiTech_{i,c,t} + \beta_{14} HHI_{i,c,t} + \beta_{15} Unemployment_{c,t} + \beta_{16} GDP\ Growth_{c,t} + \beta_{18} Mkt\ Dev_{c,t} + \text{Firm FE} + \text{Year FE} + \varepsilon. \quad (1)$$

In Model (1), *i*, *c*, and *t* represent company, country, and year, respectively. The dependent variable *CL* is an indicator variable equal to 1 if a firm has at least one secondary security actively listed and traded in a foreign country in year *t+1*, and 0 otherwise. *MESG* is an indicator variable equal to 1 for all years after a firm's home country adopted ESG mandates in the given year, and 0 otherwise.[6] As the key variable of interest, *MESG* serves as the DID estimator to capture incremental changes (i.e., from before the implementation to after the implementation of ESG mandates) in the cross-listing activities of firms domiciled in countries with ESG mandates relative to the corresponding changes in the control group. In Equation (1), ε are robust standard errors clustered at the country-level.

Following the cross-listing literature (Biddle and Saudagaran 1991; Saudagaran and Biddle 1995; Fuerst 1998; Coffee 1999, 2002; Ashbaugh 2001; Bhattacharya et al. 2003; Doidge 2004; Doidge et al. 2004; Lins et al. 2005; Foucault and Gehrig 2008), we identify a set of firm-, industry-, and country-level control variables that can affect firms' cross-listing activities. At the firm level, we control for the firm size, defined as the logarithm of a firm's total assets (*Size*), as well as profitability, measured as the net income to total assets (*ROA*). *Sales Growth* measures the annual change in net sales scaled by total assets, while *Leverage* captures the ratio of total liabilities to total assets. *Cash* measures the ratio of a firm's cash and short-term investments to its total assets, while *CAPEX* represents the ratio of a firm's total capital expenditures to total assets. We measure the firm's age through the number of years which a firm is included in the financial database (*Age*)

[6] Note that we include firm-fixed effects and year fixed effects in Equation (1), which capture the traditional treatment and post variable. *MESG* thus represent the interaction term between the treatment and post term.

and measure its interest expenses as the total interest divided by total sales (*Interest*). To control the firm's opacity, we follow Bhattacharya et al. (2003) and calculate the firm's accruals (*Accruals*). To capture the firm's growth stage, we introduce the market-to-book ratio (*MtB*), and include an indicator variable equal to 1 if a firm is audited by a Big N audit firm, and 0 otherwise (*Big N*).

At the industry-level, we include an indicator variable that takes the value of one if a firm belongs to the high-tech industry based on Standard Industrial Classification (SIC) codes, zero otherwise (*HiTech*). We introduce the Herfindahl–Hirschman index (*HHI*) to control for industry competition. This index is calculated as the sum of the squares of the fractional market shares of all firms within each two-digit SIC industry in a country in any given year.

We finally introduce several country-level controls. *Unemployment* captures the annual unemployment rate, measured as the ratio of the total number of unemployed people divided by the total labor force as provided by the World Bank. *GDP Growth* measures the annual percentage growth rate of real gross domestic product (GDP) at market prices based on the constant local currency for each firm in year *t*, while *GDP Per Capita* is the real GDP divided by the population for each firm in year t-1, divided by 10,000. Finally, *Mkt Dev* measures the market capitalization of listed domestic companies (as a percentage of GDP) provided by the World Bank. The detailed definitions of these variables are provided in Appendix A1.

3.2 Sample construction

We construct our sample using the Compustat Global & North America universe from 1997 to 2019. As per prior studies (Chen et al. 2015; 2019), cross-listing data are collected using the Capital IQ database. The publicly available data for the implementation year of ESG mandates are

drawn from Krueger et al. (2024).[7] Next, our country-level measures are drawn from data from the World Development Indicators provided by the World Bank. We drop all observations of a given country's event year *t* (i.e., the implementation year for each country) from the sample because of varying fiscal year-end dates, which may render the impact of ESG mandates on firms' cross-listing activities during the event year uncertain (Hong et al. 2014). We further require our firms to occur in our sample prior to the introduction of the ESG mandate in their home country (i.e. we drop all firms that occurred for the first time after the introduction of the ESG mandate). Following prior literature (e.g. Chen et al. 2015), we also remove firms without any primary identifier codes, and firms listed in tax havens such as Bermuda and the Channel Islands. We also exclude countries with less than 100 firm-year observations. In addition, we require that each firm has at least two observations (Correia 2015). Our final sample consists of 336,334 firm-year observations from 30,626 distinct firms located in 63 countries during the 1997 to 2019 period, which covers 3 years before and 3 years after the implementation of ESG mandates.

Table 1 presents the firm distribution by industry, year, and country. In Panel A, we report the number and proportion of industries, as well as the proportion of cross-listing of each sample. The highest proportion of cross-listing occurs in the industries of *Oil, Gas, and Coal Extraction and Products* as well as *Telephone and Television Transmission*. In Panel B, we report the sample distribution and cross-listing distribution by year. While on average about 4.8% of firms in any given year are cross-listed, we find that the yearly distribution is larger in the latter half of our sample, which is indicative of an increasing trend. Panel C reports the sample distribution and cross-listing distribution by country. United States has the most number of observations (28.80%) in our sample, followed by Japan (16.20%). Pertaining to cross-listing, we observe a large

[7] The countries that introduced mandatory ESG reporting as well as the year of the mandate are reported in Appendix A2.

heterogeneity in terms of the cross-listing across countries. The largest percentage of cross-listing observations relative to the total observations from that country stem from Luxembourg (52.42%), Hungary (45.89%) and Canada (44.13%). We provide some further insight into the most common cross-listing host countries, cross-listing countries, and home-host country combinations in Online Appendix A1.

[Insert Table 1 here]

3.3 Descriptive statistics

Table 2 Panel A presents the descriptive statistics of our sample, where the mean value of *CL* is 0.0489. This suggests that on average, 4.89% of all observations pertain to firms engaging in cross-listing activities. This result is consistent with prior international cross-listing studies (e.g., Chen et al. 2015; Liao et al. 2022; Tsang et al. 2022). The mean value of *MESG* is 0.1770, indicating that 17.7% of our sample observations are subject to country-level ESG mandates, justifying our use of a staggered DID regression. Panel B presents the Pearson correlation for the main variables, where *MESG* is positively and significantly correlated with firms' cross-listing activities. This finding provides preliminary support for the hypothesis H1a. *MESG* is also significantly correlated with many of the control variables, justifying multivariate regression analysis as an appropriate method. The mean variance inflation factor is 3.27 and never exceed the commonly accepted benchmark of five (Ryan 2009), suggesting that there are no multicollinearity concerns in our regressions.

[Insert Table 2 here]

4. Empirical results

4.1 Main results

We report the results of Equation (1) in Table 3. In Column (1) we present a model that only includes the control variables, Column (2) presents a model that introduces firm-level controls only, while Column (3) includes the full set of controls. In all these model specifications, there is a positive and significant coefficient loading on our variable of interest *MESG*. This suggests that the introduction of mandatory ESG disclosures increase firms' cross-listing activities, which is in line with H1a (thereby rejecting H1b). Using the full model specification (Column 3), the implementation of ESG mandates in a country increases the likelihood of cross-listing by about 3.23% after implementation.

One fundamental precondition for our staggered DID research design is the parallel trend assumption. That is, the cross-listing activities of the treated and control firms should be statistically similar before the implementation of ESG mandates in the treated country. Following Bertrand and Mullainathan (2003), we replace *MESG* with an array of indicator variables that track the effect of ESG mandates before and after their implementation. These indicator variables are $MESG_{t-4}$, MESGt-3, $MESG_{t-2}$, $MESG_{t-1}$, $MESG_{t+1}$, $MESG_{t+2}$, $MESG_{t+3}$, and $MESG_{t+4}$. We display the results in Column (4) of Table 3. We find that none of the coefficients on years prior to the mandate (i.e., $MESG_{t-4}$, up to $MESG_{t-1}$) are statistically different from zero at conventional significance levels, which suggests that there is no pre-trend present, and supports the assumption that ESG mandates in the studied countries were largely unanticipated. We observe statistical significance only in the period after the introduction of ESG mandates with a time lag. That is, statistical significance starts to appear from the year t+2.[8] In Figure 1, we plot the dynamic

[8] We believe that this time lag can be attributed to two factors. First, while ESG mandates may be introduced in a specific year, this does not yet mean that firms need to start reporting these reports in the introduction year, as often a grace period is given to

coefficients in Column (4). Altogether, the results of our dynamic analysis support the parallel trend assumption and validate our DID design.

[Insert Figure 1 & Table 3 here]

4.2 Robustness tests

To ensure that our findings are not driven by empirical design choices, sample composition choices, or variable constructs, we subject our main findings to several important robustness tests.

4.2.1 Stacked difference-in-differences analysis

We first repeat our analysis using a stacked DID research design because of the concern that time-varying treatment effects may bias our coefficients when we use two-way fixed effects in a staggered DID design (Sun and Abraham 2021). We follow Cengiz et al. (2019), Baker et al. (2022), and Li et al. (2022), and repeat our analyses for several restricted event windows (i.e. [−4, +4], [−5, +5], and [−6, +6]). For every treatment year we construct a cohort of control firms. That is, the treatment firms are located in home countries that adopted the ESG in that event year, and the control firms are from countries that either did not adopt any mandatory ESG reporting throughout our sample period, or those that adopted it after the event year. By repeating this procedure for every event year, we create different batches which we subsequently pool together. Given that a firm can appear in multiple different cohorts, we follow prior literature and include in the model firm-cohort fixed effects and year-cohort fixed effects. The results are displayed in Panel A of Table 4. In Column (1), we focus on the [t−4, t+4] event window, in which the treatment year (t = 0) is excluded. We find a significant and positive coefficient loading on *MESG*. Columns

firms to collect the necessary data. Second, the cross-listing procedure itself is a lengthy process. That is, aside from the time it takes for firms to decide to cross-list (i.e. obtaining board approval etc.), becoming cross-listed requires important filings and discussions with foreign stock exchanges and formal institutions. For instance, according to Baker McKenzie–a leading international law firm–cross-listing on the Nasdaq stock exchange typically takes about 4 to 5 months (see https://resourcehub.bakermckenzie.com/-/media/crossborder-listings-handbook/files/2020-update-8th-edition/nasdaqlisting-process.pdf).

(2) and (3) repeat this analysis using the [t−5, t+5] and [t−6, t+6] event windows, respectively. Consistent with our main findings, the coefficient loadings on *MESG* are both significant and positive.

[Insert Table 4 here]

4.2.2 Alternative regression methods

Our baseline model specification is based on a linear probability model, since the use of high-dimensional fixed effects is incompatible with a nonlinear logit model due to the incidental parameter problem (Lancaster 2000). To ensure that the use of a linear probability model does not drive our findings, we repeat our analyses using the traditional logit and probit specifications. We, however, replace the firm fixed effects by using industry-, country-, and year-fixed effects to overcome the incidental parameter problem. The findings are reported in Panel B of Table 4, in which Column (1) provides the results using a logit model specification and Column (2) a probit model specification. In both cases, the coefficient loading on *MESG* is significant and positive, which reassures the validity of our main findings.

4.2.3 Alternative dependent variable

In our main test, we examine firms' cross-listing activities based on an indicator variable that equals 1 if at least one secondary security of a sample firm is actively listed and traded in a foreign country in a given year, and 0 otherwise. To gain more insight into the cross-listing intensity, we repeat our main analysis by considering a plethora of different variables. First, we take the total number of unique foreign countries in which a firm's securities are cross-listed as per Chen et al. (2015) (*CL_NMarket*) and define an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a US country in a given year, and zero otherwise (*CL_US*). We report the results in Columns (1) and (2) of Table 4 Panel C, where the

coefficients on *MESG* are positive and significant in all columns. Next, to the extent that ESG mandates reduce foreign investors' monitoring costs, we expect firms to be more likely to cross-list their securities in (i) foreign countries with ESG mandates, (ii) countries where investors tend to have a higher level of demand for ESG information/activities, and (iii) countries with well-developed capital markets. We respectively define three new variables; (i) *CL_MESG*, an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country that has also adopted ESG mandates, zero otherwise; (ii) *CL_HESG*, an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with high CSR performance, zero otherwise; and (iii) *CL_MKTDEV*, an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with high stock market development based on the median of the market capitalization of all listed domestic companies in a country provided by world bank. The results are reported in Columns (3) through (5) in Panel C. We find that the coefficients on *MESG* is significant and positive, supporting that ESG mandates not only increase firms' incentives for cross-listing but also influence their choice of cross-listing venues.

4.2.4 Country-level analysis

We repeat our analyses using country-year observations rather than firm-level observations and report the results in Panel D of Table 4. Specifically, we examine whether our findings hold at the country level by constructing country-level dependent and control variables by averaging the firm-level measures for each country and year, resulting in 1,156 country-year observations. We find that the coefficient on *MESG* is both positive and significant, regardless of whether the model includes country-level controls.

4.2.5 Alternative research design

We next repeat our main analysis by taking different clustering and fixed effect estimations in our staggered difference-in-differences design. First, we reproduce our findings by clustering at both the firm and year levels (Thompson 2011). Second, we introduce industry-year fixed effects to account for time-specific industry heterogeneity. Third, we introduce country-fixed effects. Panel E of Table 4 displays these results where the coefficients on *MESG* remains positive and significant across all models.

4.2.6 Controlling for other confounding regulations

One potential concern is that our results are affected by confounding regulations observed during our sample period, such as the mandatory adoption of International Financial Reporting Standards (IFRS) and corporate board reforms implemented by many countries in recent years, which have been shown to affect cross-listing outcomes (see Chen et al. 2015; Liao et al. 2022). To rule out the possibility that these reforms affect our findings, we include additional controls for IFRS adoption and board reforms in our regression model.[9] We find that the coefficient loading on *MESG* remains positive and significant (Panel F of Table 4).

4.2.7 Restricted sample

We further explore whether the observed positive effect of mandatory ESG reporting on firms' cross-listing activities is driven by the dominance of certain geographical regions in our sample. First, recent efforts of the European Union to unify European capital markets in recent years (e.g. the Financial Services Action Plan directives and several amending acts from the EU's Seventh Directive, such as 2006/43/EC, 2006/46/EC, and 2006/99/EC), may have caused an increase in

[9] Specifically, we introduce *IFRS* and *Board Reform*, where *IFRS* is an indicator variable that equals one in the year of mandatory IFRS adoption and all years after, and zero otherwise. *Board Reform* is an indicator variable that equals one in the year of board reform and all years after, and zero otherwise.

cross-European cross-listing, potentially driving our findings. We retain all non-EU countries in our sample and find that ESG mandates still have a significant and positive effect on the cross-listing tendencies for firms located in non-EU countries. Next, we exclude all US firms from the sample. Although US firms constitute the largest proportion of the sample, the likelihood that US firms cross-list their shares in other countries is relatively low (see also Panel C of Tabel 1). Yet, excluding the US does not alter our conclusions. Finally, in our baseline analysis we identify a firm as being cross-listed when the firm has at least one secondary security listed and traded in a country other than that of its primary listing. Firms that directly list their securities on an overseas stock exchange without a secondary listing are thus not cross-listed. For example, many Canadian and Israelian firms are directly listed in the US without being listed in their own home country. To ensure these firms do not bias our results, we exclude all firms from Canada and Israel, rerun our model, and obtain qualitatively similar results (Panel G of Table 4).[10]

4.2.8 Oster analyses

To address potential challenges to the validity of our empirical design, we evaluate the sensitivity of our results to the exclusion of unobservable factors using the method proposed by Oster (2019). The purpose of this test is to assess how the coefficient of interest and the goodness-of-fit of our main regression specification change when additional unobservable controls were to be included. If the inclusion of these controls significantly alters the explanatory power of our model without altering the magnitude or significance of the coefficient on ENDA, we can conclude that omitted unobservable factors are unlikely to drive our findings, thereby evaluating how strong these unobservable factors need to be to overturn our results.

[10] In untabulated results we also remove the UK from our sample, remove all observations after 2016, and remove countries that mandated ESG reporting from 2016 onwards. Our results remain qualitatively similar and are available upon request.

Oster (2019) proposes two tests to implement this approach. The first test estimates the parameter δ, representing the bias from unobservable factors relative to the bias from observable controls. δ is calculated by examining changes in the coefficient of interest (β) and R^2 values between regressions with and without additional observable controls. Following Oster's (2019) guidance, we set the test parameters such that β is reduced to zero, the minimum increase in R^2 is 1.3 times the current R^2 and the maximum R^2 is capped at 1. The results are reported in Panel H of Table 4. Column (1) indicates that the lower bound of the bias-adjusted treatment effect for mandatory adoption is greater than zero, which is consistent with our baseline findings. As shown in Column (2), for the omitted variables to render the *MESG* coefficient equal to zero, they would need to be 4.0432 times more influential than the set of currently included variables, a situation we consider highly unlikely. Overall, these results suggest that the positive effect of mandatory ESG adoption on cross-listing is unlikely to be driven by omitted variables.

4.2.9 Two-step falsification test

Next, we draw inspiration from Krueger et al. (2024) and Christensen et al. (2016) and perform a two-step falsification test, which we report in Panel I of Table 4. More precisely, in a first step we estimate the likelihood of firms' cross-listing behavior based on several country-level proxies for local factors that might influence the introduction of disclosure mandates and be correlated with the decision to cross-list. These proxies are designed to the prevailing ESG environment and the country-level institutional environment. More precisely, we control for the natural logarithm of one plus the total number of ESG risk incidents for each country year as per RepRisk, the fraction of Sustainable Development Goals that are achieved, and a relevant set of macroeconomic factors (unemployment, real GDP growth, the real GDP per capita, the market development index, regulatory quality, the level of disclosure, the level of regulatory quality, the rule of law index, and

government effectiveness). We then use the predicted values from the first regression model as the dependent variable in a regression where we use *MESG* and our standard set of controls and fixed effects as a dependent variable. If our results were driven by ESG-related shocks or local macroeconomic factors, the coefficient loading on *MESG* would be similar to the ones observed in our main analysis. However, given the statistical insignificance, it is unlikely that unobserved selection effects explain the results.

4.2.10 Placebo test

We conduct a placebo test to ensure that our findings are not obtained purely by chance. Following Biggerstaff et al. (2015), we randomly assign treatment status to firms in our sample and repeat this process 1,000 times. That is, in each sampling, we draw a random sample of 59,523 firm-year observations as the treated firm observations (i.e., equal to the number of treated firms in our baseline regression) and define the remaining firms as control firms. Using the pseudo-treated firms and control firms, we re-estimate our main model and obtain the distribution of the estimated coefficients for *PSEUDO_MESG.* Figure 2 plots the distribution of these coefficients. As expected, the mean value of the coefficients approximates zero. More importantly, the coefficient in our baseline regression (0.0323, see Column (3) of Table 3) is greater than the maximum coefficient obtained in these simulations (0.0019).

[Insert Figure 2 here]

4.2.11 Additional country-level controls

As a last robustness test, we expand our baseline regression by including additional country-level control variables. We include (i) the economic uncertainty of the home country, measured as the number of times the word 'uncertain' is mentioned in the Economist Intelligence Unit's country analysis report, (ii) an indicator variable taking the value of one if the distance between the home

country and the destination country is higher than the sample mean, zero otherwise, and (iii) three distinct variables measuring the overlap between the home and host countries. That is, we introduce indicator variables as to whether the most dominant religion in these countries are the same, as to whether they have at least one official language in common, and as to whether or not the countries share the same legal origin. For parsimony, these results are reported in Online Appendix A2. Including these analyses does not alter any of our findings.

4.3 Testing for contextual influences

In this section, we test for the several contextual influences that could moderate the cross-listing response in the post-ESG mandate period.

4.3.1 Information asymmetry

First, to the extent that ESG reports are useful for investors in evaluating firms and provide a better view of firms' activities (Cho et al. 2013; Marano et al. 2017), the information asymmetry reducing benefits of such mandates should be higher for firms where the ex-ante levels of informational transparency are lower. In other words, the marginal benefits of the additional information revealed by mandatory ESG reporting should be higher as firms are more opaque. To test the prediction, we introduce the interaction term of information asymmetry and ESG mandate (*MESG* × *High Information Asymmetry*) as per Equation (2):

$$CL\_FIRM_{i,c,t+1} = \beta_0 + \beta_1 MESG_{c,t} \times High\ Information\ Asymmetry_{i,c,t} + \beta_2\ High\ Information\ Asymmetry_{i,c,t} + \beta_3 MESG_{i,c,t} + \beta_k Controls_{i,c,t} + \text{Firm FE} + \text{Year FE} + \varepsilon, \quad (2)$$

in which *High Information Asymmetry* is captured by four different variables. More precisely, we approximate the information asymmetry through (i) the asymmetric timeliness of earnings as per Basu (1997) (see also Boulton et al. (2017) and Hui et al. (2012)) as a proxy for earnings quality, (ii) the *Disclosure Index* measures the extent to which investors are protected through disclosure

of ownership and financial information, (iii) *Intangible Ratio* captures the ratio of intangible asset to total assets, while (iv) *Bid Ask Spread* captures the information asymmetry using stock price data. Note that for the first two measures, higher values correspond to lower levels of information asymmetry while for the last two measures higher values correspond to higher levels of information asymmetry. For each of these measures, we define yearly indicator variables based on the sample median.

We present the results of Equation (2) in Table 5. In Column (1) and (2), the coefficients loading on the interaction term are all negative and significant. In Column (3) and (4), we report a positive coefficient for the interaction term. That is, the effect of ESG mandates on firms' cross-listing activities is more pronounced as their ex-ante levels of information asymmetry is higher.

[Insert Table 5 here]

4.3.2 Dependence on external financing

Second, the extent to which firms will alter their cross-listing likelihood in response to ESG mandates arguably depends on their need for external financing (Rajan and Zingales 1998; Hsu et al. 2014). That is, the reductions in information asymmetry brought about by ESG mandates should be most beneficial to firms with higher levels of investor dependence. We test this by introducing the interaction term *MESG* × *High External Financing Dependence* in Equation (3):

$$CL\_FIRM_{i,c,t+1} = \beta_0 + \beta_1 MESG_{c,t} \times High\ External\ Financing\ Dependence_{i,c,t} + \beta_2 High\ External\ Financing\ Dependence_{i,c,t} + \beta_3 MESG_{c,t} + \beta_k Controls_{i,c,t} + \text{Firm FE} + \text{Year FE} + \varepsilon. \quad (3)$$

We measure external financing dependence using four indicator variables: (i) *EFD*, which is an indicator variable equal to one if a firm operates in an industry dependent on external financing,

and zero otherwise;[11] (ii) *EQT FINANCE* is an indicator variable taking the value of one if the yearly industry-level dependence on external equity finance – measured as the ratio of the net equity issuance amount to the capital expenditure for the median publicly traded firm in each industry based on two-digit sic codes – is higher than the sample median, zero otherwise, (iii) *KZ Index*, which is an indicator variable taking the value of one if the Kaplan-Zingales Index as per Lamont et al. (2001) is higher than the median-year value, zero otherwise, and (iv) *WW Index*, which is an indicator variable taking the value of one if the level of financial constraints following the calculation of Whited and Wu (2006) is larger than the yearly sample median, zero otherwise. We report the results of Equation (3) in Table 6 and find that the coefficient loadings on the interaction terms are all significant and positive, suggesting that when a firm's external financing dependence is high, the likelihood of post-ESG mandate cross-listing increases.

[Insert Table 6 here]

4.3.1 Agency costs

Agency costs associated with firms' ESG activities limit the potential to create shareholder value (Friedman 1970; Ioannou and Serafeim 2015; Krüger 2015; Cheng et al. 2016), arguably rendering it more difficult for investors to draw value-relevant information from ESG reports.[12] ESG mandates, however, improve the supply and quality of ESG information (Christensen 2016; Krueger et al. 2024) rendering it less likely that managers will engage in myopic ESG related projects at the expense of shareholder value. The adoption of ESG mandates should thus have a

[11] An industry is regarded as being dependent on external financing if the median level of capital expenditure is not financed through internal cash flow; that is, (capital expenditure – cash flow from operations)/capital expenditure in an industry is positive.

[12] Accordingly, managers can invest in ESG activities to enhance their own reputation and careers at the expense of shareholders' wealth (Barnea and Rubin 2010; Bénabou and Tirole 2010; Hubbard et al. 2017). Similarly, investors react negatively to positive CSR news in firms suffering from agency problems (Krüger 2015).

more pronounced impact on firms with high agency costs. We test this through the following regression:

$$CL_{FIRM_{i,c,t+1}} = \beta_0 + \beta_1 MESG_{c,t} \times High\ Agency\ Costs_{i,t} + \beta_2 High\ Agency\ Costs_{i,c,t} + \beta_3 MESG_{c,t} + \beta_k Controls_{i,c,t} + \text{Firm FE} + \text{Year FE} + \varepsilon, \quad (4)$$

where the variable of interest is the interaction term $MESG \times High\ Agency\ Cost$. We use three proxies for agency costs at the firm level: (i) the selling, general, and administrative expenses to total sales ratio, which captures how vigilant managers are in controlling their discretionary spending (*SGA*) and where a higher ratio suggests inefficient cost management and agency problems (Ang et al. 2000); (ii) the asset utilization ratio (*AUR*) following Ang et al. (2000) and Singh and Davidson (2003), where a higher ratio indicates that companies are making nonoptimal investment decisions; and (iii) *AC_FCF*, known as the 'Q-free cash flow interaction' (Q*FCF) which is the product of free cash flow and company's growth opportunities. A high value of this measure indicates a higher agency cost (Doukas et al. 2000; McKnight and Weir 2009). Like our prior specifications, we convert the agency cost proxies to yearly indicator variable based on yearly sample median splits. Table 7 reports the results of Equation (4), where we find significant coefficient loadings on the various interaction terms. This finding suggests that the relationship on the ESG mandate adoption on firms cross-listing activities are more pronounced for firms with high agency costs.

[Insert Table 7 here]

4.3.4 Country-level legal environment

Lastly, country-level institutional factors have been shown to be important determinants of corporate disclosure practices in terms of quality and compliance thereto (Cao et al. 2017; Chen et al. 2019; Li et al. 2019; Liao et al. 2022; Liu et al. 2024). In countries with lower stringency in the legal environment, the ex-ante disclosure quality is arguably lower such that the benefits of

mandating ESG reports are expected to be higher. To test this prediction, we run the following regression:

$$CL_{FIRM_{i,c,t+1}} = \beta_0 + \beta_1 MESG_{c,t} \times High\ Legal\ Environment_{c,t} + \beta_2 High\ Legal\ Environment_{c,t} + \beta_3 MESG_{c,t} + \beta_k Controls_{i,c,t} + \text{Firm FE} + \text{Year FE} + \varepsilon. \quad (5)$$

In Equation (5), *High Legal Environment* is measured in four different ways: (i) the first principal component of public enforcement and anti-director rights in the country (*Public enforcement)*, (ii) the *Anti-Self-Dealing Index*, which captures the extent to which a country's stock market engages in self-dealing, which can undermine investor confidence and undermine market efficiency (Djankov et al. 2008), (iii) the *Creditor Right Index*, capturing the creditor protection rights as per Djankov et al. (2007), and (iv) *Corruption* which captures the corruption within the political system, as per the International Country Risk Guide. All variables are transformed into indicators based on the sample median, where a higher value indicates a better country level legal environment. The results shown in Table 8 are consistent with our prediction that the effect of ESG mandates on the cross-listing activities of firms domiciled in countries with a weak legal environment is stronger than for firms in countries with a strong legal environment.

[Insert Table 8 here]

4.4 Additional analyses

4.4.1 Consequences tests

To improve our understanding of whether firms that cross-listed after the introduction of mandatory ESG reporting improve their financing ability, we examine the economic consequences of ESG mandates from the perspective of institutional investor shareholding and financing costs. We do so by defining two new dependent variables: (i) the percentage of shares held by

institutional investors (*Inst Own*), and (ii) the interest-related expenses for the year divided by the sum of long-term debt and current maturities of long-term debt (*Cost of Debt*). Our analysis reveals that the coefficients on *MESG* × *CL* are consistently significant and positive in all columns of Table 9, supporting our conclusion that post-ESG mandate cross-listing firms are more likely to be favored by a greater number of institutional investors and significantly reduce their cost of debt.

[Insert Table 9 here]

4.4.2 Validation test

Next, we are interested in understanding whether mandatory ESG reporting improves the ESG behavior of firms in the home country. Specifically, we use four dependent variables capturing ESG performance collected from ASSET4: (i) *CSR Score* is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars, (ii) *ENVRN Score* measures the company's impact on natural systems and its ability to manage environmental risks and opportunities, (iii) *SOCIAL Score* is the weighted average relative rating of a company based on the reported social information, (iv) *CORPGOV Score* captures the firm's capacity – through its use of best management practices – to direct and control its rights and responsibilities by setting incentives, as well as implement checks and balances to generate long term shareholder value. We find the coefficients on *MESG* to be significant and positive in all columns of Table 10, providing suggestive evidence that the implementation of ESG mandates has indeed contributed to an improvement in firms' CSR performance across all dimensions.

[Insert Table 10 here]

4.4.3 Voluntary ESG reporting

While the results of this paper have so far indicated that the adoption of mandatory ESG reporting results in an increased likelihood of cross-listing, the question remains to what extent voluntary

reporting has altered this likelihood. That is, if firms were already reporting ESG information voluntary prior to the introduction of mandatory ESG reporting, the mandate may not have had a significant impact on their cross-listing decision.[13] We test this empirically by interaction our variable of interest, *MESG*, with indicator variables as to whether the firm was already providing voluntary ESG reports. For parsimony, we report the results in Online Appendix A3. The results indicate an increased post-ESG mandate adoption likelihood of cross-listing for both voluntary disclosing and non-disclosing firms. Moreover, the statistical difference between the disclosers and non-disclosers is significant, with a larger magnitude for firms that were already reporting ESG reports. This finding is consistent with lower barriers to fulfill mandator ESG reporting duties for pre-mandate disclosers, rendering these firms more equipped to engage in cross-listing.

4.4.4 Design of the ESG mandate

Different countries have different mandated ESG reporting designs and standards or are enforced by different bodies. As a final test, we are interested in understanding whether these design differences carry any significant explanatory power in explaining the likelihood of post-mandate adoption cross-listing. We exploit several important design differences: (i) whether or not the government mandated the ESG reporting or whether this was the stock market exchange, (ii) whether or not mandatory ESG reporting is implemented as an all-at-once regulation, which requires firms to disclose their E, S and G efforts immediately, rather than a gradually introduction of different dimensions over time (see e.g. Krueger et al. 2024), (iii) whether or not the ESG report is a standalone report or not, and (iv) whether the mandate strictly requires the disclosure of different factors, or whether there is an option to comply and explain why specific ESG information is not provided. The results are displayed in Online Appendix A4. We find that the

[13] We thank an anonymous reviewer for this suggestion.

cross-listing likelihood only increases if the ESG reports are mandated by the government. All other design factors are statistically significant, yet with a statistically stronger effect for all-at-once regulation, non stand-alone reports, and comply-or-explain regulation.

5. Conclusion

In this paper, we examine the effect of the adoption of ESG mandates on firms' cross-listing activities using a large international sample. We exploit the staggered adoption of mandatory ESG disclosure reporting across countries, and find an increased likelihood of domestic firms cross-listing their securities on foreign stock exchanges. In additional analyses, we document that this effect is more pronounced for firms with high information asymmetry, high dependence on external financing, high agency costs, and for firms domiciled in countries with a weak legal environment. In addition, we report that firms are more likely to cross-list their securities in foreign countries with ESG mandates, high ESG demand, and better developed capital markets. Our results are robust to a variety of empirical design and model specifications. Additional analyses reveal that the introduction of mandatory ESG reporting improves firms' ESG scores, increases their institutional ownership and reduces their cost of debt. Overall, our results are in line with ESG mandates playing a significant and positive role in reducing information asymmetry for foreign investors, thereby lowering the barriers for firms to gain access to foreign capital.

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Appendix A1: Variable definitions

Key Variables	Definitions
CL	An indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t +1, zero otherwise.
MESG	An indicator variable that equals one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise.
Control Variables	
Size	The logarithm of the total assets.
ROA	The net income divided by total assets.
Sale Growth	The difference between the total sales in the current year and previous year, divided by the total sales from the previous year.
Leverage	The total debt divided by the total assets.
Cash	The ratio of a sample firm's sum of cash and short-term investments to total assets.
Capex	The ratio of a sample firm's total capital expenditures to total assets.
Age	The age of the firm measured as the difference between the current year and the first appearance of the firm in Compustat.
Interest	The ratio of a sample firm's total interest expenses to total sales.
Accruals	Country-, industry- and year-adjusted total scaled accruals based on Bhattacharya et al. (2003). Scaled accruals are computed using balance sheet and income statement information as per the following formula: $(\Delta CA - \Delta CL - \Delta CASH + \Delta STD - DEP + \Delta TP)/lag(AT)$, where ΔCA is the change in total current assets relative to the prior year; ΔCL is the change in total current liabilities relative to the prior year; $\Delta CASH$ is the change in cash relative to the prior year; ΔSTD is the change in the portion of short-term debt associated with long-term debt included in the total current liabilities relative to prior year; DEP is the total depreciation and amortization expense; DTP is the change in income taxes payable relative to the prior year; and lag(TA) is the total assets at the end of the prior year.
MtB	The market value of equity divided by the book value of equity.
Big N	An indicator variable that equals one if the firm is audited by a BigN auditor, zero otherwise.
HiTech	An indicator variable that equals one if a sample firm is in a high-tech industry (i.e. SIC 2833–2836, 8731–8734, 7371–7379, 3570–3577, and 3600–3674), zero otherwise.
HHI	The sum of squares of fractional market shares of all firms within each two-digit SIC industry for a country.
Unemployment	The annual unemployment ratio measured as the total number of unemployed people divided by the total labor force.
GDP Growth	The annual percentage growth rate of real GDP at market prices based on constant local currency for each firm at year t-1. Aggregates are based on constant 2017 prices, expressed in U.S. dollars.
GDP Per Capita	The real domestic product divided by the population for each firm in the prior year, divided by 10,000.
Mkt Dev	Market capitalization of listed domestic companies (% of GDP) drawn from the world bank.
Variables in Other Tests	
CL_NMarket	The number of unique foreign countries where a sample firm's securities are cross-listed in a given year.
CL_US	An indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in U.S. stock exchanges, zero otherwise.
CL_MESG	*CL_MESG* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with active mandatory ESG reporting, zero otherwise.
CL_HESG	*CL_HESG* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with on average high CSR

	performance, zero otherwise. We define high CSR performance countries based on the median value of CSR performance of all firms domiciled in a country using ASSET4 data.
CL_MKTDEV	*CL_MKTDEV* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with better stock market development than the domestic country, zero otherwise. High stock market development is based on whether the median market capitalization of all listed domestic companies in a country provided by world bank is larger than the sample median.
Board Reform	An indicator variable that equals one in the year of a board reform and all years after, zero otherwise.
IFRS	An indicator variable that equals one in the year of mandatory IFRS adoption and all years after, zero otherwise.
Reprisk Incidents	The natural logarithm of 1 plus the number of ESG risk incidents for each country.
SDG Index	The total progress towards achieving all 17 Sustainable Development Goals (SDGs) as per The Sustainable Development Report.
Disclosure Quality	The extent to which investors are protected through disclosure of ownership and financial information as per the World Bank.
Regulatory Quality	Perceptions of the government's ability to design and enforce effective policies and regulations that foster private sector development, as defined by the World Governance Indicators (WGI) by Kaufmann et al. (2011).
Rule of Law	Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence from WGI by Kaufmann et al. (2011).
Gov Eff	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies from WGI by Kaufmann et al. (2011).
High Timeliness	An indicator variable that equals one if the asymmetric timeliness of earnings is higher than the sample median for that year, zero otherwise. The asymmetric timeliness of earnings is calculated as per Basu (1997), and is obtained by running firm-specific time-series regressions using rolling windows of at least the preceding seven years for each firm-year: $$X_{it}/P_{it-1} = a_0 + a_1 DR_{it} + a_2 RET_{it} + a_3 DR_{it} x RET_{it} + e_{it},$$ where X is the earnings per share, P is the stock price at the beginning the year, RET is the annual stock return, and D is dummy variable equal to one if RET is negative, and zero otherwise. The asymmetry timeliness measure is calculated as the ratio of (a2+a3)/a2, which captures the timeliness of earnings in recognizing bad news.
High Disclosure Index	An indicator variable that equals one if the disclosure index from La Porta et al. (2006) is higher than the sample median, zero otherwise. The disclosure index evaluates the extent and quality of corporate disclosure practices.
High Intangible Ratio	An indicator variable taking the value of one if the ratio of intangible assets to total asset is larger than the sample median, zero otherwise.
Bid Ask Spread	An indicator variable taking the value of one if the average daily percentage change in the bid ask spread from the previous across the year is higher than the sample median, zero otherwise.
High EFD	An indicator variable that equals one if a firm operates in an industry with a high dependency on external financing, zero otherwise. An industry is regarded as dependent on external financing if the median level of capital expenditures is not enough to be financed through internal cash flows. That is, if the difference between the capital expenditure and the cash flow from operations divided by the average capital expenditures within an industry is positive.
High EQT FINANCE	An indicator variable that equals one if the industry-level dependence on external equity financing – measured as the ratio of the net equity issuance amount to the capital

	expenditure for the median publicly traded firm in each industry based on two-digit SIC codes – in that year is higher than the sample median, zero otherwise.
High KZ Index	An indicator variable that equals one if the KZ index as per Lamont et al. (2001) in that year is higher than the sample median, zero otherwise. The KZ index is computed as 0.283Q -1.002CF/K + 3.139 Debt/Capital - 39.368 Div/K -1.315 Cash/K, in which Q equals (total assets + fiscal year end price * the number of common shares outstanding - common equity - deferred taxes) / property, plant, and equipment, CF/K equals (income before extraordinary items + depreciation) / lagged property, plant, and equipment. Debt/Capital is measured as (long-term debt + debt in current liabilities) / (long-term debt + debt in current liabilities + stockholder's equity). Div/K equals (dividends common + dividends preferred) / lagged property, plant, and equipment. Cash/K equals the total cash holdings and short-term investments / lagged property, plant, and equipment.
High WW Index	An indicator variable taking the value of one if the financial constraint index as per Whited and Wu (2006) measured in year $t-1$ is higher than the sample median of that year, zero otherwise. The financial constraints index is calculated using the following formula: $-0.091CF - 0.062DIVPOS + 0.021TLTD - 0.044LNTA + 0.102ISG - 0.035SG$, where CF is the cash flow, calculated as (income before extraordinary items + depreciation) / total assets. DIVPOS is an indicator variable taking the value one if dividends are positive, zero otherwise. TLTD is the long-term debt scaled by the total assets. LNTA is the natural logarithm of total assets. SG is calculated as (sales − lagged sales) / lagged sale. ISG is the average yearly sales growth for each three-digit SIC industry.
High SGA	An indicator variable that equals one if the selling, general, and administrative expenses divided by total sales for that year are larger than the sample median, zero otherwise.
High AUR	An indicator variable that equals one if the asset utilization ratio for that year is larger than the sample median for that year, zero otherwise. The asset utilization ratio is calculated as -1 × total revenue / total assets.
High AC_FCF	An indicator variable that equals one if the Q-free cash flow interaction is higher than the sample median for that year, zero otherwise. The Q-free cash flow interaction (Q×FCF) is the product of free cash flow and company's growth opportunities. Growth opportunities are measured using an indicator variable that equals one- when the firm's Tobin's Q is less than one, zero otherwise.
High Public enforcement	An indicator variable that equals one if the principal component of public enforcement and anti-director rights is larger than the sample median for that year, zero otherwise. The anti-director rights index is drawn from Djankov et al. (2008) which is measured based the protection of minority shareholders in the corporate decision-making process, including the right to vote. Public enforcement refers to the actions taken by governments or regulatory bodies to ensure that businesses and individuals comply with laws and regulations following Djankov et al. (2008).
High Anti-Self-Dealing Index	An indicator variable that equals one if the Anti-Self-Dealing Index for that year is larger than the sample median, zero otherwise. The Anti-Self-Dealing Index assesses the extent to which a country's stock market engages in self-dealing, which can undermine investor confidence and undermine market efficiency following Djankov et al. (2008).
High Creditor Right Index	An indicator variable that equals one if the Creditor Right Index for that year is larger than the sample median, zero otherwise. The Creditor Right Index measures creditor protection using the revised creditor right aggregate score (CRE) from Djankov et al. (2007).
High Corruption	An indicator variable that equals one if the corruption for that year is higher than the sample median, zero otherwise. Corruption is measured as being a threat to foreign investment by distorting the economic and financial environment, reducing the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability, and introducing inherent instability into the political process, as per the International Country Risk Guide.
Inst Own	The percentage of shares held by institutional owners.

Cost of Debt	The interest and related expenses for the year divided by the total financial debt for that year.
CSR Score	*CSR Score* is collected from ASSET4, and is the overall company score based on the self-reported information in the environmental, social and corporate governance pillars.
ENVRN Score	*ENVRN Score* is the weighted average relative rating of a company based on the reported environmental information and the resulting three environmental category scores. The Environment Pillar Score measures a company's impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities to generate long term shareholder value.
SOCIAL Score	*SOCIAL Score* is the weighted average relative rating of a company based on the reported social information and the resulting four social category scores. The Social Pillar Score measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It reflects the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value.
CORPGOV Score	*CORPGOV Score* is the weighted average relative rating of a company based on the reported governance information and the resulting three governance category scores. The Governance Pillar Score measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long-term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances to generate long term shareholder value.

Appendix A2: Adoption years of mandatory ESG reporting

Country	Year
Argentina	2008
Australia	2003
Austria	2016
Belgium	2009
Bulgaria	2016
Canada	2004
Chile	2015
China	2008
Cyprus	2016
Denmark	2016
Estonia	2016
Finland	2016
France	2001
Germany	2016
Greece	2006
Hong Kong (China)	2015
Hungary	2016
India	2015
Indonesia	2012
Ireland	2016
Italy	2016
Malaysia	2007
Malta	2016
Netherlands	2016
Norway	2013
Pakistan	2009
Peru	2015
Philippines	2011
Poland	2016
Portugal	2010
Romania	2016
Singapore	2016
Slovenia	2017
South Africa	2010
Spain	2012
Sweden	2016
Taiwan (China)	2019
Turkey	2014
United Kingdom	2013

Figure 1: Dynamic effect of mandatory ESG adoption

Figure 1 reports the dynamic effect of mandatory ESG on cross listing for three years prior to up to three years after the adoption of mandatory ESG reporting.

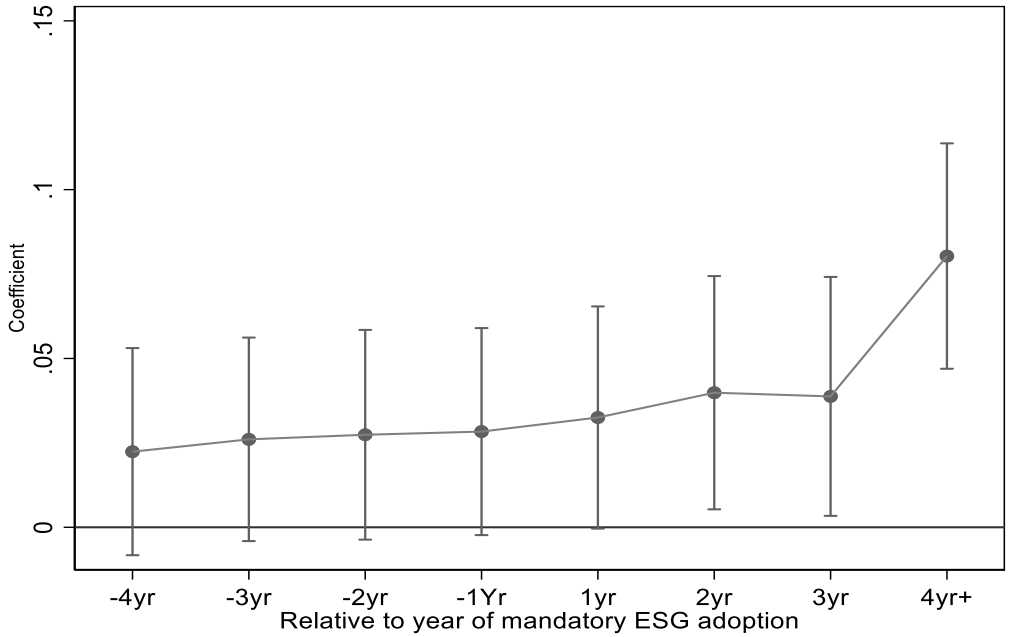


Figure 2: Placebo test

Figure 2 presents the distribution of coefficient loadings on pseudo-*MESG* coefficients obtained from 1000 iterations of randomly assigned treatment firms as per Biggerstaff et al. (2015). The true coefficient of 0.0323 is statistically different from estimated coefficients on *PSEUDO_ESG* (P<0.000).

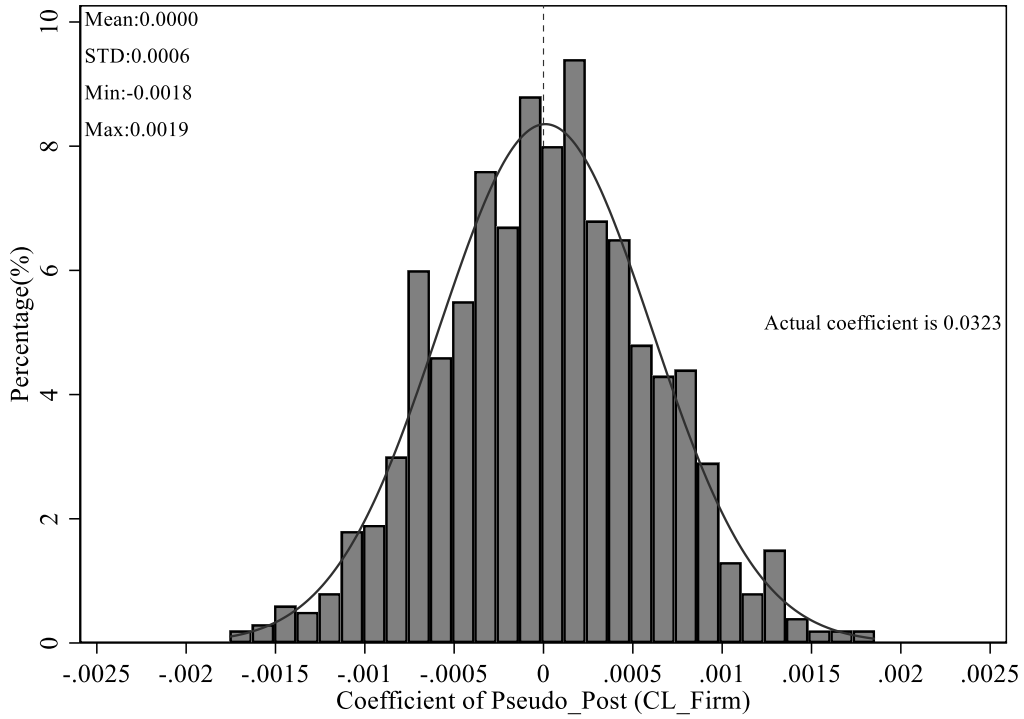


Table 1: Sample composition

This table presents the sample distribution by industry (Panel A), year (Panel B), and country jurisdictions (Panel C). The total sample includes 336,334 firm-year observations of 30,626 distinct firms across 63 countries during the 1997−2019 period.

Panel A: Distribution by industry

	Fama-French (12 industries)	Obs.	Obs. (%)	CL (Mean)
1	Consumer Non-Durables	35,253	10.48	0.0368
2	Consumer Durables	13,744	4.09	0.0447
3	Manufacturing	58,552	17.41	0.0406
4	Oil, Gas, and Coal Extraction and Products	10,155	3.02	0.1262
5	Chemicals and Allied Products	15,386	4.57	0.0367
6	Business Equipment	51,569	15.33	0.0316
7	Telephone and Television Transmission	7,867	2.34	0.1075
8	Utilities	7,401	2.20	0.0681
9	Wholesale, Retail, and Some Services	37,334	11.10	0.0258
10	Healthcare, Medical Equipment, and Drug	24,461	7.27	0.0481
11	Finance	4,533	1.35	0.0410
12	Other	70,079	20.84	0.0713
	Sum/Avg.	336,334	100.00	0.0489

Panel B: Distribution by year

	Year	Obs.	Obs. (%)	CL (Mean)		Year	Obs.	Obs. (%)	CL (Mean)
1	1997	7,387	2.20	0.0333	12	2008	14,894	4.43	0.0365
2	1998	8,479	2.52	0.0280	13	2009	16,290	4.84	0.0366
3	1999	10,444	3.11	0.0259	14	2010	16,556	4.92	0.0452
4	2000	11,717	3.48	0.0271	15	2011	17,080	5.08	0.0679
5	2001	11,782	3.50	0.0286	16	2012	17,615	5.24	0.0675
6	2002	12,673	3.77	0.0296	17	2013	17,500	5.20	0.0674
7	2003	13,476	4.01	0.0300	18	2014	18,444	5.48	0.0708
8	2004	13,965	4.15	0.0225	19	2015	14,453	4.30	0.0776
9	2005	15,049	4.47	0.0308	14	2016	16,221	4.82	0.0609
10	2006	15,330	4.56	0.0301	15	2017	17,560	5.22	0.0740
11	2007	15,381	4.57	0.0337	16	2018	17,426	5.18	0.0735
					17	2019	16,612	4.94	0.0653
						Sum/Avg.	336,334	100.00	0.0489

Panel C: Distribution by country jurisdictions

Country	Obs.	Obs. (%)	CL (Mean)	Country	Obs.	Obs. (%)	CL (Mean)
Argentina	595	0.18	0.0185	Mauritius	224	0.07	0.0000
Australia	6,790	2.02	0.0396	Mexico	1,263	0.38	0.1584
Austria	533	0.16	0.3471	Morocco	193	0.06	0.0518
Bahrain	140	0.04	0.0571	Netherlands	929	0.28	0.2906
Bangladesh	977	0.29	0.0000	New Zealand	1,562	0.46	0.2087
Belgium	1,182	0.35	0.3063	Nigeria	908	0.27	0.0198
Brazil	2,881	0.86	0.0510	Norway	1,663	0.49	0.2327
Canada	7,796	2.32	0.4413	Oman	772	0.23	0.0000
Chile	1,625	0.48	0.0080	Pakistan	1,088	0.32	0.0018
China	18,883	5.61	0.0068	Palestinian	109	0.03	0.0000
Colombia	360	0.11	0.0278	Peru	905	0.27	0.0376
Croatia	670	0.20	0.0134	Philippines	1,802	0.54	0.0000
Cyprus	248	0.07	0.0000	Poland	3,677	1.09	0.0139
Czech Republic	136	0.04	0.2721	Portugal	513	0.15	0.2242
Egypt	864	0.26	0.0336	Qatar	153	0.05	0.0523
France	5,801	1.72	0.1712	Romania	297	0.09	0.0505
Germany	6,042	1.80	0.2200	Russian	1,474	0.44	0.1988
Greece	1,606	0.48	0.0025	Saudi Arabia	957	0.28	0.0000
Hong Kong, China	16,544	4.92	0.0818	Singapore	6,500	1.93	0.0335
Hungary	146	0.04	0.4589	Slovenia	163	0.05	0.0245
India	20,960	6.23	0.0204	South Africa	2,793	0.83	0.0695
Indonesia	4,179	1.24	0.0380	Spain	1,317	0.39	0.3591
Ireland	187	0.06	0.7326	Sri Lanka	2,069	0.62	0.0000
Israel	2,630	0.78	0.0046	Switzerland	3,350	1.00	0.1818
Japan	54,470	16.20	0.0077	Thailand	7,003	2.08	0.0418
Jordan	660	0.20	0.0000	Tunisia	131	0.04	0.0611
Kenya	147	0.04	0.0000	Turkey	2,015	0.60	0.0213
Korea, Rep.	15,717	4.67	0.0091	United Arab Em	479	0.14	0.0856
Kuwait	157	0.05	0.0637	United Kingdom	9,420	2.80	0.0607
Luxembourg	124	0.04	0.5242	United States	96,851	28.80	0.0236
Malaysia	10,138	3.01	0.0199	Vietnam	2,452	0.73	0.0000
Malta	114	0.03	0.0000				
				Sum/Avg.	336,334	100.00	0.0489

Table 2: Summary statistics and correlation

This table reports the descriptive statistics of the variables in the main model specification. Panel A presents key summary statistics while Panel B presents the Pearson correlations between variables. Detailed variable definitions are provided in Appendix A1. All continuous variables are winsorized at 1% and 99% level. *, **, ***, indicate statistical significance at the 10%, 5%, and 1% level respectively.

Panel A: Summary statistics

Variable	N	Mean	SD	P25	P50	P75
CL	336,334	0.0489	0.2156	0.0000	0.0000	0.0000
MESG	336,334	0.1770	0.3816	0.0000	0.0000	0.0000
Size	336,334	5.4007	2.1302	4.0110	5.3617	6.7782
ROA	336,334	-0.0386	0.3270	-0.0116	0.0269	0.0642
Sale Growth	336,334	0.1557	0.6201	-0.0442	0.0586	0.1961
Leverage	336,334	0.2414	0.2410	0.0468	0.1990	0.3596
Cash	336,334	0.1707	0.1809	0.0415	0.1101	0.2327
Capex	336,334	0.0487	0.0557	0.0125	0.0309	0.0632
Age	336,334	2.4703	0.6996	2.0794	2.5649	2.9444
Interest	336,334	0.0395	0.1140	0.0018	0.0094	0.0296
Accruals	336,334	-0.0166	0.2522	-0.1030	-0.0304	0.0418
MtB	336,334	2.1193	3.8896	0.9127	1.2089	1.8911
Big N	336,334	0.4236	0.4941	0.0000	0.0000	1.0000
HiTech	336,334	0.1669	0.3729	0.0000	0.0000	0.0000
HHI	336,334	0.2143	0.2309	0.0643	0.1193	0.2713
Unemployment	336,334	5.3649	2.8284	3.9000	4.7300	5.7800
GDP Growth	336,334	0.0304	0.0273	0.0165	0.0285	0.0445
GDP Per Capita	336,334	3.6966	1.8034	2.2920	3.9598	5.0590
Mkt Dev	336,334	1.3916	1.9814	0.6534	1.0108	1.3744

Panel B: Pearson correlation matrix

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	*CL*																		
2	*MESG*	**0.14**																	
3	*Size*	**0.19**	**0.02**																
4	*ROA*	**0.02**	**0.04**	**0.36**															
5	*Sale Growth*	**-0.01**	**-0.03**	**-0.05**	**-0.03**														
6	*Leverage*	0.00	**-0.00**	**0.03**	**-0.30**	**-0.02**													
7	*Cash*	**-0.03**	**-0.06**	**-0.20**	**-0.14**	**0.08**	**-0.32**												
8	*Capex*	**0.04**	**-0.03**	**0.06**	**0.02**	**0.09**	**0.07**	**-0.15**											
9	*Age*	**0.09**	**0.21**	**0.31**	**0.12**	**-0.15**	**-0.00**	**-0.13**	**-0.09**										
10	*Interest*	0.00	**0.02**	**-0.12**	**-0.37**	**0.03**	**0.41**	**-0.02**	**0.01**	**-0.06**									
11	*Accruals*	**-0.01**	**-0.01**	**0.03**	**0.13**	**0.13**	**-0.03**	**0.07**	**-0.01**	**-0.04**	**-0.01**								
12	*MtB*	-0.00	**0.00**	**-0.18**	**-0.38**	**0.07**	**0.15**	**0.16**	**0.02**	**-0.08**	**0.20**	**-0.01**							
13	*Big N*	**0.15**	**-0.04**	**0.26**	**0.06**	**0.03**	**-0.03**	**0.03**	**0.08**	**0.04**	**-0.01**	**0.03**	**0.00**						
14	*HiTech*	**-0.02**	**-0.04**	**-0.13**	**-0.14**	**0.04**	**-0.10**	**0.29**	**-0.09**	**-0.06**	**0.02**	**0.02**	**0.09**	**0.01**					
15	*HHI*	**0.14**	**0.08**	**0.07**	**0.07**	**-0.01**	0.00	**-0.09**	**0.03**	**-0.07**	**0.01**	**-0.01**	**-0.01**	**0.13**	**-0.16**				
16	*Unemployment*	**0.08**	**0.10**	**0.01**	**-0.01**	**-0.00**	**0.01**	**-0.05**	**0.01**	-0.00	**0.02**	**-0.01**	**0.04**	**0.14**	**-0.01**	**0.15**			
17	*GDP Growth*	**-0.05**	**0.12**	**-0.13**	**0.06**	**0.08**	**0.02**	**-0.07**	**0.10**	**-0.09**	**0.02**	**0.04**	**0.03**	**-0.04**	**-0.03**	**0.01**	**-0.13**		
18	*GDP Per Capita*	**0.08**	**-0.22**	**0.09**	**-0.16**	**0.02**	**-0.03**	**0.19**	**-0.04**	**0.11**	**0.03**	**0.01**	**0.05**	**0.33**	**0.12**	**-0.06**	**-0.03**	**-0.41**	
19	*Mkt Dev*	**0.03**	**0.07**	**0.03**	**-0.02**	**0.02**	**-0.03**	**0.10**	**-0.03**	**0.00**	**0.03**	**0.02**	**0.01**	**0.16**	**0.02**	**0.04**	**-0.12**	0.00	**0.22**

Table 3: Main results

This table presents the results of the adoption of mandatory ESG reporting on the likelihood of cross-listing using a linear probability model. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. Column (1) reports a model with no control variables, but with firm- and year-fixed effects. Column (2) includes the full set of firm-level controls. Column (3) represents the complete models that also include country-level control variables. In Column (4) the variable of interest (*MESG*) is replaced by time-dependent indicator variables that track the effect of the ESG mandate before and after it comes into effect. These indicator variables are $MESG_{t-4}$, MESGt-$_{3}$, $MESG_{t-2}$, $MESG_{t-1,}$ $MESG_{t+1,}$ $MESG_{t+2}$, $MESG_{t+3}$ and $MESG_{t+4}$. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1) Without Controls		(2) Add Firm Controls		(3) Add Full Controls		(4) Testing for Pre-treatment Trends	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0308***	(2.93)	0.0300***	(2.87)	0.0323***	(3.07)		
$MESG_{t-4}$							0.0224	(1.20)
$MESG_{t-3}$							0.0260	(1.42)
$MESG_{t-2}$							0.0274	(1.45)
$MESG_{t-1}$							0.0283	(1.52)
$MESG_{t+1}$							0.0325	(1.63)
$MESG_{t+2}$							0.0399*	(1.90)
$MESG_{t+3}$							0.0388*	(1.81)
$MESG_{t+4}$							0.0803***	(3.96)
Size			0.0083***	(5.28)	0.0100***	(6.27)	0.0091***	(5.01)
ROA			-0.0029**	(-2.19)	-0.0038***	(-2.83)	-0.0031**	(-2.23)
Sale Growth			-0.0006	(-1.09)	-0.0007	(-1.27)	-0.0007	(-1.39)
Leverage			0.0067**	(2.53)	0.0078***	(2.89)	0.0087***	(3.26)
Cash			-0.0078**	(-2.47)	-0.0064**	(-1.99)	-0.0070**	(-2.27)
Capex			-0.0029	(-0.33)	-0.0078	(-0.91)	-0.0021	(-0.27)
Age			-0.0124**	(-2.44)	-0.0112**	(-2.33)	-0.0143**	(-2.46)
Interest			-0.0117***	(-3.79)	-0.0096***	(-3.13)	-0.0091***	(-2.94)
Accruals			0.0007	(0.82)	0.0005	(0.51)	0.0004	(0.51)
MtB			-0.0001	(-0.30)	-0.0001	(-0.32)	-0.0001	(-0.78)
Big N			0.0138***	(5.54)	0.0110***	(4.69)	0.0110***	(4.87)
HiTech			-0.0093***	(-3.36)	-0.0099***	(-3.58)	-0.0101***	(-3.84)
HHI			0.0188***	(3.09)	0.0197***	(3.29)	0.0197***	(3.37)
Unemployment					-0.0018	(-1.10)	-0.0020	(-0.97)
GDP Growth					0.1605	(1.51)	0.2684**	(2.13)
GDP Per Capita					-0.0362***	(-4.30)	-0.0326***	(-3.85)
Mkt Dev					-0.0023	(-1.44)	-0.0035*	(-1.75)
Observations	336,334		336,334		336,334		336,334	
Adjusted R2	0.683		0.684		0.685		0.686	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	

Table 4: Robustness tests

This table reports the results of various robustness tests. In Panel A, we display the results of a stacked difference-in-differences approach using a [-4;+4] (Column (1)), a [-5;+5] (Column (2)), and a [-6;+6] (Column (3)) year window around the introduction of the mandate. Panel B presents the results using a logit (Column (1)) and a probit (Column (2)) regression design. Panel C uses a set of different dependent variables. In Column (1), *CL_NMarket* is measured as the number of unique foreign countries in which a firm's securities are cross-listed in a given year. In Column (2), *CL_US* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded on the U.S. stock exchanges, zero otherwise. In Column (3), *CL_MESG* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with ESG mandate implemented, zero otherwise. In Column (4), *CL_HESG* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with a higher-than-average ESG performance, zero otherwise. A country's CSR performance is measured using all available firms of that country from the ASSET4 database. In Column (5), *CL_MKTDEV* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country with higher-than-median stock market development, zero otherwise. Panel D presents the results of a country level analysis where we take the yearly average for our dependent and independent variables. Panel E presents the results of alternative research designs. Column (1) reports the results with clustering at the firm-year level. Column (2) reports the results for introducing industry-year fixed effects, while Column (3) reports the results for an analysis with country-fixed effects. Panel F reports the results controlling for three confounding factors: board reforms (Column (1)), IFRS adoption (Column (2)), and a combination of both (Column (3)). Panel G reports the results for more restricted samples where we drop the EU (Column (1)), drop the US (Column (2)), and drop Canada and Israel (Column (3)). Panel H reports the results of an Oster (2019) analysis, while Panel I reports the results of a two-step falsification model predicting the timing to ESG adoption based on a host of country-specific factors. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Stacked difference-in-differences model

Dep. Var. = CL_{t+1}	(1) Window= [-4, +4]		(2) Window= [-5, +5]		(3) Window = [-6, +6]	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0354**	(2.31)	0.0360**	(2.23)	0.0596**	(2.43)
Observations	1,149,389		1,364,054		1,534,267	
Adjusted R2	0.258		0.256		0.256	
Controls	Yes		Yes		Yes	
Firm FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	

Panel B: Alternative regression methods

Dep. Var. = CL_{t+1}	(1) Logit Regression		(2) Probit Regression	
	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.3542***	(2.62)	0.1883***	(2.64)
Observations	325,803		325,803	
Pseudo R2	0.370		0.370	
Controls	Yes		Yes	
Country FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	

Panel C: Alternative dependent variables

Dep. Var. =	(1) *CL_NMarket*		(2) *CL_US*		(3) CL_MESG_{t+1}		(4) CL_HESG_{t+1}		(5) CL_MKTDEV_{t+1}	
	Coeff.	t-Stat	Coeff.	t-Stat	Coeff	t-Stat	Coeff.	t-Stat	Coeff.	t-Stat
MESG	0.0339***	(2.94)	0.0085*	(1.77)	0.0345***	(3.80)	0.0339***	(3.33)	0.0323***	(3.15)

Observations	336,334	336,334	335,726	335,726	335,726
Adjusted R2	0.710	0.428	0.389	0.647	0.645
Controls	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Panel D: Country-level analysis

Dep. Var. = CL_{t+1}	(1)		(2)	
	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0586*	(1.674)	0.0548*	(1.695)
Observations	1,156		1,156	
Adjusted R2	0.707		0.752	
Controls	No		Yes	
Country FE	Yes		Yes	
Year FE	Yes		Yes	

Panel E: Alternative research design

Dep. Var. = CL_{t+1}	(1) Clustering by Firm &Year		(2) Controlling for industry time varying heterogeneity		(3) Controlling Country Fixed effect	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0323***	(3.868)	0.0266***	(3.224)	0.0323***	(3.075)
Observations	336,334		336,309		336,334	
Adjusted R2	0.685		0.709		0.685	
Controls	Yes		Yes		Yes	
Industry-Year FE	No		Yes		No	
Country FE	No		No		Yes	
Firm FE	Yes		Yes		No	
Year FE	Yes		Yes		Yes	

Panel F: Controlling for confounding factors

Dep. Var. = CL_{t+1}	(1) Controlling Board Reform		(2) Controlling IFRS adoption		(3) Controlling Both	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0315***	(3.052)	0.0268**	(2.544)	0.0257**	(2.500)
Board Reform	0.0207	(1.630)			0.0254**	(2.074)
IFRS			0.0833***	(6.039)	0.0847***	(6.205)
Observations	336,334		336,334		336,334	
Adjusted R2	0.685		0.689		0.689	
Controls	Yes		Yes		Yes	
Firm FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	

Panel G: Restricted sample

Dep. Var. = CL_{t+1}	(1) Drop European Union's (EU)		(2) Drop the largest country (US)		(3) Drop Canada and Israel firms	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0192**	(2.00)	0.0182***	(7.78)	0.0201**	(2.54)
Observations	303,229		239,483		325,908	
Adjusted R2	0.717		0.666		0.690	
Controls	Yes		Yes		Yes	
Firm FE	Yes		Yes		Yes	

Year FE	Yes	Yes	Yes

Panel H: Oster analysis

Parameter Assumptions (1)	Parameter Assumptions (2)
1.3 R^2; δ = 1	Estimated β= 0
"True" β bound [0.0871, 0.0734]	δ = 4.0432

Panel I: Two-step falsification test

	(1) CL_{t+1}		(2) CL_{t+1}^{PRED}	
MESG			-0.0024	(-0.589)
Reprisk Incidents	-0.0245***	(-2.591)		
SDG Index	-0.0067*	(-1.804)		
Unemployment	0.0063***	(2.935)		
GDP Growth	0.2878*	(1.926)		
GDP Per Capita	-0.0495***	(-3.315)		
Mkt Dev	-0.0331*	(-1.950)		
Disclosure Quality	-0.0184***	(-4.529)		
Regulatory Quality	0.0511***	(3.002)		
Rule of Law	-0.0572**	(-2.118)		
Gov Eff	0.0047	(0.190)		
Observations	202,793		202,793	
Adj. R^2	0.779		0.991	
Firm FE	Yes		Yes	
Year FE	Yes		Yes	

Table 5: Moderating effect of information asymmetry

This table examines the moderating impact of information asymmetry on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. Information asymmetry is approximated using four proxies. In Column (1), *High Timeliness* is an indicator variable taking the value of one if the accounting conservatism as per Boulton et al. (2017) is higher than the sample median for that year, zero otherwise. In Column (2), *High Disclosure Index* is an indicator variable taking the value of one if the business extent of disclosure index from La Porta et al. (2006) is higher than the sample median for that year, zero otherwise. In Column (3), *High Intangible Ratio* is and indicator variable taking the value of one if the ratio of intangible asset to total assets is higher than the sample median for that year, zero otherwise. In Column (4), *High Bid Ask Spread* is an indicator variable taking the value of one if the average daily percentage change in the bid ask is higher than the sample median for that year, zero otherwise. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1) *High Timeliness*		(2) *High Disclosure Index*		(3) *High Intangible Ratio*		(4) *High Bid Ask Spread*	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0442***	(3.407)	0.0822**	(2.348)	0.0049	(0.581)	0.0266**	(2.403)
MESG×High Timeliness	-0.0127**	(-2.384)						
High Timeliness	0.0069***	(4.818)						
MESG×High Disclosure Index			-0.0939***	(-2.687)				
High Disclosure Index			-0.0153*	(-1.872)				
MESG×High Intangible Ratio					0.0600***	(6.073)		
High Intangible Ratio					-0.0022**	(-1.977)		
MESG×High Bid Ask Spread							0.0176**	(2.213)
High Bid Ask Spread							0.0015	(1.517)
Observations	271,393		245,688		328,613		325,631	
Adjusted R2	0.718		0.751		0.687		0.683	
Controls	Yes		Yes		Yes		Yes	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	

Table 6: Moderating effect of dependence on external financing

This table examines the moderating impact of the dependence on external financing on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. Dependence on external financing is approximated using four proxies. In Column (1), *High EFD* is an indicator variable equal to one if a firm operates in an industry with high dependence on external financing for that year, zero otherwise. In Column (2), *High EQT FINANCE* is an indicator variable that equals one if the industry-level dependence on external equity finance -- measured as the ratio of the net equity issuance amount to the capital expenditure for the median publicly traded firm in each industry based on two-digit SIC codes – for that year is larger than the sample median, zero otherwise. In Column (3), *High KZ Index*, as in indicator variable taking the value of one if the Kaplan-Zingales Index following Lamont et al. (2001) is higher than the sample median for that year, zero otherwise. In Column (4), *High WW Index* is an indicator variable taking the value of one if the firm has a higher-than-median level of financial constraints following Whited and Wu (2006) for that year, zero otherwise. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1) *High EFD*		(2) *High EQT FINANCE*		(3) *High KZ Index*		(4) *High WW Index*	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0211**	(2.304)	-0.0440*	(-1.784)	0.0006	(0.069)	0.0179*	(1.713)
MESG×High EFD	0.0696***	(3.467)						
High EFD	-0.0002	(-0.096)						
MESG×High EQT FINANCE			0.0735***	(2.971)				
High EQT FINANCE			-0.0243**	(-2.240)				
MESG×High KZ Index					0.0123***	(3.121)		
High KZ Index					0.0014	(1.282)		
MESG×High WW Index							0.0325***	(3.636)
High WW Index							-0.0016*	(-1.779)
Observations	336,079		336,242		264,907		336,334	
Adjusted R2	0.687		0.686		0.725		0.686	
Controls	Yes		Yes		Yes		Yes	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	

Table 7: Moderating effect of agency costs

This table examines the moderating impact of the dependence on external financing on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. Dependence on external financing is approximated using three proxies. In Column (1), *High SGA* is an indicator variable if the selling, general, and administrative expenses relative to the total Sales are higher than the sample median, zero otherwise. In Column (2), *High AUR* is an indicator variable taking the value of one if (-1× total revenue/total assets) is higher than the sample median, zero otherwise (see Ang et al 2000; Singh and Davidson 2003). In Column (3), *High AC_FCF* is an indicator variable if the Q-free cash flow interaction (Q×FCF), calculated as the product of the firm's free cash flow and company's growth opportunities, is higher than the sample median for that year, zero otherwise (see Doukas et al. 2000; McKnight and Weir 2009). Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1) *High SGA*		(2) *High AUR*		(3) *High AC_FCF*	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0260***	(2.841)	0.0208*	(1.815)	0.0099	(1.077)
MESG×High SGA	0.0116**	(2.116)				
High SGA	-0.0041**	(-2.399)				
MESG×High AUR			0.0714***	(3.438)		
High AUR			-0.0040	(-1.276)		
MESG×High AC_FCF					0.0246***	(3.863)
High AC_FCF					0.0007	(0.565)
Observations	317,170		235,986		335,823	
Adjusted R2	0.700		0.711		0.686	
Controls	Yes		Yes		Yes	
Firm Fixed Effect	Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes	

Table 8: Moderating effect of legal environment

This table examines the moderating impact of the country-level legal environment on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. The country-level legal environment is approximated using four proxies. In Column (1), *High Public Enforcement* is an indicator variable taking the value of one if the principal component of public enforcement and anti-director rights is larger than the sample median for that year, zero otherwise. The Anti-director Right Index is drawn from Djankov et al. (2008) and is measured based the protection of minority shareholders in the corporate decision-making process, including the right to vote. Public enforcement refers to the actions taken by governments or regulatory bodies to ensure that businesses and individuals comply with laws and regulations as per Djankov et al. (2008). In Column (2), *High Anti-Self-Dealing Index* is and indicator variable taking the value of one if the anti-self-dealing index drawn from Djankov et al. (2008) is higher than the sample median. In Column (3), *High Creditor Right Index* is an indicator variable taking the value of one if the revised creditor right aggregate score (CRE) from Djankov et al. (2007) is higher than the sample median, zero otherwise. In Column (4), *High Corruption* is an indicator variable taking the value of one if the corruption within the political system provided by ICGR is higher than the sample median, zero otherwise. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1) *High Public Enforcement*		(2) *High Anti-Self-Dealing Index*		(3) *High Creditor Right Index*		(4) *High Corruption*	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0772***	(3.718)	0.0657***	(3.459)	0.0879***	(3.143)	-0.0265***	(-4.065)
MESG×High Public Enforcement	-0.0505*	(-1.881)						
High Public enforcement	-0.0074	(-0.370)						
MESG×High Anti-Self-Dealing Index			-0.0547**	(-2.468)				
High Anti-Self-Dealing Index			-0.0031	(-0.384)				
MESG×High Creditor Right Index					-0.0783***	(-2.693)		
High Creditor Right Index					0.0155	(1.580)		
MESG×High Corruption							0.1313***	(6.411)
High Corruption							-0.0287***	(-3.124)
Observations	303,658		329,092		334,925		336,001	
Adjusted R2	0.678		0.686		0.688		0.694	
Controls	Yes		Yes		Yes		Yes	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	

Table 9: Consequences analyses

This table examines the impact of post-mandatory ESG adoption cross-listing on institutional ownership and cost of debt. *CL* is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in that year, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. In Column (1), the dependent variable is *Inst Own* and is measured as the percent of shares held by institutional investors. In Column (2), the dependent variable is *Cost of Debt* and is calculated as the interest and related expenses for the year divided by the total financial debt for that year. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. =	(1) *Inst Own*		(2) *Cost of Debt*	
	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG× CL	0.0220***	(3.768)	-0.0144**	(-2.248)
CL	-0.0045	(-1.089)	-0.0043	(-0.951)
MESG	-0.0441***	(-5.620)	0.0119***	(3.496)
Size	0.0288***	(8.016)	-0.0042***	(-3.683)
ROA	0.0269***	(8.555)	-0.0363***	(-6.593)
Sale Growth	-0.0020*	(-1.783)	0.0033***	(3.018)
Leverage	-0.0291***	(-8.494)	-0.0077	(-1.221)
Cash	0.0113***	(3.027)	-0.0060	(-0.883)
Capex	0.0334***	(3.943)	-0.0558***	(-4.649)
Age	-0.0359***	(-12.902)	-0.0060**	(-2.215)
Interest	-0.0185***	(-3.829)	0.0512***	(5.253)
Accruals	-0.0001	(-0.026)	-0.0098***	(-4.465)
MtB	0.0023***	(8.231)	0.0002	(0.695)
Big N	-0.0013	(-0.802)	-0.0012	(-0.441)
HiTech	0.0022	(1.069)	-0.0018	(-0.303)
HHI	0.0007	(0.216)	0.0026	(0.525)
Unemployment	0.0034***	(3.630)	-0.0003	(-0.477)
GDP Growth	0.2085*	(1.707)	-0.1260***	(-2.752)
GDP Per Capita	-0.0046	(-0.620)	-0.0035	(-0.959)
Mkt Dev	-0.0060***	(-3.793)	-0.0007	(-0.559)
Observations	175,957		281,339	
Adjusted R2	0.911		0.248	
Firm Fixed Effect	Yes		Yes	
Year Fixed Effect	Yes		Yes	

Table 10: Validation Test – mandatory ESG reporting and CSR performance

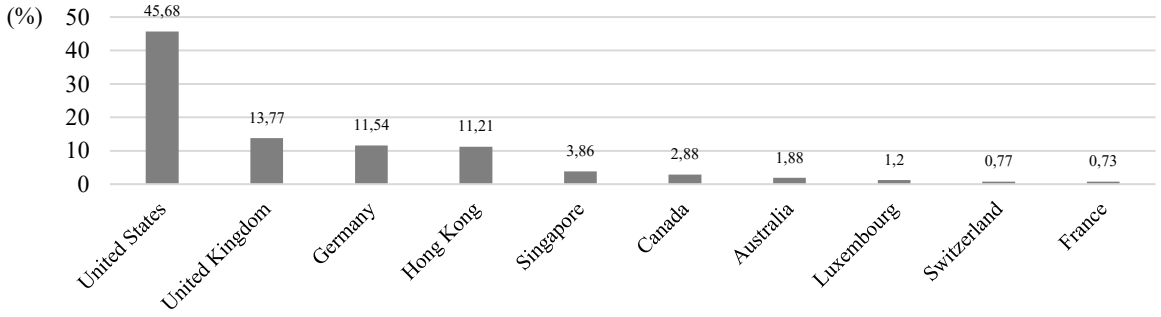
This table examines the impact of the adoption of mandatory ESG reporting on CSR performance. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. In Column (1), the dependent variable is *CSR Score* and captures the comprehensive performance of the firms in environmental, social and corporate governance. In Column (2), the dependent variable is *ENVRN Score*, which represents the score of the firms in terms of environmental performance. In Column (3), the dependent variable is *SOCIAL Score*, which represents the score of the firms in terms of social performance. In Column (4), the dependent variable is *CORPGOV Score*, which represents the score of the firms in terms of corporate governance performance. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)		(2)		(3)		(4)	
Dep. Var. =	*CSR Score*		*ENVRN Score*		*SOCIAL Score*		*CORPGOV Score*	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.1261***	(3.973)	0.0448***	(3.352)	0.0509***	(2.978)	0.0304**	(2.411)
Size	0.1084***	(14.347)	0.0459***	(15.175)	0.0233***	(6.517)	0.0391***	(13.807)
ROA	-0.0618***	(-2.874)	-0.0231**	(-2.342)	-0.0213**	(-2.018)	-0.0174**	(-2.175)
Sale Growth	-0.0238***	(-4.265)	-0.0074***	(-3.204)	-0.0140***	(-4.817)	-0.0024	(-1.094)
Leverage	0.0738**	(2.438)	0.0438***	(3.073)	0.0313**	(2.348)	-0.0013	(-0.088)
Cash	0.0310	(0.837)	0.0307*	(1.940)	-0.0254*	(-1.711)	0.0257*	(1.700)
Capex	-0.0392	(-0.481)	-0.0006	(-0.016)	-0.0561	(-1.574)	0.0174	(0.568)
Age	0.2612***	(4.929)	0.0357**	(2.255)	0.1641***	(6.798)	0.0614***	(2.808)
Interest	-0.1192***	(-3.587)	-0.0449***	(-2.647)	-0.0400**	(-2.355)	-0.0343**	(-2.425)
Accruals	-0.0386***	(-3.580)	-0.0213***	(-4.240)	-0.0032	(-0.607)	-0.0141***	(-3.003)
MtB	0.0004	(0.266)	0.0001	(0.103)	0.0007	(1.147)	-0.0004	(-0.595)
Big N	0.0557***	(3.727)	0.0130*	(1.910)	0.0199***	(3.371)	0.0228***	(3.433)
HiTech	-0.0094	(-0.303)	0.0115	(0.817)	-0.0209**	(-2.097)	0.0001	(0.004)
HHI	0.0394	(1.325)	0.0240*	(1.746)	0.0160	(1.320)	-0.0006	(-0.050)
Unemployment	0.0109**	(2.148)	0.0056***	(3.130)	0.0036*	(1.682)	0.0017	(0.737)
GDP Growth	-0.5864	(-1.456)	-0.3182*	(-1.722)	0.0167	(0.084)	-0.2849*	(-1.674)
GDP Per Capita	0.1995***	(3.892)	0.0755***	(4.110)	0.0878***	(3.533)	0.0363	(1.525)
Mkt Dev	0.0095	(0.736)	0.0064	(1.055)	0.0011	(0.193)	0.0020	(0.427)
Observations	40,820		40,820		40,820		40,820	
Adjusted R2	0.820		0.799		0.838		0.793	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	

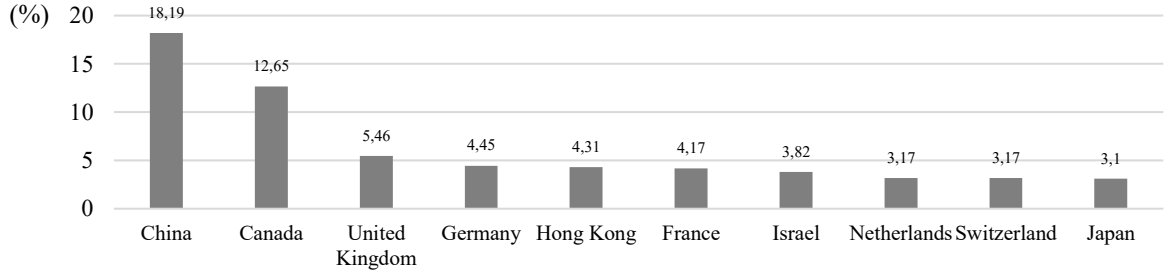
Online Appendix A1: Distribution of most common host and home jurisdictions and home / host cross-listing combinations

This figure displays the top 10 important cross-listing destinations (Panel A), the top 10 most important countries that engage in cross-listing (Panel B), as well as the top 10 most common combinations of home-host jurisdiction pairings in our sample.

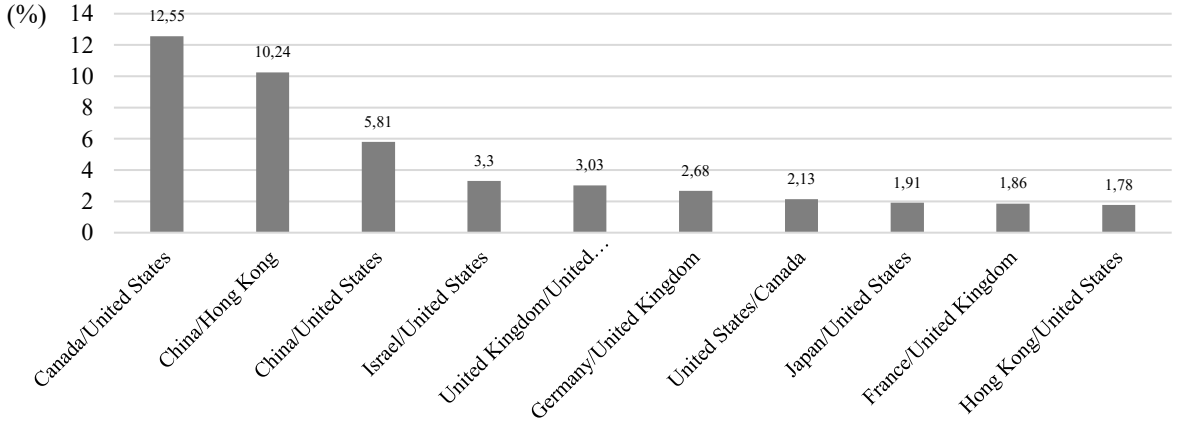
Panel A: Distribution of Host Jurisdictions



Panel B: Distribution of Home Jurisdictions



Panel C: Distribution Home and Host Combinations



Online Appendix A2: Introducing additional country-level controls

This table presents the results of the adoption of mandatory ESG reporting on the likelihood of cross-listing using a linear probability model, controlling for several country-level factors. The dependent variable, CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. The additional control variables are (i) *Uncertainty*, which is an index computed by counting the frequency of the word 'uncertainty' (or its variant) in Economist Intelligence Unit's country-specific reports. The indices are normalized by total number of words and rescaled by multiplying by 1,000. Data are obtained from https://eprints.lse.ac.uk/117833/, (ii) *Distance,* is an indicator variable that equals one if the straight-line distance between the capital of a firm's home country and the capital of the firm's cross-listing country is greater than the average distance across all other cross-listing distance combinations, zero otherwise. Data are from the CEPII database at http://www.cepii.fr/cepii/en/bdd_modele/bdd.asp., (iii) *Com Religion* is an indicator variable that equals one if the home country and any target country of a cross-listed firm have the same religion, zero otherwise. (iv) *Com Language* is an indicator variable that equals one if the home country and any target country of a cross-listed firm have the same official language, zero otherwise. (v) *Com Legal Origin is* an indicator variable that equals one if the home country and any target country of a cross-listed firm have the same legal origin, zero otherwise. Data are from the CEPII database at http://www.cepii.fr/cepii/en/bdd_modele/bdd.asp. Column (1) reports a model with *MESG* alongside the five new country-level controls and fixed effects, while Column (2) reports the results of the full model including all controls. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1)		(2)	
	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG	0.0155***	(2.881)	0.0168***	(3.104)
Uncertainty	0.0260**	(2.213)	0.0241*	(1.927)
Distance	0.0001***	(15.739)	0.0001***	(15.755)
Com Religion	2.3618***	(16.516)	2.3488***	(16.582)
Com Language	0.4519***	(9.799)	0.4593***	(9.924)
Com Legal Origin	-0.3335***	(-5.568)	-0.3392***	(-5.640)
Size			0.0028***	(3.746)
ROA			-0.0001	(-0.172)
Sale Growth			0.0006**	(2.010)
Leverage			0.0002	(0.169)
Cash			-0.0028	(-1.501)
Capex			0.0016	(0.319)
Age			-0.0068***	(-2.817)
Interest			-0.0017	(-0.813)
Accruals			-0.0003	(-0.502)
MtB			0.0003***	(2.912)
Big N			0.0096***	(5.878)
HiTech			-0.0067***	(-3.821)
HHI			0.0056*	(1.733)
Unemployment			-0.0010	(-0.883)
GDP Growth			0.1560***	(2.765)
GDP Per Capita			-0.0118***	(-2.654)
Mkt Dev			-0.0018**	(-2.233)
Observations	335,375		335,375	
Adjusted R2	0.831		0.832	
Firm Fixed Effect	Yes		Yes	
Year Fixed Effect	Yes		Yes	

Online Appendix A3: Voluntary ESG disclosure

This table examines the moderating impact of ex-ante voluntary corporate disclosure of ESG information on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. *Voluntary* is an indicator variable if the firm disclosed voluntary ESG information in year t, whereas *No Voluntary* captures the opposite. In Column (1) the direct impact of *Voluntary* on the cross-listing likelihood is tested in a model that includes all other relevant control variables. In Column (2) *MESG* is introduced as an additional variable, while in Column (3) *MESG* is interacted with both *Voluntary* and *No Voluntary*. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. = CL_{t+1}	(1)		(2)		(3)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
MESG			0.0322***	(3.076)		
Voluntary	-0.0072	(-1.619)	-0.0020	(-0.529)		
Voluntary × MESG					0.1425***	(7.258)
No Voluntary × MESG					0.0255***	(2.582)
Size	0.0112***	(6.357)	0.0101***	(6.306)	0.0090***	(5.984)
ROA	-0.0045***	(-3.226)	-0.0038***	(-2.846)	-0.0031**	(-2.349)
Sale Growth	-0.0007	(-1.345)	-0.0007	(-1.285)	-0.0006	(-1.076)
Leverage	0.0071**	(2.460)	0.0078***	(2.908)	0.0077***	(2.899)
Cash	-0.0069**	(-2.047)	-0.0065**	(-1.994)	-0.0064**	(-2.000)
Capex	-0.0137	(-1.532)	-0.0078	(-0.911)	-0.0073	(-0.869)
Age	-0.0075	(-1.431)	-0.0113**	(-2.334)	-0.0095**	(-2.087)
Interest	-0.0095***	(-3.084)	-0.0096***	(-3.139)	-0.0084***	(-2.839)
Accruals	0.0006	(0.640)	0.0005	(0.512)	0.0004	(0.504)
MtB	0.0001	(0.599)	-0.0001	(-0.315)	-0.0001	(-0.357)
Big N	0.0116***	(4.876)	0.0110***	(4.693)	0.0103***	(4.450)
HiTech	-0.0095***	(-3.471)	-0.0099***	(-3.579)	-0.0097***	(-3.574)
HHI	0.0217***	(3.587)	0.0197***	(3.296)	0.0198***	(3.359)
Unemployment	-0.0018	(-1.070)	-0.0018	(-1.102)	-0.0019	(-1.181)
GDP Growth	0.1321	(1.290)	0.1606	(1.513)	0.1571	(1.518)
GDP Per Capita	-0.0336***	(-3.838)	-0.0361***	(-4.314)	-0.0344***	(-4.228)
Mkt Dev	-0.0024	(-1.566)	-0.0023	(-1.451)	-0.0025	(-1.561)
Coeff. Diff.:					P<0.01	
Observations	336,334		336,334		336,334	
Adjusted R2	0.684		0.685		0.688	
Firm Fixed Effect	Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes	

Online Appendix A4: Characteristics of the ESG reporting mandate

This table examines the moderating impact of ESG reporting mandate designs on the relationship between the adoption of mandatory ESG reporting and the likelihood of cross-listing using a linear probability model. CL_{t+1}, is an indicator variable that equals one if at least one secondary security of a sample firm is actively listed and traded in a foreign country in year t+1, zero otherwise. *MESG* is an indicator variable taking the value of one if the country in which the firm is headquartered and listed has an active mandatory ESG policy in the given year, zero otherwise. In Column (1), *Government* is an indicator variable taking the value of one if the ESG reporting mandate was issued by the government, whereas *No Government* captures the opposite. In Column (2), *Once* is an indicator variable that equals one if all dimensions of ESG needed to be disclosed all at once, whereas *Not Once* captures the opposite. In Column (3), *Standalone* takes the value of one if the ESG mandate requires firms to disclose their ESG information in a separate sustainability report, whereas *No Standalone* captures the opposite. In Column (4), *Comply-or-explain* is an indicator variable that equals one if the ESG mandate allows firms a comply-or-explain policy with regard to the provided ESG information, whereas *No Comply-or-Explain* captures the opposite. Detailed variable definitions are provided in Appendix A1. Robust *t*-statistics, clustered at the country-level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var. $=CL_{t+1}$	(1)		(2)		(3)		(4)	
	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.	Coeff.	t-Stat.
Government × MESG	0.0484***	(3.11)						
No Government × MESG	0.0177	(1.26)						
Once × MESG			0.0389***	(2.96)				
Not Once × MESG			0.0292**	(2.12)				
Standalone × MESG					0.0253*	(1.88)		
No Standalone × MESG					0.0448***	(2.88)		
Comply-or-explain							0.0386**	(2.30)
No Comply-or-explain							0.0294**	(2.34)
Size	0.0106***	(6.89)	0.0102***	(6.69)	0.0102***	(6.58)	0.0102***	(6.59)
ROA	-0.0041***	(-3.19)	-0.0039***	(-3.00)	-0.0040***	(-3.18)	-0.0038***	(-2.88)
Sale Growth	-0.0007	(-1.31)	-0.0007	(-1.31)	-0.0007	(-1.37)	-0.0007	(-1.34)
Leverage	0.0076***	(2.87)	0.0078***	(2.90)	0.0075***	(2.83)	0.0077***	(2.89)
Cash	-0.0058*	(-1.89)	-0.0065**	(-2.01)	-0.0068**	(-2.06)	-0.0063*	(-1.96)
Capex	-0.0062	(-0.71)	-0.0086	(-1.02)	-0.0093	(-1.13)	-0.0083	(-1.00)
Age	-0.0114**	(-2.34)	-0.0115**	(-2.41)	-0.0119**	(-2.39)	-0.0113**	(-2.33)
Interest	-0.0097***	(-3.16)	-0.0096***	(-3.12)	-0.0094***	(-3.12)	-0.0096***	(-3.13)
Accruals	0.0005	(0.58)	0.0005	(0.54)	0.0005	(0.58)	0.0005	(0.54)
MtB	-0.0001	(-0.37)	-0.0001	(-0.35)	-0.0001	(-0.40)	-0.0000	(-0.25)
Big N	0.0110***	(4.70)	0.0110***	(4.62)	0.0109***	(4.63)	0.0111***	(4.67)
HiTech	-0.0098***	(-3.56)	-0.0098***	(-3.53)	-0.0097***	(-3.50)	-0.0097***	(-3.52)
HHI	0.0190***	(3.26)	0.0197***	(3.28)	0.0196***	(3.30)	0.0193***	(3.34)
Unemployment	-0.0016	(-1.01)	-0.0018	(-1.16)	-0.0015	(-0.96)	-0.0019	(-1.13)
GDP Growth	0.1313	(1.27)	0.1531	(1.45)	0.1455	(1.38)	0.1572	(1.49)
GDP Per Capita	-0.0302***	(-3.22)	-0.0372***	(-4.34)	-0.0350***	(-4.11)	-0.0377***	(-4.18)
Mkt Dev	-0.0020	(-1.30)	-0.0020	(-1.09)	-0.0019	(-1.13)	-0.0025	(-1.45)
Coeff. Diff.:	P<0.01		P<0.01		P<0.01		P<0.01	
Observations	336,334		336,334		336,334		336,334	
Adjusted R2	0.686		0.685		0.685		0.685	
Firm Fixed Effect	Yes		Yes		Yes		Yes	
Year Fixed Effect	Yes		Yes		Yes		Yes	