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Running Head: Foreign Investors and Sustainability Assurance

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Abstract

We investigate the association between domestic versus foreign institutional investors' ownership and companies' decision to enhance the reliability of their sustainability report through external assurance, and their choice of assurance provider. Using an international sample of 1,927 firms, we find evidence of the importance of distinguishing between foreign and domestic investors, when examining sustainability reporting assurance practices, during the 2010-2017 period. Results indicate that foreign investors' ownership levels are associated with the choice of internationally recognized assurance providers (i.e., Big-4 firms), while domestic investors' holdings are negatively associated with the assurance decision overall, and positively associated with other types of assurers. Additionally, we study foreign investors from stakeholder-oriented countries and find that their holdings are positively associated with the decision to assure sustainability reports and choose a Big-4. Finally, results reveal that holdings from responsible foreign investors are positively associated with the assurance decision and the choice of a Big-4.

I. INTRODUCTION

The recently mandated Corporate Sustainability Reporting Directive (CSRD) (European Commission 2021), in effect since 2024, marks a key moment in reporting procedures by integrating sustainability and assurance to enhance Environmental, Social, and Governance (ESG)

accountability.[1] While ESG reporting and assurance remain predominantly voluntary in most countries, a paradigm shift is imminent.[2, 3] Among the substantial challenges facing the adoption of the new directive is the concern faced by regulators and practitioners about who will provide assurance of sustainability reports. In this context, we look into the past evidence of assurance practices to understand the extent to which they are shaped by strong external governance, via institutional investors' ownership.

We examine the distinct roles played by foreign and domestic institutional investors within the information environment of firms, an area that has attracted growing interest among researchers due to its significant monitoring function within corporate governance systems (Tsang, Xie, and Xin 2019; Velte 2023). We investigate the association between their level of ownership on two decisions firms make when issuing a sustainability report: whether to assure the report, and their choice of an assurance provider. Our research premise is grounded in the belief that while regulation has yet to transform the landscape of sustainability assurance, insights into the potential effects of institutional investors as major monitoring entities in external corporate governance (McCahery, Sautner, and Starks 2016) can aid in anticipating preferences and choices in the sustainability assurance market. Firms' sustainability reports and the assurance of those have received significant attention from investors worldwide (Li, Wang, and Wu 2020; Gerwanski, Velte, and Mechtel 2022). For instance, over 5,000 institutional investors from around the world

[1] Assurance is defined by the Global Reporting Initiative (GRI) as "activities designed to result in published conclusions on the quality of the report and the information contained within it" (GRI 2006).

[2] Refer to Krueger, Sautner, Tang, and Zhong (2024) for a comprehensive list of mandatory sustainability regulations worldwide and events influencing them. Alongside mandatory regulations, the regulatory landscape continues to evolve with new guidance and standards. For instance, the International Auditing and Assurance Standards Board (IAASB) has finalized the International Standard on Sustainability Assurance (ISSA) 5000, dedicated to sustainability assurance engagements. Following its consultation phase, ISSA 5000 was released in late 2024.

[3] The effects of the CSRD are expected to extend far beyond the borders of the EU. This becomes evident through the indication that third-country undertakings, actively engaged in activities within the Union's territory, should provide both sustainability information and an assurance opinion. The assurance opinion should be provided by an authorized assurer (firm or an individual).

have joined the United Nations' Principles for Responsible Investment (UNPRI) initiative, pledging to contribute to developing a more sustainable global financial system (PRI 2023).

Institutional ownership impacts firms' monitoring and performance (Bratten and Xue 2017; Ge, Bilinski, and Kraft 2021), but foreign institutional investors behave differently from domestic institutional investors (Cai, Lee, Xu, and Zeng 2019). Foreign institutional investors (i) can promote greater firm value and operating performance (Ferreira and Matos 2008), (ii) are associated with firms' higher sustainability ratings (Oh, Chang, and Martynov 2011; Semenova and Hassel 2019), (iii) lead to an increase in financial reporting quality (Beuselinck, Blanco, and García Lara 2017), and (iv) improve firms' voluntary disclosure (Tsang et al. 2019). However, unlike domestic institutional investors, who have easier access to company information and may suffer from home bias, foreign institutional investors lack transparent information (Maffett 2012). Because they do not know the markets where firms operate as well as the domestic investors, they face the risk of management greenwashing (Thomas, Yao, Zhang, and Zhu 2022), which is recognized by investors and firms' stakeholders (Reimsbach, Hahn, and Gürtürk 2018).

Many researchers have examined the incentives for firms to engage in voluntary sustainability assurance (Alsahali, Malagueño, and Marques 2024; Al-Shaer and Zaman 2018; Carey, Khan, Mihret, and Muttakin 2021; Liao, Lin, and Zhang 2018; Peters and Romi 2015; Simnett, Vanstraelen, and Chua 2009), and a few studies assess the role of long-term institutional investors as a driving force for sustainability assurance (Alomran and Alsahali 2023; García-Sánchez et al. 2022). However, no attention has been paid to the fact that foreign institutional investors behave differently from domestic institutional investors. In this paper, we address this gap and respond to calls for further examination of the factors associated with the decision to assure and choose between different types of assurance providers (Cohen and Simnett 2015; Sun,

Huang, Dao, and Young 2017). This is relevant because the market for sustainability assurance contains different types of assurance providers, but little is known about factors shaping the competitive market of sustainability assurance (Christensen, Hail, and Leuz 2021; Maso, Lobo, Mazzi, and Paugam 2020).

We argue that higher information asymmetry will motivate foreign institutional investors to exert greater pressure on firms to engage in sustainability assurance compared to their domestic counterparts. Furthermore, we expect foreign institutional investors to be associated with firms' choice of Big-4 assurers. This expectation arises from the assumption that foreign investors will perceive Big-4 firms as having superior assurance quality (Lee, Lim, Lobo, and Xu 2025) and higher international credibility. Complementarily, we compare the preference for Big-4 firms to the preference for four alternative categories of assurance providers. To examine the association between foreign and domestic institutional investors' level of ownership and the likelihood of the assurance of sustainability reports, we examine data for 3,864 firms. These firms have their headquarters in 36 countries, providing us with a view of sustainability assurance practices worldwide.

Our study contributes to the debate on the assurance of sustainability reports, illustrating how strong external governance relates to the assurance of sustainability reports. More specifically, we focus on the role of institutional investors in enhancing the reliability of firms' sustainability reports. First, we provide evidence that domestic and foreign institutional investors need to be considered separately, when it comes to sustainability reporting assurance. Given that this difference is robust to the classification of institutional investors as signatories of the UNPRI, future research on both areas – sustainability reporting and responsible investment – should consider the differences between the two sets of institutional investors. Second, our results extend

the assurance literature, that has concentrated on the antecedents of sustainability assurance decisions at the firm and institutional levels (Casey and Grenier 2015; Carey et al. 2021; Kolk 2008; Kılıç, Kuzey, and Uyar 2021). Our findings are consistent with institutional investors being drivers of firms' choice of a sustainability assurance provider, and that the preferences of these investors depend not only on whether they operate in the same country as the firm where they invest in but also on the country where institutional investors are based. Thus, while the level of ownership of foreign institutional investors from stakeholder-oriented countries are associated with assurance decisions, the ones from shareholder-oriented countries are not.

The remainder of this study is as follows. The next section reviews prior literature and sets out hypotheses to provide insight into the assurance of sustainability reports, the different assurance providers, and the role of foreign institutional investors. Section three describes the research design, including the empirical model and the sample and descriptive statistics. Section four presents results, main findings and discussion. Finally, we provide a conclusion that summarizes the findings, limitations, and areas for future research.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The publication of stand-alone sustainability reports has become common practice worldwide (KPMG 2022). However, the voluntary and largely unregulated nature of sustainability reporting raises significant concerns about the credibility and reliability of the disclosed information (Boiral, Heras-Saizarbitoria, Brotherton, and Bernard 2018; Wang, Zhou, and Wang 2020). While such reports are intended to enhance transparency, they may also serve as tools for greenwashing, allowing firms to project a more sustainable image without substantive changes in practices

(Thomas et al. 2022). Stakeholders have increasingly voiced concerns about these risks, pushing for more reliable sustainability disclosures (Krasodomska, Simnett, and Street 2021).

In response, firms can engage in voluntary external assurance to enhance the credibility of their sustainability reports (Krasodomska et al., 2021; Maso et al., 2020). However, sustainability assurance remains an evolving practice with significant variations in quality, scope, and regulatory oversight (Christensen et al. 2021; Simnett, Zhou, and Hoang 2022). Unlike financial auditing, sustainability assurance lacks universally accepted standards, leading to inconsistencies in assurance practices across firms and industries. Moreover, the decision to obtain assurance is often discretionary, influenced by factors such as stakeholder pressure, reputational concerns, and strategic incentives rather than regulatory mandates (Steinmeier and Stich 2019).

Given the voluntary nature of sustainability assurance, research has largely focused on identifying patterns in assurance practices (Xiao and Shailer 2022) and examining the factors influencing firms' assurance decisions (Zaman, Farooq, Khalid, and Mahmood 2021). A critical debate in this area concerns the role of assurance providers, particularly the distinction between accounting and non-accounting firms (Channuntapipat, Samsonova-Taddei, and Turley 2020). While some studies suggest that accounting firms offer higher-quality assurance due to their experience in financial auditing, others argue that non-accounting providers may offer specialized sustainability expertise that traditional auditors lack. This debate highlights the complexities surrounding assurance choices and the need for further research into the factors shaping firms' selection of assurance providers.

Building on this literature, we examine how different types of institutional investors specifically, foreign and domestic investors are associated with two key corporate decisions: (i) whether to obtain assurance for sustainability reports and (ii) the choice of an assurance provider.

Understanding these dynamics contributes to the ongoing discussion on the institutional pressures shaping sustainability assurance practices and the broader implications for corporate transparency and accountability.

Foreign vs. Domestic Institutional Investors

Prior studies have extensively relied on agency-principal theory to understand how investors exert governance over firms, thereby influencing their behaviour and practices (Nix and Chen 2013). In this context, the theory predicts that monitoring and assurance can reduce asymmetric information, consequently mitigating conflict between shareholders and management (García-Sánchez, Hussain, Khan, and Martínez-Ferrero 2022a). The theory also predicts that investors with large holdings are able to carry out more effective monitoring (García Osma and Grande-Herrera 2021) and use their voice to prompt change (Nix and Chen 2013; McCahery et al. 2016).

Institutional investors are known to be effective monitoring mechanisms of corporate behaviour (Chen, Dong, and Lin 2020; Dyck, Lins, Roth, and Wagner 2019). They can influence the behaviour of firms by either preparing or voting on a specific shareholder proposal or by contacting firms directly to discuss a particular issue (García Osma and Grande-Herrera 2021). Dyck et al. (2019) examine the effects of institutional investors on sustainability (environmental and social) performance. Their results indicate that institutional investors drive firms' sustainability performance by aiming to gain a financial return, social return, or both. Similarly, Chen et al. (2020) find that the presence of institutional investors improves firms' sustainability performance through the submission of sustainability proposals. However, in these studies, no distinction is made between foreign and domestic institutional investors. Appendix A presents a summary of studies on institutional investors and sustainability reporting and assurance.

Unlike domestic institutional investors who suffer from home bias and have easier access to company information, foreign institutional investors lack transparent information (Maffett 2012). Thus, investment in foreign countries is recognized as more uncertainty and of higher risk due to the increased information asymmetries (Vasudeva 2018). The uncertainty extends to the reliability of sustainability reports, and greenwashing is a tangible risk for foreign institutional investors (Marquis, Toffel, and Zhou 2016). While domestic institutional investors may believe that the benefits of assuring the sustainability report of a firm do not outweigh the costs involved, the foreign institutional investors, who face a higher risk of greenwashing, should give more importance to the decision to assure the sustainable report, and to the choice of the assurer. In this context, Velte (2023) suggests that foreign institutional investors are more aware of their voice option and are more likely to engage in the monitoring of corporate sustainability. Conversely, domestic investors may lack significant motivation to utilize their voice options to strengthen the sustainability efforts of a board of directors.

We argue that the probability of a firm deciding to engage in voluntary assurance increases with the level of foreign institutional investor holdings, but not with the level of ownership of the domestic institutional investors. In this vein, Velte (2023) reviews the literature on sustainability assurance and shows that the increased independence of foreign investors is linked with active monitoring and greater international outlook. Li et al. (2020) suggest that foreign institutional investors are associated with improved social responsibility practices. Similarly, Haider and Nishitani (2022) finds a positive association between ownership by foreign investors and assurance of sustainability reports in Japan.

The choice of assurance provider may also be affected by foreign institutional investors. We expect domestic institutional investors to know the local accounting firms and experts, which are

probably not familiar to foreign institutional investors. Moreover, they will be aware of the quality of the work offered by engineering firms in their country.[4] On the other hand, we expect the ownership level of foreign institutional investors to be associated with a higher probability of Big-4 assurance provider. This is because the Big-4 firms are recognized internationally and have a reputation for high-quality services (Clarkson, Li, Richardson and Tsang 2019; García-Sánchez, Raimo, Uribe-Bohorquez, and Vitolla 2022b; Lee et al. 2025). In summary, we expect a relationship between institutional investors and firms' sustainability assurance decisions. Given the distinctive access to information and resulting diverse risk exposure for foreign and domestic institutional investors, it is plausible to expect that the association between foreign and domestic institutional investors' holdings and firms' decisions on assurance will differ. We state our first hypotheses as follows:

H1a: The association between institutional investors' holdings and a firm's decision to assure its sustainability report differs between foreign and domestic investors.

H1b: The association between institutional investors' holdings and a firm's choice of the sustainability report assurer differs between foreign and domestic investors.

[4] In this study, we consider five types of sustainability assurance providers: Big-4, accounting firms, engineering firms, consultants, and experts. Big-4 refers to the four major accounting and auditing firms, while accounting firms cover smaller and regional firms. Although the Big-4 and accounting firms are renowned for their proficiency in reporting and assuring financial matters, recent research indicates that non-accounting firms may present superior subject matter knowledge in sustainability (Channuntapipat et al. 2020). Engineering firms are acknowledged for their technical expertise in sustainability and understanding of complex processes involved. Consulting firms, generally smaller than their accounting or engineering counterparts, often operate at a local level. They exhibit a deeper understanding of local issues and stakeholders within firms. Finally, we account for the assurance provided by an individual expert opinion who is characterized by possessing subject matter expertise. Martínez-Ferrero and García-Sánchez (2018) provide an overview of the prevalence and characteristics associated with these different assurers.

Country Orientation

If the type of investor is important to explain the assurance decisions (as stated in H1), the exposure to different institutional pressures may also alter the relationship between investors' holdings and assurance decisions. This is because institutional, cultural, and legal factors drive firms' social performance (Ioannou and Serafeim, 2012), and one of the main institutional factors influencing sustainability reporting is the orientation of the country (e.g., stakeholder vs. shareholder). Dhaliwal, Radhakrishnan, Tsang, and Yang (2012) suggest that sustainability activities are more mature in stakeholder-oriented countries than in shareholder-oriented countries. Moreover, Simnett et al. (2009) suggest that firms operating in stakeholder-oriented countries are more likely to assure their sustainability report and to choose an auditing firm as an assurer. Kılıç et al. (2021) indicate that a country's institutional environment is significantly associated with the adoption of independent assurance upon sustainability reports. Recognizing the limitations of the agency-principal framework to cover a broader contextual environment (e.g., orientation of the country), we turn to institutional theory to understand how the institutional context might shape the institutional investors, and consequently their association with assurance decisions.

Institutional theory suggests that norms and routines establish authoritative guidelines for social behavior (Brower and Dacin 2020). Thus, institutional investors' actions may be influenced by the values, culture, and social norms of the countries where they are located. Consistent with this idea, Dyck et al. (2019) find that institutional investors located in countries with strong community beliefs in the importance of sustainability issues lead to an increase in the sustainability performance of firms.

A key distinction in the institutional environment of countries is whether they follow a stakeholder-oriented or shareholder-oriented approach. Stakeholder-oriented countries emphasize

the interests of a broad range of stakeholders including employees, customers, suppliers, and the broader society when shaping corporate governance and regulatory policies (Freeman, Harrison, and Zyglidopoulos 2018). These countries typically have stronger legal frameworks for sustainability, corporate social responsibility (CSR), and environmental protection, leading firms to integrate sustainability concerns into their strategies (Matten and Moon 2008). In contrast, shareholder-oriented countries prioritize shareholder value maximization, often emphasizing financial performance over broader societal concerns (Friedman 2007). In such contexts, sustainability practices, including assurance, may be adopted primarily as a strategic tool to enhance market legitimacy rather than as a response to institutionalized norms (Luo and Tang 2016).

Unlike previous studies that examine whether assurance choices are motivated by characteristics of the countries where firms issuing sustainability reports are domiciliated (Martínez-Ferrero and García-Sánchez 2017; Kılıç et al. 2021; Alsahali et al. 2024), we investigate the potential association between the characteristics of the countries where the institutional investors are located and the decisions of the firms where they invest. In this vein, we expect that foreign institutional investors located in stakeholder-oriented countries may prompt firms in their portfolio to assure their sustainability reports, and to choose an assurer that is internationally recognized and seen as reliable.

Our expectation is based on the view that pressures emanating from stakeholder- and shareholder-oriented countries differ (Simmett et al. 2009). Previous research has suggested that firms operating in stakeholder-oriented countries face higher pressures to behave in ways that appear responsible and sustainable, while such pressures on shareholder-oriented countries are less pronounced (Luo and Tang 2016). Because stakeholder-oriented countries embed sustainability

into corporate governance and regulatory structures, investors from these countries are likely to perceive assurance as a mechanism to strengthen accountability and mitigate risks associated with misleading sustainability claims. Conversely, in shareholder-oriented countries, where financial performance is the dominant concern, investors may be less inclined to push for assurance unless it directly aligns with profit-driven objectives. Hence, we expect that foreign institutional investors domiciliated on stakeholder-oriented countries will have institutional incentives to be more accountable for sustainability and, consequently, they will seek sustainability assurers who can provide higher levels of credibility to their investments. Conversely, shareholder-oriented countries do not create the same incentives, and investors domiciled in those countries will not face similar pressures to engage with assurance of sustainability reports, and when they do engage, they might resort to a diverse pool of assurers. Thus, we state our second hypothesis as follows:

H2a: Foreign (domestic) institutional investors' holdings located in stakeholder-oriented (shareholder-oriented) countries are positively (negatively) associated with the decision to assure sustainability reports.

H2b: Foreign (domestic) institutional investors' holdings located in stakeholder-oriented (shareholder-oriented) countries are positively (negatively) associated with the choice of Big-4 to assure sustainability reports.

Responsible Investors

Other investor-level factors, beyond the country of origin, are relevant to initiate and develop sustainability practices (Derchi, Davila, and Oyon 2023; Krueger et al. 2024). A very salient preference of some institutional investors is their desire to invest in a socially responsible way.

These investors usually become signatories of the UNPRI, creating a network of investors that promote sustainable investment by following six principles that lead to incorporating sustainability issues in their decision-making, the commitment to sustainability activism, and seeking sustainability disclosure in their portfolio firms (UNPRI 2020). Dyck et al. (2019) find that signatory investors have more than double the average investor impact on firms' sustainability performance. This evidence is supported by other researchers who suggest institutional investors who are PRI signatories present higher ESG scores (Brandon, Glossner, Krueger, Matos, and Steffen 2022).

We expect foreign institutional investors who are signatories to the UNPRI to be positively associated with companies' sustainability reporting reliability by requiring external assurance and engagement with a Big-4 assurance provider. In contrast, we do not expect commitment to UNPRI among domestic institutional investors would prompt the need to enhance a firm's sustainability report reliability as their perceptions of information asymmetry are different from foreign investors. We state our third hypothesis as follows:

H3a: Foreign (domestic) institutional investors' holdings from UNPRI signatories are positively associated (not associated) with the decision to assure sustainability reports.

H3b: Foreign (domestic) institutional investors' holdings from UNPRI signatories are positively associated (not associated) with the choice of Big-4 to assure sustainability reports.

III. RESEARCH DESIGN

Empirical Model

We test our hypotheses using logistic regressions. First, we model the firm's decision to assure its sustainability report. Second, we model the firm's decision to choose a Big-4 firm as its assurance provider. Finally, a multinomial logit model is used to assess the selection of alternative assurer types, using the choice of a Big-4 assurer as the basis. Our initial models are as follows:

$$\begin{aligned}\text{Assurance} = {} & \alpha + \beta_1\ \text{Foreign\_Inv} + \beta_2\ \text{Domestic\_Inv} + \beta_3\ \text{Block\_Inv} + \\ & \beta_{4\text{-}11}\ \text{CorporateGov} + \beta_{12\text{-}14}\ \text{Firm Controls} + \beta_{15\text{-}16}\ \text{Country Controls} + \\ & \text{Industry Controls} + \text{Year FE} + \varepsilon \qquad (1)\end{aligned}$$

$$\begin{aligned}\text{Assurance\_Provider} = {} & \alpha + \beta_1\ \text{Foreign\_Inv} + \beta_2\ \text{Domestic\_Inv} + \beta_3\ \text{Block\_Inv} + \\ & \beta_{4\text{-}11}\ \text{CorporateGov} + \beta_{12\text{-}14}\ \text{Firm Controls} + \beta_{15\text{-}16}\ \text{Country Controls} + \\ & \text{Industry Controls} + \text{Year FE} + \varepsilon \qquad (2)\end{aligned}$$

Assurance is an indicator variable, coded as one if the sustainability report is assured and zero otherwise – this variable is defined by Asset 4 (currently known as Refinitiv ESG) as a yes and no variable indicating if a company has an external auditor of its sustainability report. We consider five alternative specifications for *Assurance_provider,* based on data from Asset 4. As mentioned, we first use a logit model considering Big-4 as the assurer – this is an indicator variable coded as one when the assurance is provided by a Big-4 assurer, and zero otherwise. Next, we use a multinomial regression model, where *Big-4* is the base outcome. As in Alsahali et al. (2024), the remaining types of assurers are (i) *Engineering,* an indicator variable coded as one when the assurance is provided by an engineering firm, and zero otherwise, (ii) *Consulting,* an indicator

variable coded as one when the assurance is provided by a consulting firm, and zero otherwise, (iii) *Accounting,* an indicator variable coded as one when the assurance is provided by an accounting assurer (excluding Big-4), and zero otherwise, and (iv) *Expert,* an indicator variable coded as one when the assurance is provided by an individual's expert opinion, and zero otherwise.

For the test of our first hypotheses (H1a and H1b), the independent variables of interest are *Foreign_Inv,* which represents the total ownership of foreign institutional investors, and *Domestic_Inv*, which represents the total ownership of domestic institutional investors. These variables are calculated as the percentage of total outstanding shares held by these two types of institutional investors. If the data support our expectations, the level of the association of *Foreign_Inv* with assurance decisions will be statistically different from (and possibly higher than) that of *Domestic_Inv* in our estimations of equation (1) and equation (2).

To control for the existence of blockholders and consider the concentration of ownership, we include the variable *Block_Inv*. Next, we consider the board of directors, as prior studies identify several board characteristics that determine a firm's assurance decision (Al-Shaer and Zaman 2018; Haider and Nishitani 2022; Liao et al., 2018; Peters and Romi, 2015). We control for eight corporate governance characteristics: (i) the separation of CEO and board chairman position (*CEO_Sep*), (ii) board size (*BoD_Size*), (iii) number of board meetings in a year (*BoD_Meet*), (iv) percentage of women on board (*BoD_Women*), (v) percentage of board independent members (*BoD_Indep*), (vi) the presence of sustainability committee (*Suts_Comt*), (vii) audit committee expertise (*AudC_Exp*), and (viii) audit committee independence (*AudC_Indep*). To account for financial firm-level effects, we control for firms' profitability (*ROA*), *Size,* and leverage (*Lev*). We control for country-level effects by including the strength of the country's legal system (*Legal*), and *Stk_Ori,* an indicator variable coded as one when the firm is

domiciled in a stakeholder-oriented country. Following Simnett et al. (2009), we control for mining, manufacturing, utilities, and finance industries. Finally, we control for time effects by including year indicator variables. All continuous variables are winsorized at 1st and 99th percentiles. The Appendix B provides the definitions of the variables.

When testing H2, we use models similar to the ones described above (for the test of H1). However, this time we focus on the holdings of the foreign institutional investors located in stakeholder-oriented countries - *Foreign_Inv (Stakeh)* - and the holdings of domestic institutional investors located in shareholder-oriented countries - *Domestic_Inv (Shareh)*. If the data support our expectations, *Foreign_Inv (Stakeh)* will be positively associated with assurance decisions and with the choice of Big-4, and *Domestic_Inv (Shareh)* will be negatively associated with those decisions. Following Simnett et al. (2009), we consider institutional investors located in civil law countries to have more stakeholder-oriented governance, and those in common law countries to have more shareholder-oriented governance.

To test H3, we examine the relationship between responsible institutional investors and firms' assurance decision. We define responsible institutional investors as the ones that are signatories of the UNPRI. We classify institutional investors as responsible investors from the year they signed the UNPRI onwards. The independent variables of interest are *Foreign_Inv (signatory)* and *Domestic_Inv (signatory),* which represent the total ownership of these two types of institutional investors. If H3 is supported, *Foreign_Inv (signatory)* in equations (1) and (2) will be positive and statistically significant, while *Domestic_Inv (signatory)* will not be statistically significant. For completeness, we also assess whether investors who are not signatories behave as the investors that are signatories or if the differences between signatories and non-signatories

investors are significant – for this analysis, we create the variable *Foreign_Inv (non-signatory)* and *Domestic_Inv (non-signatory)*.

Sample and Descriptive Statistics

The potential sample for this paper consists of 3,864 firms, identified as firms that issue a sustainability report during the 2010-2017 period, using Thomson Reuters Asset4. Financial information is from Thomson Reuters DataStream. Ownership data are from Thomson Reuters Eikon Ownership & Profiles module. This module provides detailed information about the name of each shareholder, the number and type of shares held, the country of the investor, and the first date of holding. The country-level legal scores are from the World Bank (Kaufmann, Kraay, and Mastruzzi 2010). After merging all the data and excluding countries with less than 30 observations, we get a sample of 16,157 observations (1,927 firms). We next lose 2,757 observations due to missing data for the variables, which leaves us with 13,400 observations to empirically examine the association between institutional investors' level of ownership and firms' decisions to engage in voluntary assurance. When we examine the choice of assurance provider, the sample includes 6,297 observations (688 firms).[5]

Table 1 Panel A presents the overall descriptive statistics. Firms that assure their sustainability reports represent around 51 percent of the sample. Big-4 assurers account for approximately 53 percent of the assured reports. Engineering, consulting, accounting, and expert opinion assurance providers assure around 19, 17, five, and five percent, respectively. Foreign

[5] The sample used to test the assurance provider choice is smaller because it excludes all firms that do not provide assurance in the first place.

institutional investors control an average of 19 percent of the stock of the firms in our sample, while domestic institutional investors control an average of 27 percent of the stock.

Table 1 Panel B presents descriptive statistics by country. The United States and the United Kingdom are the two countries with more observations. There is a wide variation in the weight of the remaining countries in the sample. The mean values of *Assurance* also vary significantly across the countries, and in Taiwan, 82 percent of the reports are assured. When we consider the types of assurers, we also find a large variation. In the United States, Big-4 assures 21 of the assured reports, but in Canada, this figure is 73 percent. We find the highest value for institutional ownership in the United States, where domestic institutional investors hold almost 69 percent of the stock and foreign institutional investors hold 12 percent.

Table 2 presents the Pearson correlation matrix. *Assurance* and *Big-4* are positively and significantly correlated with *Foreign_Inv*, but negatively and significantly correlated with *Domestic_Inv*. This indicates that the association between the different types of institutional investors and the decision to assure firms' sustainability reports may vary in the multivariate analysis and is consistent with our expectations, providing initial support to H1. *Foreign_Inv (Stakeh)* is positively correlated with both *Assurance* and *Big-4,* and *Domestic_Inv (Shareh)* is negatively correlated with those variables, which provides initial support to H2. Finally, the correlations between *Assurance* and *Big-4* and *Foreign_Inv (signatory)* are positive and significant, while the correlation *Assurance* and *Big-4* and *Domestic_Inv (signatory)* are negative and significant, providing only partial initial support for H3. The correlation between variables that are (subsequently) modeled together is within the acceptable range (<.70), indicating there are no initial multi-collinearity threats.

IV. MULTIVARIATE RESULTS & DISCUSSION

Main Findings

Table 3 presents the results for H1a and H1b, which predict the association between the level of ownership of foreign and domestic institutional investors on firms' assurance decisions. This is because a firm must decide not only whether it will assure its sustainability report but also what type of an assurer will be hired for that task. Column (1) focuses on the *Assurance* decision. The results indicate that a higher level of ownership of foreign institutional investors is not significantly associated with a higher probability of assurance and that the level of ownership of domestic institutional investors is associated with a lower probability of assurance. Thus, there is a significant difference in the association between the ownership levels of these two types of institutional investors and the likelihood of a firm deciding to assure its sustainability report, which is consistent with H1a. Our findings suggest that domestic investors are not in favour of assurance, probably because they do not need it to assess the reliability of the information included in the sustainability report and thus see the cost of assurance as an unnecessary expense. While we expected the level of ownership of foreign institutional investors to be associated with a higher probability of assurance, our findings are not consistent with this idea, suggesting that these investors can find other mechanisms to evaluate the credibility of the sustainability report (Xiao and Shailer 2022).[6] Untabulated results confirm that institutional investors are positively associated with the decision to obtain assurance and significantly positively associated with the decision to hire a Big Four assurance provider, which aligns with prior research demonstrating that institutional investors positively influence corporate sustainability practices (Dyck et al. 2019; Chen et al. 2020), while emphasizing the importance of our findings. our analysis reveals that the

[6] We have also calculated the marginal effect of foreign institutional investors on companies' decision to assure, which is 0.011, and for companies' decision to choose a Big-4 assurance provider, which is 0.249.

type of institutional investor (i.e., foreign versus domestic) can have differing effects, providing further depth to our understanding of how these investors impact corporate decision making in diverse institutional contexts.

In column (2) we present the results of our test for H1b, to test whether foreign and domestic institutional investors have different preferences regarding the choice of assurance provider. We find that the probability of choosing a Big-4 assurer increases significantly with the level of ownership of foreign institutional investors. In contrast, domestic institutional investors are negatively and significantly associated with firms' choice of Big-4. Thus, once again, results suggest there are significant differences in assurance practices between the two types of institutional investors, which supports H1b.

The remaining columns of Table 3 present the results of a multinomial logistic regression to examine the remaining categories of assurance providers (engineering, consulting, accounting, and expert), when compared with the choice of a Big-4 assurer. Results suggest domestic institutional investors prefer all other assurance providers to Big-4 firms, while foreign institutional investors view consulting and experts as less preferable than Big-4 firms. These results indicate there are differences between domestic and foreign institutional investors, providing further support to H1b. Future research should explore whether the preferences of the domestic institutional investors are due to a deeper knowledge of the assurer firms (which would suggest their choices are better), or due to a home bias (which would suggest foreign institutional investors are more objective).

The results for the control variables indicate that the level of ownership of blockholders is negatively associated with the decision to assure sustainability reports. This suggests that these institutional holders do not see the necessity of assurance to evaluate the quality of the information

included in the report. Thus, in a sense, they have a behavior that is similar to domestic investors. We also find that several of the control variables that proxy for good corporate governance practices (*CEO_Sep*, *BoD_Size*, *BoD_Women*, *Sust_Comt*, and *AudC_Indep*) are positively associated with the decision to assure the sustainability report. However, only two of those corporate governance measures are positively associated with the decision to hire a Big-4 firm as the assurer (*CEO_Sep* and *BoD_Women*). Two of the financial variables (*ROA* and *Size*) are also positively associated with the decision to assure the sustainability report, and *Size* is positively associated with the decision to hire a Big-4 firm as the assurer. Thus, larger firms, which have more stakeholders, and more visibility in capital markets, not only have a higher probability of assuring their sustainability reports, but they also tend to hire Big-4 firms for the task. This choice may be due to the reputation of these firms. Finally, the coefficients estimated for our country-level control indicate that firms in countries that are stakeholder-oriented have a higher probability of assuring their sustainability reports and hiring a Big-4 firm for the task.

Table 4 presents the results of our tests of H2. While we still expect a significant difference between the associations of domestic and foreign institutional investors' ownership levels, we now focus on whether the ownership level of foreign institutional investors from stakeholder-oriented countries is more associated with assurance and the choice of a Big-4 firm than the ownership level of foreign institutional investors from shareholder-oriented countries. In column (1), the results indicate that the level of holdings of foreign institutional investors from stakeholder-oriented countries is positively associated with firms' assurance decisions, while the holdings of foreign institutional investors from shareholder-oriented countries are negative and not significantly associated with firms' assurance decision. In column (2), the results suggest that foreign institutional investors from stakeholder-oriented countries prefer Big-4 assurers. Table 4

also depicts the relationship between the level of ownership of domestic institutional investors and the assurance choices. Results indicate a negative and significant associated between domestic investors from shareholder countries with the decision to assure the sustainability report and the choice of a Big-4 firm. Thus, our results support both H2a and H2b. Additionally, a negative and significant association between domestic investors from stakeholder countries with the decision to assure the sustainability report is found. Finally, results on Table 4 suggest that foreign institutional investors from stakeholder countries see consulting firms and experts as significantly inferior choices to Big-4 firms (column 4).

We next focus on all signatory institutional investors, as a steppingstone, and then examine on the differences between the foreign and domestic signatory institutional investors. Panel A of Table 5 shows that the level of ownership of institutional investors who signed the UNPRI is positively and significantly associated with firms' assurance decision (column 1) and the choice of accounting firms (column 5). Contrarily, the level of ownership of these institutional investors is negatively associated with the choice of a Big-4 firm (column 2). Looking at Panel B, we find that the level of ownership of the foreign institutional investors who signed the UNPRI (*Foreign_Inv (signatory)*) is positively and significantly associated with firms' assurance decision (column 1) and the choice of Big-4 (column 2). In line with results reported in Panel A, we find that the level of ownership of the domestic institutional investors who signed the UNPRI (*Domestic_Inv (signatory)*) is negatively and significantly associated with firms' choice of Big-4. Once again, the foreign and the domestic institutional investors have different relationships with the firm's assurance choices, even when both sets are signatories of the UNPRI. This suggests that the division of foreign vs. domestic is more relevant than the classification of UNPRI signatories regarding assurance practices. Moreover, the ownership of foreign institutional investors who have

not signed the UNPRI (*Foreign_Inv (non-signatory)*) is negatively and significantly associated with firms' assurance decisions (column 1) and is not associated with the decision to hire a Big-4 firm for assurance. Thus, results support H3a and partially support H3b.

Robustness Tests

We next use propensity score matching (PSM) as a robustness check (Shipman, Swanquist, and Whited 2017). Each firm with high foreign ownership is matched with a firm with low foreign ownership using all independent variables in equations (1) and (2). The treated subsample comprises firms with high levels of institutional foreign ownership, while the control subsample includes firms with a low level of institutional foreign ownership. The outcome variable refers to the firms that (a) provide assurance, and (b) engage with Big-4 assurance providers. We select control firms without replacement, using the matching algorithms one nearest neighbor NN(1), with a caliper of 0.01. This procedure yields a matched sample that consists of 8,575 observations for assurance and 4,078 observations for Big-4. Table 6 Panel A shows that all variables in the PSM model display mean values that have no significant difference across the two groups, except for country orientation. However, the absolute value of the bias is 5.3 percent, less than the threshold of 10 percent. Thus, the matches are reasonably balanced with respect to all the relevant variables. We then compare the proportions of firms' providing assurance, and firms' engagement with Big-4 assurance providers, for each of the two subsamples and check for significant differences in the outcome. Table 6 Panel B presents the results of this analysis. We find that the difference in the observed assurance and Big-4 outcomes are statistically significant. We further use PSM with replacement using five different matching algorithms: one nearest neighbor NN(1), three nearest neighbors NN(3), five nearest neighbors NN(5), Radius and Kernel, and untabulated results are consistent with PSM without replacement in Table 6 Panel B.

The EU's Directive 2014/95/EU is known as the non-financial reporting directive. It requires all large European-listed firms that have more than 500 employees to publish '…certain information on the way they operate and manage social and environmental challenges' (European Commission 2014, 1), starting with the annual reports issued in 2018. Given that the directive was issued in 2014 it may have affected how some of our firms made their disclosures, as well as their decisions to assure their sustainability reports. The goal of this directive is to benefit stakeholders such as investors, consumers, and public policymakers. Thus, if firms changed their practices, this may have changed the behavior of foreign institutional investors, who are the focus of our study. To take this into consideration, we next exclude the observations from European firms. The results of this analysis are in Table 7. All the estimated coefficients for the main variables of interest are consistent with our main findings (as in Table 3). When it comes to the assurance decision, we find it is negatively associated with the level of ownership of domestic institutional investors; when it comes to the choice of a Big-4 assurer we find that this preference is positively associated with the level of ownership of foreign institutional investors and negatively associated with the level of ownership of domestic institutional investors.

It is possible that the firm chooses, as an assurance provider, the same firm that audits its financial statements, especially if we consider that most of our firms choose one of the Big-4 firms as their assurer. To examine whether this has an impact on our results we extend the models in Table 3 to include a new indicator variable (*Same_Provider*). The untabulated results of this analysis indicate that our main results are robust (the coefficients of the variables of the variables

of interest are of the same sign and level of statistical significance), and the estimated coefficients for this variable are positive and statistically significant.[7]

We also address whether an increase in the level of institutional ownership is associated with the firms' assurance decisions. Untabulated results indicate that an increase in the level of foreign institutional investors' ownership is positively and significantly associated with the likelihood of both *Assurance* and *Big-4*. Conversely, we find no statistical association between an increase in the level of domestic institutional investors' ownership and these variables.

Another concern, related to the country where firms operate, is that in some of these countries ESG disclosure is compulsory, due to existing national regulations. The existence of these regulations may motivate firms to assure their sustainability reports. Thus, we next extend our main models to include an indicator variable (*Mand_Dis*). This variable changes across time, to reflect the years when these regulations became effective. Untabulated results indicate that our main results hold, and that the new variable is positively associated with both the decision to assure the sustainability report and to hire a Big-4 firm.

Finally, we use an instrumental variable approach, to address concerns of endogeneity, considering two variables: the firm's inclusion in the S&P Global Board Market Index (BMI), and the average foreign ownership per industry per year. The S&P Global BMI encompasses 49 developed and emerging market countries, making it a suitable match for our international sample. We report the two-stage estimation regression results in Table 8, where Column (1) shows the first stage results. We find that the two instrument variables have positive and statistically significant coefficients (*S&P_Index* and *Avg_ Foreign_I&Y*). This result is consistent with our

[7] We must recognize that the positive association between *Same_Provider* and *Assurance* is mechanical, given the indicator variable is coded as one only when assurance occurs (and we can determine that the provider of assurance is the same as the audit provider).

expectation that foreign institutional ownership is higher for firms included in S&P index and in industries with a high average foreign institutional ownership. Post-estimation tests confirm that the instruments we use are adequate.[8] Columns (2) and (3) report the second-stage regression results where the dependent variable is the assurance and Big-4 assurance provider, respectively. We find that the instrumented version of *Foreign_Inv* is positive and not statistically associated with the assurance decision and is positively and significantly associated with *Big-4*. Therefore, our earlier findings are robust to correcting for the endogeneity of foreign ownership.

V. DISCUSSION AND CONCLUSION

Our study extends the existing literature on the assurance of sustainability reporting by providing empirical evidence into the relationship between strong external governance and sustainability assurance practices. With recent EU directives expected to shape the future of sustainability practices in the world, we investigate how external governance has been associated with such practices in the past. We provide evidence of significant differences in the associations between foreign and domestic institutional investors' ownership levels and firms' decision to engage in voluntary assurance and choose an assurance provider. Our findings suggest that institutional investors' preferences for sustainability assurance are shaped by both the institutional strength of their home country and the unique challenges they face when investing abroad. Investors from countries with strong institutions are more likely to push for sustainability assurance as their home country norms and regulations promote accountability. We argue that the unique features and the higher risk of information asymmetry faced by foreign institutional investors are associated with

[8] The Cragg-Donald Wald F statistic = 80.96, exceed the Stock-Yogo weak instrument threshold, therefore indicating the instrument is strong. The Hansen J test for overidentification has a p-value of 0.514, which suggests that overidentification is not a concern.

firms' decision to engage in sustainability assurance and choose an assurance provider that is recognized internationally and associated with higher quality (Big-4). On the other hand, domestic investors may have a deep knowledge of the market where the firms operate (as well as of the firms) and see no need to seek assurance of the sustainability reports. Moreover, domestic investors may know local assurers they prefer in case assurance is procured.

Our research unfolds implications for policy and theory. Specifically, our findings suggest that international stakeholders are associated with firms' governance dynamics, potentially influencing a preference for assurance and a tendency for them to opt for established assurance providers, particularly the Big-4. In contrast, when governance is exerted by domestic investors, an inclination towards alternative assurance preferences (such as opting for no assurance) and the selection of diverse assurance providers (including engineering, consulting, accounting, and specialized experts) is evident. These trends persist even when considering institutional investors' commitment to sustainability, as indicated by their status as signatories of the UNPRI. These outcomes signal that establishing the scope of strong corporate governance, through foreign institutional investors or direct and indirect regulation on sustainability (Nix and Chen 2013), has the potential to drive more assurance and concentration of assurance in the hands of the Big-4, potentially increasing the market for assurance but reducing the market for other non-Big-4 assurance providers.

From a theoretical perspective, our research highlights the significant role of the institutional context surrounding institutional investors in influencing the relationship between these investors and the sustainability decision-making of the companies they invest in. In contrast to prior research that concentrated on the importance of the institutional context where companies operate (Martínez-Ferrero and García-Sánchez 2017; Kılıç et al. 2021; Alsahali et al. 2024), our

results suggest that the institutions influencing investors in their domiciled locations are crucial factors in explaining their association with firms' sustainability assurance choices. At the same time, our findings indicate that institutional investors may adapt their behaviour depending on whether they invest domestically or abroad, particularly in response to information asymmetry concerns. This suggests that the push for sustainability assurance is not solely driven by domestic institutional norms but also by strategic considerations when investing in foreign markets.

Despite our efforts to mitigate endogeneity concerns through the use of instrumental variables and robustness checks, the possibility of residual endogeneity cannot be fully ruled out. While our instruments provide consistent results and pass post estimation tests, we acknowledge that they may not perfectly capture all sources of endogeneity. Future research could build on this by exploring alternative identification strategies to better isolate causal effects.

This research is also limited by the data availability. We examine if firms provide assurance and what type of assurance provider they chose; however, due to data limitations, we are unable to analyze if firms provide assurance to the entire report or part of the report. This could be examined in further studies and may even influence the type of assurer selected. Additionally, the results of our study on the choice of assurance provider could be qualitatively extended. For instance, it is unclear whether investors believe that Big-4 firms provide higher assurance quality. Further research could examine the drivers underlining assurance provider choice preferences among different types of investors (e.g., service quality, service price, assurance provider reputation). The finding of these questions will provide fruitful insight to understand the market for sustainability assurance.

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Table 1 Panel A. Descriptive statistics

Table 1 provides summary statistics for companies' assurance decision and assurance provider types. In addition, the table provides summary statistics for variables used in the model. Detailed definitions of the variables are in Appendix B. The sample contains firms that issued a sustainability report during the period from 2010 to 2017.

	N	*Mean*	*Standard deviation*	*25th percentile*	*Median*	*75th percentile*
Assurance	13,400	0.509	0.500	0.000	1.000	1.000
Big-4	6,297	0.530	0.499	0.000	1.000	1.000
Engineering	6,297	0.185	0.388	0.000	0.000	0.000
Consulting	6,297	0.167	0.373	0.000	0.000	0.000
Accounting	6,297	0.047	0.212	0.000	0.000	0.000
Expert	6,297	0.050	0.218	0.000	0.000	0.000
Foreign_Inv	13,400	0.191	0.150	0.088	0.146	0.259
Domestic_Inv	13,400	0.269	0.274	0.040	0.157	0.472
Foreign_Inv (Stakeh)	13,400	0.046	0.042	0.018	0.036	0.062
Foreign_Inv (Shareh)	13,400	0.134	0.128	0.046	0.092	0.183
Domestic_Inv (Stakeh)	13,400	0.036	0.078	0.000	0.000	0.032
Domestic_Inv (Shareh)	13,400	0.217	0.296	0.000	0.005	0.452
Sign_Inv	13,319	0.115	0.094	0.040	0.090	0.169
Non-Sign-Inv	13,319	0.348	0.229	0.155	0.300	0.534
Foreign_Inv (signatory)	13,319	0.057	0.053	0.021	0.041	0.077
Foreign_Inv (non-signatory)	13,319	0.135	0.118	0.057	0.098	0.181
Domestic_Inv (signatory)	13,319	0.057	0.078	0.001	0.023	0.082
Domestic_Inv (non-signatory)	13,319	0.213	0.221	0.026	0.130	0.363
Block_Inv	13,400	0.315	0.238	0.119	0.268	0.497
CEO_Sep	13,400	0.651	0.477	0.000	1.000	1.000
BoD_Size	13,400	11.158	3.537	9.000	11.000	13.000
BoD_Meet	13,400	9.569	5.666	6.000	8.000	12.000
BoD_Women	13,400	0.166	0.124	0.083	0.154	0.250
BoD_Indep	13,400	0.593	0.249	0.410	0.611	0.813
Sust_Comt	13,400	0.822	0.382	1.000	1.000	1.000
AudC_Exp	13,400	0.788	0.409	1.000	1.000	1.000
AudC_Indep	13,400	0.860	0.234	0.750	1.000	1.000
ROA	13,400	0.045	0.086	0.012	0.040	0.075
Size	13,400	15.479	1.564	14.471	15.496	16.530
Lev	13,400	0.199	0.157	0.079	0.181	0.288
Legal	13,400	1.311	0.706	1.188	1.610	1.756
Stk_Ori	13,400	0.420	0.494	0.000	0.000	1.000

Table 1 Panel B. Descriptive by country

Table 1 provides summary statistics by country for companies' assurance decision and assurance provider types. In addition, the table provides summary statistics for our variables of interest (i) foreign institutional investors and (ii) domestic institutional investors. Detailed definitions of the variables are in Appendix B. The sample contains firms that issued a sustainability report during the period from 2010 to 2017

Country	N	Assurance	Big-4	Foreign_Inv	Domestic_Inv
Australia	663	0.466	0.708	0.171	0.148
Austria	83	0.627	0.740	0.207	0.044
Belgium	135	0.504	0.836	0.207	0.023
Brazil	98	0.592	0.691	0.182	0.076
Canada	680	0.321	0.726	0.254	0.254
China	315	0.365	0.542	0.215	0.002
Colombia	39	0.769	0.655	0.053	0.158
Denmark	112	0.446	0.980	0.252	0.073
Finland	194	0.722	0.748	0.228	0.132
France	705	0.847	0.726	0.225	0.078
Germany	483	0.569	0.878	0.271	0.063
Greece	62	0.839	0.540	0.179	0.009
Hong Kong	367	0.439	0.208	0.152	0.028
India	309	0.686	0.505	0.146	0.119
Indonesia	147	0.320	0.044	0.154	0.002
Ireland	112	0.518	0.479	0.551	0.050
Italy	223	0.771	0.892	0.175	0.056
Japan	870	0.691	0.282	0.132	0.160
Korea (South)	258	0.926	0.167	0.129	0.123
Malasya	230	0.270	0.368	0.101	0.137
Netherlands	221	0.756	0.894	0.381	0.042
Norway	115	0.443	0.860	0.242	0.136
Phillipines	87	0.402	0.000	0.111	0.000
Poland	32	0.500	0.917	0.087	0.150
Portugal	60	0.717	0.884	0.200	0.044
Russia	149	0.503	0.456	0.044	0.011
Singapore	169	0.296	0.370	0.169	0.274
South Africa	696	0.532	0.579	0.148	0.286
Spain	262	0.752	0.819	0.182	0.049
Sweden	329	0.526	0.956	0.203	0.281
Switzerland	363	0.479	0.574	0.316	0.055
Taiwan	234	0.816	0.229	0.184	0.056
Thailand	179	0.380	0.262	0.041	0.063
Turkey	61	0.311	0.556	0.130	0.003
United Kingdom	1,673	0.500	0.463	0.297	0.379
United States	2,685	0.312	0.212	0.118	0.694
Total	**13,400**	**0.509**	**0.530**	**0.191**	**0.269**

Table 2. Correlation matrix

Table 2 provides a correlation matrix for all variables in our model. Bold for p<0.05. See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017.

	1	2	3	4	5	6	7	8	9	10	11	12	13
(1) Assurance	1.00												
(2) Big-4	**0.05**	1.00											
(3) Foreign_Inv	**0.06**	**0.15**	1.00										
(4) Domestic_Inv	**-0.22**	**-0.23**	**-0.19**	1.00									
(5) Foreign_Inv (Stakeh)	**0.08**	**0.14**	**0.54**	**0.05**	1.00								
(6) Foreign_Inv (Shareh)	**0.04**	**0.13**	**0.94**	**-0.25**	**0.31**	1.00							
(7) Domestic_Inv (Stakeh)	**0.10**	**0.09**	0.01	**-0.10**	**0.11**	-0.01	1.00						
(8) Domestic_Inv (Shareh)	**-0.22**	**-0.24**	**-0.19**	**0.94**	**0.04**	**-0.25**	**-0.33**	1.00					
(9) Foreign_Inv (signatory)	**0.12**	**0.15**	**0.72**	**-0.14**	**0.51**	**0.67**	**0.03**	**-0.12**	1.00				
(10) Foreign_Inv (non-signatory)	**0.02**	**0.13**	**0.95**	**-0.19**	**0.45**	**0.89**	-0.01	**-0.19**	**0.46**	1.00			
(11) Domestic_Inv (signatory)	**-0.14**	**-0.17**	**-0.07**	**0.77**	**0.14**	**-0.14**	**-0.13**	**0.75**	-0.00	**-0.09**	1.00		
(12) Domestic_Inv (non-signatory)	**-0.23**	**-0.22**	**-0.22**	**0.97**	0.01	**-0.26**	**-0.08**	**0.91**	**-0.17**	**-0.20**	**0.60**	1.00	
(13) Block_Inv	**-0.05**	**0.03**	**-0.21**	**-0.25**	**-0.27**	**-0.16**	**-0.12**	**-0.17**	**-0.24**	**-0.16**	**-0.20**	**-0.24**	1.00
(14) CEO_Sep	**0.03**	**0.10**	**0.12**	**-0.21**	**0.05**	**0.12**	0.02	**-0.21**	**0.10**	**0.11**	**-0.16**	**-0.21**	**0.14**
(15) BoD_Size	**0.19**	**0.12**	**-0.09**	**-0.14**	**-0.04**	**-0.10**	**0.02**	**-0.14**	**-0.07**	**-0.08**	**-0.11**	**-0.14**	**0.04**
(16) BoD_Meet	**0.08**	-0.01	**-0.07**	**-0.13**	**-0.06**	**-0.06**	**0.14**	**-0.16**	**-0.08**	**-0.06**	**-0.12**	**-0.12**	**-0.03**
(17) BoD_Women	**0.09**	**0.26**	**0.12**	**0.14**	**0.25**	**0.06**	**0.03**	**0.12**	**0.21**	**0.07**	**0.16**	**0.11**	**-0.11**
(18) BoD_Indep	**-0.09**	**0.04**	**0.11**	**0.48**	**0.18**	**0.06**	**-0.24**	**0.47**	**0.09**	**0.09**	**0.37**	**0.47**	**-0.31**
(19) Sust_Comt	**0.25**	0.01	**0.03**	**0.03**	**0.03**	**0.03**	0.01	**0.02**	**0.03**	0.02	**0.02**	**0.03**	**-0.12**
(20) AudC_Exp	**-0.07**	**0.08**	**0.07**	**0.26**	**0.09**	**0.05**	**-0.29**	**0.30**	**0.06**	**0.07**	**0.21**	**0.25**	-0.00
(21) AudC_Indep	**-0.08**	**-0.09**	**0.04**	**0.35**	**0.04**	**0.03**	**-0.30**	**0.37**	**0.02**	**0.04**	**0.24**	**0.35**	**-0.16**
(22) ROA	-0.01	**-0.05**	**0.02**	**0.03**	**0.03**	0.01	**-0.04**	**0.05**	**0.06**	0.00	0.01	**0.04**	0.01
(23) Size	**0.25**	**0.11**	**-0.05**	-0.00	0.02	**-0.09**	**0.05**	-0.01	**-0.04**	**-0.05**	-0.02	-0.00	**-0.19**
(24) Lev	-0.02	0.02	-0.01	**0.16**	**0.07**	**-0.03**	**-0.04**	**0.16**	**0.02**	**-0.03**	**0.16**	**0.15**	-0.02
(25) Legal	**-0.04**	**0.07**	**0.21**	**0.29**	**0.33**	**0.17**	**0.12**	**0.21**	**0.17**	**0.19**	**0.26**	**0.27**	**-0.42**
(26) Stk_Ori	**0.23**	**0.16**	**0.07**	**-0.56**	**0.11**	**0.04**	**0.51**	**-0.63**	**0.09**	**0.05**	**-0.43**	**-0.55**	**0.08**

	14	15	16	17	18	19	20	21	22	23	24	25	26
(14) CEO_Sep	1.00												
(15) BoD_Size	**-0.10**	1.00											
(16) BoD_Meet	**0.04**	**-0.02**	1.00										
(17) BoD_Women	**0.03**	**0.08**	**-0.08**	1.00									
(18) BoD_Indep	**-0.07**	**-0.18**	**-0.11**	**0.31**	1.00								
(19) Sust_Comt	**-0.02**	**0.11**	0.01	**0.08**	**0.07**	1.00							
(20) AudC_Exp	-0.01	**0.04**	**-0.21**	**0.23**	**0.36**	**0.04**	1.00						
(21) AudC_Indep	**-0.02**	**-0.17**	**-0.10**	**0.09**	**0.61**	**0.06**	**0.27**	1.00					
(22) ROA	**-0.02**	**-0.05**	**-0.14**	**0.03**	**0.02**	**-0.02**	**0.03**	**0.05**	1.00				
(23) Size	**-0.20**	**0.39**	**0.09**	**0.09**	**0.06**	**0.17**	**-0.05**	**-0.05**	0.01	1.00			
(24) Lev	**-0.05**	0.01	-0.01	**0.04**	**0.11**	0.01	**0.07**	**0.05**	**-0.12**	**-0.03**	1.00		
(25) Legal	**-0.05**	**-0.17**	**-0.12**	**0.23**	**0.32**	**0.08**	**0.13**	**0.09**	**-0.05**	**0.03**	**0.08**	1.00	
(26) Stk_Ori	0.01	**0.15**	**0.22**	**-0.06**	**-0.44**	**-0.05**	**-0.43**	**-0.51**	**-0.05**	**0.19**	**-0.08**	**-0.15**	1.00

Table 3. Domestic vs. Foreign institutional investors - sustainability assurance and assurance provider

Table 3 presents the results of logistic regressions examining the association between foreign institutional investors and (i) companies' decision to assure sustainability report and (ii) their choice of Big-4 assurance provider. Logit models (for Assurance and Big-4) and multinomial logistic model (for Engineering, Consulting, Accounting and Expert). See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017. Standard errors in brackets are clustered by firm. *** p<0.01, ** p<0.05, * p<0.10.

Dependent variable =	*Assurance*	*Big-4*	*Engineering*	*Consulting*	*Accounting*	*Expert*
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign_Inv	0.057	1.206***	0.003	-2.121***	-1.253	-3.336**
	[0.282]	[0.450]	[0.571]	[0.657]	[0.967]	[1.311]
Domestic_Inv	-1.305***	-1.757***	2.180***	1.693***	1.140*	2.522***
	[0.207]	[0.328]	[0.412]	[0.407]	[0.652]	[0.795]
Block_Inv	-0.475**	0.271	-0.360	0.013	0.119	-2.014***
	[0.189]	[0.255]	[0.354]	[0.338]	[0.465]	[0.616]
CEO_Sep	0.220***	0.362***	-0.332**	-0.149	-0.391	-0.460**
	[0.083]	[0.118]	[0.151]	[0.152]	[0.262]	[0.231]
BoD_Size	0.046***	0.022	-0.036	-0.035*	0.021	-0.029
	[0.013]	[0.016]	[0.025]	[0.021]	[0.033]	[0.032]
BoD_Meet	0.011	-0.009	0.004	0.013	-0.011	0.031
	[0.008]	[0.011]	[0.013]	[0.019]	[0.018]	[0.020]
BoD_Women	1.251***	4.037***	-4.125***	-5.277***	-2.242**	-7.002***
	[0.347]	[0.513]	[0.690]	[0.659]	[1.033]	[1.229]
BoD_Indep	-0.378*	0.446	0.190	-0.565	0.215	-1.411**
	[0.225]	[0.295]	[0.421]	[0.369]	[0.716]	[0.621]
Sust_Comt	1.391***	0.057	0.248	-0.084	-0.450	-0.750**
	[0.099]	[0.169]	[0.236]	[0.223]	[0.381]	[0.324]
AudC_Exp	0.085	0.245**	-0.001	-0.280	-0.602**	-0.717**
	[0.096]	[0.120]	[0.167]	[0.173]	[0.272]	[0.299]
AudC_Indep	0.567***	-0.592**	1.129***	0.891**	-0.216	-0.140
	[0.208]	[0.266]	[0.419]	[0.352]	[0.758]	[0.411]
ROA	0.757*	-0.464	-0.213	0.621	3.591**	1.987
	[0.427]	[0.614]	[0.786]	[0.737]	[1.692]	[1.532]
Size	0.276***	0.154***	-0.078	-0.340***	0.006	-0.159
	[0.033]	[0.045]	[0.059]	[0.056]	[0.114]	[0.102]
Lev	0.288	0.628	-0.167	-1.206**	-0.029	-0.392
	[0.260]	[0.387]	[0.485]	[0.528]	[0.799]	[1.053]
Legal	-0.017	0.116	-0.431***	0.153	-0.290*	0.237
	[0.069]	[0.099]	[0.124]	[0.132]	[0.164]	[0.312]

Stk_Ori	0.686*** [0.117]	0.498*** [0.165]	-0.412* [0.218]	-0.680*** [0.211]	-0.732* [0.379]	0.898** [0.410]
Year FE	Yes	Yes	Yes			
Industry control	Yes	Yes	Yes			
Pseudo R-squared	0.16	0.13	0.15			
Log pseudo likelihood	-7,801.06	-3,770.72	-6,506.12			
Wald Chi-square	726.58	238.98	747.68			
P- Chi-square	0.00	0.00	0.00			
N	13,400	6,297	6,167			

Table 4. Foreign institutional investors from stakeholder versus shareholder-oriented countries and sustainability assurance

Table 4 presents the results of logistic regressions examining the association between foreign institutional investors (from stakeholder versus shareholder-oriented countries) and (i) companies' decision to assure sustainability report and (ii) their choice of assurance provider. Logistic regressions (columns 1 - 2) and multinomial logistic regression (columns 3 - 6). See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017. Standard errors in brackets are clustered by firms. *** p<0.01, ** p<0.05, * p<0.10.

Dependent variable =	*Assurance*	*Big-4*	*Engineering*	*Consulting*	*Accounting*	*Expert*
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign_Inv (Stakeh)	2.974**	4.127**	-0.602	-8.404***	2.388	-14.013**
	[1.282]	[1.800]	[2.275]	[2.676]	[2.986]	[5.768]
Foreign_Inv (Shareh)	-0.240	0.705	-0.008	-0.926	-2.054	-1.220
	[0.338]	[0.590]	[0.822]	[0.807]	[1.507]	[1.606]
Domestic_Inv (Stakeh)	-1.191**	1.262	-3.099**	-1.465	-1.147	0.699
	[0.570]	[0.822]	[1.408]	[1.342]	[1.444]	[1.266]
Domestic_Inv (Shareh)	-1.091***	-2.378***	2.791***	2.341***	1.518**	4.167***
	[0.208]	[0.370]	[0.448]	[0.457]	[0.705]	[0.915]
Block_Inv	-0.382**	0.461*	-0.608*	-0.178	0.014	-2.099***
	[0.189]	[0.261]	[0.367]	[0.346]	[0.462]	[0.617]
Firm-control variables	Yes	Yes	Yes			
Country variables	Yes	Yes	Yes			
Industry controls	Yes	Yes	Yes			
Year FE	Yes	Yes	Yes			
Pseudo R-squared	0.16	0.14	0.16			
Log pseudo likelihood	-7814.28	-3727.99	6435.31			
Wald Chi-square	720.90	255.72	785.31			
P- Chi-square	0.00	0.00	0.00			
N	13,400	6,297	6,167			

Table 5. Foreign institutional investors (UNPRI signatory) and sustainability assurance

Table 5 presents the results of logistic regressions examining the association between foreign institutional investors (signatory of UNPRI) and (i) companies' decision to assure sustainability report and (ii) their choice of assurance provider. Logistic regressions (columns 1 – 2) and multinomial logistic regressions (columns 3 – 6). See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017. Standard errors in brackets are clustered by firms. *** p<0.01, ** p<0.05, * p<0.10.

Dependent variable =	*Assurance*	*Big-4*	*Engineering*	*Consulting*	*Accounting*	*Expert*
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A			
Sign_Inv	1.193**	-1.449**	1.145	0.349	3.771***	1.847
	[0.512]	[0.734]	[0.896]	[0.990]	[1.298]	[2.094]
Non_Sign_Inv	-1.649***	-0.592*	1.522***	0.633	-1.009	0.037
	[0.230]	[0.347]	[0.443]	[0.463]	[0.777]	[0.762]
Block_Inv	-0.544***	0.080	-0.240	0.236	0.363	-1.799***
	[0.195]	[0.266]	[0.366]	[0.358]	[0.481]	[0.629]
Firm-control variables	Yes	Yes			Yes	
Country variables	Yes	Yes			Yes	
Industry control	Yes	Yes			Yes	
Year FE	Yes	Yes			Yes	
Pseudo R-squared	0.16	0.12			0.15	
Log pseudo likelihood	-7,749.40	-3,819.20			-6,541.26	
Wald Chi-square	738.25	218.59			716.62	
P- Chi-square	0.00	0.00			0.00	
N	13,319	6,265			6,135	
			Panel B			
Foreign_Inv (signatory)	3.661***	2.408**	-1.530	-3.136*	1.383	-14.625***
	[0.948]	[1.220]	[1.464]	[1.754]	[2.660]	[3.924]
Foreign_Inv (non-signatory)	-1.126***	0.915	0.446	-1.825*	-2.545**	-1.143
	[0.362]	[0.593]	[0.733]	[0.939]	[1.195]	[1.282]
Domestic_Inv (signatory)	-0.040	-4.159***	3.131***	2.816**	5.778***	10.560***
	[0.596]	[1.022]	[1.160]	[1.245]	[1.456]	[2.115]
Domestic_Inv (non- signatory)	-1.722***	-0.978**	1.877***	1.318**	-0.586	-0.117
	[0.258]	[0.439]	[0.540]	[0.551]	[0.971]	[1.007]
Block_Inv	-0.381*	0.354	-0.456	-0.051	0.127	-2.419***
	[0.196]	[0.263]	[0.366]	[0.350]	[0.473]	[0.634]
Firm-control variables	Yes	Yes			Yes	
Country variables	Yes	Yes			Yes	
Industry controls	Yes	Yes			Yes	
Year FE	Yes	Yes			Yes	

Pseudo R-squared	0.17	0.14	0.16
Log pseudo likelihood	-7,705.15	-3,740.39	-6,439.45
Wald Chi-square	747.25	242.88	753.12
P- Chi-square	0.00	0.00	0.00
N	13,319	6,265	6,135

Table 6 Panel A. Propensity score matching sample

Table 6 presents the difference of foreign institutional investors, between target firms and matched control firms using a propensity score matching approach. Firms have been matched using all firm-level independent variables in equation (1) and equation (2). A treated firm is defined as one at which managers have engaged in sustainability assurance. The control firms' subsample includes all firms that have not engage in sustainability assurance. We use five different matching algorithms: one nearest neighbour NN(1), three nearest neighbours NN(3), five nearest neighbours NN(5), Radius and Kernel. All matching algorithms impose common support and caliper of 0.01. See Appendix B for variables' definitions. Statistical significance of t-test at *** t<0.01, ** t<0.05, * t<0.10.

	Mean			t-test	
Variable	Treated	Control	%bias	t	p>t
Block_Inv	0.310	0.317	-3.100	-1.270	0.205
Domestic_Inv	0.261	0.251	3.500	1.440	0.150
CEO_Sep	0.659	0.677	-4.000	-1.610	0.108
BoD_Size	11.245	11.221	0.700	0.260	0.795
BoD_Meet	9.386	9.476	-1.600	-0.700	0.483
BoD_Women	0.156	0.154	1.600	0.660	0.506
BoD_Indep	0.580	0.571	3.700	1.510	0.132
Sust_Comt	0.839	0.831	2.000	0.840	0.403
AudC_Exp	0.788	0.779	2.200	0.870	0.382
AudC_Indep	0.859	0.853	2.400	0.960	0.336
ROA	0.045	0.044	0.800	0.310	0.753
Size	15.489	15.448	2.600	1.040	0.300
Lev	0.199	0.198	0.600	0.240	0.814
Legal	1.342	1.327	2.300	0.930	0.352
Stk_Ori	0.399	0.423	-4.900	-1.970	0.049
Mining	0.089	0.091	-0.700	-0.260	0.795
Production	0.360	0.351	1.900	0.780	0.436
Utilities	0.152	0.152	-0.100	-0.030	0.972
Finance	0.177	0.188	-2.900	-1.160	0.247

Table 6 Panel B. Propensity score matching and target analysis (robustness)

Matching algorithm		Treated Firms	Control Firms	Diff. [SE]	t-statistics
(a) Assurance					
NN(1)	ATT	0.560	0.520	0.040 [0.012]	3.22***
(b) Big-4					
NN(1)	ATT	0.569	0.486	0.083 [0.018]	4.730***

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Table 7. Main results, excluding European firms

Table 7 presents the results of logistic regressions examining the association between foreign institutional investors and (i) companies' decision to assure sustainability report and (ii) their choice of Big-4 assurance provider. See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017 (excluding European firms). Standard errors in brackets are clustered by firm. *** p<0.01, ** p<0.05, * p<0.10.

	Assurance	Big-4
Foreign_Inv	-0.241	1.945***
	[0.414]	[0.678]
Domestic_Inv	-1.237***	-1.550***
	[0.247]	[0.413]
Block_Inv	-0.426	-0.736*
	[0.261]	[0.402]
CEO_Sep	0.128	0.183
	[0.103]	[0.150]
BoD_Size	0.048***	-0.035
	[0.018]	[0.025]
BoD_Meet	0.001	-0.001
	[0.008]	[0.011]
BoD_Women	0.941*	3.467***
	[0.518]	[0.794]
BoD_Indep	-0.358	-0.557
	[0.326]	[0.471]
Sust_Comt	1.370***	0.262
	[0.134]	[0.248]
AudC_Exp	-0.049	-0.022
	[0.142]	[0.176]
AudC_Indep	0.269	-0.444
	[0.280]	[0.391]
ROA	1.148**	-0.852
	[0.544]	[0.849]
Size	0.216***	0.233***
	[0.042]	[0.060]
Lev	-0.032	0.073
	[0.334]	[0.630]
Legal	-0.010	-0.300**

	[0.091]	[0.135]
Stk_Ori	0.749***	-0.946***
	[0.190]	[0.272]
Industry controls	Yes	Yes
Year FE	Yes	Yes
Pseudo R-squared	0.14	0.11
Log pseudo likelihood	-4,793.01	-1,942.85
Wald Chi-square	400.29	128.98
P- Chi-square	0.00	0.00
N	8,060	3,283

Table 8. Instrumental variables' analysis

Table 8 presents the results of logistic regressions examining the association between instrumental variables (i.e, S&P_Index and Avg_ Foreign_I&Y) and (i) companies' decision to assure sustainability report and (ii) their choice of Big-4 assurance provider. Standard errors in brackets are clustered by firms. See Appendix B for variables' definitions. The sample contains firms that issued a sustainability report during the period from 2010 to 2017. Standard errors in brackets are clustered by firms. *** p<0.01, ** p<0.05, * p<0.10.

Dependent variable =	*Foreign_Inv*	*Assurance*	*Big-4*
	(1)	(2)	(3)
S&P_Index	0.015**		
	[0.006]		
Avg_ Foreign_I&Y	1.009***		
	[0.130]		
Foreign_Inv		0.427	1.574**
		(0.497)	(0.709)
Domestic_Inv	-0.192***	-0.191*	-0.171
	[0.016]	(0.103)	(0.137)
Block_Inv	-0.133***	-0.042	0.233**
	[0.017]	(0.077)	(0.116)
CEO_Sep	0.022***	0.033	0.041
	[0.005]	(0.020)	(0.033)
BoD_Size	-0.002**	0.010***	0.006
	[0.001]	(0.003)	(0.004)
BoD_Meet	-0.002***	0.003	0.001
	[0.000]	(0.002)	(0.003)
BoD_Women	0.024	0.227***	0.763***
	[0.022]	(0.071)	(0.112)
BoD_Indep	0.055***	-0.106**	0.056
	[0.017]	(0.052)	(0.074)
Sust_Comt	0.003	0.269***	0.025
	[0.006]	(0.018)	(0.043)
AudC_Exp	0.034***	-0.000	0.004
	[0.007]	(0.025)	(0.039)
AudC_Indep	0.025**	0.110**	-0.178***
	[0.013]	(0.044)	(0.065)

ROA	0.040	0.111	-0.147
	[0.026]	(0.084)	(0.136)
Size	-0.005**	0.058***	0.038***
	[0.002]	(0.007)	(0.011)
Lev	0.026	0.053	0.070
	[0.017]	(0.054)	(0.092)
Legal	0.036***	-0.015	-0.015
	[0.005]	(0.023)	(0.033)
Stk_Ori	0.019**	0.130***	0.085**
	[0.010]	(0.026)	(0.041)
Year FE	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes
Centered R2	0.19	0.18	0.06
Log pseudo likelihood	-8,062.91	-8,346.17	-4,359.85
Prob > F	0.00	0.00	0.00
N	13,400	13,400	6,297

Appendix A. Summary of studies on investors and sustainability reporting/assurance

Author(s) (Year)	Journal	Sample / Country / Time	Findings
Alomran and Alsahali (2023)	Sustainability	3446 firms from 31 countries over the 2010-2020 period	Long-term ownership is positively associated with companies' decisions to provide assurance. This relationship is only significant at a high level of long-term ownership. Additionally, the research indicates that the link between long-term ownership and assurance is adversely influenced by the quality of governance, both at the company and country levels.
Brandon et al. (2022)	Review of Finance	10,689 companies (648 PRI signatories) from Europe, North America, Asia-Pacific and other countries over the 2003-2017 period	In comparison to non-signatories, non-US institutional investors who are PRI signatories present higher ESG scores. US signatories exhibit, at most, comparable ESG ratings, and their scores are lower if they have underperformed recently, serve retail clients, or joined the PRI late. The involvement of US signatories does not lead to an enhancement in the ESG scores of their portfolio companies' post-investment.
Chen et al. (2020)	Journal of Financial Economics	9975 firm-year observations from the US over the 2003-2006 period	Increase in institutional holding improves portfolio firms' CSR performance. The effect of institutional ownership is stronger in CSR categories that are financially material. Institutional shareholders influence CSR through CSR-related proposals. Results suggest that institutional shareholders can generate real social impact.
Dyck et al. (2019)	Journal of Financial Economics	3277 non-US firms from 41 countries over the 2004–2013 period	Institutional ownership is positively associated with environmental and social performance. Investors increase firms' performance when they come from countries with a strong community belief in the importance of related issues, but not otherwise. Institutional investors effectively disseminate their social norms and values globally.
Ge et al. (2021)	European Accounting Review	104,765 firm-year-quarters (US firms) over the 2001-2015 period	Concentrated institutional ownership reduces firms' voluntary disclosure. Blockholders have easier access to managers and substitute private for public information acquisition. A higher proportion of non-monitoring blockholders, such as passive blockholders, reduces the firm's incentive to provide voluntary disclosure.
Haider and Nishitani (2022)	International Journal of Disclosure and Governance	500 domestic firms listed on the First Section of the Tokyo Stock Exchange (TSE) in 2018	Various stockholder groups and independent board directors can motivate management to release credible sustainability reports with assurance. Institutional ownership, board independence, and sustainability assurance collectively contribute to reinforcing managerial accountability towards external stakeholders.
Li et al. (2020)	Journal of Business Finance & Accounting	752 listed firms from China over the 2009-2017 period	Foreign institutional investors contribute to the improvement of firms' socially responsible practices. These investors exhibit a higher likelihood of adhering to the Global Reporting Initiative (GRI) guidelines, and their sustainability reports tend to be more extensive. The positive influence is particularly pronounced when investors are from countries with high social awareness, especially when they are among the top ten largest shareholders.

Oh et al. (2011)	Journal of Business Ethics	118 large Korean firms	Results indicate a significant and positive relationship between CSR ratings and ownership by institutions and foreign investors. Different owners exert distinct impacts on firm's CSR engagement.
Semenova and Hassel (2019)	Corporate Governance: An International Review	355 private engagements of a professional agent on behalf of its Nordic clients between 2005 and 2013	ESG performance and transparency improve in the period following successful engagements compared to incomplete engagements. Results show that ESG engagements have the potential to change portfolio company ESG practices, adding to the literature on investor activism.
Tsag et al. (2019)	The Accounting Review	15,049 companies in 32 non-U.S. countries from 2003 to 2011	Foreign institutional investments play a significant role in enhancing voluntary disclosure, exerting a more substantial influence compared to their domestic counterparts. The effectiveness of these investments is more pronounced under conditions where foreign institutional investors lack familiarity with the company's home country, maintain extended investment horizons, and originate from nations with superior investor protection and disclosure standards.

Appendix B. Variables' description

Variable	Definition
Assurance	Dummy variable that equals 1 if the sustainability report is assured, and 0 otherwise.
Big-4	Dummy variable that equals 1 if the assurance is provided by Big-4 firm, and 0 otherwise.
Engineering	Dummy variable that equals 1 if the assurance is provided by an engineering firm, and 0 otherwise.
Consulting	Dummy variable that equals 1 if the assurance is provided by a consulting firm, and 0 otherwise.
Accounting	Dummy variable that equals 1 if the assurance is provided by an accounting firm, excluding Big-4 firms, and 0 otherwise.
Expert	Dummy variable that equals 1 if the assurance is provided by expert opinion, and 0 otherwise.
Foreign_Inv	Percentage of total outstanding shares held by foreign institutional investors.
Domestic_Inv	Percentage of total outstanding shares held by domestic institutional investors.
Block_Inv	Percentage of total outstanding shares held by large investors (not necessarily institutional) with at least 5% shareholding.
Stakeh_Inv	Percentage of total outstanding shares held by institutional investors coming from stakeholder-oriented countries.
Shareh_Inv	Percentage of total outstanding shares held by institutional investors coming from shareholder-oriented countries.
Sign_Inv	Percentage of total outstanding shares held by institutional investors who signed the UNPRI.
Foreign_Inv (Stakeh)	Percentage of total outstanding shares held by foreign institutional investors coming from stakeholder-oriented countries.
Foreign_Inv (Shareh)	Percentage of total outstanding shares held by foreign institutional investors coming from shareholder-oriented countries.
Domestic_Inv (Stakeh)	Percentage of total outstanding shares held by domestic institutional investors coming from stakeholder-oriented countries.
Domestic_Inv (Shareh)	Percentage of total outstanding shares held by domestic institutional investors coming from shareholder-oriented countries.
Foreign_Inv (signatory)	Percentage of total outstanding shares held by foreign institutional investors who have signed the UNPRI.

Foreign_Inv (non-signatory)	Percentage of total outstanding shares held by foreign institutional investors who have not signed the UNPRI.
Domestic_Inv (signatory)	Percentage of total outstanding shares held by domestic institutional investors who have signed the UNPRI.
Domestic_Inv (non-signatory)	Percentage of total outstanding shares held by domestic institutional investors who have not signed the UNPRI.
CEO_Sep	Dummy variable that equals 1 if the CEO is not the chairman of the board, and 0 otherwise.
BoD_Size	Number of directors on the board.
BoD_Meet	Number of board meetings in a year.
BoD_Women	Proportion of women on the board of directors.
BoD_Indep	Ratio of independent board members by total board members.
Sust_Comt	Dummy variable that equals 1 if the firm's board committee includes a sustainability committee, and 0 otherwise.
AudC_Exp	Dummy variable that equals 1 if the firm has an audit committee with at least three members and at least one financial expert, and 0 otherwise.
AudC_Indep	Proportion of independent board members on the audit committee.
ROA	Return on assets.
Size	Natural logarithm of total sales.
Lev	Ratio of total debt by total assets.
Legal	Rule of law score - World Bank 'Capturing 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' (Kaufmann et al., 2010, 3).
Stk_Ori	Following Simnett et al. (2009) this variable is a dummy variable that equals 1 if the country is a stakeholder-oriented country, and 0 otherwise (e.g., shareholder-oriented country).
Industry	Based on the 1-digit SIC code, with 9 categories (1. Agriculture, Forestry, & Fishing, 2. Mining, 3. Construction, 4. Production, 5. Transportation & Public Utilities, 6. Wholesale Trade, 7. Retail Trade, 8. Finance, Insurance, & Real Estate and 9. Services), we control for mining, production, utilities and finance, as in Simnett et al. (2009).