

Independent monitoring across board and audit committee layers: Evidence from disclosure violations in Vietnam

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Abstract

Board and audit committee independence are often examined separately, although board-level committees report to their parent boards. This study examines whether their association with regulator-observed disclosure violations depends on how independent membership is distributed across these two governance bodies. The primary analysis uses an unbalanced panel of 539 observations from 150 Vietnamese firms with recorded committee information during 2021–2024. Poisson pseudo-maximum-likelihood models include year fixed effects and firm-clustered standard errors. The negative association between independent audit committee membership and disclosure violations becomes weaker as board independence increases. At board independence one standard deviation below its mean, one standard deviation more independent audit committee members is associated with a 57.8% lower model-implied violation count. Associations at mean and high board independence are imprecise. The interaction remains positive across several control sets, alternative enforcement outcomes, lagged specifications, and inverse-probability weighting. However, it is imprecise within the central board-independence range and after excluding the most influential firm. The estimates remain provisional because source reconciliation identified measurement inconsistencies. The association is estimated most precisely at lower board independence. The findings connect organisational governance with disclosure accountability and illustrate why the location and consistent classification of independent membership matter. They do not establish that changing director appointments improves compliance or that extensive independence is harmful.

1. Introduction

Independent directors are expected to challenge management and protect the integrity of corporate reporting. Agency theory explains this monitoring role through the separation of ownership and control (Jensen and Meckling, 1976; Fama and Jensen, 1983). Empirical studies link board and audit committee independence to earnings quality, internal control, restatements, and management disclosure (Klein, 2002; Abbott et al., 2004; Bédard et al., 2004; Krishnan, 2005; Karamanou and Vafeas, 2005; Bronson et al., 2009). Yet these two governance bodies are commonly modelled as separate sources of oversight, although, under a directors-only committee structure, the audit committee is a specialised subgroup of the board.

This organisational relationship creates a more specific question. Independent audit committee members may provide a distinct reporting oversight channel when independent representation on the full board is limited. Their additional contribution may be smaller where independent oversight is already distributed widely across the board. Alternatively, a more independent board may strengthen the committee's ability to secure information and act on reporting concerns. These possibilities call for examining the relationship between monitoring layers rather than assuming that their associations with compliance are additive.

The distinction matters for interpreting mixed evidence on independence. A committee coefficient in an additive model combines observations from firms with different board structures. It cannot show whether independent committee membership is associated with compliance primarily where board-level independent representation is scarce. Conversely, an interaction coefficient does not establish that one governance body substitutes for another in practice. The question requires theory about their relationship, estimates of conditional associations, and evidence about the configurations that actually contribute to estimation.

The question also concerns public accountability. Investors and other stakeholders rely on timely, complete, and accurate corporate disclosure (Healy and Palepu, 2001; Beyer et al., 2010; Leuz and Wysocki, 2016). Formal

independence requirements make governance structures visible, but do not reveal how reporting concerns move between a committee and its parent board. Research on governance arrangements, board design, and audit committee processes suggests that authority, information access, expertise, and coordination matter alongside independent membership (Aguilera et al., 2008; Becher and Frye, 2011; Brown et al., 2011; Coles et al., 2008; Adams et al., 2010, 2021; Beasley et al., 2009; Livne et al., 2024).

We examine annual disclosure breaches formally sanctioned by Vietnam's State Securities Commission. Such outcomes provide externally documented evidence of compliance failures. They also reflect detection and enforcement, so they cannot capture all underlying misconduct (Dechow et al., 1996, 2011; Karpoff et al., 2008; Dyck et al., 2010). The study therefore asks about regulator-observed violations, without equating a zero sanction count with verified compliance.

Vietnam offers an informative setting because the Law on Enterprises 2020 specifies a board-level audit committee under one permitted governance model (National Assembly of Vietnam, 2020). The primary period begins when that law took effect. Under the intended directors-only definition, committee independence is relevant to firms using that structure. The legal setting motivates the study; it does not provide an exogenous governance shock or establish that all exclusions are explained by the reform.

Prior research documents governance and disclosure relationships in Vietnam, including corporate communication, social disclosure, reporting quality, and financial-information transparency (Vu et al., 2011; Hoang et al., 2018; Ha, 2022; Truong et al., 2022; Tran and Ha, 2023; Truong and Nguyen, 2024; Vo and Ngoc, 2024). Studies elsewhere examine disclosure violations in relation to board and ownership features or company-secretary characteristics (AlSmadi et al., 2023; Xiuli et al., 2025). This evidence establishes the relevance of governance to disclosure, but leaves open how independent membership across the board and its audit committee is jointly associated with sanctioned violations.

We address two research questions. RQ1: How does board independence condition the association between independent audit committee membership and regulator-observed disclosure violations? RQ2: Is this conditional association present across the board-independence distribution, or concentrated in particular parts of that distribution?

The primary analysis uses 539 firm-year observations from 150 firms during 2021–2024, based on the database's committee classifications. It retains all usable observations rather than requiring continuous participation in a balanced panel. The underlying database spans 2019–2025, with alternative periods examined separately. The estimated interaction is positive: the negative audit committee association weakens as board independence rises. However, the interaction is imprecise within the central board-independence range and after excluding the most influential firm.

The contribution is consequently a bounded one. The study examines independence as an allocation of membership across linked governance bodies and identifies where its association with disclosure violations is clearest. It adds enforcement-based evidence from Vietnam while reporting selection, support, influence, and measurement limitations. It does not identify a governance mechanism causally or establish a generally optimal board–committee configuration.

2. Literature Review and Theoretical Development

2.1. Institutional context

The Law on Enterprises 2020 became effective on January 1, 2021. Articles 137 and 161 provide for a governance model with an audit committee attached to the board and specify the committee's composition and responsibilities (National Assembly of Vietnam, 2020). The 2014 law had already permitted an internal audit board attached to the board of directors under Article 134 (National Assembly of Vietnam, 2014). The 2020 law therefore specifies the audit committee model more explicitly; it did not first introduce all board-level audit oversight or require every listed firm to adopt the same governance model. This model locates reporting oversight within the board while assigning specialised responsibilities to a subgroup. Independent membership can therefore differ between the full board and its audit committee.

Formal structure should be distinguished from practical monitoring capacity. Effective audit committee work involves information exchange with management, internal functions, and external auditors (Beasley et al., 2009; Cohen et al., 2014; Livne et al., 2024). Ownership concentration may also shape appointments and access to information. Vietnamese studies connect ownership and governance to agency costs, earnings management, reporting quality, investment efficiency, and conservatism (A. H. Nguyen et al., 2020; H. A. Nguyen et al., 2021; Q. Nguyen et al., 2024; Dinh et al., 2023; Hong and Linh, 2023; Pham and Vu, 2024). These relationships make independent membership an informative structural measure, but an incomplete measure of actual autonomy.

The Vietnamese literature also spans distinct dimensions of transparency. Vu et al. (2011) examine corporate communication, while Hoang et al. (2018) consider board diversity and social disclosure. Ha (2022) focuses on audit committee characteristics and governance disclosure; Tran and Ha (2023) examine governance disclosure and annual-report quality. More recent studies address board and committee attributes in relation to financial-information transparency and reporting standards (Truong and Nguyen, 2024; Vo and Ngoc, 2024). The present study complements these measures with documented sanctions. It does not treat sanctioned breaches as a superior or exhaustive measure of all reporting quality.

The recorded committee population is limited in this database. Across 2019–2025, 210 firms contribute at least one firm-year recorded as having a committee; 150 contribute usable observations in the primary period. These counts describe the research data, not a verified current national adoption rate. The early post-2020 setting helps explain why a study conditional on this governance model has a smaller sample than a general listed-company study. Missing composition or financial information creates an additional selection process that must be assessed separately.

2.2. Agency theory and monitoring across governance layers

Agency theory predicts that independent oversight can constrain selective, incomplete, or delayed reporting when managers possess informational advantages (Jensen and Meckling, 1976; Fama and Jensen, 1983). Audit committees focus this oversight on financial reporting, internal control, and audit. Independence may make members more willing to challenge management, but their ability to do so depends on information and authority.

Early evidence documented an association between board composition and financial statement fraud (Beasley, 1996). Subsequent research examined the board and audit committee jointly in relation to earnings management (Xie et al., 2003), and considered committee composition in connection with auditor reporting (Carcello and Neal, 2000) and the remediation of internal-control weaknesses (Goh, 2009). These studies provide relevant foundations, but their outcomes capture different parts of the reporting process. Reviews therefore encourage

interpreting committee characteristics in relation to how effectiveness is measured and the institutional setting in which committees operate (Bédard and Gendron, 2010).

Evidence on committee processes qualifies a purely structural interpretation. CEO involvement in appointments, social ties, status, industry expertise, and substantive power affect the circumstances in which committee characteristics are associated with reporting outcomes (Carcello et al., 2011; Bruynseels and Cardinaels, 2014; Badolato et al., 2014; Cohen et al., 2014; Lisic et al., 2016). Hermanson et al. (2024) likewise emphasise the need to understand how audit committee attributes operate in practice. Independent membership should therefore be viewed as a potential monitoring resource rather than a direct measure of effectiveness.

Governance mechanisms may substitute for or complement one another (Aguilera et al., 2008; Becher and Frye, 2011). Under substitution, the negative association of one monitoring layer with disclosure violations becomes weaker as another layer strengthens. Under complementarity, the association becomes stronger because the layers reinforce each other. Audit committee independence has been associated with earnings-announcement credibility under differing institutional conditions, and East Asian evidence relates committee structure and member attributes to earnings informativeness (Poretti et al., 2018; Woidtke and Yeh, 2013). These studies motivate a conditional perspective without directly establishing substitution between a board and its committee.

The distinction between an internal committee and an external monitor is important here. External monitors may have separate mandates, information sources, and enforcement powers. Under the directors-only model, an audit committee operates through delegated board authority, and its independent members also contribute to the board's composition. Monitoring at the two levels may consequently overlap even when committee responsibilities are specialised. This institutional nesting is the reason for the focal interaction; the ability to estimate an interaction is not itself the theoretical contribution.

Independent membership also needs to be distinguished from the resources and information that make oversight possible. Hillman and Dalziel (2003) connect board monitoring and resource provision to directors' knowledge, relationships, and incentives. Armstrong et al. (2010) explain how financial information supports governance and contracting. Adams and Ferreira (2007) show theoretically that monitoring and advising can create competing incentives for managers to share information. These arguments motivate attention to information access and responsibility allocation; they do not establish that greater independence reduces reporting quality.

Recent research makes the allocation of responsibilities especially salient. Cunningham et al. (2025) find that audit committees differ in how they accept, share, or resist additional oversight responsibilities. Gao et al. (2026) associate lead independent directors' service on audit committees with more reliable and timely reporting. These studies suggest that links between board roles can provide information and authority as well as overlapping oversight. They therefore support considering complementarity alongside the substitution prediction, without treating either process as observed in the present archival data.

Board research provides a related explanation. Monitoring and advising compete for directors' attention, and delegation changes communication and decision-making (Faleye et al., 2011; Adams et al., 2021). Lead independent directors are also associated with the internal information environment (Afzali et al., 2024). The relevance of independent members may consequently depend on where reporting responsibilities and information are concentrated.

Earlier evidence on earnings management, restatements, and internal control supplies the foundation for expecting a negative committee association (Klein, 2002; Abbott et al., 2004; Bédard et al., 2004; Krishnan, 2005). Research on management forecasts extends the argument to public disclosure (Karamanou and Vafeas, 2005). These outcomes nevertheless differ from sanctioned disclosure breaches. An accounting misstatement, a deficient control, and a late disclosure are not interchangeable manifestations of one latent construct. The present outcome extends this literature to formal disclosure compliance, while preserving the distinction between a firm's conduct and the regulator's observation of that conduct.

2.3. Hypothesis development

Under the intended directors-only model, the board and audit committee share members, authority, and information channels. Where board independence is low, independent audit committee members may provide a relatively scarce, reporting-focused channel for challenging management. Where board independence is higher, comparable oversight may be distributed more broadly. This reasoning predicts that the negative association between independent committee membership and violations will weaken as board independence increases.

A competing explanation remains plausible: a more independent board could strengthen the committee's authority and improve follow-up. We favour a substitution prediction because organisational overlap is direct, but the design does not observe information exchange, escalation, or actual monitoring effort. Reactive appointments, coordination difficulties, and omitted firm characteristics could produce a similar statistical pattern. The hypothesis therefore concerns a conditional association.

Substitution does not require an independent committee to become unhelpful as the board becomes more independent. The narrower prediction is diminishing additional relevance: the committee association may move from clearly negative toward zero. A positive high-board-independence estimate would require separate interpretation and adequate precision. Similarly, the hypothesis concerns the slope in the specified conditional mean; it does not predict a universal threshold at a particular board-independence percentage.

H1. The association between independent audit committee membership and annual disclosure violations becomes less negative as board independence increases.

H1 implies a positive interaction in the log conditional mean. It does not require a positive committee association at high board independence, and it does not imply that independence is harmful. A full-sample interaction may also depend on observations near the edges of the moderator's distribution. RQ2 therefore examines support restrictions and conditional associations across board-independence ranges. These analyses qualify the scope of H1 rather than establish regulatory thresholds.

3. Research Design

3.1. Sample construction and selection

The database combines annual reports, corporate governance reports, audited financial statements, and official enforcement decisions. The longitudinal comparison frame comprises 678 firms associated with HOSE and HNX over 2019–2025, giving 4,746 potential calendar cells. Table 1 distinguishes this comparison frame from firm-years with an audit committee and from the observations meeting the regression requirements.

Table 1
Sample construction and analytical windows

Stage	Firm-years	Firms
Longitudinal comparison frame	4,746 potential calendar cells (2019–2025)	678
Firm-years recorded as having an audit committee	1,001	210
Unbalanced analytical panel	853	203
Primary analysis (2021–2024)	539	150
At least two observed years (full-period sensitivity pool)	805	155
Notes: The analytical panel is unbalanced. The potential calendar grid is 678 firms × 7 years; it is not a count of verified listing-exposure years. Audit committee membership is undefined when a committee is absent. The full-period sensitivity pool is distinct from the primary 2021–2024 sample.		

Audit committee independence is intended to be defined only when a board-level committee exists. The database classifies 1,001 firm-years across 210 firms as having a committee. Observable committee composition, board composition, disclosure violations, and core controls yield 853 usable observations from 203 firms. The primary 2021–2024 panel contains 539 observations from 150 firms. It includes all firm-years meeting these requirements, without imposing continuous committee participation or a balanced panel. Absence of a committee is not coded as zero independent committee membership.

This distinction separates two selection questions. The first concerns which firms operate the governance structure under study. The second concerns which observations within that structure have sufficient measurement coverage. The first limits the population to which the estimates apply; the second may change the observed relationship even within that population. Retaining an unbalanced panel reduces the dependence on continuous data availability, but does not by itself resolve either question. A legal explanation for limited committee adoption therefore needs to be considered alongside, rather than in place of, inclusion diagnostics.

The primary period follows the effective date of the 2020 law and allows a longer enforcement observation window than fiscal year 2025. The full 2019–2025 and 2019–2024 periods are retained as temporal checks. Violations are assigned to the fiscal year of the underlying conduct, rather than automatically to the sanction announcement year. A shorter follow-up period may affect observed 2025 sanctions; it does not establish the reason for any difference in estimates.

3.2. Selection diagnostics and scope of generalisation

Selection is examined at two levels. Within the recorded committee population, the inclusion model distinguishes analytically usable firm-years from observations lacking required information. Its complete-case sample contains 986 observations: 850 included and 136 excluded. Fifteen of the 1,001 observations with a recorded committee lack at least one selection covariate; three of those fifteen belong to the 853-observation analytical panel. Consequently, the weighted primary regression retains 537 of the 539 observations. Supplementary Tables S1–S3 report the yearly reconciliation, group means, standard deviations, and comparison tests.

The inclusion logit uses firm size, age, profitability, leverage, Big Four status, foreign ownership, state ownership, major-shareholder ownership, exchange indicators, and year indicators. Industry is compared descriptively but

does not enter this logit. Size, profitability, and leverage are winsorised at the first and ninety-ninth percentiles of the distribution of observations with a recorded committee for this diagnostic. Stabilised weights equal the sample inclusion proportion divided by the estimated inclusion probability, and are applied only to included observations. They are not treatment-assignment weights.

Profitability has the largest absolute included–excluded standardised difference among these continuous covariates ($|SMD| = .275$; Welch $p = .014$). Because these comparisons pool repeated firm-years, the Welch and pooled chi-square tests are descriptive diagnostics; firm-clustered mean-difference tests are also supplied. For profitability, the clustered p -value is .208, illustrating why the pooled Welch result is not sufficient evidence of a statistically precise difference. Industry comparisons contain sparse cells, further limiting their asymptotic interpretation. The separate firm-level benchmark below avoids repeated observations within the comparison year.

Using the percentile convention implemented by Stata’s default percentile command, the stabilised-weight ninety-ninth percentile is 1.467 and the maximum is 4.463. Effective sample size is 825.1. For the eight continuous or binary inclusion covariates, the largest absolute difference from the full selection target, standardised by the target standard deviation, falls from .051 to .012. In the primary-period subset, the corresponding maximum falls from .077 to .020. These are comparisons with the complete-case target, not the included–excluded $|SMD|$ reported above. Table 2 summarises the diagnostics; Supplementary Tables S4–S6 define both calculations and report the selection-model estimates and categorical balance.

Table 2
Summary of reported selection diagnostics

Diagnostic	Population or quantity	Reported result
Complete-case inclusion comparison	Firm-years with a recorded committee, 2019–2025	850 included; 136 excluded
Profitability comparison	Included versus excluded complete cases	$ SMD = .275$; Welch $p = .014$; firm-clustered $p = .208$
Stabilised weight distribution	Included selection-model observations	99th percentile 1.467; maximum 4.463
Effective sample size	Weighted selection-model sample	825.1
Full-period balance	Eight modelled continuous or binary covariates; target $N = 986$	Maximum $ SMD $: .051 before; .012 after weighting
Primary-period balance	Same covariates; target $N = 628$	Maximum $ SMD $: .077 before; .020 after weighting
Primary weighted PPML	2021–2024 regression observations	$N = 537$; interaction IRR = 1.640, $p = .027$
Market-frame comparison	150 primary contributors versus 528 other firms, 2024	Size, exchange, and several ownership characteristics differ
Notes: SMD = standardised mean difference; IRR = incidence-rate ratio. The included–excluded SMD and the balance SMD relative to the target are different quantities. Full-period and primary-period balance are reported separately. Firm-clustered comparisons account for repeated observations; the pooled Welch tests are descriptive. Weight percentiles follow the default Stata percentile convention. Supplementary Tables S1–S6 provide full diagnostics.		

The market-frame comparison uses one 2024 record for each of the 678 firms: the 150 firms contributing to the primary panel and the remaining 528. Variable-specific denominators reflect missing values. Primary contributors are larger (mean log assets 28.779 versus 28.042; Welch $p < .001$). They also have higher foreign ownership (.113 versus .077; $p = .015$), lower state ownership (.070 versus .154; $p < .001$), and different exchange composition ($\chi^2 = 26.915$, $p < .001$). Other ownership differences and all group statistics appear in Supplementary Tables S2 and S3. These results contradict a claim of market-wide representativeness.

The estimates are therefore limited to the recorded committee sample and comparable observed characteristics. Weighting addresses measured inclusion differences within that population; it does not make firms without committees equivalent to firms with committees. Neither the cross-sectional benchmark nor weighting rules out survivorship bias.

Interpretation of the weighting exercise requires a positive probability of inclusion for relevant observations and selection covariates that adequately describe the inclusion process. Small weighted differences do not establish these assumptions or remove unobserved selection.

The research question emerged from exploratory analysis and was not preregistered. The study is therefore a theory-guided observational analysis. Magnitudes, uncertainty, support, alternative measures, and influential observations receive more weight than any single significance test.

3.3. Variables and controls

Disclosure

violations (FDV) count financial and nonfinancial disclosure breach instances formally sanctioned by the State Securities Commission and assigned to the misconduct year. These are observed breaches. An expected or predicted count refers to the model's conditional mean, not to a constructed substitute for actual violations. Alternative outcomes count distinct violation categories, sanction decisions or episodes, and whether any breach occurred. All remain subject to detection and enforcement (Karpoff et al., 2008; Dechow et al., 2011; Leuz and Wysocki, 2016).

Different misconduct databases identify different events and populations, with consequences for empirical inference (Karpoff et al., 2017). Evidence on undetected fraud further shows why recorded enforcement cannot be equated with the full incidence of misconduct (Dyck et al., 2024). In a strategic model of audit committee oversight, Patterson et al. (2024) distinguish the amount of managerial fraud, detection effort, and audit quality. Together, these studies caution against interpreting fewer recorded sanctions as an unambiguous measure of better underlying conduct.

Audit committee independence (ACI) is measured as the number of independent committee members. The abbreviation denotes the independent-member count throughout; the committee independence ratio is a separate measure. To distinguish membership from committee size, sensitivity analyses add total committee size and replace the count with the proportion of members who are independent. Board independence (IB) is the proportion of independent directors on the board. Table 3 gives the variable definitions.

Table 3
Variable definitions and measurement

Variable	Measurement	Use in analysis	Key references
Disclosure violations (FDV)	Annual count of disclosure breach instances formally sanctioned by the State Securities Commission and assigned to the misconduct year	Primary outcome	Dechow et al. (2011); Leuz and Wysocki (2016)
Audit committee independence (ACI)	Number of independent members serving on the audit committee; standardised in interaction models	Focal variable	Klein (2002); Abbott et al. (2004)
Board independence (IB)	Independent directors divided by total board size; standardised in interaction models	Moderator	Adams et al. (2010); Afzali et al. (2024)
Audit committee independence ratio	Independent audit committee members divided by total committee size	Alternative measure	Bédard et al. (2004); Poretti et al. (2018)
Audit committee size	Number of audit committee members	Governance control	Beasley et al. (2009)
Firm size	Natural logarithm of total assets	Core control	Bushman et al. (2004)
Recorded age	Age in years as recorded in the source dataset; see Section 3.3	Core control	Adams et al. (2010)
Profitability	Net income divided by total assets	Core control	Dechow et al. (2011)
Leverage	Total liabilities divided by total assets	Core control	Jensen and Meckling (1976)
Big Four auditor	Indicator equal to one for a Big Four external auditor	Core control	DeAngelo (1981)
Modified audit opinion	Indicator equal to one when the audit opinion is modified	Core control	DeFond and Zhang (2014)
Violation-category breadth	Number of distinct sanctioned disclosure-violation categories in the misconduct year (0–4)	Outcome check	Official sanction records
Sanction-decision count	Number of sanction decisions or enforcement episodes attributed to the misconduct year	Outcome check	Official sanction records
Any disclosure violation	Indicator equal to one when the annual disclosure-violation count is positive	Binary check	Official sanction records
Notes: ACI = audit committee independence; IB = board independence. In the primary 2021–2024 interaction models, ACI, the audit committee independence ratio, and IB are standardised using the primary-sample analytical distribution; full-period checks use the corresponding full-period standardisations. Governance and ownership sensitivity controls are described in Section 3.3.			

ACI and IB are standardised using their means and sample standard deviations in the 539-observation analytical distribution for 2021–2024; full-period checks use the corresponding full-period standardisations. Thus, conditional main coefficients are evaluated at the mean of the other standardised variable. Standardisation aids interpretation without altering the observational nature of the design.

Core controls are firm size, recorded age, profitability, leverage, Big Four auditor status, and modified audit opinion. Size captures scale and visibility; financial performance and leverage represent operating and financing conditions (Bushman et al., 2004). Auditor status and opinion capture observable assurance and reporting characteristics (DeAngelo, 1981; DeFond and Zhang, 2014). Profitability and leverage use the winsorised analytical values. Sensitivity models add committee size and meetings, board size and financial expertise, or major, foreign, state, managerial, family, and aggregate ownership. These covariate families address measured heterogeneity without establishing exogeneity. CEO duality and other governance characteristics not measured consistently may also account for residual differences. Source reconciliation identified inconsistencies in governance classification and in the starting event used for recorded age. The estimates retain the original variables and remain provisional pending reconciliation and re-estimation.

The distinction between a membership count and a ratio is substantive. Two committees can have the same number of independent members but different proportions because their total sizes differ. A count may capture the amount of independent representation, while a ratio captures its share of the committee. Neither reveals which members raise concerns or whether recommendations are implemented. The alternative ratio and size-adjusted specifications therefore assess a measurement ambiguity within the existing governance question, rather than serving as interchangeable measures of effectiveness.

Some control variables may themselves reflect reporting problems or governance decisions. In particular, auditor choice and modified opinions are contemporaneous characteristics, not predetermined sources of variation. Their inclusion defines a conditional descriptive comparison. The analysis does not interpret the coefficient as a total causal effect after controlling for these variables, and additional controls cannot rule out reactive appointments or differences in regulatory scrutiny.

3.4. Empirical specification and interpretation

The primary conditional-mean model is:

$$E(FDV_{it} | ACI_{it}, IB_{it}, X_{it}, \lambda_t) = \exp[\beta_0 + \beta_1 ACI_{it} + \beta_2 IB_{it} + \beta_3 (ACI_{it} \times IB_{it}) + \gamma' X_{it} + \lambda_t]. \quad (1)$$

X_{it} contains the core controls and λ_t represents year fixed effects. H1 predicts $\beta_3 > 0$. The exponentiated interaction coefficient is the multiplicative change in the ACI incidence-rate ratio associated with one standard deviation higher IB. It is not the interaction in expected-count units. We therefore also report conditional log-count slopes, $\beta_1 + \beta_3 IB$, exponentiated slopes, and average predicted counts.

Poisson pseudo-maximum likelihood (PPML) accommodates nonnegative counts and zeros. With a correctly specified conditional mean, consistency does not require equality of the conditional mean and variance; firm-clustered standard errors allow within-firm dependence (Gourieroux et al., 1984; Santos Silva and Tenreiro, 2006; Cameron and Trivedi, 2013). Year effects account for common annual variation. The design does not posit a separate structural-zero process and therefore does not use a zero-inflated model.

Negative binomial type 2 and binary logit models assess outcome-distribution sensitivity. A Mundlak-style PPML specification adds firm means of standardised ACI and IB. This is a limited correlated-random-effects diagnostic rather than a complete correction for persistent confounding. A conditional firm-fixed-effects Poisson specification uses 136 observations from 36 retained firms (Wooldridge, 1999, 2019). These methods change the variation contributing to estimation and do not identify causal appointment effects.

Governance may also respond to earlier reporting problems. Farber (2005) documents governance changes following fraud detection, while Wintoki et al. (2012) emphasise the dynamic endogeneity of internal governance choices. Contemporaneous independence can consequently reflect past remediation or anticipated scrutiny as well as prior monitoring capacity. The present models describe conditional associations and do not separate these pathways.

The primary PPML specification combines differences between firms with changes within firms. Year effects remove common annual variation but do not isolate within-firm changes in independent membership. The means of ACI and IB provide a partial description of persistent differences; they cannot substitute for observing why committee or board composition changed. The smaller firm-fixed-effects sample supplies a distinct diagnostic and need not estimate the same population relationship with the same precision.

Temporal analyses lag both focal variables, examine alternative windows, and estimate a separate 2025 interaction difference. Support analyses restrict IB to central percentile ranges and compare low, middle, and high ranges. Leave-one-firm-out estimates assess influence. The 3×3 prediction grid evaluates the fitted mean at selected standardised values; these combinations need not correspond to observed or feasible board–committee structures. Interpretation consequently depends on both marginal and joint support, not on the interaction p-value alone.

4. Results

4.1. Descriptive evidence

Table 4 summarises the primary panel. Mean FDV is 0.623, and 15.4% of observations have a positive count. Recorded committees average 1.323 independent members and 2.495 members overall; mean board independence is 0.288. There are 336 recorded breaches in total and 83 observations with a positive count. The variation permits a conditional analysis, although the concentration of zeros limits the information available for estimation.

Table 4
Descriptive statistics for the primary 2021–2024 sample

Variable	N	Mean	SD	Min	Max
Disclosure violations	539	0.623	1.995	0.000	17.000
Any disclosure violation	539	0.154	0.361	0.000	1.000
Audit committee independent members	539	1.323	0.851	0.000	5.000
Audit committee independence ratio	539	0.551	0.319	0.000	1.000
Board independence	539	0.288	0.125	0.000	0.667
Audit committee size	539	2.495	0.812	1.000	8.000
Audit committee meetings	538	16.920	18.335	0.000	150.000
Board size	539	5.827	1.466	3.000	11.000
Board financial expertise	539	0.264	0.250	0.000	1.000
Firm size	539	28.794	1.680	25.133	34.176
Recorded age	539	11.462	5.310	0.000	35.000
Profitability	539	0.076	0.342	-0.103	3.332
Leverage	539	0.475	0.221	0.016	0.909
Big Four auditor	539	0.445	0.497	0.000	1.000
Modified audit opinion	539	0.037	0.189	0.000	1.000
Notes: N = observations; SD = standard deviation. Values are from the primary unbalanced sample. Profitability and leverage use the existing winsorised analytical values. Source: authors' calculations.					

Table 5 reports descriptive Pearson correlations. Independent committee membership and the committee independence ratio are strongly correlated (.826), while the correlation between ACI and IB is .187. These correlations neither test H1 nor establish joint support for every combination used in the prediction grid.

Table 5
Pearson correlations

Var.	Viol.	ACI	ACIR	IB	AC size	Size	Age	ROA	Lev.	Big4	Mod.
Viol.	1.000										
ACI	-0.057	1.000									
ACIR	-0.028	0.826	1.000								
IB	0.042	0.187	0.355	1.000							
AC size	0.016	0.271	-0.201	-0.209	1.000						
Size	0.160	0.098	0.042	0.019	0.206	1.000					
Age	-0.156	-0.006	0.043	0.082	-0.030	0.052	1.000				
ROA	-0.045	-0.044	-0.043	-0.047	-0.029	-0.012	-0.208	1.000			
Lev.	0.043	0.078	0.003	0.022	0.169	0.484	0.012	0.058	1.000		
Big4	0.051	0.134	0.068	0.055	0.175	0.548	0.174	-0.082	0.289	1.000	
Mod.	-0.022	-0.005	0.017	0.061	-0.035	-0.142	0.001	-0.057	0.044	-0.176	1.000
Notes: Lower-triangle Pearson correlations. Viol. = disclosure violations; ACI = independent audit committee membership; ACIR = committee independence ratio; IB = board independence; AC size = committee size; ROA = profitability; Lev. = leverage; Big4 = Big Four auditor; Mod. = modified opinion. Correlations are descriptive.											

4.2. The interaction and conditional associations

Table 6 reports the main PPML estimates. At mean IB, the ACI coefficient is negative but imprecise at the 5% level ($\beta = -0.363$, $p = .061$; incidence-rate ratio, IRR = 0.696). At mean ACI, IB is positively associated with the expected violation count ($\beta = 0.385$, $p = .024$; IRR = 1.469). The interaction is positive ($\beta = 0.501$, $p = .018$; IRR = 1.650, 95% confidence interval [1.089, 2.500]). The coefficient's sign matches the directional prediction over the full recorded sample. Its interpretation remains provisional and subject to the support and influence limitations below.

Table 6
PPML estimates of the board–audit committee interaction

Variable	(1) Core	(2) Governance	(3) Ownership	(4) Size-adjusted
ACI	-0.363† (0.193)	-0.435* (0.214)	-0.314† (0.187)	-0.362† (0.195)
IB	0.385* (0.171)	0.441* (0.192)	0.227 (0.174)	0.382* (0.172)
ACI × IB	0.501* (0.212)	0.563** (0.195)	0.444* (0.175)	0.503* (0.212)
Year fixed effects	Yes	Yes	Yes	Yes
Governance controls	No	Yes	No	AC size only
Ownership controls	No	No	Yes	No
Firm clusters	150	150	150	150
Observations	539	538	537	539

Notes: Poisson log-link estimates with firm-clustered standard errors in parentheses. ACI and IB are standardised. Governance sensitivity controls are audit committee size, audit committee meetings, board size, and board financial expertise. Ownership sensitivity controls cover major, foreign, state, managerial, family, and aggregate ownership. Every model includes firm size, recorded age, profitability, leverage, Big Four auditor status, modified audit opinion, and year fixed effects. ***p < .001; **p < .01; *p < .05; †.05 ≤ p < .10.

The interaction remains positive with governance controls (IRR = 1.757, p = .004), ownership controls (IRR = 1.558, p = .011), and an explicit committee-size control (IRR = 1.653, p = .018). Replacing independent membership with the committee independence ratio yields IRR = 1.450 (p = .049). These specifications suggest that committee size alone does not explain the pattern, although they cannot exclude unmeasured differences between firms.

Table 7 answers RQ1 through conditional ACI associations. At IB = − 1 standard deviation, one standard deviation higher ACI is associated with a 57.8% lower model-implied count (IRR = 0.422, p = .001; 95% confidence interval [0.254, 0.701]). At mean IB, the estimate is 0.696 (p = .061); at IB = + 1 standard deviation, it is 1.148 (p = .658). The latter estimates do not establish either no association or harmful independent monitoring.

Table 7
Conditional association of independent audit committee membership

Board independence	ACI slope (β)	SE	p-value	IRR	95% IRR CI
IB = -1 SD	-0.863	0.259	.001	0.422	[0.254, 0.701]
IB = mean	-0.363	0.193	.061	0.696	[0.477, 1.016]
IB = + 1 SD	0.138	0.312	.658	1.148	[0.623, 2.115]

Notes: The conditional log-count slope is $\beta_1 + \beta_3 IB$. ACI and IB are standardised. SE = standard error; IRR = $\exp(\beta)$; CI = confidence interval. These are conditional associations, not causal estimates.

Table 8 and Fig. 1 display average point predictions. At low IB, the fitted count decreases from 0.738 to 0.131 as ACI moves from – 1 to + 1 standard deviation. The corresponding changes are 0.658 to 0.318 at mean IB and 0.586 to 0.772 at high IB. These are mathematical evaluations of the model. They should not be interpreted as attainable governance changes: under the intended directors-only structure, committee members must also be board members, and setting the two measures independently can imply unsupported combinations. The grid illustrates the fitted relationship. Conditional slopes also depend on the ACI variation available at each IB value; they do not automatically resolve weak empirical support.

The largest fitted decline should be read particularly cautiously. It spans two standard deviations of ACI at a fixed low IB value, whereas the reported IRR describes a one-standard-deviation conditional comparison. These are different summaries of the same fitted function. Neither is an estimate of the reduction a firm would achieve by appointing directors. Observed structural constraints, changes in other governance characteristics, and endogenous appointment decisions prevent that policy interpretation.

Table 8
Average predicted annual disclosure violations

Board independence	ACI – 1 SD	ACI mean	ACI + 1 SD
IB -1 SD	.738	.311	.131
IB mean	.658	.458	.318
IB + 1 SD	.586	.673	.772
Notes: Average point predictions from the primary PPML model. Focal variables are set to the indicated standardised values; other covariates retain observed values. The grid includes extrapolated combinations under the stated nesting constraints and is an illustration of the fitted model, not an attainable appointment scenario. Conditional-slope uncertainty is reported in Table 7.			

4.3. Sensitivity and empirical support

Table 9 summarises model, outcome, selection, support, and influence diagnostics. The estimated interaction remains positive, but precision varies. Negative binomial estimation ($p = .065$), binary logit ($p = .054$), and firm-fixed-effects Poisson ($p = .276$) provide weaker evidence than the primary specification. Their results qualify, rather than independently confirm, the main finding.

These models also answer slightly different empirical questions. The binary specification concerns whether any sanctioned breach occurs, whereas the count models retain information about multiple breaches. Firm-fixed-effects estimation places greater demands on the available panel information. A coefficient that keeps its sign across these specifications is informative about direction, but should not be described as equally precise or equally supported across models.

Table 9
Sensitivity of the interaction to specification and sample

Specification	β	SE	p-value	IRR/OR	N
Primary PPML	0.501	0.212	.018	1.650	539
Negative binomial	0.271	0.147	.065	1.311	539
Governance controls	0.563	0.195	.004	1.757	538
Ownership controls	0.444	0.175	.011	1.558	537
Audit committee independence ratio	0.371	0.189	.049	1.450	539
Binary outcome (OR)	0.413	0.214	.054	1.512	539
Firm-level means of ACI and IB	0.462	0.218	.034	1.588	539
Lagged focal variables	0.459	0.159	.004	1.583	456
Inverse-probability weighting	0.495	0.224	.027	1.640	537
Firm fixed-effects Poisson	0.204	0.187	.276	1.226	136
Board independence: 10th-90th percentile	0.177	0.287	.536	1.194	440
Excluding most influential firm	0.163	0.288	.572	1.177	535
Violation-category breadth	0.309	0.143	.031	1.362	539
Sanction-decision count	0.388	0.138	.005	1.473	539
Notes: The focal term is $ACI \times IB$, except for the committee-independence-ratio specification. Binary logit reports an odds ratio; other entries are exponentiated count-model coefficients. The firm-fixed-effects estimation sample contains 136 observations from 36 firms. The Mundlak diagnostic adds means of focal variables only. Weighting addresses observed inclusion differences.					

The interaction is positive in the PPML specification with firm-level means of ACI and IB (IRR = 1.588, $p = .034$), lagged specification (IRR = 1.583, $p = .004$), and weighted model (IRR = 1.640, $p = .027$). The sample restricted to firms with at least two observed years yields IRR = 1.551 ($p = .033$). Industry adjustment gives IRR = 1.591 ($p = .004$), although some industry coefficients are numerically unstable. Alternative outcomes based on violation categories and sanction decisions yield interaction IRRs of 1.362 ($p = .031$) and 1.473 ($p = .005$), respectively. These checks reduce concern about within-notice multiplicity, without separating compliance from detection.

The full-period 2019–2025 interaction is imprecise (IRR = 1.404, $p = .123$), whereas the 2019–2024 estimate is more precise (IRR = 1.566, $p = .031$). The 2025 interaction difference is negative (differential IRR = 0.581, $p = .037$), and the combined 2025 interaction is imprecise (IRR = 0.915, $p = .529$). Shorter enforcement follow-up is one possible explanation, but these estimates do not distinguish it from changes in sample composition or governance relationships.

Support restrictions answer RQ2. The 5th percentile of IB is zero, so a 5th–95th percentile restriction still retains the lower boundary. Restricting IB to the central 10th–90th percentile range, 0.20–0.40, leaves 440 observations from 139 firms and an imprecise interaction (IRR = 1.194, $p = .536$). Table 10 further reports a negative ACI slope

in the low-IB range (IRR = 0.429, $p = .033$), with imprecise middle- and high-range slopes. These descriptive cut points are not identified thresholds.

Table 10
Committee membership associations across board-independence ranges

Board-independence range	Observed IB range	N	Firms	ACI β	SE	p-value	IRR
Low	0.000 to 0.250	228	88	-0.847	0.397	.033	.429
Middle	> 0.250 to < 0.375	166	66	-0.354	0.282	.209	.702
High	0.375 to 0.667	145	61	0.114	0.176	.518	1.120
Notes: Ranges are descriptive, not causal thresholds or legal cutoffs. Firms can contribute observations to more than one range over time, so the firm counts need not sum to 150. A significant estimate in one range and an insignificant estimate in another is not a formal test of their difference.							

All 150 leave-one-firm-out interaction estimates are positive and 149 have $p < .05$. However, excluding the most influential firm yields IRR = 1.177 ($p = .572$). The central-range and influence checks limit the conclusion to evidence estimated most precisely at lower board independence. A restricted-sample loss of precision also reflects reduced variation and sample size; it does not establish that the association is absent elsewhere.

The range-specific estimates should also be distinguished from a formal test of differences between ranges. A significant estimate in one range and an insignificant estimate in another do not establish that the two estimates differ statistically. The continuous interaction provides the primary test of the directional hypothesis. The separate ranges help describe where the negative association is estimated most precisely, with their chosen boundaries treated as descriptive.

5. Discussion

5.1. Theoretical contribution

The findings qualify an additive interpretation of independent monitoring. ACI has an imprecise negative association at mean IB, whereas IB has a positive association at mean ACI. Their positive interaction indicates that the negative committee association weakens as board independence increases. This pattern is consistent with substitution, but does not identify substitution as the underlying organisational process.

The contribution is to examine where independent membership is located across theoretically linked governance bodies. Agency theory explains why independent challenge can matter, while research on governance arrangements explains why its relevance may depend on surrounding mechanisms (Aguilera et al., 2008; Becher and Frye, 2011; Poretti et al., 2018). Committee delegation and information exchange offer plausible reasons for such dependence (Beasley et al., 2009; Adams et al., 2021; Livne et al., 2024). A committee may provide a distinctive channel where board independence is scarce, but overlapping authority, reactive appointments, and omitted firm characteristics remain alternative explanations.

RQ2 places a substantive boundary around this contribution. The full-range interaction is more precise than the central-range estimate, and one firm matters materially for precision. This makes empirical support part of the

interpretation, not an ancillary robustness exercise.

The distinction also limits claims about monitoring costs. Prior work considers trade-offs between intense monitoring, advice, and communication (Faleye et al., 2011; Adams et al., 2021). Those mechanisms could motivate further research, but the present data contain no direct measure of information withholding, trust, duplicated work, or advising quality. A positive interaction in observed sanctions cannot establish any of these costs. The evidence concerns how a fitted association varies across structures, with several organisational explanations remaining compatible with it. Formal independence measures also reveal little about actual information access or influence. Process data would be needed to distinguish compensation for weak monitoring from coordination problems or selection into governance structures.

5.2. Practical implications

The results do not support reducing board independence or prescribing a numerical ceiling. They suggest examining whether audit committees have clear reporting responsibilities, access to internal and external auditors, and procedures for escalating unresolved concerns. These practices are consistent with process-oriented governance research; their effectiveness is not tested here.

For a firm with limited independent representation on the board, the relevant managerial question is how a committee raises and resolves reporting concerns. For a firm with more extensive independent representation, it is how the committee's responsibilities relate to those of the full board. The evidence motivates examining these arrangements, but does not show that one firm should imitate another's membership count or independence ratio. Such decisions also depend on expertise, resources, legal requirements, and information needs that the study does not fully measure.

For regulators, investors, and firms, committee independence is more informative when considered alongside the full board's composition and responsibilities. Disclosure about committee mandates, auditor access, and follow-up may help interpret formal structures. The study does not estimate the costs or benefits of additional reporting requirements and cannot justify a new mandate. Its numerical estimates should not be transferred automatically to other jurisdictions or to firms using different governance models. The theoretical comparison is most relevant where a committee is genuinely part of the board, independent membership uses consistent definitions, and members have comparable authority to obtain and escalate reporting information. Separate supervisory boards or materially different enforcement practices can change both the governance relationship and the probability that a breach appears in the outcome.

5.3. Limitations and future research

Selection remains a material limitation. The unbalanced design retains more usable observations than a continuous-data requirement, but the findings remain conditional on having recorded committee information. Weighting improves reported balance on observed covariates; it cannot remove unobserved selection or establish representativeness of the broader market. The firm-level benchmark documents market-frame differences but does not resolve survivorship bias.

Governance choices may respond to prior reporting problems, controlling shareholders, succession, or expected scrutiny. Year effects, lags, and limited firm-mean adjustments do not isolate exogenous variation. Moreover, the sanctions outcome reflects both conduct and enforcement. Combining it with restatements, reporting timeliness,

internal-control evidence, or disclosure quality could help distinguish reporting failures from differences in detection.

For example, more independent oversight might coincide with greater identification or escalation of an existing problem, even if underlying conduct improved. Conversely, stronger monitoring might coincide with fewer breaches while the probability of regulatory detection remained unchanged. Because both conduct and detection contribute to the recorded outcome, the same observed association can be compatible with different pathways. The study cannot determine their relative importance from sanction counts alone. This is a measurement boundary, not a reason to discard documented enforcement outcomes.

Measurement and support also constrain interpretation. Independent membership is not direct evidence of monitoring effort. The prediction grid varies linked governance measures independently and includes extrapolated combinations under the stated nesting constraints. The central-range and influential-firm results warrant caution, while the firm-fixed-effects specification draws on a much smaller set of firms. Future research should prioritise documented appointment changes, better measurement of monitoring processes, and broader joint support before adding further estimators.

Finally, the study follows exploratory analysis rather than preregistration. Independent validation is needed to assess whether the conditional pattern generalises. Meeting records, auditor communications, escalation procedures, and director networks would help investigate the mechanisms highlighted by process-oriented audit committee research (Hermanson et al., 2024).

6. Conclusion

In the recorded committee sample of 150 Vietnamese firms during 2021–2024, independent committee membership is most clearly associated with fewer regulator-observed disclosure violations when board independence is low. The estimated interaction is positive, but central-range and influence checks materially limit its precision. Alternative specifications do not uniformly confirm the result.

The evidence supports examining board and committee independence jointly while keeping inference associational. It does not establish that changing independent membership improves compliance, that extensive independence is harmful, or that the reported prediction grid represents feasible policy choices. The study describes a conditional governance relationship whose interpretation depends on institutional setting, selection, enforcement, and empirical support. The reported estimates remain provisional.

Declarations

Data availability

The study uses annual reports, audited financial statements, corporate governance reports, and official enforcement disclosures issued by HOSE, HNX, and the State Securities Commission of Vietnam. These source documents are publicly available from their original issuers. The processed dataset, Stata analysis code, and supplementary diagnostic tables accompany the manuscript.

Competing interests

The authors declare no competing interests.

Ethics approval

Not applicable. The study uses publicly available firm-level archival information and does not involve human participants.

Informed consent

Not applicable.

Author contributions

The first author contributed to conceptualisation, methodology, supervision, and review and editing. The second author contributed to conceptualisation, data curation, formal analysis, investigation, visualisation, original drafting, and review and editing.

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Figures

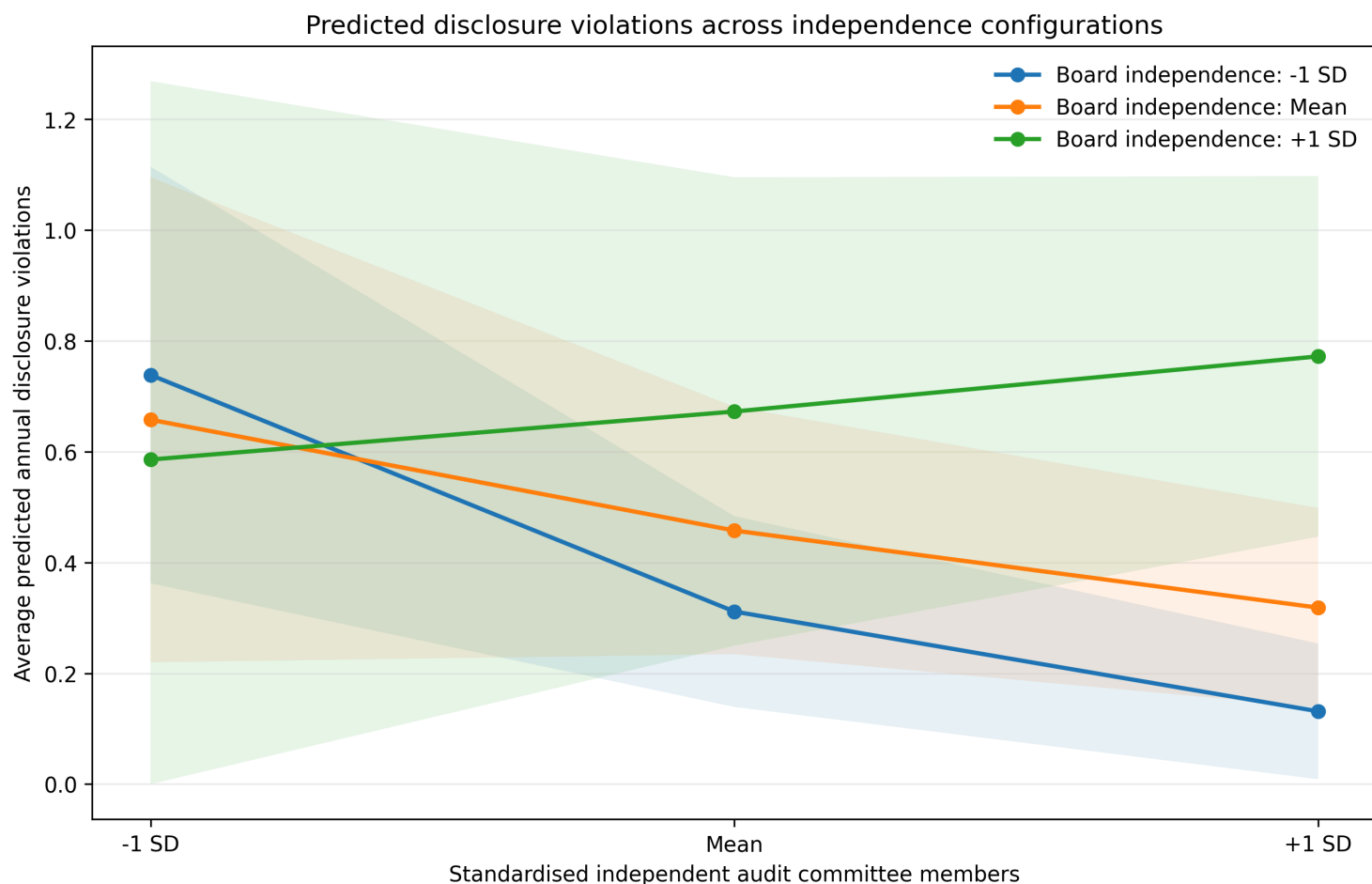


Figure 1

Model-predicted disclosure violation counts across board and audit committee independence. Average point predictions are from the primary 2021–2024 PPML model at the standardised ACI–IB grid reported in Table 8. Lines connect model evaluations for readability. The grid includes extrapolated combinations under the stated nesting constraints and does not represent attainable appointment changes. Confidence intervals for conditional ACI slopes appear in Table 7; confidence bands for predictions are not shown.

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