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Can Directors and Officers Liability Insurance Mitigate Corporate ESG Decoupling? Evidence from China A-Share Listed Companies

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Abstract. As ESG (Environmental, Social, and Governance) issues draw increasing attention, Directors and Officers (D&O) liability insurance has emerged as a critical tool in corporate risk management, playing a positive role in enhancing corporate governance and reducing operational risks. Against this backdrop, preventing ESG decoupling is essential for achieving sustainable and high-quality development. Based on data from A-share listed companies between 2007 and 2023, this study investigates the impact of D&O insurance on corporate ESG decoupling. The empirical results indicate that D&O insurance significantly mitigates ESG decoupling, with the effect being statistically significant at the 1% level. Specifically, D&O insurance alleviates ESG decoupling primarily by easing firms' financing constraints, curbing managerial short-termism, and increasing R&D investment. These findings provide robust empirical evidence for the role of D&O insurance in promoting sound and high-quality corporate development and offer valuable insights for policy formulation and corporate management practices.

Keywords: ESG decoupling, Directors and officers liability insurance, managerial short-termism, external monitoring

1. Introduction

Amid the global push for sustainable development, a critical challenge has emerged: the gap between corporate ESG disclosures and substantive action, a phenomenon known as ESG decoupling [1]. This disconnect not only damages corporate reputation but also introduces significant legal and financial risks, threatening long-term firm value [2]. While extant literature has extensively examined the influence of external pressures on corporate ESG behavior, the role of internal governance mechanisms in mitigating ESG decoupling remains a significant, underexplored area.

This study proposes that Directors and Officers (D&O) liability insurance (hereinafter referred to as DOI), a key internal risk management tool, plays a crucial role in aligning ESG promises with practice. DOI aims to safeguard corporate executives against legal actions arising from their managerial decisions [3]. Although its effects on corporate governance and investment behavior have been studied [4,5], its impact on corporate social responsibility—and specifically on ESG

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decoupling—has received scant attention, with related topics accounting for a small fraction of existing research [6].

To bridge this gap, we employ panel data on Chinese A-share firms covering the period 2007–2023 to conduct an empirical analysis of this relationship. Our findings are threefold. First, we identify a notable negative association between DOI and ESG decoupling, indicating that such insurance plays an effective role in restraining this practice. Second, we explore the underlying mechanisms, showing that this effect is transmitted through easing financing constraints, restraining managerial short-termism, and stimulating R&D investment. Third, heterogeneity tests reveal that this mitigating effect varies with firms' ownership structures, pollution intensities, and operational characteristics.

This study offers several contributions to the existing literature. It broadens the study of ESG decoupling determinants by focusing on a novel internal financial instrument. It further expands the literature on the economic implications of DOI by revealing its role in fostering substantive ESG engagement. Finally, by opening the "black box" and revealing the transmission channels, our study provides a more nuanced understanding of how internal governance tools can shape sustainable corporate behavior. The remainder of this paper details our theoretical analysis, research design, empirical results, and conclusions.

2. Theoretical analysis and research hypotheses

2.1. Baseline hypotheses

Directors’ and officers’ liability insurance (hereafter DOI) can plausibly move ESG outcomes in opposite directions.

Opportunism view. By shifting part of the downside from managers to the insurer, DOI reallocates liability risk for errors and omissions. This risk transfer weakens personal downside discipline and creates moral-hazard slack, raising executives’ effective risk appetite. With a softer personal loss function, managers may favor short-term financial payoffs over costly, longer-horizon ESG investments. The result is a wider talk–action gap: formal ESG claims increase while operational practice lags.

H1. DOI exacerbates corporate ESG decoupling.

Incentives & external discipline view. DOI can also improve ESG performance. By buffering idiosyncratic legal/professional risk, it reduces excessive risk aversion, making managers more willing to undertake long-lived ESG projects (e.g., green process upgrades, human-capital programs) rather than confining efforts to disclosure. In parallel, insurers add third-party monitoring through underwriting screens, premium adjustments, covenants, and subrogation after claims—mechanisms that price ESG risk and pressure weak performers. Together, managerial risk-taking in productive ESG domains increases while greenwashing incentives shrink, narrowing the disclosure–practice divergence.

H2. DOI alleviates corporate ESG decoupling.

2.2. Mechanism hypotheses

We conceptualize the DOI → ESG pathway as a risk coverage → resource reallocation → behavioral realignment sequence:

Innovation channel. With personal liability partially insured, managers are more willing to back uncertain but valuable ESG-related R&D, embedding sustainability into the firm’s technology

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agenda and shrinking the rhetoric–reality gap.

H3. DOI mitigates ESG decoupling by boosting R&D investment.

Financing channel. As a governance-quality signal, DOI can lower perceived firm risk, easing external financing constraints. Greater financial slack supports substantive ESG implementation beyond symbolic disclosure.

H4. DOI mitigates ESG decoupling by relaxing financing constraints.

Intertemporal-orientation channel. Risk protection frees managerial attention from quarterly downside to long-term value creation, curbing short-termism that crowds out sustained ESG effort.

H5. DOI mitigates ESG decoupling by reducing managerial short-termism.

3. Research design

3.1. Sample selection and data sources

This study focuses on Chinese A-share listed companies from 2007 to 2023 as the research sample. To ensure the robustness of the empirical results, the following data processing steps are undertaken during the empirical analysis stage: companies with missing data, those in the financial industry, ST-designated firms, and firms with abnormal data are excluded. After data cleaning and matching, the final sample comprises 10,763 firm-year observations. Firm-level financial and governance data are mainly sourced from the CSMAR database, whereas ESG performance scores for listed companies are drawn from the CNRDS database.

Table 1. Descriptive statistics of variables

Variable	Observations	Mean	Std. Dev.	Min	Median	Max
DOIN	10600	0.2025	0.4018	0.0000	0.0000	1.0000
Decoupling	10600	-0.3272	1.5199	-13.9460	-0.1389	4.9668
Decoupling2	10600	-0.3341	1.5238	-11.7199	-0.1899	9.2834
Size	10600	23.1266	1.4526	18.2659	22.9821	28.6436
IndDirectorRatio	10600	37.4425	5.6450	0.0000	36.3600	80.0000
Lev	10600	0.4684	0.1974	0.0080	0.4792	0.9967
Cashflow	10600	0.0568	0.0724	-0.4630	0.0540	0.7255
ROA	10334	0.0481	0.0677	-0.6448	0.0408	0.9686
Dual	10600	0.2171	0.4123	0.0000	0.0000	1.0000

3.2. Variable design

3.2.1. Dependent variable

The dependent variable in this study is the degree of ESG decoupling of listed companies. Following prior research [7], ESG decoupling is defined as the gap between the optimistic tone score of a company's ESG report and its actual ESG performance score. This difference is measured using standardized z-scores. A larger difference indicates a higher degree of ESG decoupling.

To assess the optimistic tone of ESG reports, we employ text analysis techniques. Annual CSR and ESG reports of A-share listed companies are downloaded and converted from PDF to TXT format. We then use the financial sentiment word list developed by Loughran and McDonald to

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count the number of optimistic and pessimistic words. The optimistic tone is calculated as the percentage resulting from 100 times the difference between the number of positive and negative words, divided by their total. The optimistic tone score (denoted as POSITIVE) is then standardized using z-scores. For ESG performance, we rely on ESG scores provided by the third-party rating agency, the China Research Data Service Platform (CNRDS). These ESG scores are also standardized using z-scores to obtain the ESG performance score (ESG_Score). Finally, ESG decoupling (Decoupling) is calculated as the difference between the optimistic tone score and the ESG performance score.

3.2.2. Independent variable

The independent variable is whether a company acquired DOI in a given year. If a company obtained DOI for its executives in a given year, the variable DOIN is coded as 1; otherwise, it is coded as 0.

3.2.3. Control variables

Following previous literature, we include the following control variables in the regression model: firm size (Size), the proportion of independent directors on the board (IndDirectorRatio), leverage (Lev), cash flow ratio (Cashflow), return on assets (ROA1), and CEO duality (Dual). In addition, we include year-fixed effects (Year) and firm-fixed effects (Firm). All control variables are obtained from the CSMAR database.

3.2.4. Mechanism variables

We test three mediating channels: financing constraints, managerial short-termism, and R&D investment. Following prior literature, we measure financing constraints using the SA index, chosen over the KZ and WW indices due to its lower sensitivity to endogeneity. A smaller (more negative) SA index value indicates more severe constraints. Managerial short-termism is proxied by the frequency of short-term-oriented keywords within the Management Discussion and Analysis (MD&A) section of annual reports, derived from text analysis. R&D investment is measured as the total R&D expenditure disclosed in the firm's annual report.

3.3. Model specification

This study constructs the following empirical model to test the relationship:

$$Decoupling_{i,t} = \beta_0 + \beta_1 DOIN_{i,t} + \beta_N Controls_{i,t} + \mu_t + \delta_i + \varepsilon_{i,t} \quad (1)$$

Where $Decoupling_{i,t}$ is the degree of ESG decoupling for firm i in year t; $DOIN_{i,t}$ is a dummy variable equal to 1 if firm i purchases DOI in year t, and 0 otherwise; β_1 captures the effect of DOI on ESG decoupling. A significantly negative β_1 would support Hypothesis 2, indicating that DOI mitigates ESG decoupling. $Controls_{i,t}$ represents a vector of control variables; μ_t and δ_i are year-fixed and firm-fixed effects, respectively; $\varepsilon_{i,t}$ is the error term. The theoretical rationale is that DOI, by mitigating executives' personal litigation risks, fundamentally alters managerial incentives and corporate capabilities. This risk reduction can encourage a shift

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from a short-term financial focus towards long-term strategic investments, such as R&D. Concurrently, purchasing DOI can signal strong governance to external investors, thereby easing the firm's financing constraints. Together, reduced managerial short-termism, enhanced innovation, and greater financial flexibility empower firms to invest in substantive ESG initiatives rather than symbolic disclosures, thus mitigating ESG decoupling.

$$Mechanism_{i,t} = \alpha_0 + \alpha_1 DOIN_{i,t} + \alpha_N Controls_{i,t} + \mu_t + \delta_i + \varepsilon_{i,t} \quad (2)$$

$$Decoupling_{i,t} = \gamma_0 + \gamma_1 DOIN_{i,t} + \gamma_2 Mechanism_{i,t} + \gamma_N Controls_{i,t} + \mu_t + \delta_i + \varepsilon_{i,t} \quad (3)$$

4. Empirical results

4.1. Baseline regression

Table 2. Baseline regression

	(1) Decoupling	(2) Decoupling
DOIN	-0.137*** (-2.766)	-0.115*** (-2.293)
Size		-0.065** (-2.017)
IndDirectorRatio		-0.002 (-0.678)
Lev		-0.099 (-0.754)
Cashflow		-0.104 (-0.610)
ROA		0.452*** (2.249)
Dual		0.063 (1.581)
constant	-0.273*** (-20.191)	1.314* (1.772)
N	11066	10763
R^2	0.676	0.677
F	7.652	3.077

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. t-values are reported in parentheses. The same notation applies to the following tables.

Table 2 reports the baseline estimates of DOI on ESG decoupling. In Column (1), without controls, the coefficient on DOIN is negative and significant at the 1% level, indicating that DOI is

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associated with lower ESG decoupling. After adding the full set of controls in Column (2), the DOIN coefficient remains negative and statistically different from zero (5% level). Across both specifications the sign and significance are stable. In terms of magnitude, DOI is linked to a ≈0.115-SD reduction in ESG decoupling, which is economically meaningful. These patterns provide initial evidence that DOI helps dampen ESG decoupling among listed firms.

4.2. Robustness tests

4.2.1. Alternative dependent variable

To test sensitivity to outcome construction, we re-define the dependent variable by revising the optimistic-tone component of ESG reports and form Decoupling2. Re-estimating the main specification (Table 3, Columns 1–2) yields negative and significant coefficients on DOI, closely matching the baseline. This confirms that the mitigating association is robust to alternative measures of decoupling.

Table 3. Robustness tests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Decoupling2			Decoupling			
DOIN	-0.155*** (-3.132)	-0.118** (-2.396)	-0.184** (-2.103)	-0.146* (-1.686)	-0.114** (-2.246)	-0.115** (0.050)	-0.114** (0.050)
Level of Economic Development							0.000** (0.000)
Tax Burden							1.600 (1.664)
Intensity of Fiscal Support							0.649 (0.733)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
constant	-0.272*** (-20.33)	2.505*** (3.392)	0.056*** (3.568)	-0.223 (0.241)	1.343* (1.701)	1.314* (0.742)	0.908 (0.767)
N	11066	10763	6811	6682	10440	10763	10754
R^2	0.682	0.685	0.665	0.668	0.682		
F	9.808	4.073	4.423	4.085	2.709		

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. t-values are reported in parentheses. The same notation applies to the following tables.

4.2.2. Alternative sample periods

4.2.2.1. Excluding the impact of major events

The COVID-19 outbreak at the end of 2019 profoundly affected both China's domestic economy and the global market. Following prior literature, we exclude data from 2020 to 2023 to eliminate potential disturbances caused by the pandemic and restrict the sample period to 2007–2019. The regression is re-estimated based on this adjusted panel, and the results are reported in columns (3)

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and (4) of Table 3 [8]. The coefficient on DOIN remains negative and statistically significant, consistent with the baseline results.

4.2.2.2. Narrowing the time window

To further account for possible confounding effects from the global financial crisis, we remove data from 2007 to 2009, narrowing the sample period to 2010–2023. The estimation results are reported in column (5) of Table 3 and are broadly consistent with the baseline regressions. During the 2010–2023 period, the coefficient of DOIN remains significantly negative at the 5% level, confirming the robustness of the baseline findings.

4.2.3. Omitted variable test

A remaining concern is omitted province-level factors that may shape both DOI adoption and ESG decoupling. We therefore add province fixed effects to absorb time-invariant regional heterogeneity. As shown in Table 3, Columns 6–7, the DOIN coefficient stays negative and significant at the 5% level, reinforcing the robustness of the main result.

4.3. Endogeneity test

4.3.1. Parallel trends test

We implement an event-study around the 2018 policy shock in the spirit of Jacobson et al. Figure 1 shows no detectable pre-trend: pre-policy coefficients for treated and controls are near zero and statistically indistinguishable. After the shock, the coefficients turn statistically significant, indicating a dynamic treatment response consistent with our baseline results.

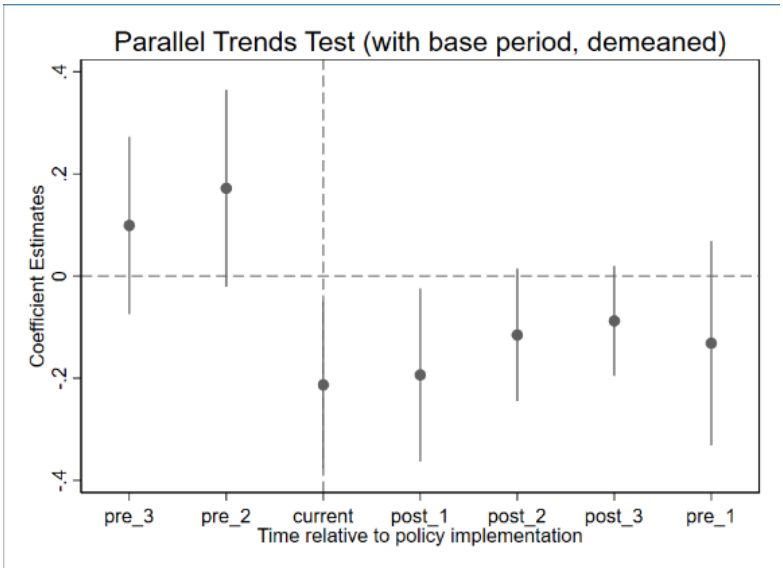

Figure 1. Parallel trends test

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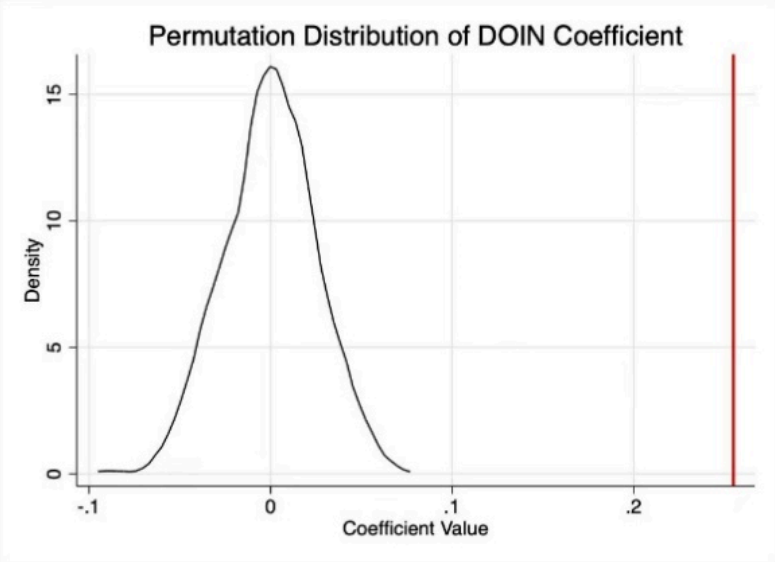

Figure 2. Placebo test

4.3.2. Placebo test

For inference under the null, we run a placebo permutation assigning treatment at random 1,000 times (following Hu et al.). As displayed in Figure 2, the placebo coefficient distribution is centered at zero, while our baseline estimate (red vertical line) lies in the extreme tail, implying a low probability of arising by chance and reinforcing result credibility.

5. Mechanism analysis

5.1. R&D investment

R&D underpins innovation capacity and long-run competitiveness, including advances in green technologies that align ESG goals with firm performance. Yet its outcome risk can deter investment. By buffering executives' personal liability, DOI relaxes decision-making pressure and supports resource shifts toward long-horizon, high-variance technological and green projects, thereby narrowing the disclosure–performance gap. Empirically, Table 5, Column (1) shows DOI is associated with higher R&D expenditure and a direct reduction in ESG decoupling, consistent with R&D serving as a transmission channel.

5.2. Managerial myopia

Managerial myopia—emphasis on short-term metrics at the expense of long-term value—suppresses R&D and favors symbolic over substantive ESG actions, a key driver of decoupling [9]. Following Hu et al., we proxy myopia using the frequency of short-termist terms in annual reports. Table 5 indicates that DOI is linked to a significant decline in managerial myopia, supporting the view that insurance-provided risk cover shifts managerial orientation toward the long run and, in turn, curbs ESG decoupling.

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5.3. Financing constraints

Financing frictions limit access to outside capital, pushing firms to cut back on long-horizon investments (e.g., R&D, green technology), which reinforces short-termism and stalls substantive ESG progress. We posit that DOI relaxes these frictions—partly by signaling stronger governance to capital markets—thereby curbing decoupling rooted in financial pressure. We measure constraints with the SA index (higher values = fewer constraints). In Table 5, Column (3), DOI is significantly positively associated with the SA index. This pattern is consistent with DOI easing financing constraints, freeing resources for substantive ESG actions and narrowing the disclosure–practice gap.

Table 4. Mechanism test

	(1) R&D investment amount	(2) Myopia	(3) SA
DOIN	2.10e+08* (1.794)	-0.002* (1.785)	0.022*** (6.279)
Controls	Yes	Yes	Yes
constant	-1.09e+10*** (-8.188)	0.095*** (4.408)	-5.352*** (-41.428)
N	8771	10645	10763
R^2	0.702	0.476	0.971
F	17.070	5.493	44.100

Note: *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. t-values are reported in parentheses. The same notation applies to the following tables.

6. Conclusion

Using a large panel of Chinese A-share firms from 2007–2023, we document that DOI is consistently linked to a smaller divergence between stated ESG commitments and realized practices. Mechanism analyses point to three channels: (i) higher R&D spending, (ii) reduced managerial myopia, and (iii) looser financing constraints. Taken together, the evidence reframes DOI as more than a risk-transfer device: it also operates as a governance tool that aligns managerial choices with long-term sustainability. While our setting is China, the signaling and disciplinary roles of DOI suggest broader relevance; future work can test these mechanisms across institutional environments.

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