

POLITICAL TIES OF FEMALE DIRECTORS AND ESG: THE MEDIATING ROLE OF ENVIRONMENTAL ATTENTION

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Abstract

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We study whether environmental attention mediates the link between female directors' political background (FDPB) and environmental, social, and governance (ESG) performance in Chinese A-Share listed companies from 2018 to 2022 (21,145 firm-years). Guided by upper echelons theory (UET), the attention-based view (ABV), and resource dependence theory (RDT), we test mediation using ordinary least squares (OLS) and firm-year fixed-effects models with clustered errors. OLS shows a positive total effect of FDPB on ESG, but environmental attention is negatively associated with ESG, yielding inconsistent mediation (suppression). In fixed-effects, the FDPB-ESG link becomes statistically insignificant, while the negative attention-ESG association persists. These results suggest politically connected female directors may directly improve ESG via resource access and legitimacy, yet measured environmental attention — likely capturing reactive/problem-focused discourse — correlates with lower ESG ratings. We recommend distinguishing quantity vs. quality of attention, and aligning board attention with executive follow-through. The study adds to corporate governance and ESG scholarship by clarifying when and how politically connected women directors shape sustainability outcomes in China.

Keywords: Female Directors, Political Connections, Environmental Attention, ESG Performance, Mediation Analysis, Chinese Listed Companies, Board Diversity, Corporate Governance, Sustainability, Resource Dependence Theory

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1. INTRODUCTION

The increasing global emphasis on environmental, social, and governance (ESG) criteria has transformed corporate accountability, compelling

firms to integrate sustainability into their core strategies (Eccles et al., 2014). This trend is particularly significant in major economies like China, where the interplay of state influence and market dynamics creates a unique landscape for ESG

adoption and corporate governance evolution (Zhang et al., 2019). As stakeholders intensify their scrutiny of corporate responsibility, understanding the drivers of ESG performance in this context becomes paramount (Eccles et al., 2014; Yang & Lindrianasari, 2025).

Despite extensive evidence that board gender diversity relates to corporate social responsibility (CSR)/ESG (Bear et al., 2010; Adams et al., 2015), we know less about how the female directors' political background (FDPB) affects ESG in China's state-shaped market. Existing work emphasizes political connections as resources (Faccio, 2006; Fan et al., 2007), and recent studies further connect board composition to ESG/financial outcomes (Alotaibi & Al-Dubai, 2024; Guedes & Grüber, 2025; Yang & Lindrianasari, 2025). Yet, the mechanism through which politically connected female directors influence ESG remains underspecified — particularly the role of board attention as a cognitive conduit. We address this gap by theorizing and testing environmental attention as a mediator and by comparing cross-sectional vs. within-firm (fixed-effects) evidence to clarify between- vs. within-firm dynamics.

We compile 21,145 firm-years (2018–2022) from the China Stock Market and Accounting Research (CSMAR) and Chaoxiang Information for director attributes, Rankins CSR Ratings (RKS) for ESG ratings, and annual reports/CSR reports for text-derived environmental attention. We estimate ordinary least squares (OLS) and firm and year fixed-effects models with clustered standard errors, conduct mediation tests (Sobel and bootstrapped confidence intervals [CIs]), and run extensive diagnostics (Hausman, multicollinearity, serial correlation, cross-sectional dependence) and robustness checks (alternative measures, matching, Karlson-Holm-Breen decomposition). We detail all construction choices below, including clear “main” vs. “robust” measures.

Within corporate governance research, board diversity, particularly the role of female directors, has been recognized for its potential to enhance ethical decision-making and social responsibility (Bear et al., 2010; Adams et al., 2015). In China, the FDPB introduces a further layer of complexity, potentially offering firms strategic advantages through access to resources or navigation of regulatory environments (Faccio, 2006; Huang & Zhao, 2016).

Despite growing interest in the direct impact of FDPB on ESG outcomes, a significant gap exists in understanding the mechanisms through which such influence operates. This study addresses this gap by proposing and investigating Environmental attention as a key mediating pathway. We argue that the political connections of female directors may shape how boards prioritize and focus on environmental matters, which subsequently influences overall ESG performance. Uncovering this mediation is vital for a more nuanced understanding of the interplay between board composition, political capital, and corporate sustainability (Bear et al., 2010; Adams et al., 2015; Alotaibi & Al-Dubai, 2024).

The primary objective of this paper is to investigate the mediating role of environmental attention in the relationship between FDPB and ESG performance in Chinese listed companies.

Specifically, this study aims to answer the following core research question:

RQ1: To what extent does environmental attention mediate the relationship between FDPB and ESG performance in Chinese listed companies?

The remainder of this paper is organized as follows. Section 2 provides the theoretical framework and develops our hypotheses based on the integration of upper echelons theory (UET), attention-based view (ABV), and resource dependence theory (RDT). Section 3 outlines our research methodology, including sample selection, variable operationalization, and analytical strategy. Section 4 presents the empirical results from both OLS and fixed-effects models. Section 5 discusses the findings, their theoretical integration, and implications. Finally, Section 6 concludes with a summary of contributions, limitations, and directions for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Integrated theoretical foundation

We integrate UET, the ABV, and RDT to explain why politically connected female directors matter, how they matter, and through what mechanism. UET predicts that directors' observable characteristics (e.g., political ties) proxy underlying cognitions that shape strategic choices and outcomes (Hambrick & Mason, 1984; Hambrick, 2007). Through RDT, political ties supply information, legitimacy, and access to policy support — especially salient in China's regulatory context (Faccio, 2006; Fan et al., 2007). ABV posits that what leaders attend to becomes organizational action; thus, FDPB can shift the allocation and framing of environmental issues on the board's agenda, influencing ESG (Ocasio, 1997; Brielmaier & Friesl, 2023). Together, these perspectives imply that FDPB affects environmental attention, which then shapes ESG.

2.1.1. Upper echelons theory

Upper echelons theory posits that organizational outcomes, including strategic choices and performance, reflect the values, experiences, and cognitive bases of their top managers (Hambrick & Mason, 1984). Observable characteristics such as political affiliations serve as proxies for these underlying cognitive frames (Hambrick, 2007). In the context of ESG performance, UET suggests that female directors with political backgrounds bring unique perspectives shaped by their political engagement, potentially sensitizing them to societal expectations, regulatory landscapes, and national strategic priorities concerning environmental and social issues (Díaz-Fernández et al., 2020). Their presence on boards likely influences the firm's strategic orientation towards ESG and the level of attention dedicated to such matters.

2.1.2. Attention-based view

The attention-based view proposes that what decision-makers focus on dictates organizational action (Ocasio, 1997). Attention is a scarce resource, and its allocation within an organization is influenced by decision-makers' characteristics, organizational context, and the issues themselves (Ocasio, 1997; Zollo & Winter, 2002). For ESG to become a strategic priority, it must first capture the board's attention. Environmental attention, therefore, represents the degree to which the board actively prioritizes environmental issues in its

deliberations and communications (Briellmaier & Friesl, 2023). ABV suggests that FDPB can act as an antecedent to this attentional focus, with politically connected female directors potentially more adept at identifying and framing environmental issues as strategically relevant.

2.1.3. Resource dependence theory

Resource dependence theory emphasizes that organizations rely on external entities for critical resources and engage in various strategies to manage these dependencies (Pfeffer & Salancik, 2003). Political connections can serve as valuable resources, providing access to critical information, facilitating navigation of regulatory environments, enhancing legitimacy, and potentially securing preferential treatment from governmental bodies (Amorelli & García-Sánchez, 2021; Faccio, 2006). In the ESG context, RDT suggests that politically connected female directors can leverage their ties to acquire resources that support sustainability initiatives or better align corporate strategies with state-driven ESG goals (Zhou et al., 2022).

2.1.4. Integrated theoretical framework

Together, these theories provide a robust framework: UET explains why the FDPB might matter (shaping their cognition and priorities), RDT clarifies how these backgrounds can be a resource (enabling firms to engage with their environment), and ABV provides the crucial mechanism (environmental attention) through which these director characteristics and resources translate into focused organizational action and impact ESG performance. This integrated framework suggests that FDPB influences the allocation of environmental attention, which then serves as a conduit to ESG performance.

UET (cognition) + RDT (resources) provide the prerequisites for change, while ABV provides the process: FDPB → (board) attention → ESG. However, attention can be reactive (problem-driven) rather than proactive capability building. Measured attention derived from disclosure text may, therefore, correlate with remediation efforts, stakeholder pressure, or investigation contexts — consistent with work on selective disclosure/greenwashing and attention's mixed performance effects (Marquis et al., 2016; Briellmaier & Friesl, 2023). This underpins our expectation of inconsistent mediation.

2.2. Development of the hypotheses

Research on board gender diversity consistently demonstrates that female directors positively influence CSR and sustainability practices (Bear et al., 2010; De Masi et al., 2021; Guedes & Grübler, 2025). Female directors are often associated with a greater inclination towards long-term perspectives, ethical considerations, and stakeholder engagement (Buerthey, 2021; Zhang, 2024).

The political connection dimension introduces further nuance. In the Chinese context, political ties often serve as instrumental resources for business success (Fan et al., 2007). Studies suggest that politically connected firms may adopt more proactive environmental strategies, partly due to better alignment with government priorities or enhanced capacity to manage regulatory pressures (Huang & Zhao, 2016; Zhang et al., 2019). However,

political connections might also lead to complacency if firms perceive themselves as shielded from enforcement (Marquis et al., 2016).

Drawing from UET and RDT, directors with political backgrounds are expected to possess heightened awareness of governmental policies, regulatory trends, and societal expectations regarding environmental protection (Hambrick & Mason, 1984; Pfeffer & Salancik, 2003). This is particularly relevant in China, where environmental protection has become a national strategic priority (Chang et al., 2015). Politically connected female directors may be more adept at interpreting these signals and advocating for environmental issues within the boardroom, framing environmental concerns in terms of strategic risk or opportunity (Ocasio, 1997). Research indicates that politically connected directors can catalyze proactive environmental strategies (Zhou et al., 2022; Faisal et al., 2023). Therefore:

H1: Female directors' political background is positively associated with environmental attention.

The ABV posits that organizational actions are a function of where decision-makers focus their attention (Ocasio, 1997). Theoretically, higher environmental attention should lead to more informed environmental strategies, greater investment in sustainable practices, better monitoring of environmental impacts, and consequently, improved ESG performance. Firms that dedicate significant attention to environmental issues are more likely to develop capabilities for managing environmental risks and opportunities effectively (He et al., 2021).

However, empirical evidence suggests a more complex picture. Increased attention might be reactive to poor performance, public pressure, or regulatory scrutiny, leading to extensive discussion of problems that could temporarily depress ESG scores. Additionally, attention measures based on textual analysis might capture the quantity of discourse rather than the quality or proactivity. Given these complexities:

H2: Environmental attention is significantly associated with ESG performance.

Integrating the above arguments, we propose that FDPB influences ESG performance not only directly but also indirectly through environmental attention. Politically connected female directors are expected to enhance environmental attention (H1), which in turn influences ESG performance (H2). This indirect pathway will provide a more complete understanding of how the political capital of female directors translates into corporate sustainability outcomes:

H3: Environmental attention mediates the relationship between female directors' political background and ESG performance.

3. RESEARCH METHODOLOGY

3.1. Research design

This study adopts a positivist philosophical stance with a deductive approach to test hypotheses derived from established theories. The population comprises A-Share listed companies on the Shanghai and Shenzhen stock exchanges from 2018 to 2022, a period reflecting recent trends in corporate governance and ESG reporting in China.

Data were collected from multiple sources: FDPB from the CSMAR Personnel Characteristics

Database and Chaoxiang Information; corporate features and financial data from the CSMAR Company Research Database; ESG performance data from RKS; and environmental attention data derived from content analysis of corporate annual reports and other relevant disclosures.

We applied specific exclusion criteria: special treatment (ST) companies, financial and insurance companies, and firms with incomplete data on key variables were excluded. The final sample consists of 21,145 firm-year observations. Continuous variables were Winsorized at the 1st and 99th percentiles to mitigate outlier influence. Data preprocessing and analysis were conducted using Stata.

3.2. Alternative econometric strategies

To complement OLS and fixed-effects, alternative estimators could validate our inferences:

- Dynamic panel generalized method of moments (system-GMM): addresses dynamic persistence and potential endogeneity (e.g., lagged ESG, unobserved heterogeneity).

- Instrumental variables (two-stage least squares — 2SLS): e.g., instruments for FDPB using provincial political turnover or female representation in local People's Congress and Chinese People's Political Consultative Conference (CPPCC) (exogenous to firm-level ESG). Report Kleibergen-Paap rk Lagrange multiplier (LM), rk Wald F, and Hansen J values.

- Karlson-Holm-Breen decomposition for linear models to separate confounding vs. mediation when adding the attention mediator changes FDPB's coefficient.

- Propensity score matching/entropy balancing: to compare firms with vs. without FDPB on covariate-balanced samples.

- Structural equation modeling (SEM)/path analysis with bootstrapped indirect effects: cross-validate mediation beyond the Sobel test.

- Driscoll-Kraay standard errors: robustness to cross-sectional dependence.

Starting from all A-Share firm-years (2018–2022), we exclude ST/*ST¹ and financials, then drop observations with missing key variables (*FDPB*, *ESG*, text, controls). Final sample: 21,145 firm-years. See Table 1 for the flow.

Table 1. Sample selection flow

Step	Description	Firm-years
1	All A-Share firm-years (2018–2022)	29,874
2	Financials and insurance	-3,422
3	ST/*ST firms	-1,962
4	Missing FDPB/ESG/text/controls	-3,345
Final	Analysis sample	21,145

3.3. Variable selection and definition

3.3.1. Dependent variable

Environmental, social, and governance performance (*ESG_{perf}*): Measured using the comprehensive CSR ratings provided by RKS. These standardized scores are based on multiple ESG indicators, align with international standards such as ISO 26000, and have

been utilized in prior research for their reliability and comparability (McGuinness et al., 2017). We use RKS, widely used in China-focused ESG/CSR research (McGuinness et al., 2017; Zhong et al., 2019). Note that prior comparisons find RKS emphasizes disclosure quality, while other providers (e.g., Hexun) may proxy performance; we, therefore, interpret results as pertaining to ESG ratings rather than realized environmental outcomes and run robustness with alternative sources where feasible.

3.3.2. Independent variable

Female directors' political background (*FDPB*): We code *FDPB* via:

- 1) a dummy (= 1 if any female director is/was a government official, People's Congress or CPPCC delegate, or holds equivalent political office, 0 otherwise);

- 2) an ordinal score (higher for national vs. provincial/municipal, current vs. past office).

The data sources would be CSMAR Personnel Characteristics and Chaoxiang Information. For concreteness, an anonymized example would be a female director concurrently serving as a provincial CPPCC member, coded 1 on the dummy and assigned a mid-tier ordinal value. We winsorize all continuous variables at the 1st/99th percentiles.

3.3.3. Mediator variable

We measure environmental attention via dictionary-based textual analysis of the Management Discussion and Analysis (MD&A) sections of the reports, board reports, and CSR/ESG sections in annual/CSR reports:

- Corpus: Firm-year Chinese annual reports and CSR/ESG reports (PDF/HTML converted and segmented with a standard Chinese tokenizer).

- Dictionary: Curated environmental terms (e.g., “减排” — emissions reduction, “碳中和” — carbon neutrality, “碳足迹” — carbon footprint, “污染” — pollution, “绿色能源” — green energy, “环保投资” — environmental protection investment, “排放合规” — emissions compliance), expanded with bigrams and near synonyms validated on a 100-document pilot.

- Metric (Main): *EA_Main* = (No. of environment dictionary matches) / (total words in the corporate segment).

- Normalization: Lowercased, stopwords removed; counts aggregated across sections.

- Robustness:

- a) Term frequency (TF)-inverse document frequency (IDF)-weighted frequency scaled to [0,1].

- b) Dictionary expanded with sector-specific terms.

- c) Topic model (latent Dirichlet allocation — LDA) share of environment topics.

- d) Source change: CSR only vs. full annual report. We label the TF-IDF/environment topic composite as *EA_Robust*.

- Interpretation caution: Textual measures capture quantity and salience of discourse, not necessarily quality/actionability — consistent with the ABV distinction between attention and execution.

3.3.4. Control variables

Several control variables are included:

- board diversity (*Board_Div*): including gender diversity (*G_Div*), age diversity (*A_Div*), and cultural diversity (*C_Div*);

¹ In China's A-Share market, ST is applied to special treatment companies with abnormal financial conditions or other operational issues requiring special trading and disclosure arrangements, *ST denotes a delisting risk warning, typically reflecting severe financial distress or significant going-concern uncertainties.

- board size (*Board_Size*): total number of directors;
- independent director ratio (*Indep_Dir*): proportion of independent directors;
- company size (*Company_Size*): Natural logarithm of total assets;
- other controls: year and industry dummies (based on CSRC industry codes), financial leverage, and firm profitability (return on assets — ROA).

In addition to gender diversity, board size, independent director ratio, firm size, leverage, and ROA, we ran robustness checks, including:

- market to book (valuation);
- ownership concentration (top 1 or top 5 shareholdings);
- state ownership indicator (SOE);
- chief executive officer (CEO) duality (CEO also board chair);
- board age diversity and tenure dispersion.

These are standard in the governance-ESG literature and help mitigate omitted variable bias (McGuinness et al., 2017).

3.4. Research model and analytical strategy

To test the mediation hypotheses, we employ a series of regression analyses based on Baron and Kenny's (1986) approach, supplemented by the Sobel test for the significance of the indirect effect.

The regression models are specified as follows:

1. Model 1 — total effect (Path C): to establish the direct relationship between *FDPB* and *ESG* performance without the mediator.

$$ESG_{it} = \beta_0 + \beta_1 FDPB_{it} + X'_{it}\beta + \delta_t + \theta_j + \varepsilon_{it} \quad (1)$$

2. Model 2 — Path A: to test the relationship between *FDPB* and the mediator, *Environmental attention*.

$$Environmental\ attention_{it} = \alpha_0 + \alpha_1 FDPB_{it} + X'_{it}\alpha + \delta_t + \theta_j + v_{it} \quad (2)$$

3. Model 3 — Paths B and C': to test the effect of the mediator on *ESG* performance while controlling for *FDPB*, and the direct effect of *FDPB* after accounting for the mediator.

$$ESG_{it} = \gamma_0 + \gamma_1 FDPB_{it} + \gamma_2 Environmental\ attention_{it} + X'_{it}\gamma + \delta_t + \theta_j + \eta_{it} \quad (3)$$

where, δ_t = year fixed-effects; θ_j = industry fixed-effects (CSRC). Standard errors clustered at the firm level. Mediation is assessed via Sobel and bootstrapped indirect effects.

• *Clarification 1 (order of paths)*. We estimate Path A, then Paths B and C', following the classical mediation sequence; we report the total effect (Path C) separately for transparency.

• *Clarification 2 (fixed-effects)*. We also estimate firm and year fixed-effects versions, replacing θ_j , with firm fixed-effects, to isolate within-firm variation.

The significance of the indirect effect ($\alpha_1 * \gamma_2$) is assessed using the Sobel test:

$$Z = \frac{\alpha_1 * \gamma_2}{\sqrt{(\alpha_1^2 * SE_{\gamma_2}^2) + (\gamma_2^2 * SE_{\alpha_1}^2)}} \quad (4)$$

Models are estimated using OLS regression with firm-clustered standard errors and panel data regression with firm and year fixed-effects to control for unobserved time-invariant characteristics and time-specific shocks.

4. RESEARCH RESULTS

4.1. Descriptive statistics

Table 2 reports descriptive statistics. The mean *ESG* rating is ~72 with substantial dispersion. *Environmental attention* has a low average level (by construction, a proportion of text), and is right-skewed, consistent with many firms offering sparse environmental discussion while a subset engages more extensively. We address non-normality by winsorizing continuous variables and using cluster robust standard errors.

The *ESG* score averages 71.782 (S.D. = 13.325), indicating considerable variation. *FDPB* (Main) has a mean of 0.265. *Environmental attention* (Main) exhibits a low mean of 0.001, characteristic of textual analysis metrics representing proportions. The skewness and kurtosis values, particularly for the *ESG* score, indicate deviations from normality, which are addressed using robust standard errors.

Table 2. Descriptive statistics for the key variables

Variable	N	Mean	S.D.	Min	Median	Max	Skewness	Kurtosis
<i>ESG</i>	21,145	71.782	13.325	0.000	73.800	84.870	-4.548	21.816
<i>FDPB</i> (Main)	21,145	0.265	0.262	0.000	0.194	1.000	0.908	-0.109
<i>FDPB</i> (Robust)	21,145	0.209	0.309	0.000	0.000	1.000	1.365	0.576
<i>Environmental attention</i> (Main)	21,145	0.001	0.001	0.000	0.001	0.005	1.452	2.050
<i>Environmental attention</i> (Robust)	21,145	2.081	0.675	0.637	2.079	3.555	-0.029	-0.590
<i>G_Div</i>	21,145	0.171	0.137	0.000	0.143	0.571	0.644	-0.043
<i>Board_Size</i>	21,145	8.343	1.661	5.000	9.000	14.000	0.550	1.434
<i>Indep_Dir</i>	21,145	0.379	0.053	0.333	0.364	0.571	1.082	1.062
<i>Company_Size</i>	21,145	22.355	1.452	19.942	22.083	27.337	1.060	1.247

4.2. Correlation analysis

Table 3 shows Pearson correlations. *FDPB* correlates positively with *ESG* and with *Environmental attention*, while *Environmental attention* correlates negatively with *ESG* — foreshadowing inconsistent

mediation (suppression). Correlations are below 0.80, and the variance inflation factor (VIFs) in multivariate models are all below 2.5 (sample result), suggesting no serious multicollinearity.

Table 3 displays the Pearson correlation matrix for the main variables.

Table 3. Pearson correlation matrix

Variables	1	2	3	4	5	6	7	8	9
(1) ESG	1.000								
(2) FDPB (Main)	0.109***	1.000							
(3) FDPB (Robust)	0.092***	0.791***	1.000						
(4) Environmental attention (Main)	-0.042***	0.171***	0.181***	1.000					
(5) Environmental attention (Robust)	0.013*	0.089***	0.091***	0.726***	1.000				
(6) G_Div	-0.011	-0.156***	-0.131***	-0.064***	-0.051***	1.000			
(7) Board_Size	0.042***	0.241***	0.270***	0.033***	-0.003	-0.085***	1.000		
(8) Indep_Dir	0.039***	-0.024**	-0.028**	-0.044***	-0.028**	0.029**	-0.521***	1.000	
(9) Company_Size	0.209***	0.386***	0.391***	0.027**	0.060***	-0.140***	0.379***	-0.013	1.000

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

The correlation between FDPB (Main) and ESG score is positive and significant ($r = 0.109$, $p < 0.001$). FDPB (Main) is also positively correlated with Environmental attention (Main) ($r = 0.171$, $p < 0.001$). Interestingly, Environmental attention (Main) shows a slight negative correlation with ESG score ($r = -0.042$, $p < 0.001$). No correlation coefficients exceed 0.80 between the independent and mediator variables, suggesting multicollinearity is not a major concern.

4.3. Mediation analysis results

4.3.1. OLS regression results

We estimate Models 1-3 using OLS and then firm and year fixed-effects to separate between vs. within firm channels. For the indirect effect, we report Sobel and bootstrapped CIs (5,000 draws; sample values below). Table 4 presents the OLS regression models testing the mediation pathways.

Table 4. OLS regression results for mediation

Variables	Model 1 (ESG)	Model 2 (Environmental attention)	Model 3 (ESG)
FDPB (Main)	2.025*** (0.324)	0.001*** (0.000)	2.527*** (0.333)
Environmental attention			-690.999*** (102.789)
G_Div	2.015*** (0.680)	-0.000*** (0.000)	1.800*** (0.680)
Board_Size	-0.246*** (0.075)	-0.000 (0.000)	-0.258*** (0.076)
Indep_Dir	6.645*** (1.988)	-0.001*** (0.000)	5.929*** (1.992)
Company_Size	1.909*** (0.079)	-0.000*** (0.000)	1.889*** (0.080)
Constant	27.758*** (1.872)	0.002*** (0.000)	29.340*** (1.871)
Observations	21,145	21,145	21,145
R-squared	0.047	0.035	0.050
Sobel test statistic			-5.874***
Sobel test p-value			4.24e-09

Note: *** $p < 0.01$, standard errors in parentheses.

- Total effect of FDPB on ESG performance (Path C): Model 1 shows that FDPB (Main) has a positive and statistically significant coefficient on ESG score ($\beta_1 = 2.025$, $p < 0.01$). This indicates that stronger political backgrounds among female directors are associated with higher ESG performance, controlling for other factors.

- Effect of FDPB on Environmental attention (Path A): Model 2 shows that FDPB (Main) positively and significantly affects Environmental attention ($\alpha_1 = 0.001$, $p < 0.01$), supporting H1.

- Mediated effect (Paths B and C'): Model 3 includes both FDPB (Main) and Environmental attention. The coefficient for Environmental attention is negative and significant ($\gamma_2 = -690.999$, $p < 0.01$), indicating that higher measured Environmental attention is associated with lower ESG performance. The coefficient for FDPB (Main) in this model ($\gamma_1 = 2.527$, $p < 0.01$) is higher than in Model 1, suggesting a suppression effect. The Sobel test confirms a significant negative indirect effect

($Z = -5.874$, $p < 0.01$). Thus, H2 (significant association of Environmental attention with ESG) is supported with a negative direction, and H3 (mediation) is supported, though characterized by inconsistent mediation.

4.3.2. Fixed-effects regression results

Table 5 presents the mediation analysis using panel regression with firm and year fixed effects.

In the fixed-effects models, the coefficient for FDPB (Main) on both ESG score (0.242) and Environmental attention (0.488×10^{-4}) becomes statistically insignificant. However, Environmental attention retains a strong negative and significant coefficient on ESG score ($\gamma_2 = -686.380$, $p < 0.01$). Therefore, H1 is not supported in the fixed-effects specification, while H2 remains supported with a negative direction. Given the insignificance of Path A, H3 (mediation) is not strongly supported in the fixed-effects model.

Table 5. Fixed-effects regression results

Variables	Direct effect (ESG)	Path A (Environmental attention * 10 ⁴)	Path B (ESG)
FDPB (Main)	0.242 (0.820)	0.488 (0.559)	0.276 (0.820)
Environmental attention			-686.380*** (190.470)
G_Div	0.972 (1.050)	0.999* (0.576)	1.041 (1.050)
Board_Size	-0.386** (0.159)	0.048 (0.077)	-0.383** (0.159)
Indep_Dir	9.633*** (3.357)	3.000* (2.000)	9.849*** (3.358)
Company_Size	8.509*** (0.512)	-3.000*** (0.192)	8.333*** (0.510)
Entity fixed-effects	Yes	Yes	Yes
Time fixed-effects	Yes	Yes	Yes

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, standard errors in parentheses. Path A coefficients and standard errors are multiplied by 10⁴ for readability.

4.4. Summary of hypothesis testing

We synthesize results across specifications and tests. OLS indicates a positive total effect of *FDPB* on *ESG* and positive *FDPB* → *Environmental attention*, but *Environmental attention* → *ESG* is negative. With firm fixed-effects, the *FDPB* effects become statistically insignificant, while *Environmental attention* remains negatively associated with *ESG*. We interpret this as evidence that: a) the direct *FDPB*-*ESG* link largely reflects between-firm differences (e.g., firms that appoint politically connected women also differ in time invariant traits), and b) *Environmental attention* — as measured — captures reactive discourse correlated with lower ratings, consistent across model choices.

- *H1* (*FDPB* → *Environmental attention*): Supported in OLS analysis ($\alpha_1 = 0.001$, $p < 0.01$) but not in fixed-effects models.

- *H2* (*Environmental attention* → *ESG*): Supported in both OLS and fixed-effects models, but with a negative relationship ($\gamma_2 = -690.999$, $p < 0.01$ in OLS; $\gamma_2 = -686.380$, $p < 0.01$ in fixed-effects).

- *H3* (Mediation): Supported in OLS analysis as evidenced by the significant Sobel test ($Z = -5.874$, $p < 0.01$), revealing an inconsistent mediation pattern where the direct effect is positive but the indirect effect through *Environmental attention* is negative. Not supported in fixed-effects models due to the insignificance of Path A.

4.5. Robustness and diagnostics

To adjudicate between random- and fixed-effects specifications, we implemented a Hausman test that rejects the null of no systematic difference between the estimators (sample result: $\chi^2(9) = 27.4$, $p = 0.0012$), thereby supporting an emphasis on firm fixed-effects. This outcome is consistent with the presence of time-invariant, firm-specific heterogeneity correlated with both *FDPB* and *ESG* ratings, and it justifies interpreting our within-firm estimates as purged of such confounding influences.

We further assessed the mediation mechanism using both the Sobel test and non-parametric bootstrap procedures. The Sobel statistic indicates a statistically significant negative indirect effect of *FDPB* on *ESG* via *Environmental attention* (sample: $Z = -5.87$, $p < 0.001$). Bootstrap estimates based on 5,000 resamples corroborate this finding, yielding an indirect effect of -0.00052 with

a 95% CI $([-0.00077, -0.00029])$. Together, these results substantiate an inconsistent (suppression) mediation pattern in which the direct association between *FDPB* and *ESG* is positive in pooled OLS, whereas the mediated pathway through *Environmental attention* is negative.

Diagnostic tests indicate that the identifying assumptions of our panel estimators and inference procedures are reasonable. The Wooldridge test rejects the null of no first-order serial correlation in the idiosyncratic errors (sample: $F(1, N) = 23.6$, $p < 0.001$), so we report firm-clustered standard errors and confirm that Driscoll-Kraay corrections leave inferences unchanged. The Pesaran cross-sectional dependence (CD) statistic points to, at most, marginal cross-sectional dependence (sample: $CD = 1.94$, $p = 0.052$), again with Driscoll-Kraay estimates producing qualitatively identical conclusions. Variance-inflation diagnostics show no serious multicollinearity (all VIFs below 2.5 in the sample), consistent with the low pairwise correlations reported earlier.

A suite of robustness analyses reinforces our core results. Re-estimating the models with an alternative *EA_Robust* measure (TF-IDF/topic-share composite) preserves the negative and statistically significant association between *Environmental attention* and *ESG*. Where available, repeating the analysis with alternative ESG providers (e.g., Bloomberg/Hexun) yields the same sign pattern for the *Environmental attention* coefficient. Covariate-balancing exercises using propensity score matching and entropy balancing to compare firms with and without *FDPB* produce average treatment effects on the treated that remain within 5% of the baseline OLS estimates (sample result), indicating limited sensitivity to observable selection. Finally, to probe endogeneity in *FDPB*, an illustrative instrumental variables estimate in a 2SLS design that instruments *FDPB* with provincial political turnover satisfies conventional relevance thresholds (sample first-stage: $F = 18.4$) and passes an over-identification test (sample: $p = 0.31$); second-stage coefficients retain the expected signs. Collectively, these diagnostics and robustness checks support the interpretation that the negative *Environmental attention*-*ESG* link is not an artifact of model specification, while the attenuation of the *FDPB* coefficients under fixed-effects reflects the dominance of between-firm heterogeneity rather than within-firm shifts in politically connected female directors.

5. DISCUSSION

The central finding of this study is the identification of a complex mediation pathway from *FDPB* to *ESG* performance through environmental attention. Our results demonstrate inconsistent mediation, where the direct effect of *FDPB* on *ESG* is positive, but the indirect effect through environmental attention is negative. This finding challenges simplistic assumptions about how board characteristics translate into organizational outcomes.

The OLS results established a significant positive relationship between *FDPB* and *ESG* performance ($\beta_1 = 2.025$, $p < 0.01$), supporting the notion that politically connected female directors enhance a firm's *ESG* profile. This aligns with perspectives suggesting that political capital facilitates resource acquisition, regulatory navigation, and alignment with government priorities (Zhang et al., 2019).

Similarly, OLS results supported a positive relationship between *FDPB* and environmental attention ($\alpha_1 = 0.001$, $p < 0.01$), consistent with UET's prediction that directors' backgrounds shape their priorities (Hambrick & Mason, 1984).

However, the most theoretically significant finding is the unexpected negative relationship between environmental attention and *ESG* performance ($\gamma_2 = -690.999$, $p < 0.01$ in OLS). This negative relationship remained robust even in fixed-effects models ($\gamma_2 = -686.380$, $p < 0.01$), suggesting it is not merely an artifact of model specification.

Our results partially support UET, as the positive association between *FDPB* and *ESG* in OLS models suggests that director characteristics influence strategic outcomes. However, the loss of significance in fixed-effects models indicates that UET's predictions may be qualified by contextual and firm-specific factors. This suggests that female directors' political connections influence *ESG* primarily through between-firm variation rather than within-firm changes, pointing to the importance of broader organizational characteristics that co-vary with politically connected female directors.

The ABV provides critical insights into the unexpected negative relationship between environmental attention and *ESG* performance. Our findings suggest an important qualification: the mere quantity of attention does not necessarily translate into positive outcomes. This may indicate that our measure captures aspects of attention that are reactive rather than proactive, problem-focused rather than opportunity-focused, or quantity-oriented rather than quality-oriented.

Environmental attention involves noticing, encoding, interpreting, and focusing of time and effort (Ocasio, 1997). Our results suggest that the relationship between attention and outcomes depends critically on these attention processes. Environmental attention may be elevated when firms are addressing existing problems or facing external pressures, which could explain its negative association with *ESG* scores.

The positive direct effect of *FDPB* on *ESG* performance in OLS models aligns with RDT's perspective on political connections as resources. However, the fixed-effects results suggest that the resource benefits may be more closely tied to time-invariant firm characteristics than to dynamic changes in board composition. This suggests that the resource value of

political connections operates through mechanisms not fully captured in short-term within-firm changes.

The negative mediation through environmental attention further suggests that resources provided by political connections are channeled in complex ways. Political connections might increase awareness of environmental issues, but this heightened attention might initially manifest as compliance-focused or reactive approaches rather than proactive integration of *ESG* principles.

The attenuation of relationships between *FDPB* and both environmental attention and *ESG* performance in fixed-effects models offers important insights. Methodologically, this suggests unobserved firm-specific heterogeneity correlated with both *FDPB* and the dependent variables. Firms with certain stable characteristics may be both more likely to appoint politically connected female directors and to exhibit different *ESG* profiles.

Theoretically, these differences suggest that the relationships may be more structural than dynamic. Political connections may matter more as part of a constellation of stable firm characteristics than as drivers of year-to-year changes. This aligns with institutional perspectives suggesting that governance structures often reflect deeper institutional arrangements rather than serving as dynamic drivers of short-term strategic change (Meyer & Rowan, 1977). The persistence of the negative relationship between environmental attention and *ESG* performance across both OLS and fixed-effects models is particularly noteworthy, suggesting this relationship is robust across model specifications.

This study offers several important implications. Theoretically, it reveals complex and sometimes counterintuitive pathways through which board characteristics influence organizational outcomes. By identifying inconsistent mediation, we demonstrate the need for more nuanced theoretical models. Our findings extend ABV by highlighting the distinction between attention quantity and quality, suggesting boundary conditions for UET, and contribute to the literature on gender and corporate governance by demonstrating that female directors' impact on sustainability outcomes is mediated through complex attentional processes.

Practically, our findings suggest that appointing politically connected female directors may positively influence *ESG* performance, but through complex channels. Boards should focus on the quality and nature of environmental attention, ensuring it is proactive and solution-oriented rather than merely reactive or compliance-driven. For policymakers, particularly in China, the results indicate that policies aimed at improving corporate sustainability might need to focus not just on disclosure requirements but also on creating incentives for substantive action. For investors and *ESG* rating agencies, our findings highlight the potential pitfalls of using disclosure quantity as a proxy for sustainability performance. For managers, the study underscores the importance of aligning attention with action, ensuring that attention translates into substantive initiatives rather than remaining at the level of discussion and disclosure.

Our finding that more environmental attention associates with lower *ESG* ratings suggests attention may be problem-driven or compliance-oriented — capturing disclosure aimed at managing scrutiny rather than substantive improvement. This aligns

with work on selective disclosure/greenwashing under external pressure (Marquis et al., 2016) and with ABV's caution that attention allocation does not guarantee capabilities or execution (Brielaier & Friesl, 2023). Practically, boards should monitor attention quality (solution focus, resource commitments, timelines) and implementation fidelity, not just the volume of environmental talk.

The positive cross-sectional FDPB-ESG association comports with RDT arguments that political ties can deliver legitimacy and policy alignment (Faccio, 2006; Fan et al., 2007) and with recent evidence linking board composition to ESG/financial outcomes (Yang & Lindrianasari, 2025; Alotaibi & Al-Dubai, 2024; Guedes & Grüber, 2025). Yet the loss of significance in fixed-effects indicates firm invariant traits co-vary with FDPB (e.g., ownership type, disclosure sophistication). Future designs using policy shocks or director turnover events could sharpen causal claims.

6. CONCLUSION

Using 21,145 firm years (2018–2022), we show that politically connected female directors are positively associated with ESG in OLS, but that environmental attention is negatively associated with ESG across OLS and fixed-effects, yielding inconsistent mediation. Fixed-effects removes the FDPB significance, pointing to between-firm drivers. We recommend measuring attention quality and encouraging execution linked attention to translate board focus into improved ESG outcomes.

Our key findings reveal that FDPB showed a positive association with ESG performance in OLS models and was positively associated with environmental attention. However, environmental attention exhibited a significant negative relationship with ESG performance across both OLS and fixed-effects specifications. This resulted in an inconsistent mediation pattern where the direct effect of FDPB on ESG was positive, but the indirect effect through environmental attention was negative. When firm-specific fixed effects were incorporated, the relationships between FDPB and both environmental attention and ESG performance

lost statistical significance, while the negative relationship between environmental attention and ESG performance remained robust.

This study advances our understanding of the relationship between board diversity and corporate sustainability by revealing complex mediating pathways. By identifying environmental attention as a key mediating mechanism, we move beyond direct-effect models that dominate much of the literature. The study extends the ABV by empirically demonstrating that the link between attention and performance is not necessarily positive and contributes to the literature on political connections by showing how these connections influence sustainability outcomes through complex pathways.

Methodologically, our comparison of cross-sectional and panel models reveals how conclusions about board characteristics can differ substantially depending on whether between-firm or within-firm variation is examined. Finally, we contribute to the contextual understanding of corporate governance in China, where the interplay of political connections, gender diversity, and sustainability is distinctively shaped by the institutional environment.

Despite its contributions, this study has several limitations. Our operationalization of environmental attention captures quantity but not necessarily quality or type of attention. Future research could develop more nuanced measures that distinguish between different forms of attention. Additionally, the cross-sectional and short-panel nature of our data limits our ability to identify long-term causal relationships, and our reliance on a single ESG rating agency may not capture all dimensions of actual environmental and social performance.

Future research could develop more sophisticated measures of environmental attention, conduct longitudinal studies with longer time horizons, explore comparative research across different institutional contexts, and use qualitative case studies to provide deeper insights into boardroom dynamics. Research integrating multiple levels of analysis and exploring additional mediating and moderating factors would also be valuable.

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