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Osman Issah

oissah@uds.edu.gh

University for Development Studies

Doe-Dartey Kwadzo Richard

University for Development Studies

Andrews Salapki

Simon Diedong Dombo University of Business and Integrated Development Studies

Tânia Menezes Montenegro

University of Minho

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Do Board Structures Curb ESG Controversies? Institutional Conditions as Moderators in a Cross-Country Analysis

Osman Issah[1]*
Department of Accounting, School of Business
University for Development Studies (UDS), Tamale, Ghana
Email: oissah@uds.edu.gh
ORCID: https://orcid.org/0009-0009-2844-2875

Richard Kwadzo Doe-Dartey[2]
Department of Accounting, School of Business
University for Development Studies (UDS), Tamale, Ghana
Email: richard.dartey@uds.edu.gh
ORCID: https://orcid.org/0000-0001-8234-9107

Andrews Salapki[3]
Department of Management, Simon Diedong Dombo University of Business and Integrated Development Studies, Wa, Ghana
Email: asalakpi@ubids.edu.gh

Tânia Menezes Montenegro
School of Economics, Management and Political Science, iBMS – Centre for Research in Business, Markets & Society, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal
Email: taniab@eeg.uminho.pt
ORCID: https://orcid.org/0000-0003-1071-4368

[1]*Corresponding author: **Osman Issah/** oissah@uds.edu.gh

Abstract

This study examines whether three distinct board mechanisms—CEO board membership, nomination committee independence and board size—are associated with firms' exposure to ESG controversies, and whether these associations depend on measured institutional conditions rather than on a developed/emerging market split. Using Refinitiv ESG data for 10,343 listed firms in 73 countries, we define controversy exposure as the complement of the Refinitiv ESG Controversies Score, so that higher values denote more and more severe controversies, and estimate regressions with country and data-vintage fixed effects and country-clustered standard errors, complemented by Tobit, logit, coefficient-stability and selection analyses. Once firm size is held constant, neither CEO board membership nor nomination committee independence is associated with controversy exposure on average, and the raw positive associations of all three board variables shrink by 60% or more, consistent with a visibility channel. Board size retains a positive association with the severity, but not the incidence, of controversies; this association is confined to countries with strong rule of law, regulatory quality and voice and accountability, and is sensitive to plausible unobserved selection. Nomination committee independence is associated with lower exposure only in common-law countries, consistent with complementarity between board monitoring and legal investor protection. A developed/emerging classification produces an apparent protective effect of CEO board membership in emerging markets that no measured institution reproduces. We also show that governance disclosure in ESG databases is missing non-randomly. The findings caution against treating board-structure indicators as portable measures of misconduct risk across institutional settings.

Keywords: Board structure, ESG controversies, nomination committee, CEO board membership, investor protection, legal enforcement, institutional complementarity, cross-country analysis

1. Introduction

Worldwide corporate governance codes recommend that larger, more independent, and more separated boards supervise management more effectively, reducing instances of corporate misconduct (Fama & Jensen, 1983; Jensen & Meckling, 1976). This recommendation is adopted across countries with little alteration. It is presented in almost the same form in the governance codes published by regulators in the United States, the United Kingdom, India, and Brazil, even though these markets vary greatly in the quality of legal enforcement, in the level of investor protection, and in the real consequences that a company faces when it fails in its governance.

Proxy advisory firms, institutional investors, and ESG rating agencies all regard board-structure factors—such as board size, director independence, and committee composition—as portable indicators of governance quality and combine them into a single overall score, even though the major rating organisations differ greatly in the way they measure and weight the same basic attributes (Berg et al., 2022). Using one global scoring method lets researchers compare these factors across markets. Still, it assumes that a particular board-structure feature has the same risk-reducing effect regardless of where the company is based.

That convergence has been recent and rapid: worldwide the number of national governance codes has increased from just a few before the publication of the Cadbury Report in 1992 to well over one hundred within about fifteen years (Aguilera & Cuervo-Cazurra, 2009), many emerging markets having only recently adopted similar codes, usually as a result of being included in an index or as a condition of receiving development finance. It has not, however, been closely examined whether the enforcement mechanisms necessary to ensure that these requirements are enforced have been put in place alongside them; research carried out by the International Finance Corporation for practitioners has stated that the amount of governance research available is still insufficient in relation to the volume of capital it is expected to oversee, and that governance metrics which have been validated in developed markets are too frequently applied to companies in emerging markets without having been re-tested in those markets (Ararat & Dallas, 2011), a gap which this study considers to remain unresolved.

This assumption has important financial and regulatory implications, since asset managers who administer global or emerging-market ESG funds usually assess holdings based on governance

sub-scores mainly derived from board-structure variables. When institutional theory states that board-structure mechanisms depend on the legal and enforcement environment for their effectiveness (La Porta et al., 1998, 2000), it follows that a governance code which functions as intended in one context might not work well when it is applied in another and could thus give companies, investors, and regulators a false sense of security exactly where such security is most required.

The situation is made clearer by the bonding hypothesis, which Coffee (2002) formulated to explain why companies that are based in jurisdictions with weak enforcement voluntarily choose to have their shares listed on U.S. exchanges: by doing so they are subjected to a more rigorous system of disclosure and enforcement than that offered by their home jurisdiction, and the valuation premium that results suggests that investors do not regard a firm's official governance structure as equally credible regardless of where it is located.

If the markets price different governance structures depending on the enforcement regime that underlies it, this presents a direct empirical question which this study is set to test—namely, does the same board structure variable which is associated with lower levels of controversy in a market with strong enforcement have any effect at all in a market with weaker enforcement?

The earliest relevant evidence comes from the meta-analysis by Neville et al. (2019), which included 135 studies from over 20 countries and found that the relationship between board independence and corporate misconduct was significantly more negative in countries where accepted corruption was lower. A more recent and directly comparable study on a different outcome, that of Omenihu and Nwafor (2025), looked at the impact of board size and independence on firm performance among 1,604 firms in 41 developed and emerging economies and discovered the opposite trend for that particular outcome: in countries with higher governance quality, the effects of board structure on performance diminished rather than increased, a contradiction which this study directly addresses once its own results are obtained.

Existing evidence leaves three issues unresolved. First, cross-national studies typically compare broad country groups, most often developed against emerging markets. Such a split bundles together investor protection, legal enforcement, litigation risk, market discipline, disclosure quality and government effectiveness, which differ in how and why they should condition a particular

board mechanism; a difference between the groups cannot reveal which institution is responsible. Second, board characteristics are often treated as interchangeable indicators of 'good governance', although CEO board membership, nomination committee independence and board size rest on distinct theoretical mechanisms and may carry opposite predicted signs (Jensen, 1993; Pfeffer & Salancik, 1978). Third, recent studies of board size and ESG controversies reach opposite conclusions (Treepongkaruna et al., 2024; Yin & Xu, 2025), and board structure is itself shaped by past misconduct (Hermalin & Weisbach, 1998), so cross-sectional associations may reflect remediation or visibility rather than monitoring.

This study addresses these issues using Refinitiv ESG data for 10,343 listed firms across 73 countries. We develop a separate hypothesis for each board mechanism and pair each mechanism with the institutional condition that theory identifies as relevant to it: investor protection for CEO board membership, legal enforcement for nomination committee independence, and the information environment for board size. Institutional conditions are measured with legal origin (La Porta et al., 2008) and the World Bank Worldwide Governance Indicators (Kaufmann et al., 2011), and moderation is tested directly through interaction terms in regressions with country and data-vintage fixed effects and country-clustered standard errors. Because a higher ESG Controversies Score denotes fewer controversies, we define controversy exposure as its complement, so that a positive coefficient indicates greater exposure throughout the paper.

The study makes three contributions. First, it moves the institutional-moderation question from a developed–emerging dichotomy to measured institutions and shows that the dichotomy can generate apparent moderation that no measured institution reproduces. Second, it separates the monitoring interpretation of board structure from visibility: controlling for firm size removes most of the raw association between board characteristics and recorded controversies, and the board-size association that remains is confined to countries where institutions and media make misconduct most likely to be detected. Third, it documents that governance disclosure in ESG databases is missing non-randomly and accounts for this selection explicitly, which matters for any cross-country study that relies on vendor governance data. Section 2 develops the hypotheses, Section 3 describes the data and empirical design, Section 4 reports the results, Section 5 discusses them and Section 6 concludes.

2. Theory and Hypotheses

Agency theory provides the rationale for expecting board structure to constrain improper conduct. Fama and Jensen (1983) argued that the board exists to separate decision-making from oversight, and that its ability to monitor management depends on its structural independence from the executives it oversees. Jensen and Meckling (1976) applied this line of reasoning to argue that poor monitoring allows managers to pursue private benefits at the expense of shareholders and other stakeholders, one noticeable manifestation of which is regulatory and reputational controversies.

2.1 Controversy exposure as an outcome of board monitoring

ESG controversies are publicly reported incidents—litigation, regulatory sanctions, environmental accidents, labour and human-rights violations, governance scandals—that reveal a gap between a firm's conduct and stakeholder expectations. They are a natural outcome for studying board monitoring because they are observable manifestations of the conduct that agency theory expects effective boards to prevent (Jensen & Meckling, 1976; Neville et al., 2019).

Two features of this outcome shape the hypotheses. First, the Refinitiv ESG Controversies Score is scaled so that higher values indicate fewer and less severe controversies. Throughout this paper we therefore use controversy exposure, the complement of that score, so that a positive association means more controversies. Second, a controversy enters the data only if it is detected and reported. Larger and more visible firms, and firms in countries with freer media, are more likely to have their misconduct recorded (Dyck et al., 2008). Board features that correlate with visibility can therefore appear to raise exposure even when they improve conduct, a possibility addressed in the empirical design.

2.2 CEO board membership

When the chief executive sits on the board, the person whose decisions are to be monitored participates in the body that monitors them. Fama and Jensen (1983) argue that effective control requires decision management to be separated from decision control. CEO board membership erodes that separation, increases the CEO's influence over the board's agenda and information, and lowers the likelihood that directors challenge risky or opportunistic conduct before it becomes public. Adams and Ferreira (2007) show that boards that are closer to management obtain more

information but monitor less intensively. Where controversies arise from conduct that management initiates or tolerates, these arguments predict greater exposure.

H1. CEO board membership is positively associated with ESG controversy exposure.

2.3 Nomination committee independence

The nomination committee determines who sits on the board and therefore the board's future independence. When the committee includes directors who are not independent of management, the CEO can steer director selection toward individuals less likely to oppose him or her. Shivdasani and Yermack (1999) find that when CEOs are involved in director selection, firms appoint fewer independent outsiders and the market reacts less favourably to the appointments, and Guo and Masulis (2015) show that mandated nomination committee independence strengthened boards' monitoring of CEOs. A fully independent nomination committee should therefore produce a board that is more willing to scrutinise the conduct that gives rise to controversies.

H2. Nomination committee independence is negatively associated with ESG controversy exposure.

2.4 Board size: competing predictions

The theory linking board size to monitoring effectiveness is more disputed than agency theory initially suggests. Jensen (1993) argued that boards become less effective as monitors when they exceed a certain size because larger groups face higher coordination costs and more diffused individual responsibility, a situation often described as having "too many chiefs". Yermack (1996) conducted the classic empirical test of this hypothesis and found an inverse relationship between board size and firm valuation among large U.S. industrial corporations.

Resource dependence theory (Pfeffer and Salancik, 1978) makes the opposite prediction: larger boards secure more external resources, information, and environmental scanning, which might reduce a firm's involvement in controversies on its own, through a route unrelated to monitoring intensity. Recent evidence supports this route: Treepongkaruna et al. (2024), in their multi-country panel study, found that larger boards were linked to fewer ESG controversies, explaining the effect by citing larger boards' greater human capital and stakeholder interactions.

Remarkably, Yin and Xu (2025), when they looked at Chinese-listed companies specifically between 2007 and 2022 and used the same ESG Controversies Score construct as employed in this study, found the opposite result: they discovered that larger boards were linked to a greater rather than a smaller number of ESG controversies, a result the authors explained in part by referring to the difficulties associated with coordination and communication in larger boards and noted that this effect was most apparent among state-owned enterprises and companies that had weaker internal control.

The two theories therefore predict opposite signs, and the existing evidence is divided. Because larger and more complex firms require larger boards (Coles et al., 2008; Linck et al., 2008) and also attract more public scrutiny, firm size and complexity must be controlled for before either view can be assessed. Rather than assume one view, we state competing hypotheses.

> **H3a.** Board size is negatively associated with ESG controversy exposure (resource-provision view).
>
> **H3b.** Board size is positively associated with ESG controversy exposure (coordination-cost view).

2.5 Institutions: complements or substitutes for board mechanisms?

When institutional theory is applied in a cross-national context, it explains why agency-theoretic and resource-dependence mechanisms might not function intact across countries. La Porta and others (1998) showed that there are systematic differences between countries in the legal protection of investors and in the quality of enforcement of that law, and in subsequent work (La Porta et al., 2000) they claimed that this variation in legal enforcement is a fundamental factor in determining how corporate governance actually operates.

According to this view, a board-level feature such as independence or size is not a direct constraint on improper conduct; rather, it is a formal arrangement whose actual effectiveness relies on the wider system of regulatory enforcement, litigation risk, and market discipline that provides independent directors and monitoring organisations with both the ability and the incentive to take action upon what they observe. Recent direct evidence of this mechanism, in the case of controversies relating to ESG issues, is provided by Treepongkaruna et al. (2022), who, using a quasi-natural experiment associated with a reform of shareholder litigation rights, found that

strengthening litigation rights had a significant effect in reducing firms' subsequent ESG controversies; this shows that it is the enforcement environment surrounding a governance structure, and not the structure alone, that causally influences controversy outcomes.

The most clear-cut cross-national study into whether the institutional environment affects the relationship between board structure and misconduct is that carried out by Neville et al. (2019), who conducted a meta-analysis of 135 studies covering more than 20 countries and nearly 80,000 firms and found that the relationship between board independence and corporate misconduct was significantly more negative in countries with lower levels of corruption, the extent of this effect differing depending on which particular form of independence was looked at—namely, independence of the full board, that of the audit committee, or the separation of the CEO and the chair.

Braun and others in 2025, when they combined the evidence relating to external governance mechanisms and misconduct in general, concluded structurally identical to the one just mentioned—that is, the deterrent effect of governance and monitoring mechanisms depends on the social and regulatory environment rather than functioning as a uniform constraint—although their synthesis was concerned with external entities such as auditors and analysts and not with the internal board structure.

An opposing argument holds that firm-level governance substitutes for weak country-level protection. Where laws protect outside investors poorly and courts enforce them weakly, the firm’s own governance arrangements are the main constraint on insiders, so their marginal effect should be larger (Klapper & Love, 2004). Doidge et al. (2007) show that country characteristics explain much of the variation in firm-level governance, consistent with firms adapting their governance to the institutional environment, which implies that the same board feature can play different roles in different countries.

A significant complication arises from the study by Omenihu and Nwafor (2025), in which the researchers examined the relationship between board size and independence and firm performance, not misconduct, covering 1,604 firms in 41 developed and emerging economies and discovered that the two board structure variables were generally positively linked to performance, but that this association became weaker rather than stronger in countries that had a higher level of national

governance quality, which is the opposite of the kind of moderation found by Neville et al. (2019) in their misconduct-oriented study.

The fact that these results differ can plausibly be accounted for by the different outcomes that have been looked at: external governance and strong domestic institutions might take the place of internal board mechanisms in promoting performance, whereas those same strong institutions are exactly what is required to turn board independence into a real deterrent against misconduct; it therefore follows that the findings of this study should be understood as relating to the aspect of the institutional-moderation question that is specific to misconduct rather than being taken as automatically applicable to the relationship between governance and financial performance.

Testing these views requires measuring the institutions themselves. A developed/emerging classification combines at least six distinct conditions—investor protection, public enforcement, private litigation risk, market discipline, disclosure quality and government effectiveness—which do not move together across countries and which theory links to different board mechanisms. Following La Porta et al. (2006) and Djankov et al. (2008), we therefore pair each board mechanism with the institution through which it should operate.

2.6 Mechanism-specific institutional moderators

The cost of weak separation between the CEO and the board depends on what an under-monitored CEO is able to do. Strong legal protection against self-dealing—disclosure and approval requirements for related-party transactions and the ease with which shareholders can challenge them (Djankov et al., 2008)—limits the private benefits available to an entrenched executive regardless of board structure. Under the substitution view, the harm from CEO board membership should therefore be smaller where investor protection is strong.

> **H4.** The positive association between CEO board membership and ESG controversy exposure is weaker in countries with stronger investor protection.

Independent directors constrain misconduct only if they have incentives to act on what they observe. Those incentives come largely from outside the firm: the probability that misconduct is sanctioned by regulators, the liability that directors face in private litigation, and the reputational cost of association with a scandal (Jackson & Roe, 2009; La Porta et al., 2006). Treepongkaruna et al. (2022) show that stronger shareholder litigation rights reduce subsequent ESG controversies,

and Neville et al. (2019) find that the independence–misconduct relation is stronger in less corrupt countries. Under complementarity, an independent nomination committee translates into lower exposure mainly where enforcement and litigation risk are high; under substitution, it matters most where they are weak.

> **H5a.** The negative association between nomination committee independence and ESG controversy exposure is stronger in countries with stronger legal enforcement and litigation risk (complementarity).

> **H5b.** The negative association between nomination committee independence and ESG controversy exposure is stronger in countries with weaker legal enforcement and litigation risk (substitution).

The resource-provision benefit of a larger board rests on directors' access to information and to stakeholder networks. That benefit should be most valuable where public information is scarce—where mandatory disclosure is limited—because directors' private networks then substitute for information the firm cannot readily obtain elsewhere. The coordination cost of a larger board, by contrast, has no obvious institutional dependence.

> **H6.** Any negative association between board size and ESG controversy exposure is stronger in countries with weaker disclosure requirements.

Finally, the institutions that shape governance also shape whether controversies are observed. Press freedom and disclosure requirements raise the probability that misconduct is reported and recorded by data vendors, which can make firms in strong-institution countries appear more controversy-prone. We do not hypothesise this channel, but we control for it through country fixed effects and press-freedom measures and examine it directly in robustness tests.

3. Data and Empirical Design

3.1 Data and sample

The data are a Refinitiv (now LSEG) ESG export covering 11,411 listed firms with ISINs from 85 countries and 723 ESG and governance fields. The export contains one observation per firm, taken from the firm's most recent ESG period; the ESG Period Last Update Date ranges from 2020 to 2025, with 94% of firms updated in 2024 or 2025. The data are therefore a single cross-section,

and we include fixed effects for the year of the last ESG update to absorb differences in data vintage. A firm's country is identified from the first two characters of its ISIN.

Unlike the earlier version of this study, we retain all countries: the moderation hypotheses are identified from cross-country variation in institutional conditions, and dropping countries with few firms would discard precisely that variation. Table 1 reports the sample construction. We remove 610 firms for which Refinitiv returned no data and 28 firms without an ESG Controversies Score, leaving 10,773 firms in 85 countries. We then exclude 430 firms whose ISINs are issued in offshore financial centres (Cayman Islands, Bermuda, British Virgin Islands, Jersey, Guernsey, Isle of Man, Marshall Islands, Panama, Bahamas, Netherlands Antilles, Gibraltar and Liberia), because for these firms the ISIN country does not identify the institutional environment in which they operate; they are restored in a robustness test. The main sample contains 10,343 firms in 73 countries. Firms with ISINs from the United States account for 37% of the sample, and 23 countries contribute fewer than ten firms (Appendix Table A1 lists the number of firms in each country); we therefore report results that exclude the largest countries and that weight each country equally. Because the export contains no industry classification, financial firms cannot be identified and are retained.

3.2 Variables

Controversy exposure equals 100 minus the Refinitiv ESG Controversies Score. The vendor score ranges from 0 to 100, equals 100 for firms with no recorded controversies in the period, and declines with the number and severity of controversies (Refinitiv, 2022). Controversy exposure therefore ranges from 0 (no recorded controversy) to 100, and positive coefficients indicate greater exposure. In the main sample, 80.5% of firms have no recorded controversy (Table 2). We therefore also define *Any controversy*, equal to one if the vendor score is below 100, and estimate Tobit models that account for the mass of observations at zero exposure.

Board size is the number of directors on the board. *CEO board member* equals one if the chief executive is a member of the board. In two-tier systems the CEO sits on the management board rather than the supervisory board, so the variable has a different meaning there; country fixed effects absorb the level difference, and we report results that exclude firms with two-tier boards. *Nomination committee independence* is the percentage of independent directors on the nomination committee. It is reported for 82% of firms; Section 3.5 examines the missing cases.

Institutional conditions are measured at the country level. *Common-law origin* equals one for countries of English legal origin, coded from La Porta et al. (2008); legal origin is coded for 60 of the 73 countries, and countries without an unambiguous classification (mainly Gulf states, Russia, Kazakhstan and Viet Nam) are excluded from models that use it. From the World Bank Worldwide Governance Indicators (Kaufmann et al., 2011) we take the 2022 estimates of *Rule of Law*, *Regulatory Quality*, *Control of Corruption* and *Voice and Accountability*, which are available for 72 of the 73 countries. Appendix Table A1 reports the legal origin and WGI values for each country.

Each board mechanism is paired with the moderator that corresponds to its hypothesis. For H4 (CEO board membership and investor protection) we use common-law origin, the classic correlate of shareholder protection (La Porta et al., 1998, 2008), and Regulatory Quality. For H5 (nomination committee independence and enforcement) we use Rule of Law and, following Neville et al. (2019), Control of Corruption. For H6 (board size and the information environment) we use Voice and Accountability, which captures freedom of expression, of association and of the media. We had intended to measure disclosure and litigation risk with the World Bank's minority-investor protection indices (extent of disclosure, director liability and ease of shareholder suits), which update the self-dealing measures of Djankov et al. (2008), but that source has been discontinued and could not be retrieved. Two features of the WGI measures matter for interpretation: across the sample countries, Rule of Law, Regulatory Quality and Control of Corruption correlate at 0.95–0.97 and their correlation with Voice and Accountability is 0.72–0.83, so they capture a broad institutional-quality factor more than separable institutions. We therefore report every board × moderator combination, not only the hypothesised pairings. Moderators measured on continuous scales are mean-centred before interaction.

Firm controls are the natural logarithm of sales in US dollars (firm size), a state-owned enterprise indicator, board independence (percentage of independent directors), board gender diversity, CEO–chair duality and the existence of a CSR committee. Because the export has no industry classification, we construct a *controversy-sensitive industry* indicator equal to one if Refinitiv flags the firm as involved in any of thirteen controversial activities (oil and gas production, oilfield services, thermal coal, uranium, nuclear power, tobacco, alcohol production, gambling, armaments, military weapons or firearms); 11.7% of firms are flagged. The export does not contain

total assets, leverage, profitability, ownership percentages, analyst coverage or cross-listing status, so these controls could not be included. We do not control for ESG pillar scores, which partly embed governance and controversy information.

3.3 Empirical model

We estimate the following model for firm *i* in country *c* whose ESG data were last updated in year *t*:

$$Exposure_{ict} = \beta_1 Board_{ic} + \beta_2 (Board_{ic} \times Inst_c) + \gamma' X_{ic} + \alpha_c + \tau_t + \varepsilon_{ict} \qquad (1)$$

where *Board* is one of the three board mechanisms, *Inst* is a country-level moderator, *X* is the vector of firm controls, α denotes country fixed effects and τ denotes fixed effects for the year of the last ESG update. Country fixed effects absorb the main effect of *Inst*, so β_2 is identified from differences across countries in the slope of exposure on the board variable. H1–H3 are tested on β_1 in models without interactions, entering each board variable separately and then jointly; H4–H6 are tested on β_2. Industry fixed effects cannot be included because the data contain no industry classification. Standard errors are clustered by country (70–73 clusters in the main models). Equation (1) is estimated by OLS and, for the joint model, by Tobit with left-censoring at zero exposure. *Any controversy* is modelled by logit with the same fixed effects; countries in which no firm (or every firm) has a recorded controversy drop out of the logit because their fixed effect predicts the outcome perfectly. Because fifteen board × moderator interactions are estimated, we also report whether each survives a Bonferroni correction ($p < 0.0033$).

3.4 Endogeneity

Board structure is chosen by firms and may respond to past controversies (Hermalin & Weisbach, 1998; Wintoki et al., 2012). With a single cross-section, lagged-governance, firm-fixed-effects, dynamic panel and reform-based difference-in-differences designs are not feasible, so we take three steps that bound rather than eliminate endogeneity. First, we decompose each raw association by adding firm-size controls sequentially on a common sample, which shows how much of the association reflects the visibility of larger firms (Table 3b). Second, we compute Oster (2019) coefficient-stability statistics, setting the maximum attainable R^2 at 1.3 times the R^2 of the fully controlled model; δ indicates how strong selection on unobservables would have to be, relative to selection on observables, to reduce a coefficient to zero, and $|\delta| > 1$ is the conventional benchmark

for robustness. Third, we interpret the results in light of the remediation alternative, under which firms strengthen their boards after controversies; we return to this in Section 5.

3.5 Non-random governance disclosure

Nomination committee independence is missing for 18% of firms. We test whether missingness is random by comparing controversy exposure between firms with and without the variable (Welch t-test) and by regressing an indicator for reporting on controversy exposure and the other covariates (logit). We then re-estimate the joint model with inverse-probability weights from that logit, trimming predicted probabilities below 0.05. A Heckman (1979) selection model is not used because the data contain no variable that plausibly affects reporting but not controversy exposure.

3.6 Robustness

Robustness tests re-estimate the joint model (i) excluding firms from the United States, Japan and China in turn; (ii) weighting observations so that each country contributes equally; (iii) including the offshore-registered firms; (iv) measuring firm size by the logarithm of employees; (v) excluding firms with two-tier boards; (vi) using the logarithm of board size; (vii) using the untransformed Controversies Score as the dependent variable, to show how the signs in the earlier version of this study should have been read; (viii) clustering by country × controversy-sensitive industry cells; and (ix) a multilevel model with a random country intercept. For comparison with the previous version, we also interact each board variable with an MSCI-style developed-market indicator and run a horse race between that indicator and Rule of Law.

4. Results

4.1 Descriptive statistics and sample

Table 2 reports descriptive statistics. Mean controversy exposure is 10.4 (SD 24.4), but the distribution is highly skewed: 80.5% of firms have no recorded controversy, and the mean exposure among the 19.5% with at least one controversy is 53.5. The average board has 9.1 directors; the CEO sits on the board in 83% of firms; and nomination committees are on average 91% independent. Exposure is correlated with firm size ($r = 0.29$ with log sales) and with board size ($r = 0.17$), and board size is itself strongly correlated with firm size ($r = 0.42$), which anticipates the visibility issue examined below. Exposure varies widely across countries, from a

mean of 2.3 among Chinese firms to 14.9 among US firms and 15.5 among Dutch firms (Appendix Table A1).

(Insert Table 1 and Table 2 about here)

4.2 Board mechanisms and controversy exposure (H1–H3)

Table 3 reports the main estimates. Entered separately with controls and fixed effects (columns 1–3), board size is positively associated with controversy exposure (b = 0.504, p < 0.01), whereas CEO board membership (b = 0.390, p = 0.70) and nomination committee independence (b = −0.020, p = 0.55) are not. The joint model (column 4, N = 6,933 firms, 70 countries) gives the same picture: one additional director is associated with 0.50 points higher exposure (p < 0.01), or 1.5 points for a one-standard-deviation larger board, about 14% of mean exposure. H1 and H2 are therefore not supported, and the sign of the board-size coefficient is consistent with H3b (coordination costs) rather than H3a (resource provision).

The logit and Tobit models qualify the board-size result. Board size does not predict whether a firm has any recorded controversy (column 5: average marginal effect 0.3 percentage points, p = 0.16), but in the Tobit model, which combines incidence and severity, its coefficient is positive and significant (b = 1.18, p = 0.03). The association therefore operates mainly through the severity of controversies among firms that have them rather than through their incidence. Among the controls, firm size has by far the largest association with exposure (b = 3.95 per log unit of sales, p < 0.01), board independence is positively associated with exposure (b = 0.057 per percentage point, p < 0.01), state-owned enterprises have lower exposure (b = −3.29, p = 0.02), and firms in controversy-sensitive activities have higher exposure (b = 2.06, p = 0.05).

(Insert Table 3 about here)

Table 3b shows why the raw associations are misleading. On a common sample with only country and year fixed effects, all three board variables are positively associated with exposure: board size (b = 1.50, p < 0.01), CEO board membership (b = 2.15, p = 0.10) and nomination committee independence (b = 0.044, p = 0.02). Adding log sales alone reduces the board-size coefficient by 71% and that of CEO board membership by 70%, and turns the nomination committee coefficient negative and insignificant. Firm size thus accounts for most of the raw associations: larger firms have larger and more formally independent boards and also more recorded controversies.

(Insert Table 3b about here)

4.3 Institutional moderation (H4–H6)

Table 4 reports the interaction of each board mechanism with each institutional moderator, and Table 4b translates the interactions into marginal effects at weak and strong institutions. For H4, the interaction between CEO board membership and investor protection is insignificant whether protection is measured by common-law origin ($b = -0.87$, $p = 0.67$) or Regulatory Quality ($b = 1.31$, $p = 0.18$); H4 is not supported. For H5, the interaction between nomination committee independence and Rule of Law is essentially zero ($b = -0.001$, $p = 0.97$), as is the interaction with Control of Corruption ($p = 0.87$); neither H5a nor H5b is supported with these enforcement measures.

Nomination committee independence does, however, interact with legal origin ($b = -0.110$, $p = 0.003$), an interaction that survives the Bonferroni correction for fifteen tests. In common-law countries, a one-percentage-point increase in nomination committee independence is associated with 0.085 points lower exposure ($p = 0.02$), or 1.4 points for a one-standard-deviation increase; in civil-law countries the association is small and positive (0.025, $p = 0.09$). This pattern is consistent with complementarity between independent director selection and the legal protection of outside shareholders, but not with complementarity between independence and enforcement quality as measured by the WGI.

For H6, the interaction between board size and Voice and Accountability is positive ($b = 0.40$, $p = 0.01$): one additional director is associated with 0.79 points higher exposure at the 90th percentile of Voice and Accountability ($p < 0.01$) and with no detectable change at the 10th percentile (-0.12, $p = 0.69$). This is the opposite of H6, which predicted a more negative board-size association where the information environment is weak. Board size interacts in the same way, and more strongly, with Rule of Law ($b = 0.51$), Regulatory Quality ($b = 0.53$) and Control of Corruption ($b = 0.54$; all $p < 0.001$ and all surviving the Bonferroni correction). Because these indicators are nearly collinear across countries, the data show that the board-size association is confined to strong-institution countries, but we cannot attribute this to enforcement rather than detection.

(Insert Table 4 and Table 4b about here)

Replacing measured institutions with a developed-market indicator, as in the earlier version of this study, produces a different and misleading picture. With the indicator, CEO board membership appears to reduce exposure in emerging markets ($b = -1.91$, $p = 0.03$) and to have no effect in developed markets ($b = 1.27$, $p = 0.34$). None of the measured institutions reproduces this pattern (all CEO board membership interactions with WGI measures or legal origin have $p > 0.17$), and the developed-market interaction remains significant when the Rule of Law interaction is added alongside it ($b = 7.67$, $p = 0.02$). Whatever the developed/emerging classification captures for this mechanism, it is not the institutions that the classification is usually taken to proxy.

4.4 Coefficient stability and selection

Table 5 reports the Oster (2019) statistics. For board size, $\delta = 0.85$: selection on unobservables slightly weaker than selection on the observed controls would be enough to reduce the coefficient to zero, and the bias-adjusted coefficient at $\delta = 1$ is close to zero (-0.09). The board-size association should therefore be regarded as suggestive rather than robust to omitted variables, particularly given that industry fixed effects and balance-sheet controls are unavailable. The statistics for CEO board membership ($\delta = 0.52$) and nomination committee independence ($\delta = -0.86$) confirm that neither coefficient is stable to the inclusion of controls.

Nomination committee independence is not missing at random. Firms that do not report it have 3.3 points lower exposure than firms that do ($p < 0.001$), and, conditional on the other covariates, higher exposure is associated with a higher probability of reporting ($p = 0.09$). Re-estimating the joint model with inverse-probability weights leaves the results unchanged: board size 0.50 ($p < 0.01$), CEO board membership 0.43 ($p = 0.76$) and nomination committee independence -0.023 ($p = 0.45$).

(Insert Table 5 about here)

4.5 Robustness

Table 6 shows that the main pattern is stable across specifications. In every specification that uses controversy exposure as the dependent variable, the board-size coefficient remains positive and significant at the 5% level or better, ranging from 0.42 (excluding two-tier boards) to 1.04 (country-equal weights); it rises to 0.77 when US firms are excluded, so the result does not depend on the largest country. This stability across specifications should not be read as robustness to

omitted variables, which Table 5 shows is limited. CEO board membership and nomination committee independence are insignificant in every specification. Using the untransformed Controversies Score as the dependent variable simply reverses every sign (board size −0.50), which illustrates how the negative coefficients in the earlier version of this study should have been read: as more, not fewer, controversies.

(Insert Table 6 about here)

5. Discussion

The results do not support the view that the board-structure features emphasised by governance codes reduce firms' exposure to ESG controversies across institutional settings. Once firm size is held constant, firms whose CEO sits on the board and firms with fully independent nomination committees have neither more nor fewer recorded controversies than other firms. The only board characteristic whose association is consistent across specifications is board size, which is associated with more severe controversies. The sign is consistent with the coordination-cost view of large boards (Jensen, 1993; Yin & Xu, 2025) rather than the resource-provision view advanced by Treepongkaruna et al. (2024), but the association is not robust to plausible selection on unobservables (Table 5) and is equally consistent with the visibility and remediation explanations discussed below, so it should not be interpreted as evidence that larger boards cause controversies.

Three findings suggest that visibility rather than monitoring explains much of the observed relationship between board structure and controversies. First, all three board variables are positively related to exposure before firm size is controlled, and these associations shrink by 60% or more, or reverse, once it is. Second, board independence, which agency theory treats as the core monitoring attribute, is itself positively associated with exposure. Third, the board-size association appears only in countries with strong rule of law and high voice and accountability, where the media and regulators are most likely to detect and report misconduct (Dyck et al., 2008). Larger and more prominent firms adopt more elaborate board structures and are also more closely scrutinised, so that recorded controversies partly measure scrutiny. A remediation channel, in which firms enlarge or strengthen their boards after controversies (Hermalin & Weisbach, 1998), would produce the same cross-sectional pattern; distinguishing it requires panel data that this study does not have.

The institutional results speak to the debate between complementarity and substitution. The clearest moderation result—nomination committee independence is associated with lower exposure only in common-law countries—supports complementarity: independent director selection is associated with fewer recorded controversies where outside shareholders have the legal standing to act on what independent directors reveal, in line with Neville et al. (2019). Because this is a cross-sectional association, it is consistent with, but does not establish, a monitoring effect. It does not support the substitution view of Klapper and Love (2004), under which firm-level governance should matter most where legal protection is weak. The absence of any interaction with WGI enforcement measures indicates that legal origin captures something about shareholder rights that broad institutional-quality indicators do not. This is consistent with La Porta et al.'s (2006) finding that private enforcement through disclosure and liability rules, rather than public enforcement, is what matters for securities markets.

The comparison with the developed/emerging classification carries a methodological lesson. The classification produced an apparent protective effect of CEO board membership in emerging markets that no measured institution reproduced and that persisted when rule of law was controlled. Inferences about 'institutional' moderation drawn from such classifications can therefore be artefacts of whatever else distinguishes the two groups—sample composition, ownership structures or data coverage—and should be replaced by direct measures of the institution the theory concerns. The non-random reporting of nomination committee independence, which is concentrated in particular countries (it is reported by 16% of Brazilian and 27% of Taiwanese firms, against 89% of US firms), reinforces the point that cross-country governance comparisons depend on vendor data coverage as well as on governance itself.

Finally, these findings bear on the contrast between our results and those of Omenihu and Nwafor (2025), who found that board effects on performance weaken where national governance quality is higher. Our board-size results run in the opposite direction for controversies, which is consistent with the argument in Section 2 that strong institutions can substitute for boards in promoting performance while complementing them in surfacing misconduct. Because the two studies use different samples, this reconciliation remains a conjecture to be tested on a common dataset.

6. Conclusion

This study asked whether board size, CEO board membership and nomination committee independence predict firms' exposure to ESG controversies, and whether measured institutional conditions shape these relationships. Across 10,343 firms in 73 countries, neither CEO board membership nor nomination committee independence is associated with exposure on average once firm size is controlled; board size is associated with more severe controversies, but only in strong-institution countries and not robustly to plausible unobserved selection; and nomination committee independence is associated with lower exposure only in common-law countries.

For investors and ESG rating agencies, the results caution against treating board-structure attributes as portable indicators of misconduct risk. Their association with recorded controversies is dominated by firm size and differs across legal systems, and the governance data on which such scores rely are missing non-randomly across countries. For regulators, the results are consistent with the possibility that requirements for independent nomination committees are more effective where minority shareholders already have legal protection, and that in other settings board-level requirements may need to be accompanied by stronger shareholder rights. Because the estimates are cross-sectional associations, this implication should be tested with reform-based evidence before it informs policy.

The study has several limitations. The data are a single cross-section, so the estimates are associations; endogeneity is bounded through coefficient-stability analysis but not resolved, and remediation cannot be distinguished from visibility. The export contains no industry classification and no balance-sheet, profitability or ownership data, so industry fixed effects and several standard controls are missing, which the Oster statistics suggest could matter for board size. The WGI measures capture a single broad institutional-quality factor, and disclosure and litigation-risk indices could not be obtained, so the institutional channels cannot be fully separated. The Controversies Score depends on media and regulatory coverage, which differ across countries; country fixed effects absorb level differences but not differences in how coverage relates to firm characteristics. Relatedly, the dependent variable measures controversies recorded by a single data vendor, which are a proxy for, not a direct measure of, corporate misconduct. Because the data contain no industry classification, financial firms are retained, and their board structures and controversy exposure may differ systematically from those of non-financial firms. The sample is unbalanced across countries: US firms account for 37% of observations and 23 countries contribute

fewer than ten firms, so country-level moderation estimates rest on few firms in many countries, although the results are robust to excluding the largest countries and to weighting countries equally. Governance indicators are measured in 2022, whereas ESG data vintages range from 2020 to 2025. Finally, nomination committee independence is missing for 18% of firms, and not at random; inverse-probability weighting addresses selection on observed covariates only. The moderation results for nomination committee independence, in particular, rest on a single interaction with legal origin and should be replicated in other samples.

Future research should use firm-year panel data to estimate board effects with firm fixed effects and to test the remediation channel directly, exploit staggered national board reforms (Fauver et al., 2017) as quasi-experimental variation in board structure, add industry classification and financial controls, and measure investor protection, disclosure and litigation risk with dedicated legal indices so that the institutional channels identified here can be separated.

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Declarations

Ethical Approval

This article does not contain any studies with human participants performed by any of the authors.

Informed Consent

This article does not contain any studies with human participants performed by any of the authors.

Data Availability

The firm-level data analysed in this study were obtained from Refinitiv ESG (now LSEG Data & Analytics) under a subscription licence held by [University for Development Studies and University of Minho]. The data comprise one observation per firm for 11,411 listed firms with ISINs. The licence terms do not permit public redistribution of the raw Refinitiv records; the raw and cleaned firm-level datasets are therefore provided to the editors and referees, on a confidential basis and for the purpose of peer review only, through the private link given below. [CONFIRM THIS IS PERMITTED BY YOUR LICENCE; IF NOT, REPLACE WITH: "The raw records cannot be shared; instead, we provide the derived analysis variables and the list of ISINs and field codes needed to re-extract the data from LSEG Workspace."]

(Insert Appendix Table A1 about here)

List of Tables

Board structure, institutional conditions and ESG controversy exposure. Results from the Refinitiv ESG export (10,343 firms, 73 countries).

Table numbers match the manuscript and the results workbook.

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Table 1. Sample construction

Step	Firms	Countries
Firms in Refinitiv export	11,411	85
Excluding firms with no data returned by Refinitiv	10,801	85
With ESG Controversies Score	10,773	85
Excluding offshore-registered ISINs (KY, BM, VG, JE, GG, IM, MH, PA, BS, AN, GI, LR)	10,343	73

Notes: *Firms and countries remaining after each step. Country is taken from the ISIN prefix; offshore registrations are excluded because the ISIN country does not identify the institutional environment the firm operates in (they are restored in Table 6).*

Table 2. Descriptive statistics

Variable	N	Mean	SD	Min	P25	Median	P75	Max
Controversy exposure (100 − score)	10,343	10.436	24.362	0	0	0	0	99.709
Any controversy (score < 100)	10,343	0.195	0.396	0	0	0	0	1
Board size	10,321	9.090	2.963	1	7	9	11	53
CEO board member	9,213	0.835	0.371	0	1	1	1	1
Nomination committee independence (%)	8,458	91.290	16.213	0	83.333	100	100	100
Log sales (USD)	10,120	20.913	2.041	3.689	19.749	21.016	22.231	27.077
State-owned enterprise	9,534	0.050	0.218	0	0	0	0	1
Board independence (%)	10,176	63.602	23.990	0	44.444	66.667	84.615	100
Board gender diversity (%)	10,312	23.717	14.780	0	12.500	25	33.333	100
CEO-chair duality	10,343	0.320	0.466	0	0	0	1	1
CSR committee	10,342	0.642	0.479	0	0	1	1	1
Controversy-sensitive industry	10,331	0.117	0.322	0	0	0	0	1
Common-law origin	10,160	0.643	0.479	0	0	1	1	1
WGI Rule of Law	10,342	0.962	0.688	-1.301	1.052	1.052	1.472	2.002
WGI Regulatory Quality	10,342	1.229	0.638	-1.331	1.298	1.459	1.632	2.049
WGI Control of Corruption	10,342	1.137	0.691	-1.225	1.202	1.202	1.635	2.302
WGI Voice & Accountability	10,342	0.784	0.872	-1.713	0.933	0.933	1.297	1.835

Pairwise correlations	1	2	3	4	5	6	7	8	9	10	11	12
1. Controversy exposure (100 − score)	1	0.870	0.170	0.070	0.090	0.290	-0.040	0.150	0.080	0.090	0.090	0.070
2. Any controversy (score < 100)	0.870	1	0.170	0.060	0.090	0.300	-0.030	0.140	0.100	0.080	0.120	0.080
3. Board size	0.170	0.170	1	0.130	0.050	0.420	0.070	-0.040	0.070	0.070	0.210	0.070
4. CEO board member	0.070	0.060	0.130	1	0.030	0.030	0.020	0.140	-0.080	0.190	-0.040	0.030
5. Nomination committee independence (%)	0.090	0.090	0.050	0.030	1	-0.020	-0.130	0.360	0.170	0.050	0	-0.020
6. Log sales (USD)	0.290	0.300	0.420	0.030	-0.020	1	0.150	-0.060	0.070	0.080	0.380	0.170
7. State-owned enterprise	-0.040	-0.030	0.070	0.020	-0.130	0.150	1	-0.220	-0.150	-0.070	0.070	0.080
8. Board independence (%)	0.150	0.140	-0.040	0.140	0.360	-0.060	-0.220	1	0.310	0.100	-0.030	0
9. Board gender diversity (%)	0.080	0.100	0.070	-0.080	0.170	0.070	-0.150	0.310	1	-0.030	0.210	0.030
10. CEO-chair duality	0.090	0.080	0.070	0.190	0.050	0.080	-0.070	0.100	-0.030	1	-0.050	0.020
11. CSR committee	0.090	0.120	0.210	-0.040	0	0.380	0.070	-0.030	0.210	-0.050	1	0.110
12. Controversy-sensitive industry	0.070	0.080	0.070	0.030	-0.020	0.170	0.080	0	0.030	0.020	0.110	1

Notes: *80% of firms have no recorded controversy (exposure = 0), which is why Tobit and logit models are reported beside OLS. Country-level variables are shown at firm level (weighted by number of firms).*

Table 3. Board mechanisms and controversy exposure (H1–H3)

Variable	(1) OLS	(2) OLS	(3) OLS	(4) OLS joint	(5) Logit: any controversy	(6) Tobit
Board size	0.504***			0.495***	0.024	1.181**
	(0.146)			(0.151)	(0.018)	(0.559)
CEO board member		0.390		0.401	-0.110	2.341
		(1.021)		(1.367)	(0.173)	(6.664)
Nomination committee independence (%)			-0.020	-0.025	-0.001	-0.023
			(0.034)	(0.034)	(0.003)	(0.154)
Log sales (USD)	3.594***	3.996***	4.077***	3.954***	0.520***	18.229***
	(0.339)	(0.287)	(0.324)	(0.277)	(0.068)	(1.720)
State-owned enterprise	-1.652	-2.592*	-2.152**	-3.288**	-0.350	-10.227
	(1.105)	(1.504)	(1.031)	(1.421)	(0.298)	(11.611)
Board independence (%)	0.052***	0.057***	0.050***	0.057***	0.007***	0.254***
	(0.014)	(0.012)	(0.015)	(0.014)	(0.002)	(0.055)
Board gender diversity (%)	0.000	0.001	0.008	0.000	0.000	0.003
	(0.034)	(0.036)	(0.034)	(0.040)	(0.005)	(0.201)
CEO-chair duality	0.529	0.323	0.100	-0.094	-0.009	-0.851
	(0.450)	(0.413)	(0.613)	(0.601)	(0.067)	(2.382)
CSR committee	0.319	0.215	0.413	0.131	0.059	1.649
	(0.784)	(0.784)	(0.900)	(0.936)	(0.066)	(2.995)
Controversy-sensitive industry	2.158**	2.132**	2.040**	2.057**	0.075	3.914
	(0.970)	(1.014)	(1.039)	(1.037)	(0.091)	(3.345)
N	9,280	8,257	7,658	6,933	6,808	6,933
Countries	73	72	71	70	47	70
R2 / pseudo-R2	0.155	0.150	0.152	0.150	0.162	
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
ESG update-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: *Dependent variable: Controversy exposure = 100 − Refinitiv ESG Controversies Score (0 = no recorded controversy; higher = more/severer controversies), so POSITIVE coefficients mean MORE controversies. Standard errors (in parentheses) are clustered by country. *** p<0.01, ** p<0.05, * p<0.1. Offshore-registered ISINs (KY, BM, VG, JE, GG, IM, MH, PA, BS, AN, GI, LR) excluded. No industry fixed effects: the export has no sector field (see Section 3.2). Column 5 dependent variable = 1 if any controversy recorded; logit coefficients (log-odds); countries with no variation in the outcome drop out. Average marginal effects (probability points): board size 0.0034 (p=0.16), CEO board member -0.0153 (p=0.52), NC independence -0.00011 (p=0.82).*

Table 3b. How much of each raw association is firm size?

Board variable (entered alone)	Country + year FE only	+ Log sales	+ Log sales + log employees	+ All controls
Board size	1.504*** (0.244)	0.442*** (0.114)	0.362*** (0.122)	0.451*** (0.130)
CEO board member	2.150 (1.309)	0.642 (1.442)	0.393 (1.412)	0.848 (1.379)
Nomination committee independence (%)	0.044** (0.018)	-0.008 (0.031)	-0.005 (0.031)	-0.020 (0.037)

Notes: *Each cell is a separate OLS regression on one common sample (N = 6,290 firms, 65 countries) with the board variable entered alone. Once firm size is held constant, the raw positive associations shrink by 60% or more (board size, CEO board member) or reverse sign (NC independence), consistent with a visibility channel: larger firms have larger, more formal boards and more recorded controversies. Dependent variable: Controversy exposure = 100 − Refinitiv ESG Controversies Score (0 = no recorded controversy; higher = more/severer controversies), so POSITIVE coefficients mean MORE controversies. Standard errors (in parentheses) are clustered by country. *** p<0.01, ** p<0.05, * p<0.1. Offshore-registered ISINs (KY, BM, VG, JE, GG, IM, MH, PA, BS, AN, GI, LR) excluded. No industry fixed effects: the export has no sector field (see Section 3.2).*

Table 4. Do institutions moderate board effects? (H4–H6, plus all other pairings)

Hypothesis	Board mechanism	Moderator	Main effect	Interaction	SE	p	N	Countries
H6	Board size	WGI Voice & Accountability	0.488***	0.397***	0.153	0.010	9,279	72
H4	CEO board member	Common-law origin	0.728	-0.871	2.053	0.671	8,131	59
H4	CEO board member	WGI Regulatory Quality	0.474	1.314	0.970	0.176	8,256	71
H5	Nomination committee independence (%)	WGI Rule of Law	-0.020	-0.001	0.020	0.970	7,658	71
H5	Nomination committee independence (%)	WGI Control of Corruption	-0.020	-0.003	0.022	0.874	7,658	71
Exploratory	Board size	Common-law origin	0.582***	-0.122	0.217	0.574	9,128	60
Exploratory	Board size	WGI Regulatory Quality	0.499***	0.531***	0.138	0	9,279	72
Exploratory	Board size	WGI Rule of Law	0.494***	0.514***	0.127	0	9,279	72
Exploratory	Board size	WGI Control of Corruption	0.499***	0.543***	0.108	0	9,279	72
Exploratory	CEO board member	WGI Rule of Law	0.422	0.890	0.840	0.290	8,256	71
Exploratory	CEO board member	WGI Control of Corruption	0.373	1.159	0.843	0.169	8,256	71
Exploratory	CEO board member	WGI Voice & Accountability	0.392	0.159	0.661	0.810	8,256	71
Exploratory	Nomination committee independence (%)	Common-law origin	0.025*	-0.110***	0.037	0.003	7,527	59
Exploratory	Nomination committee independence (%)	WGI Regulatory Quality	-0.020	-0.028	0.023	0.220	7,658	71

Hypothesis	Board mechanism	Moderator	Main effect	Interaction	SE	p	N	Countries
Exploratory	Nomination committee independence (%)	WGI Voice & Accountability	-0.020	-0.004	0.014	0.797	7,658	71

Notes: *Each row is one OLS regression of exposure on the board variable, its interaction with the country-level moderator, controls, and country + year fixed effects (the moderator's own main effect is absorbed by country FE). WGI moderators are mean-centred, so the main effect is the effect at the average institutional level; common-law is 0/1, so the main effect is the civil-law effect. 15 interactions are tested; Bonferroni threshold $p < 0.0033$. Dependent variable: Controversy exposure = 100 − Refinitiv ESG Controversies Score (0 = no recorded controversy; higher = more/severer controversies), so POSITIVE coefficients mean MORE controversies. Standard errors (in parentheses) are clustered by country. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Offshore-registered ISINs (KY, BM, VG, JE, GG, IM, MH, PA, BS, AN, GI, LR) excluded. No industry fixed effects: the export has no sector field (see Section 3.2).*

Table 4b. Effect of each board mechanism at weak vs strong institutions

Board mechanism	Moderator	Evaluated at	Effect on exposure	SE	p
Board size	Common-law origin	civil law	0.582***	0.188	0.002
Board size	Common-law origin	common law	0.460***	0.153	0.003
Board size	WGI Regulatory Quality	10th percentile (weak)	-0.201	0.186	0.279
Board size	WGI Regulatory Quality	90th percentile (strong)	0.783***	0.230	0.001
Board size	WGI Rule of Law	10th percentile (weak)	-0.226	0.217	0.297
Board size	WGI Rule of Law	90th percentile (strong)	0.812***	0.186	0
Board size	WGI Control of Corruption	10th percentile (weak)	-0.095	0.154	0.538
Board size	WGI Control of Corruption	90th percentile (strong)	0.871***	0.187	0
Board size	WGI Voice & Accountability	10th percentile (weak)	-0.120	0.298	0.687
Board size	WGI Voice & Accountability	90th percentile (strong)	0.786***	0.190	0
CEO board member	Common-law origin	civil law	0.728	1.256	0.562
CEO board member	Common-law origin	common law	-0.143	1.714	0.933
CEO board member	WGI Regulatory Quality	10th percentile (weak)	-1.255	0.928	0.176
CEO board member	WGI Regulatory Quality	90th percentile (strong)	1.175	1.481	0.428
CEO board member	WGI Rule of Law	10th percentile (weak)	-0.673	0.811	0.407
CEO board member	WGI Rule of Law	90th percentile (strong)	0.973	1.465	0.507
CEO board member	WGI Control of Corruption	10th percentile (weak)	-0.894	0.846	0.291
CEO board member	WGI Control of Corruption	90th percentile (strong)	1.278	1.536	0.405
CEO board member	WGI Voice & Accountability	10th percentile (weak)	0.245	0.741	0.741
CEO board member	WGI Voice & Accountability	90th percentile (strong)	0.511	1.421	0.719
Nomination committee independence (%)	Common-law origin	civil law	0.025*	0.015	0.095
Nomination committee independence (%)	Common-law origin	common law	-0.085**	0.036	0.018
Nomination committee independence (%)	WGI Regulatory Quality	10th percentile (weak)	0.017	0.025	0.497
Nomination committee independence (%)	WGI Regulatory Quality	90th percentile (strong)	-0.035	0.043	0.414
Nomination committee independence (%)	WGI Rule of Law	10th percentile (weak)	-0.019	0.041	0.645
Nomination committee independence (%)	WGI Rule of Law	90th percentile (strong)	-0.021	0.037	0.582

Board mechanism	Moderator	Evaluated at	Effect on exposure	SE	p
Nomination committee independence (%)	WGI Control of Corruption	10th percentile (weak)	-0.016	0.040	0.689
Nomination committee independence (%)	WGI Control of Corruption	90th percentile (strong)	-0.022	0.038	0.560
Nomination committee independence (%)	WGI Voice & Accountability	10th percentile (weak)	-0.013	0.031	0.668
Nomination committee independence (%)	WGI Voice & Accountability	90th percentile (strong)	-0.023	0.040	0.568

Notes: *Marginal effect of the board variable on exposure, from the Table 4 models, evaluated at the 10th and 90th percentile of the moderator (or for civil- vs common-law countries). Read: one more director raises exposure by about 0.8 points where rule of law is strong, and has no detectable effect where it is weak.*

Table 5. Endogeneity and selection

Board variable	β (FE only)	β (all controls)	R^2 (FE only)	R^2 (all controls)	R^2max = 1.3 × R^2	δ needed for β = 0	Bias-adjusted β (δ = 1)	N
Board size	1.528	0.495	0.070	0.150	0.195	0.848	-0.089	6,933
CEO board member	2.183	0.401	0.046	0.150	0.195	0.521	-0.368	6,933
Nomination committee independence (%)	0.042	-0.025	0.046	0.150	0.195	-0.862	-0.054	6,933

Panel B: model	Term	Estimate	SE	p
Selection: P(NC independence reported)	exposure	0.0025*	0.001	0.090
Welch t: exposure missing vs reported	diff (missing - reported)	-3.2911***		0.000
IPW joint OLS	Board size	0.4978***	0.149	0.001
IPW joint OLS	CEO board member	0.4283	1.373	0.755
IPW joint OLS	Nomination committee independence (%)	-0.0231	0.031	0.451
IPW joint OLS	N	6,933		
IPW joint OLS	Countries	70		
IPW joint OLS	R2 / pseudo-R2	0.151		

Notes: *Panel A: Oster (2019) coefficient stability. δ is how strong selection on unobservables must be, relative to observables, to drive the coefficient to zero; $|\delta| > 1$ is the usual robustness benchmark. Board size has δ = 0.85, so its positive coefficient would vanish under unobserved selection slightly weaker than the selection on the observed controls. Panel B: non-random reporting of nomination committee independence and inverse-probability-weighted estimates. With one cross-section, panel and reform-based identification are not possible (see Section 3.2).*

Table 6. Robustness of the joint model

Specification	Board size	CEO board member	NC independence	N	Countries
Baseline (Table 3, column 4)	0.495*** (0.151)	0.401 (1.367)	-0.025 (0.034)	6,933	70
Excl. US	0.768*** (0.176)	-0.717 (1.375)	0.013 (0.016)	3,868	69
Excl. JP	0.488*** (0.154)	0.404 (1.374)	-0.030 (0.035)	6,707	69
Excl. CN	0.494*** (0.151)	0.349 (1.473)	-0.027 (0.037)	6,528	69
Country-equal weights	1.038*** (0.368)	-4.140 (4.501)	0.083 (0.075)	6,933	70
Incl. offshore ISINs	0.473*** (0.145)	0.674 (1.285)	-0.023 (0.033)	7,257	82
Size = log employees	0.505*** (0.182)	0.079 (1.329)	-0.018 (0.033)	6,420	65
Excl. two-tier boards	0.419*** (0.133)	0.305 (1.431)	-0.028 (0.037)	6,547	69
Log board size	3.300*** (1.140)	0.468 (1.394)	-0.024 (0.034)	6,933	70
Original score as DV (sign flips)	-0.495*** (0.151)	-0.401 (1.367)	0.025 (0.034)	6,933	70
Cluster country x sensitive-industry	0.495** (0.207)	0.401 (1.259)	-0.025 (0.035)	6,933	70
Multilevel (random country intercept)	0.452*** (0.114)	0.366 (1.062)	-0.018 (0.021)	6,933	

Notes: *All rows re-estimate Table 3 column 4 with all controls. "Original score as DV" uses the untransformed Refinitiv score, so signs flip: this is how the previous manuscript's negative coefficients should have been read. "Log board size" reports the coefficient on log(board size). Multilevel = random country intercept with year FE. Dependent variable: Controversy exposure = 100 − Refinitiv ESG Controversies Score (0 = no recorded controversy; higher = more/severer controversies), so POSITIVE coefficients mean MORE controversies. Standard errors (in parentheses) are clustered by country. *** p<0.01, ** p<0.05, * p<0.1. Offshore-registered ISINs (KY, BM, VG, JE, GG, IM, MH, PA, BS, AN, GI, LR) excluded. No industry fixed effects: the export has no sector field (see Section 3.2).*

Appendix Table A1. Country-level data (main sample)

ISIN country	Firms	Mean exposure	Share with any controversy	Mean board size	Share reporting NC independence	Legal origin	Developed (MSCI-style)	WGI Rule of Law 2022	WGI Regulatory Quality 2022	WGI Control of Corruption 2022	WGI Voice & Accountability 2022
US	3,825	14.936	0.256	9.305	0.894	English	1	1.052	1.459	1.202	0.933
GB	745	10.468	0.187	8.145	0.948	English	1	1.299	1.649	1.635	1.297
CN	665	2.328	0.065	9.278	0.944	German	0	-0.564	-0.091	0.043	-1.713
CA	557	10.594	0.201	8.711	0.758	English	1	1.505	1.632	1.652	1.436
AU	555	7.426	0.150	6.366	0.832	English	1	1.472	1.800	1.729	1.407
JP	509	5.797	0.124	10.208	0.684	German	1	1.508	1.411	1.442	1.069
SE	247	4.296	0.081	7.579	0.668	Scandinavian	1	1.738	1.624	2.026	1.680
DE	231	12.116	0.221	10.190	0.736	German	1	1.581	1.564	1.822	1.536
CH	183	8.747	0.175	7.175	0.727	German	1	1.779	1.762	2.095	1.579
KR	171	9.416	0.228	7.485	0.749	German	0	1.166	1.017	0.822	0.913
FR	167	14.671	0.305	11.904	0.820	French	1	1.020	1.269	1.386	1.184
IN	165	13.075	0.321	10.552	0.982	English	0	-0.110	-0.088	-0.292	-0.061
TW	160	4.052	0.106	10.219	0.269	German	0	1.259	1.298	1.192	1.052
ZA	146	8.434	0.171	10.829	0.911	English	0	0.034	-0.062	-0.163	0.608
BR	136	5.969	0.110	8.309	0.162	French	0	-0.440	-0.199	-0.456	0.116
IT	114	11.293	0.202	11.263	0.754	French	1	0.574	0.601	0.574	1.087
NL	105	15.468	0.276	7.581	0.886	French	1	1.729	1.723	1.918	1.656
TH	105	3.761	0.095	12	0.952	English	0	-0.268	0.114	-0.404	-0.747
SG	100	6.335	0.150	8.939	0.980	English	1	1.428	2.049	2.033	-0.089
ES	90	13.056	0.256	11.578	0.978	French	1	0.961	0.838	0.782	1.125
NO	81	5.715	0.123	7.593	0.160	Scandinavian	1	1.941	1.573	2.033	1.835
HK	78	6.189	0.128	11.295	0.949	English	1	0.884	1.724	1.528	-0.341
TR	76	2.998	0.053	8.933	0.882	French	0	-0.780	-0.229	-0.432	-1.108
FI	71	11.247	0.254	7.563	0.479	Scandinavian	1	1.994	1.909	2.189	1.785
MY	67	4.306	0.134	9.313	1	English	0	0.295	0.656	0.371	-0.131
NZ	67	3.695	0.104	6.627	0.761	English	1	1.722	1.860	2.082	1.682
MX	60	9.237	0.233	12.067	0.183	French	0	-1.082	-0.156	-0.876	-0.140
IE	60	21.312	0.400	9.883	0.900	English	1	1.504	1.767	1.646	1.581
AR	57	2.346	0.053	10.123	0.175	French	0	-0.291	-0.579	-0.340	0.542
DK	56	10.032	0.214	8.893	0.893	Scandinavian	1	2.002	2.021	2.302	1.802
BE	53	1.967	0.038	9.981	0.981	French	1	1.340	1.408	1.577	1.471
RU	47	22.527	0.383	10.809	0.574		0	-1.055	-0.892	-0.773	-1.237
ID	46	4.227	0.087	6.413	0.913	French	0	-0.129	0.281	-0.370	0.059
PL	44	5.443	0.136	8.045	0.477	German	0	0.355	0.687	0.667	0.401
CL	44	2.267	0.091	8.273	0.023	French	0	0.744	0.828	1.145	1.019
LU	41	7.178	0.171	7.805	0.805	French	1	1.748	1.867	1.967	1.636

ISIN country	Firms	Mean exposure	Share with any controversy	Mean board size	Share reporting NC independence	Legal origin	Developed (MSCI-style)	WGI Rule of Law 2022	WGI Regulatory Quality 2022	WGI Control of Corruption 2022	WGI Voice & Accountability 2022
SA	40	0	0	9.275	0.975		0	0.039	0.554	0.277	-1.699
QA	40	1.290	0.050	9.150	0.875		0	0.598	0.884	0.820	-1.100
AT	39	3.926	0.077	10.103	0.769	German	1	1.642	1.401	1.368	1.470
IL	36	13.969	0.278	8.889	0.417	English	1	0.801	1.122	0.888	0.610
GR	33	2.118	0.061	10.531	0.818	French	0	0.489	0.421	0.322	0.890
PE	30	0.867	0.033	7.933	0.267	French	0	-0.487	0.072	-0.642	0.152
PH	28	6.994	0.143	10.286	0.964	French	0	-0.632	0.005	-0.577	-0.217
AE	23	0	0	8.304	1		0	0.410	1.058	1.022	-1.041
CO	22	6.285	0.136	7.636	0.455	French	0	-0.530	0.186	-0.256	0.118
PT	19	10.968	0.211	12.526	0.579	French	1	1.126	0.809	0.786	1.316
KW	14	0	0	9.143	0.929	French	0	0.224	0.246	0.077	-0.649
EG	11	2.045	0.091	10.636	0.364	French	0	-0.773	-0.669	-0.778	-1.669
IS	10	2.596	0.100	6.100	0.400	Scandinavian	1	1.597	1.425	1.650	1.360
OM	10	0	0	8.200	1		0	0.352	0.468	0.021	-1.054
BH	9	0	0	9.667	1		0	0.033	0.870	0.145	-1.474
PK	5	8.657	0.400	9.800	0.600	English	0	-0.911	-0.765	-0.946	-0.892
HU	5	13.787	0.200	16.400	0.800	German	0	0.243	0.288	0.040	0.095
PR	5	5.259	0.200	9.200	1	English	0	0.425	0.778	0.477	0.437
MT	4	0	0	5	0.750	English	0	0.854	0.564	0.447	1.067
CZ	4	6.250	0.250	9.750	0.500	German	0	1.139	1.328	0.803	1.101
MU	3	37.088	0.667	9	0.667		0	0.684	0.897	0.395	0.416
JO	3	0	0	11.667	1	French	0	0.076	0.212	0.023	-0.809
PG	3	0	0	6.667	1		0	-0.546	-0.747	-0.588	-0.040
RO	3	17.671	0.333	7.667	1	French	0	0.435	0.394	0.066	0.574
MA	3	16.049	0.333	8.667	0.333	French	0	-0.449	-0.081	-0.488	-0.691
UG	2	0	0	8	1	English	0	-0.729	-0.476	-0.989	-0.955
LI	2	0	0	7.500	1		0	1.728	1.535	1.755	1.353
CY	2	36.458	0.500	6.500	1	English	0	0.764	0.733	0.565	0.921
KZ	2	27.465	0.500	8.500	1		0	-0.441	-0.064	-0.192	-0.975
VN	2	0	0	10	0.500		0	-0.337	-0.347	-0.246	-1.256
AG	1	60.526	1	6	1		0	0.620	0.464	0.237	0.552
FO	1	0	0	6	0		0				
KE	1	0	0	10	1	English	0	-0.425	-0.391	-0.751	-0.241
LK	1	0	0	9	1	English	0	-0.330	-0.457	-0.353	-0.316
NG	1	21.687	1	15	1	English	0	-1.000	-0.996	-1.225	-0.689

ISIN country	Firms	Mean exposure	Share with any controversy	Mean board size	Share reporting NC independence	Legal origin	Developed (MSCI-style)	WGI Rule of Law 2022	WGI Regulatory Quality 2022	WGI Control of Corruption 2022	WGI Voice & Accountability 2022
SI	1	0	0	9	0	German	0	0.921	0.737	0.748	1.014
ZW	1	0	0	11	1	English	0	-1.301	-1.331	-1.198	-1.201

Notes: *WGI: World Bank Worldwide Governance Indicators, 2022 estimates (approx. −2.5 to +2.5), retrieved from api.worldbank.org (source 3) on 12 Oct 2026; verify against the official WGI release before publication. Legal origin coded from La Porta, Lopez-de-Silanes & Shleifer (2008); blank = not coded (Gulf states, Russia, Kazakhstan, Viet Nam, Mauritius, Papua New Guinea, Antigua, Faroe Islands, Liechtenstein).*

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- BoardESGControversiesAnalysis.xlsx
- Codebook.csv