

RESEARCH ARTICLE OPEN ACCESS

Managing Sustainability-Related Human Rights Risks: The Role of Multilevel Governance and Institutional Accountability

Doaa Shohaieb^{1,2}  | Tantawy Moussa³  | Amir Allam¹  | Mahmoud Elmarzouky⁴ 

¹Aston Business School, Aston University, Birmingham, UK | ²Faculty of Business, Menoufia University, Menoufia, Egypt | ³Westminster Business School, University of Westminster, London, UK | ⁴University of St Andrews Business School, St Andrews, UK

Correspondence: Doaa Shohaieb (d.shohaieb@aston.ac.uk)

Received: 31 July 2025 | **Revised:** 8 May 2026 | **Accepted:** 20 May 2026

Keywords: board efficacy | corporate ethical behaviour | ESG | institutional accountability | national governance quality | sustainability-related human rights risks

ABSTRACT

Sustainability-related human rights risks, including forced labour, labour exploitation and other forms of human rights abuse, remain persistent challenges across countries, particularly where corporate accountability and national institutional frameworks are weak. Drawing on institutional theory, this study examines whether informal institutions (i.e., corporate ethical behaviour and board governance efficacy) and formal institutions (i.e., national governance quality) are associated with sustainability-related human rights exploitation risks. Using a longitudinal cross-national dataset covering 167 countries across the 2014, 2016 and 2018 waves, the study analyses two dimensions of human rights risk: exploitation prevalence and structural vulnerability to exploitation. Fixed-effects regressions and two-stage least squares robustness specifications show that corporate ethical behaviour, board governance efficacy and national governance quality are negatively and significantly associated with sustainability-related human rights risks. Additional analyses indicate that the associations between corporate ethical behaviour, board governance efficacy and lower human rights risks are more pronounced in countries with stronger national governance quality. In contexts with weak national governance, voluntary corporate actions may be insufficient to support substantive human rights-related outcomes. The findings extend institutional theory by showing that sustainability-related human rights risks are shaped not by isolated governance mechanisms alone but by the broader alignment between country-level corporate governance environments and national institutional systems. The study contributes to debates on sustainability governance, human rights accountability and ESG regulation and offers implications for policymakers, regulators and organisations seeking to strengthen institutional accountability, address human rights exploitation risks and support progress towards SDGs 8, 12 and 16.

1 | Introduction

Sustainability risks in global supply chains, including labour exploitation, human rights abuses and unethical procurement practices, continue to pose complex challenges for firms operating across increasingly interconnected and opaque

production networks. Despite the adoption of legal frameworks and global reporting initiatives, exploitative conditions remain pervasive, often concentrated in countries marked by weak institutional enforcement, corruption and poverty (e.g., Han et al. 2024; Mehmood et al. 2023). The International Labour Organization (ILO 2022) reports that more than 50

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2026 The Author(s). *Business Strategy and the Environment* published by ERP Environment and John Wiley & Sons Ltd.

million people are affected globally by forced labour and related practices, with the number growing due to global crises such as the COVID-19 pandemic, political instability and climate-induced migration.

Recent literature highlights the need to reframe human rights abuses not only as ethical failures but also as material business risks tied to environmental, social and governance (ESG) performance (e.g., Allam, Moussa, and Elmarzouky 2024). Corporate strategies that prioritise cost minimisation and global outsourcing can increase exposure to reputational and regulatory risks, particularly when firms operate in institutional environments with inadequate transparency or enforcement capacity (Pinnington et al. 2023). While legislative responses such as the UK Modern Slavery Act (2015), Australia's Modern Slavery Act (2018) and the California Transparency in Supply Chains Act (2010) have promoted disclosure-based mechanisms, scholars argue that these instruments often result in symbolic compliance, with limited practical impact (e.g., Flynn and Walker 2021; Islam and Van Staden 2022; Moussa et al. 2023; Neokleous and Elmarzouky 2026).

Institutional theory provides a useful lens for understanding why sustainability-related human rights risks (HRRs) differ across countries. According to this theory, organisational practices are shaped by both informal and formal institutions, including social norms, governance expectations, legal enforcement and regulatory systems (DiMaggio and Powell 1983; Scott 1995). Recent studies suggest that human rights governance depends not only on corporate governance environments but also on macro-level institutional quality, including political stability, corruption control and regulatory enforcement (Han et al. 2024; Mehmood et al. 2023). However, existing empirical evidence remains concentrated in single-country or sector-specific settings, limiting understanding of how governance environments are associated with sustainability-related HRRs across countries (e.g., Christ et al. 2019; Islam and Van Staden 2022; LeBaron 2021; Moussa et al. 2023).

In this context, Moussa et al. (2022) and Mehmood et al. (2023) call for further research on the influence of institutional infrastructure on sustainability-related HRRs. In response to these calls, we draw on institutional theory and explore whether, and if so how, informal institutions (i.e., corporate ethical behaviour [CEB] and board governance efficacy [BOE]) and formal institutions (i.e., national governance quality [NGQ]) are associated with sustainability-related HRRs across the world. Consistent with institutional theory, we argue that country-level corporate governance environments are more likely to be associated with lower HRRs when embedded within stronger national institutional systems.

The study is grounded within the broader policy framework of the United Nations Sustainable Development Goals (SDGs) (UNDP 2015), particularly SDG 8, which calls for the eradication of forced labour and modern slavery; SDG 12, which promotes responsible production and consumption; and SDG 16, which emphasises the importance of strong institutions and access to justice. These goals are mutually reinforcing: Effective

governance can support decent work, responsible business conduct and institutional accountability, highlighting the need for robust corporate and national governance mechanisms to address the systemic roots of sustainability-related exploitation.

This policy relevance is reinforced by the global move towards mandatory sustainability disclosures, including International Financial Reporting Standards (IFRS) S1 and S2 (ISSB 2023a, 2023b) and the European Sustainability Reporting Standards (ESRS) (European Commission 2023). These frameworks signal a shift from voluntary to more regulated sustainability accountability, compelling firms to integrate human rights due diligence and sustainability risk management into their core reporting and governance obligations. ESRS S2, Workers in the Value Chain, explicitly requires firms to identify, assess and disclose material HRRs across their value chains, including forced labour, modern slavery and other coercive practices. More broadly, IFRS S1, General Requirements for Disclosure of Sustainability-Related Financial Information, establishes a principles-based framework requiring disclosure of all material sustainability-related risks, under which human rights exploitation risks would be reportable where financially material. These developments strengthen the need for evidence on the governance environments associated with HRRs across countries.

This study contributes to the literature in several ways. First, although a growing body of research examines firm-level responses to modern slavery, human rights due diligence and sustainability disclosure, evidence on the country-level drivers of sustainability-related human rights exploitation risks remains limited. Prior studies have largely focused on corporate disclosure practices, regulatory compliance or sector-specific responses (Allam, Moussa, and Elmarzouky 2024; Christ et al. 2019; Islam and Van Staden 2022; LeBaron 2021; Moussa et al. 2023). This study extends this literature by examining how CEB, BOE and NGQ are associated with human rights exploitation prevalence and structural vulnerability across countries.

Second, most empirical evidence on modern slavery and HRRs has come from single-country cases, particularly the United Kingdom and Australia, or from specific sectors such as garments and agriculture (Christ et al. 2019; Islam and Van Staden 2022; LeBaron 2021; Moussa et al. 2023). The current study extends and complements prior research by providing empirical evidence on the relationship between governance environments and sustainability-related human rights exploitation risks in a worldwide setting covering 167 countries.

Third, this study adds to the literature by examining the governance of sustainability-related human rights exploitation risks from an institutional perspective rather than focusing only on firm-level disclosure practices or individual corporate responses. It advances institutional theory by operationalising a multilevel governance framework that captures the relationship between country-level corporate governance environments and formal national institutional contexts, including regulatory enforcement and corruption control (DiMaggio and Powell 1983; Scott 1995). Rather than treating institutional pressures as isolated external conditions, the study shows that CEB, BOE and NGQ operate within a broader multilevel governance system associated with sustainability-related human rights outcomes.

Fourth, this study takes a multilevel governance approach by examining whether the relationship between country-level corporate governance environments and HRRs differs across strong and weak national governance contexts. The findings suggest that the associations between CEB, BOE and lower HRRs are more pronounced in countries with stronger NGQ than in countries with weaker institutional environments. Overall, the study suggests that addressing sustainability-related human rights exploitation is not a unilateral task. It requires coordinated governance arrangements in which corporate ethical conduct, effective board governance environments and strong national institutional accountability operate together.

The remainder of this paper is structured as follows. Section 2 outlines the theoretical framework, followed by Section 3, which presents the hypothesis development. Section 4 details the research design and methodology. Section 5 reports the empirical findings. Finally, Section 6 provides a discussion of policy and managerial implications, concludes the study and offers directions for future research.

2 | Theoretical Framework

Institutional theory offers a compelling foundation for understanding how external and internal governance structures shape organisational responses to sustainability risks in global supply chains. The theory posits that organisations are driven not solely by efficiency motives but also by the imperative to achieve legitimacy within their institutional environments (DiMaggio and Powell 1983; Scott 1995). These environments exert three types of isomorphic pressures: coercive, normative and mimetic. Coercive pressures arise from legal and regulatory mandates; normative pressures, from industry and societal expectations; and mimetic pressures, from imitation of peers or leading organisations.

In the context of supply chains, institutional theory helps explain the diffusion of sustainability norms and the adoption of ethical practices as firms respond to regulatory frameworks, social expectations and reputational pressures (Campbell 2007). For example, coercive pressures are evident in the proliferation of disclosure regulations such as the UK Modern Slavery Act (2015), Australia's Modern Slavery Act (2018) and the ESRs. These laws compel firms to assess and disclose human rights practices across their supply chains.

Normative pressures stem from stakeholders such as NGOs, investors and consumers who expect firms to adopt sustainable and ethical supply chain practices. Firms that seek to build legitimacy in these environments often integrate sustainability into their corporate governance and ethical frameworks (Pinnington et al. 2023). Mimetic pressures occur as firms imitate leading organisations that have successfully embedded sustainability into their strategies, especially when facing institutional uncertainty (Flynn and Walker 2021).

In sustainability contexts, the application of institutional theory has evolved to reflect the role of multilevel governance. Prior studies have extended this theory by incorporating both

macro-level factors, such as NGQ, and meso-level corporate governance structures, such as board oversight, to better explain firm-level variation in sustainability performance (Mehmood et al. 2023). This integrated framework recognises that firm-level governance does not operate independently of the broader institutional environment.

NGQ, including regulatory enforcement, rule of law, corruption control and political stability, constitutes a foundational institutional layer that sets the context for corporate behaviour (Kaufmann et al. 2011; Cuesta 2013). In high-quality governance environments, firms are more likely to face meaningful enforcement, effective legal systems and active civil societies, collectively reinforcing the effectiveness of internal ethical governance. Conversely, weak governance contexts can neutralise even the most well-intentioned corporate efforts by undermining accountability mechanisms (Crane et al. 2019; Islam and Van Staden 2022).

Building on institutional theory, this study conceptualises sustainability-related HRR as part of a multilevel governance process in which country-level corporate governance mechanisms interact with broader institutional environments. CEB reflects normative internalisation of ethical standards, while BOE represents the organisational oversight mechanism that translates these norms into strategic governance actions. NGQ, in turn, shapes the broader coercive institutional environment within which firms operate. The effectiveness of corporate ethical practices and board monitoring therefore depends on the strength of national institutions that provide regulatory enforcement, legal certainty and societal accountability. Consequently, sustainability outcomes emerge not from isolated governance mechanisms but from the interaction between corporate-level and country-level governance structures.

Accordingly, this study operationalises institutional theory by positioning sustainability-related human rights exploitation risks in global supply chains as the empirical outcome through which these multilevel governance interactions are examined. The study distinguishes between informal institutions (i.e., CEB and BOE) and formal institutions (i.e., NGQ). In this framework, CEB captures normative compliance pressures, BOE reflects organisational oversight capacity, and NGQ represents the coercive institutional context. Taken together, these three governance dimensions show how informal and formal institutions operate within a broader multilevel governance system associated with sustainability-related HRRs. This provides the theoretical foundation for the hypothesis developed in the following section.

3 | Hypothesis Development

The hypotheses are developed around three theoretically grounded governance layers that reflect the multilevel institutional framework adopted in this study. The first layer, CEB, captures the normative dimension of institutional pressure, reflecting the extent to which firms internalise ethical standards in their operations and supply chains. The second layer, BOE, represents the meso-level oversight mechanism

through which institutional pressures are translated into strategic governance actions. The third layer, NGQ, constitutes the coercive institutional environment that conditions the effectiveness of firm-level governance measured at the country level. Together, these three layers enable a theoretically coherent and empirically testable account of how governance structures at different levels influence sustainability-related human rights exploitation risks.

3.1 | CEB

CEB refers to a firm's adherence to socially accepted standards of fairness, transparency and human rights in its operations and supply chains. Within the institutional theory framework, such behaviour is influenced by normative pressures, such as societal expectations, media scrutiny and stakeholder activism, and coercive pressures, such as legislation and regulation, that shape corporate legitimacy (Campbell 2007; DiMaggio and Powell 1983). Firms that internalise ethical norms are more likely to incorporate sustainability into strategic decision-making and adopt sustainability commitments that extend beyond minimum regulatory compliance (Sendlhofer 2020).

Empirical studies reveal that ethical firms adopt stronger due diligence processes, avoid exploitative labour and align supply chain practices with global human rights standards (e.g., Gold et al. 2015; Shukla et al. 2019; Pinnington et al. 2023). They are more likely to develop supplier codes of conduct, promote fair labour certification and engage transparently with stakeholders (Allam, Moussa, and Elmarzouky 2024). These proactive practices reduce the risk of human rights violations and enhance ESG performance (Moussa et al. 2024).

However, the impact of ethical behaviour is contingent on the external institutional context. In high-governance settings, ethical actions are reinforced by civil society engagement, public oversight and enforcement mechanisms (Mehmood et al. 2023). In contrast, in low-governance environments, firms may be incentivised to engage in symbolic or superficial compliance due to weak enforcement and limited legal risk (Islam and Van Staden 2022). Thus, ethical behaviour may fail to translate into improved sustainability outcomes in contexts where institutional accountability remains weak. Based on this reasoning and supporting empirical evidence, we hypothesise the following:

H1. *CEB is negatively associated with sustainability-related human rights exploitation risks.*

3.2 | BOE

Boards of directors play a central role in shaping strategic priorities, enforcing compliance and ensuring ethical oversight in response to institutional demands. Institutional theory posits that boards are both recipients and transmitters of coercive and normative pressures, mediating between external expectations and internal governance outcomes (Scott 1995; DiMaggio and Powell 1983). Boards that function effectively

tend to incorporate ESG considerations into decision-making and align corporate behaviour with stakeholder expectations and regulatory standards (Young and Thyl 2008; García-Sánchez et al. 2015).

BOE is typically characterised by independence, expertise, diversity and active engagement in sustainability matters. Boards that possess these features are more likely to support robust risk management systems, conduct human rights due diligence and ensure transparency in supply chain practices (Shohaieb et al. 2022; Mintah et al. 2026; Monciardini et al. 2021). Effective boards are better positioned to resist the mimetic isomorphism that drives superficial sustainability reporting and instead foster substantive ethical accountability grounded in genuine due diligence (Neokleous and Elmarzouky 2026).

While capable boards thus serve as a critical internal governance mechanism, weak board structures may lack the capacity or willingness to challenge exploitative practices or prioritise long-term social risks. When boards are disengaged, underqualified or captured by managerial interests, their role in advancing sustainability becomes diminished, even in environments with high external pressure. Drawing on this theoretical and empirical foundation, we propose the following hypothesis:

H2. *BOE is negatively associated with sustainability-related human rights exploitation risks.*

3.3 | NGQ

NGQ encompasses the institutional strength of a country to uphold legal norms, promote accountability and deter corruption. From an institutional theory perspective, NGQ represents a critical source of coercive pressure that shapes the formal and informal rules governing corporate conduct (Kaufmann et al. 2011; Landman and Silverman 2019). Elements such as rule of law, regulatory quality, control of corruption and political stability influence firms' willingness and ability to comply with sustainability expectations (Cuesta 2013; Mehmood et al. 2023).

Empirical studies, such as Han et al. (2024), consistently show that firms operating in countries with strong governance face higher transparency demands, greater enforcement of labour standards and stronger stakeholder activism. These institutional features reduce the space for exploitative practices and enhance the credibility of corporate sustainability initiatives.

In contrast, weak governance environments create institutional voids where human rights abuses are more likely to occur. In such contexts, even firms with internal ethical commitments may be discouraged or unable to act effectively due to the absence of enforcement, judicial inefficiencies and systemic corruption (Crane et al. 2019; Islam and Van Staden 2022). Thus, NGQ influences the behaviour of firms by shaping the institutional environment in which corporate accountability operates. Based on this logic and empirical support, we hypothesise the following:

H3. *NGQ is negatively associated with sustainability-related human rights exploitation risks.*

4 | Research Design

4.1 | Sample and Data Sources

This study employs a longitudinal, cross-national dataset to examine the association between country-level governance environments and sustainability-related HRRs. The sample covers 167 countries across the 2014, 2016 and 2018 waves, reflecting the availability of harmonised data across key variables.

The HRR indicators are drawn from the Global Slavery Index (GSI), published by the Walk Free Foundation in collaboration with the ILO. The GSI provides country-level estimates for two dimensions of HRR: the prevalence of exploitation, including forced labour, trafficking and coercive practices, and vulnerability to such abuses based on structural risk factors. These data are compiled using representative sample surveys and validated secondary sources, including reports from international organisations, national governments and civil society groups. Given the covert and illegal nature of modern slavery, consistent data collection across all years is challenging. In line with previous studies (Moussa et al. 2022), we restrict the analysis to the years for which GSI data are available, generating an initial analytical panel of 501 country-year observations, based on 167 countries observed across three waves.

After accounting for missing values across the explanatory and control variables, the final sample comprises 421 country-year observations. As reported in Table 1, the reduction from 501 to 421 observations reflects missing data in the Global Competitiveness Index (GCI), World Development Indicators (WDI) and NGQ variables. The overall attrition rate is 15.97%, with year-specific attrition rates of 16.77% in 2014, 16.17% in 2016 and 14.97% in 2018. Missing observations arise mainly from uneven coverage across international databases, particularly the GCI and WDI, rather than from missing HRR data. This pattern is consistent with data availability constraints across international sources, rather than systematic missingness in the dependent variables (Rubin 1976). Listwise deletion is therefore applied. Variables are harmonised across the three waves by applying the variable definitions and scaling

conventions published by each original data source for the corresponding year. These sources comprise the GCI, the World Bank Worldwide Governance Indicators (WGIs), the Walk Free Foundation GSI and the World Bank's WDI.

The governance variables are drawn from two main sources. The country-level corporate governance environment variables, namely, CEB and BOE, are obtained from the GCI, published by the World Economic Forum (World Economic Forum 2018). NGQ data are drawn from the WGIs developed by the World Bank (Kaufmann et al. 2011). Macroeconomic and demographic control variables are obtained from the World Bank's WDI (2022). These sources are widely used in cross-country research and provide comparable country-level data across the study period.

4.2 | Empirical Model

To examine the association between country-level governance environments and sustainability-related HRRs, this study employs panel regression models with country fixed effects and year fixed effects. Country fixed effects control for unobserved time-invariant heterogeneity across countries, including historical, legal, cultural, geographic and structural differences, while country-clustered standard errors account for heteroscedasticity and serial correlation within countries over time (Wooldridge 2010; Cameron and Miller 2015). Year fixed effects capture global shocks and period-specific influences, such as macroeconomic instability, regulatory developments or changes in international policy attention. The main analysis adopts a sequential modelling strategy. Each governance variable is entered separately across distinct model specifications, alongside the same set of country-level controls. The main estimation equation is defined as follows:

$$HRR_{it} = \alpha_0 + \beta_1 GOV_{it} + \gamma CONTROLS_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (1)$$

where HRR_{it} represents HRR in country i at time t . HRR is measured using two dependent variables: the prevalence of exploitation (PREV) and structural vulnerability to exploitation (VULN). GOV_{it} refers separately to one of the three governance

TABLE 1 | Sample composition and attrition by year.

Year	2014	2016	2018	Country-year observations
Total observations with available HRR data from the Global Slavery Index	167	167	167	501
Less: observations with missing GCI data	20	21	17	58
Less: observations with missing WDI data	8	5	8	21
Less: observations with missing NGQ data	0	1	0	1
Final country-year observations	139	140	142	421
Attrition rate	16.77%	16.17%	14.97%	15.97%

Note: This table reports the construction of the final estimation sample by year. The initial sample comprises country-year observations with available human rights risk (HRR) data from the Global Slavery Index. Observations are then excluded where data are missing for the Global Competitiveness Index (GCI) variables, World Development Indicators (WDI) control variables or national governance quality (NGQ). The final sample comprises 421 country-year observations across the 2014, 2016 and 2018 waves.

variables: CEB, BOE or NGQ. $CONTROLS_{it}$ represents the vector of macroeconomic and demographic control variables. μ_i denotes country fixed effects, which account for time-invariant country-specific characteristics, while λ_t denotes year fixed effects, which account for common shocks across years. ϵ_{it} is the error term. Table 2 provides the full definitions and sources of all variables used in the regression models.

4.3 | Variable Measurement

4.3.1 | Sustainability-Related HRR

The dependent variable in this study is sustainability-related HRR, operationalised using two measures obtained from the GSI. The first measure, prevalence (PREV), captures the estimated percentage of a country's population subjected to forced labour, human trafficking or other forms of exploitation. It reflects the estimated occurrence of exploitation within a given national context. The second measure, vulnerability (VULN), captures the structural susceptibility of a population to human rights violations. This score ranges from 0 to 100 and is based

on 23 indicators distributed across five thematic dimensions: inadequate access to basic needs, systemic inequality, exclusion of marginalised groups, institutional weakness and exposure to conflict. Together, these two variables capture both observed exploitation and the broader structural conditions that may enable such exploitation. Because VULN captures broader structural susceptibility and includes an institutional weakness dimension, we distinguish it from PREV throughout the analysis, particularly when examining associations involving NGQ. PREV captures estimated exploitation prevalence, whereas VULN captures wider structural exposure to exploitation.

4.3.2 | Governance Measures

The independent variables include CEB, BOE, and NGQ. CEB and BOE are used as country-level proxies for the prevailing corporate governance environment. These indicators have been widely used in cross-country research on business ethics, governance and sustainability (Kılıç et al. 2020; Benkraiem et al. 2021).

TABLE 2 | Variable definitions.

Variables	Symbols	Definitions
Human rights exploitation prevalence	PREV	This metric represents the estimated proportion of a country's population subjected to exploitative practices such as forced labour, child labour, commercial sexual exploitation, human trafficking and coercive marriage. This metric reflects the extent of observed exploitation within a national context.
Human rights exploitation structural vulnerability	VULN	A composite index ranging from 0 to 100 that captures the structural susceptibility of populations to human rights abuses. It incorporates 23 risk factors across five domains: limited access to basic needs, inequality, marginalisation of specific groups, governance weaknesses and conflict exposure. Higher scores indicate greater vulnerability to systemic exploitation.
Corporate ethical behaviour	CEB	This measures the ethical practices of companies, evaluated through survey responses to the question: 'In your country, how would you assess the ethical standards of companies in their dealings with public officials, politicians, and other businesses?' The scale ranges from 1, indicating <i>very poor standards</i> , to 7, representing <i>excellent standards</i> .
Board efficacy	BOE	This measures the effectiveness of corporate boards based on the accountability of management to the board of directors and investors, assessed through responses to the following question: 'How accountable is management to the board of directors and investors?' The scale runs from 1, signifying <i>no accountability</i> , to 7, indicating <i>high accountability</i> .
National governance quality	NGQ	This composite measure evaluates the quality of national governance across six dimensions: voice and accountability (VA), political stability (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL) and corruption control (CC).
Economic development	ECD	This is measured by the annual growth rate of the gross domestic product (GDP).
Unemployment rate	UNEM	This represents the proportion of the workforce that is unemployed.
Inflation	INF	This is gauged by the rate of increase in consumer prices, as indicated by the consumer price index.
Export	EXP	This is the value of all goods and services sold abroad as a percentage of the country's total GDP.
Gender	FEM	This represents the percentage of the population that is female.

The CEB is based on respondents' perceptions of the ethical standards of companies in their interactions with public officials, politicians and other businesses. It is scored on a scale from 1 to 7, with higher scores indicating stronger perceived ethical conduct. The BOE variable measures the perceived effectiveness of corporate boards in exercising oversight and holding management accountable for performance, risk management and ethical practices. This indicator is also scored from 1 to 7, with higher values indicating stronger perceived board efficacy.

To measure NGQ, we employ the WGIs developed by the World Bank, which provide a comprehensive and multidimensional assessment of country-level institutional quality (Kaufmann et al. 2011; Moussa et al. 2026). The WGI framework consists of six governance dimensions: voice and accountability (VA), political stability and absence of violence/terrorism (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL) and control of corruption (CC). These dimensions capture the broader political, regulatory and legal environment within which country-level corporate governance environments and sustainability-related HRRs are embedded. Higher values of the underlying WGI indicators indicate stronger governance quality.

The use of the WGIs is appropriate for this study for three reasons. First, the WGIs are widely used in cross-country governance research and provide comparable country-level measures across a large number of jurisdictions. Second, unlike narrower governance proxies, the WGIs capture multiple dimensions of institutional quality, including accountability, regulatory capacity, legal enforcement and corruption control. Third, prior research has validated the reliability and usefulness of these indicators in examining institutional environments and sustainability-related outcomes (Allam, Abou-El-Sood, et al. 2024; Daniel et al. 2012; Kaufmann et al. 2011; Moussa et al. 2022; Moussa et al. 2026; Yamen et al. 2018).

To assess the internal consistency and suitability of the six WGI dimensions, we conducted several diagnostic checks. First, following Hair et al. (2018), we performed a Pearson correlation analysis. As reported in Table 3, all six WGI dimensions are positively and significantly correlated, suggesting that they capture related aspects of a broader national governance construct. This supports the use of a composite measure of NGQ rather than treating the six dimensions as unrelated governance indicators.

Next, we applied principal component analysis (PCA) to construct a composite measure that captures the six dimensions of NGQ (Allam et al. 2023). PCA reduces data complexity and improves interpretability by identifying the common component underlying the six governance indicators. Consistent with prior cross-country governance research, PCA is appropriate because the WGI dimensions are conceptually related and empirically highly correlated (Elamer et al. 2020; Elmarzouky et al. 2025; Allam et al. 2023). To clarify the factor structure, we used varimax rotation, a standard technique that maximises the variance of squared loadings and minimises cross-loadings, ensuring that the factors are well differentiated. According to Hair et al. (2018), varimax rotation is particularly effective in simplifying complex datasets, making it an appropriate choice for this study.

Table 4 presents the PCA results, including component loadings, eigenvalues, explained variance and the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy. The results show that all six WGI dimensions load strongly onto the first principal component, accounting for 85.1% of the total variance. This high percentage of explained variance supports the use of a composite measure to capture the multidimensional aspects of NGQ. Moreover, the KMO measure of sampling adequacy is 0.897, exceeding the recommended threshold of 0.50 (Cerny and Kaiser 1977), confirming the dataset's suitability for PCA.

Finally, we created the composite NGQ index as a PCA-based factor score using the first principal component. This approach ensures that the composite measure reflects the shared variation across the six WGI dimensions while maintaining the multidimensional nature of the NGQ construct. Because all six dimensions load positively on Component 1, higher NGQ scores consistently indicate stronger NGQ. Since PCA-based factor scores are linear combinations of standardised variables, the resulting NGQ values may extend beyond the original WGI scale. This is a standard feature of PCA-based index construction and reflects the statistical nature of the factor score, rather than a measurement inconsistency.

4.3.3 | Control Variables

Following previous studies (e.g., Allam et al. 2023; Benamraoui et al. 2023; ILO 2017; Lochner 2020; Lucas and Landman 2021; Such et al. 2020; Moussa et al. 2026), this study incorporates

TABLE 3 | Correlation analysis of the NGQ measures.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) VA	1.000					
(2) PS	0.669***	1.000				
(3) GE	0.728***	0.739***	1.000			
(4) RQ	0.768***	0.687***	0.938***	1.000		
(5) RL	0.788***	0.761***	0.951***	0.934***	1.000	
(6) CC	0.766***	0.752***	0.925***	0.890***	0.955***	1.000

Note: Definitions for all variables are provided in Table 2.

***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

TABLE 4 | Principal component analysis (PCA) of the NGQ measures.

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Unexplained	KMO
(1) VA	0.376	0.206	0.892	−0.002	0.136	0.034	0	0.925
(2) PS	0.366	0.850	−0.341	0.147	−0.066	0.030	0	0.950
(3) GE	0.425	−0.256	−0.248	0.171	0.799	0.157	0	0.881
(4) RQ	0.420	−0.346	−0.025	0.625	−0.517	0.214	0	0.881
(5) RL	0.433	−0.171	−0.095	−0.186	−0.107	−0.854	0	0.871
(6) CC	0.425	−0.143	−0.128	−0.724	−0.243	0.446	0	0.903
Eigenvalue	5.103	0.380	0.328	0.107	0.047	0.034	—	—
Proportion	0.851	0.063	0.055	0.018	0.008	0.006	—	—
KMO	—	—	—	—	—	—	—	0.897

Note: Definitions for all variables are provided in Table 2. Component 1 is used to construct the NGQ composite index. It has uniformly positive loadings across all six WGI dimensions, ranging from 0.366 to 0.433, and explains 85.1% of the total variance, with an eigenvalue of 5.103. The KMO statistic is 0.897, confirming the suitability of the data for PCA. Higher NGQ scores indicate stronger national governance quality.

macroeconomic and demographic control variables to account for country-level characteristics that may influence sustainability-related HRRs. Economic development (ECD) is measured using annual GDP growth. Unemployment (UNEM) is measured as the percentage of the total labour force without work. Inflation (INF) is measured using annual changes in the consumer price index. Export activity (EXP) is measured as exports as a percentage of GDP. Gender composition is measured as the percentage of the population that is female. All control variables are sourced from the World Bank's WDI.

5 | Results and Discussion

5.1 | Descriptive Statistics and Correlation Analysis

Table 5 presents the descriptive statistics for all key variables. The average human rights exploitation prevalence (PREV) is 4.717%, with a standard deviation of 3.177%, indicating substantial variation across the 167 countries in the sample. The prevalence values range from 0.180% to 11.410%, showing that exposure to exploitative practices differs considerably across national contexts. Similarly, structural vulnerability (VULN) has a mean score of 44.275 on a 0–100 scale, with a standard deviation of 16.463. This suggests considerable variation in the socio-institutional conditions associated with vulnerability to exploitation, including conflict exposure, limited access to public services and marginalisation of vulnerable populations (Walk Free Foundation 2018).

The country-level corporate governance environment variables also show meaningful variation. CEB has a mean value of 4.101, while BOE has a mean value of 4.716, both measured on a 1–7 scale. These averages suggest moderate perceived CEB and BOE across the countries in the sample, with clear room for improvement in many national contexts. This result is consistent with prior cross-country governance research, which shows that ethical business conduct and BOE differ substantially across institutional settings (Benkraiem et al. 2021). NGQ has a mean of 0.000 and a standard deviation of 2.259, with values ranging from −5.159 to 4.774. This

TABLE 5 | Descriptive statistics.

Variables	Obs.	Mean	SD	Min	Max
PREV	421	4.717	3.177	0.180	11.410
VULN	421	44.275	16.463	14.900	73.059
CEB	421	4.101	0.910	2.402	6.565
BOE	421	4.716	0.673	2.300	6.267
NGQ	421	0.000	2.259	−5.159	4.774
ECD	421	3.210	2.854	−6.360	10.300
UNEM	421	7.538	5.595	0.510	25.410
INF	421	3.864	6.287	−1.600	47.800
EXP	421	42.839	30.702	8.150	191.950
FEM	421	49.984	3.025	30.640	53.980

Note: Definitions for all variables are provided in Table 2.

wide dispersion reflects large cross-country differences in institutional integrity, regulatory enforcement, rule of law and political stability (Kaufmann et al. 2011; Han et al. 2024).

The control variables also display considerable variation. ECD, measured by annual GDP growth, has a mean of 3.210%, ranging from −6.360% to 10.300%. This range reflects differences in macroeconomic conditions across countries. UNEM and INF average 7.538% and 3.864%, respectively, indicating varying degrees of labour-market and price instability across the sample. These macroeconomic conditions may be associated with HRRs by shaping economic vulnerability and labour-market pressures (ILO 2022; Lucas and Landman 2021). EXP, with a mean of 42.839% of GDP, indicates considerable variation in trade openness. The average female population share (FEM) is 49.984%, suggesting broadly balanced gender composition across the sample.

Table 6 reports the pairwise correlations among the study variables. The positive and statistically significant correlation between PREV and VULN ($r = 0.654$, $p < 0.001$) indicates that

TABLE 6 | Pearson correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) PREV	1.000									
(2) VULN	0.654 (0.000)	1.000								
(3) CEB	−0.424 (0.000)	−0.577 (0.000)	1.000							
(4) BOE	−0.415 (0.000)	−0.539 (0.000)	0.754 (0.000)	1.000						
(5) NGQ	−0.636 (0.000)	−0.851 (0.000)	0.791 (0.000)	0.662 (0.000)	1.000					
(6) UNEM	−0.022 (0.631)	−0.008 (0.856)	−0.111 (0.024)	−0.184 (0.000)	0.020 (0.648)	1.000				
(7) INF	0.231 (0.000)	0.286 (0.000)	−0.274 (0.000)	−0.189 (0.000)	−0.327 (0.000)	0.037 (0.419)	1.000			
(8) ECD	0.169 (0.000)	0.164 (0.000)	−0.066 (0.182)	−0.046 (0.354)	−0.086 (0.053)	−0.266 (0.000)	−0.171 (0.000)	1.000		
(9) EXP	−0.201 (0.000)	−0.336 (0.000)	0.399 (0.000)	0.267 (0.000)	0.426 (0.000)	−0.033 (0.474)	−0.223 (0.000)	0.021 (0.638)	1.000	
(10) FEM	−0.078 (0.086)	−0.085 (0.062)	−0.257 (0.000)	−0.102 (0.038)	0.013 (0.777)	0.177 (0.000)	0.055 (0.225)	0.006 (0.897)	−0.151 (0.001)	1.000

Note: Definitions for all variables are provided in Table 2.

countries with higher estimated exploitation prevalence also tend to exhibit higher structural vulnerability to exploitation. This is consistent with the conceptual link between observed exploitation and the wider socio-institutional conditions that increase exposure to human rights abuses (Mehmood et al. 2023; Walk Free Foundation 2018).

The correlation results also show negative and statistically significant associations between both dependent variables and the key governance variables. CEB is negatively correlated with PREV ($r = -0.424$) and VULN ($r = -0.577$), while BOE is negatively correlated with PREV ($r = -0.415$) and VULN ($r = -0.539$). NGQ is also negatively correlated with PREV ($r = -0.636$) and VULN ($r = -0.851$). These correlations provide preliminary evidence that stronger country-level CEB, BOE and NGQ are associated with lower sustainability-related HRRs (Flynn and Walker 2021; Islam and Van Staden 2022).

Table 6 also shows the correlations among the independent and control variables. The correlations among CEB, BOE and NGQ are relatively high, which is expected because these variables capture related dimensions of country-level governance environments. However, the correlations remain below the commonly cited threshold of 0.80 for serious multicollinearity concerns (Gujarati 2009). To further assess potential multicollinearity, variance inflation factor (VIF) tests were conducted for all explanatory variables. The VIF values range between 1.12 and 2.84, below both the conventional threshold of 10

and the more conservative threshold of 3, suggesting that multicollinearity is unlikely to materially distort the reported estimates.

Given the correlations among CEB, BOE and NGQ, the main regression analysis adopts a sequential modelling strategy. Each governance variable is entered separately across distinct model specifications, alongside the same set of control variables. This approach reduces within-model collinearity concerns and allows each governance variable's association with HRR outcomes to be assessed separately. This modelling strategy is consistent with related cross-national governance studies (e.g., Moussa et al. 2022).

5.2 | Multivariate Regression Results

Table 7 reports the fixed-effects regression results examining the association between the three country-level governance measures, namely CEB, BOE and NGQ, and sustainability-related HRRs, measured using PREV and VULN. Consistent with the sequential modelling strategy, the table reports the individual association of each governance measure with the two HRR outcomes. Models 1 and 2 examine CEB, Models 3 and 4 examine BOE, and Models 5 and 6 examine NGQ.

Models 1 and 2 of Table 7 show that CEB is negatively and statistically significantly associated with both PREV (-1.275 , $p < 0.01$)

TABLE 7 | Fixed-effects regressions of human rights risk on corporate ethical behaviour, board governance efficacy and national governance quality.

Variables	PREV	VULN	PREV	VULN	PREV	VULN
(Model)	(1)	(2)	(3)	(4)	(5)	(6)
CEB	−1.275*** (0.158)	−8.656*** (0.666)				
BOE			−1.714*** (0.202)	−9.207*** (0.917)		
NGQ					−0.830*** (0.0610)	−6.048*** (0.194)
UNEM	0.006 (0.024)	−0.036 (0.100)	−0.010 (0.024)	−0.093 (0.108)	0.033 (0.021)	0.104 (0.067)
INF	0.102*** (0.028)	0.693*** (0.120)	0.111*** (0.028)	0.805*** (0.127)	0.043* (0.022)	0.080 (0.071)
ECD	0.242*** (0.054)	1.046*** (0.228)	0.240*** (0.054)	1.1460*** (0.244)	0.187*** (0.044)	0.496*** (0.140)
EXP	−0.002 (0.005)	−0.083*** (0.019)	−0.006 (0.004)	−0.122*** (0.020)	0.008** (0.004)	−0.002 (0.013)
FEM	−0.177*** (0.039)	−1.113*** (0.162)	−0.123*** (0.038)	−0.739*** (0.170)	−0.0720** (0.035)	−0.407*** (0.111)
Constant	17.140*** (2.167)	130.300*** (9.126)	17.580*** (2.156)	120.700*** (9.776)	6.896*** (1.763)	61.970*** (5.606)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	389	389	389	389	421	421
Adjusted R ²	0.292	0.537	0.302	0.471	0.416	0.777

Note: Definitions for all variables are provided in Table 2. Robust standard errors are shown in parentheses.
 ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

and VULN (−8.656, $p < 0.01$), supporting Hypothesis 1. These findings indicate that countries characterised by stronger prevailing corporate ethical conduct environments tend to exhibit lower sustainability-related HRRs. This result is consistent with institutional theory, which suggests that ethical norms and informal institutional expectations shape organisational conduct by increasing legitimacy pressures and reducing tolerance for human rights exploitative practices (DiMaggio and Powell 1983; Scott 1995). More specifically, national business environments perceived as more ethical are associated with lower human rights exploitation prevalence and lower structural vulnerability to exploitation. This evidence is consistent with prior cross-country evidence showing that country-level ethical conduct environments are linked to lower levels of harmful or non-compliant business practices (Benkraiem et al. 2021; Simte and Singh 2022; Lång and Ivanova-Gongne 2019).

Models 3 and 4 of Table 7 show a similar pattern for BOE. The coefficient on BOE is negative and statistically significant for both PREV (−1.714, $p < 0.01$) and VULN (−9.207, $p < 0.01$),

supporting Hypothesis 2. These results suggest that countries with stronger BOE environments are associated with lower sustainability-related HRRs. From an institutional perspective, BOE reflects the perceived strength of oversight and accountability norms within the national corporate sector. Such governance environments may support stronger expectations around monitoring, accountability and ethical conduct, which are central to lower exposure to human rights exploitative practices. This is consistent with prior research suggesting that board governance and monitoring norms are important components of the broader governance environment in which sustainability and ethical conduct are shaped (Young and Thyil 2008; García-Sánchez et al. 2015; Monciardini et al. 2021).

Models 5 and 6 of Table 7 show that NGQ is negatively and significantly associated with both PREV (−0.830, $p < 0.01$) and VULN (−6.048, $p < 0.01$), supporting Hypothesis 3. These findings indicate that stronger NGQ is associated with lower human rights exploitation prevalence and lower structural

vulnerability to exploitation. This result is consistent with institutional theory, which views rule of law, regulatory quality, corruption control and political stability as formal institutional mechanisms that shape accountability and are expected to be associated with lower exposure to human rights exploitative practices (Kaufmann et al. 2011; Landman and Silverman 2019; Han et al. 2024). The finding also supports the argument that national institutional quality may provide the formal governance infrastructure within which ethical conduct and accountability norms become more credible and enforceable.

Several control variables also show statistically significant associations. ECD and INF are positively associated with both PREV and VULN, suggesting that periods of economic transition, inflationary pressure and macroeconomic instability may be linked to greater exposure to exploitation risks (Lucas and Landman 2021; ILO 2022). By contrast, FEM is negatively associated with both outcomes, consistent with studies linking gender inclusion, social capital and lower systemic vulnerability (Such et al. 2020; Moussa et al. 2023). These results suggest that macroeconomic and demographic conditions remain important contextual factors in understanding cross-country variation in sustainability-related HRRs.

Overall, the baseline results provide empirical support for the argument that country-level corporate governance environments and national institutional quality are associated with sustainability-related HRRs. The findings are consistent with the institutional theory view that informal ethical norms, BOE, and formal NGQ jointly shape the conditions under which exploitation risks are more or less likely to emerge in global supply chains. This reinforces the study's multilevel governance argument: country-level corporate governance environments matter, but their relevance is embedded within broader institutional systems of accountability, enforcement and social protection.

5.3 | Additional Analyses

Table 8 reports additional analyses based on countries with strong and weak national governance environments. This analysis provides further insight into whether the associations between country-level corporate governance environments and HRRs vary across institutional contexts. Countries are classified according to the strength of their NGQ, and the baseline models are re-estimated separately for strong and weak governance settings.

TABLE 8 | Regressions of human rights risk by country governance quality.

Variables (model)	Strongly governed environment				Poorly governed environment			
	PREV (1)	VULN (2)	PREV (3)	VULN (4)	PREV (5)	VULN (6)	PREV (7)	VULN (8)
CEB	−1.202*** (0.202)	−4.289*** (0.871)			−0.251 (0.357)	−0.888 (1.397)		
BOE			−1.142*** (0.240)	−7.036*** (1.055)			−1.092*** (0.380)	−2.418 (1.501)
UNEM	0.0298 (0.041)	0.443** (0.178)	0.071** (0.029)	0.464*** (0.128)	−0.021 (0.029)	−0.168 (0.115)	−0.026 (0.040)	−0.156 (0.157)
INF	0.110 (0.099)	0.541 (0.426)	0.155*** (0.055)	1.107*** (0.244)	0.064** (0.032)	0.407*** (0.127)	0.024 (0.036)	0.237* (0.141)
ECD	0.105 (0.101)	0.320 (0.438)	0.522*** (0.078)	1.594*** (0.345)	0.178*** (0.066)	0.612** (0.258)	0.040 (0.074)	0.336 (0.292)
EXP	0.0061 (0.004)	0.012 (0.018)	−0.001 (0.004)	−0.046** (0.019)	−0.006 (0.011)	−0.141*** (0.043)	−0.018 (0.013)	−0.120** (0.052)
FEM	−0.319*** (0.045)	−0.904*** (0.184)	−0.188*** (0.035)	−1.050*** (0.153)	0.060 (0.066)	−0.374 (0.257)	0.172 (0.157)	−1.188* (0.619)
Constant	23.280*** (2.626)	86.440*** (11.320)	15.710*** (2.085)	110.900*** (9.179)	2.532 (4.025)	73.300*** (15.750)	2.092 (7.997)	125.300*** (31.600)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	141	141	221	221	248	248	168	168
Adjusted R ²	0.402	0.308	0.364	0.462	0.071	0.141	0.068	0.114

Note: Definitions for all variables are provided in Table 2. Robust standard errors are shown in parentheses.

***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

In strongly governed environments, Models 1–4 of Table 8 show that both CEB and BOE are negatively and significantly associated with PREV and VULN. Specifically, CEB is associated with lower PREV (-1.202 , $p < 0.01$) and lower VULN (-4.289 , $p < 0.01$). Similarly, BOE is negatively associated with PREV (-1.142 , $p < 0.01$) and VULN (-7.036 , $p < 0.01$). These results suggest that both country-level corporate governance factors, CEB and BOE, are more strongly associated with lower HRRs when national institutions provide stronger legal certainty, regulatory enforcement and civic accountability. This is consistent with institutional theory, which suggests that informal and corporate governance norms are more likely to be associated with favourable outcomes when supported by strong formal institutions (Scott 1995; Campbell 2007). This is also consistent with Islam and Van Staden (2022), who show that ESG outcomes are more likely to be realised in jurisdictions with high institutional quality.

In weakly governed environments, Models 5–8 of Table 8 show that the associations are less consistent. CEB is not significantly associated with either PREV (-0.251) or VULN (-0.888),

suggesting that CEB may be less strongly linked to human rights outcomes where legal enforcement, civic accountability and regulatory capacity are weak. This finding is consistent with prior research arguing that weak institutional settings may enable symbolic compliance or decoupled sustainability practices (Christ et al. 2019; Islam and Van Staden 2022).

Interestingly, BOE remains negatively and significantly associated with PREV (-1.092 , $p < 0.01$) in weak governance settings, although its association with VULN (-2.418) is not statistically significant. This suggests that stronger BOE may still be linked to lower exploitation prevalence, even where broader national governance systems are weaker. However, the lack of significance for VULN indicates that BOE alone may be insufficiently associated with deeper structural vulnerability to exploitation. This result is consistent with the view that governance mechanisms are more strongly linked to human rights outcomes when supported by broader institutional capacity. It is also consistent with Young and Thyil (2008) and García-Sánchez et al. (2015), who highlight the role of board governance in embedding ethical accountability and monitoring social risks.

TABLE 9 | 2SLS regressions.

Variables	PREV	VULN	PREV	VULN	PREV	VULN
(Model)	(1)	(2)	(3)	(4)	(5)	(6)
CEB	-1.275^{***} (0.156)	-8.656^{***} (0.658)				
BOE			-1.584^{***} (0.198)	-9.654^{***} (0.922)		
NGQ					-0.829^{***} (0.061)	-4.588^{***} (0.275)
UNEM	0.006 (0.024)	-0.036 (0.099)	-0.012 (0.024)	-0.094 (0.111)	0.031 (0.021)	0.135 (0.094)
INF	0.102^{***} (0.028)	0.693^{***} (0.118)	0.110^{***} (0.028)	0.839^{***} (0.130)	0.042^* (0.022)	-0.081 (0.100)
ECD	0.242^{***} (0.054)	1.046^{***} (0.226)	0.239^{***} (0.054)	1.181^{***} (0.250)	0.180^{***} (0.044)	0.262 (0.197)
EXP	-0.002 (0.004)	-0.083^{***} (0.019)	-0.007 (0.004)	-0.114^{***} (0.020)	0.008^* (0.004)	-0.103^{***} (0.018)
FEM	-0.177^{***} (0.038)	-1.113^{***} (0.160)	-0.122^{***} (0.038)	-0.738^{***} (0.175)	-0.072^{**} (0.035)	0.510^{***} (0.156)
Constant	16.920^{***} (2.154)	135.200^{***} (9.071)	16.990^{***} (2.151)	122.200^{***} (10.000)	6.949^{***} (1.754)	17.260^{**} (7.850)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	389	389	389	389	421	421
Adjusted R^2	0.294	0.567	0.285	0.465	0.412	0.460

Note: Definitions for all variables are provided in Table 2. Robust standard errors are shown in parentheses.

***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Taken together, the stratified analysis suggests that the relationship between country-level corporate governance environments and HRRs is conditioned by the strength of national institutions. The findings support a multilevel governance perspective in which CEB and BOE matter, but their associations with human rights outcomes are stronger when embedded in a supportive institutional context shaped by NGQ (Flynn and Walker 2021; Monciardini et al. 2021).

As an additional robustness check, we apply a two-stage least squares (2SLS) instrumental-variable approach to address potential endogeneity concerns arising from reverse causality and omitted variables. This approach is widely used in panel data research to reduce concerns that the explanatory variables may be correlated with the error term (Wooldridge 2010). In this study, one potential concern is that countries with higher exposure to human rights exploitative practices may subsequently face stronger pressure to improve CEB, BOE or NGQ, creating a potential reverse-causality issue. To address this concern, we ran 2SLS estimations using lagged values of the explanatory variables as instruments, following prior studies that use lagged explanatory variables to address potential endogeneity concerns (Bellemare et al. 2017; Benkraiem et al. 2021; Moussa et al. 2026; Reed 2015).

The 2SLS results reported in Table 9 are broadly consistent with the baseline fixed-effects results, indicating that the associations between CEB, BOE, NGQ and sustainability-related HRRs remain stable under this alternative specification. Overall, the 2SLS analysis supports the stability of the baseline results under an alternative specification.

6 | Conclusion and Implications

This study examines whether country-level corporate governance environments and national institutional quality are associated with sustainability-related human rights exploitation risks across countries. By analysing data from 167 countries using fixed-effects and instrumental-variable robustness specifications, we find that CEB, BOE and NGQ are associated with significantly lower prevalence and structural vulnerability to exploitation. The associations between CEB, BOE and lower human rights exploitation risks are more pronounced in countries with stronger NGQ than in countries with weaker institutional environments. These findings are consistent with institutional theory, which emphasises that organisational practices are shaped by regulatory, normative and cultural-cognitive pressures. Overall, the evidence suggests that human rights exploitation risks are not shaped by isolated governance mechanisms alone, but by the wider institutional environments in which corporate conduct and accountability norms are embedded.

Theoretically, our results extend institutional theory by providing cross-national, longitudinal evidence on how institutional quality conditions the association between country-level corporate governance environments and human rights outcomes. While previous studies have highlighted the role of corporate governance in addressing sustainability risks, the findings suggest that country-level governance environments are most

consequential when embedded within strong national institutional systems. In environments characterised by weak legal enforcement and regulatory opacity, the association between CEB, BOE and exploitation risk is markedly weaker. This institutional asymmetry reinforces the need for coherent governance across both state and corporate actors to strengthen accountability and support compliance with international human rights standards.

The current study has implications for policymakers, regulators and organisations. For policymakers and regulators, the results highlight the importance of strengthening national institutional frameworks, particularly in countries with elevated HRRs. Policy tools such as mandatory human rights due diligence, ESG disclosure mandates and cross-border enforcement mechanisms may help reinforce country-level governance environments. Governments should also invest in institutional capacity building to enhance rule of law, transparency and access to justice, as these conditions are central to addressing exploitation risks. International institutions and development agencies could support such reforms by providing technical assistance, monitoring mechanisms and incentives for improved governance performance.

These findings are particularly relevant in light of emerging regulatory initiatives such as the European Union's Corporate Sustainability Due Diligence Directive (CSDDD), which aims to strengthen corporate accountability for human rights violations linked to business activity. The findings suggest that such regulatory frameworks can play an important role in reinforcing prevailing corporate governance norms and strengthening accountability at the national level. Although the empirical analysis operates at the country level, the findings also point to the relevance of corporate governance reforms, including ESG committees, enhanced board independence and greater gender diversity, as mechanisms through which firms may strengthen oversight of sustainability risks and improve corporate accountability.

From a corporate perspective, the findings suggest the importance of embedding ethical considerations into strategic decision-making, particularly in high-risk jurisdictions where national institutional accountability may be weaker. Boards play a pivotal role in this process by shaping corporate values, overseeing sustainability initiatives and supporting compliance with global norms. However, the findings also suggest that CEB and BOE are unlikely to be sufficient where national institutions are weak. This reinforces the importance of alignment between internal governance practices and external institutional accountability. Strengthening governance frameworks, fostering board diversity and independence and adopting transparent ESG policies may be associated with lower HRRs and stronger stakeholder trust. These implications are consistent with and supportive of the global agenda articulated in the SDGs, especially SDGs 8, 12 and 16, which collectively call for the elimination of exploitative practices, promotion of ethical business conduct and strengthening of institutional frameworks.

This study, however, has some limitations and avenues for future research. The results should be considered in light of the time period and sample of countries covered. The analysis

is restricted to the years 2014, 2016 and 2018 because of the availability of harmonised cross-national data from the GSI. Although this dataset provides valuable comparative evidence across countries, the limited number of time periods may constrain the ability to capture longer term institutional dynamics. Moreover, sustainability-related HRR is measured using both a proportional measure and a bounded composite index. While the linear fixed-effects specifications employed in this study are commonly used in cross-national panel research, future research could examine alternative functional forms, such as fractional logit models and log-transformed specifications. Further research might also consider other institutional, economic, cultural and regulatory factors that may provide additional insights into human rights exploitation risks across countries. Qualitative research using interviews or case studies could also explore how governance environments and organisational culture are linked to ethical outcomes in practice.

Overall, the results of this study highlight that tackling modern slavery and human rights exploitation requires more than isolated corporate initiatives. It demands coordinated, multilevel governance responses that integrate ethical business practices with sustained institutional accountability. Bridging the gap between corporate responsibility and state capacity remains a fundamental step towards building more just and sustainable economic systems.

Author Contributions

Doaa Shohaieb: conceptualization, methodology, formal analysis, supervision, writing – review and editing, writing – original draft. **Tantawy Moussa:** conceptualization, formal analysis, validation, investigation, writing – review and editing. **Amir Allam:** writing – review and editing, formal analysis, methodology, conceptualization. **Mahmoud Elmarzouky:** writing – original draft, writing – review and editing, project administration, supervision, validation.

Acknowledgements

The authors gratefully acknowledge the Editor-in-Chief, Professor Richard Welford, and the anonymous reviewers for their thoughtful and constructive feedback.

For the purposes of open access, the authors have applied a Creative Commons Attribution (CC BY) licence to any Author Accepted Manuscript (AAM) version arising from this submission.

Funding

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- Allam, A., H. Abou-El-Sood, M. Elmarzouky, and A. Yamen. 2024. "Financial Development and Tax Evasion: International Evidence From OECD and Non-OECD Countries." *Journal of International Accounting, Auditing and Taxation* 57: 100653. <https://doi.org/10.1016/j.intaccudtax.2024.100653>.
- Allam, A., T. Moussa, M. Abdelhady, and A. Yamen. 2023. "National Culture and Tax Evasion: The Role of the Institutional Environment

Quality." *Journal of International Accounting, Auditing and Taxation* 52: 100559. <https://doi.org/10.1016/j.intaccudtax.2023.100559>.

Allam, A., T. Moussa, and M. Elmarzouky. 2024. "Examining the Relationship Between CEO Power and Modern Slavery Disclosures: The Moderating Role of Board Gender Diversity in UK Companies." *Business Strategy and the Environment* 33, no. 1: 8067–8085. <https://doi.org/10.1002/bse.3910>.

Bellemare, M., T. Masaki, and T. B. Pepinsky. 2017. "Lagged Explanatory Variables and the Estimation of Causal Effect." *Journal of Politics* 79: 949–963. <https://doi.org/10.1086/690946>.

Benamraoui, A., T. Moussa, and M. Hussien. 2023. "Islamic Banks' Sharia Compliance Disclosure: An International Evidence." *Accounting Research Journal* 36, no. 4/5: 327–348. <https://doi.org/10.1108/ARJ-07-2022-0157>.

Benkraiem, R., A. Uyar, M. Kilic, and F. Schneider. 2021. "Ethical Behavior, Auditing Strength, and Tax Evasion: A Worldwide Perspective." *Journal of International Accounting, Auditing and Taxation* 43: 100380. <https://doi.org/10.1016/j.intaccudtax.2021.100380>.

Cameron, A. C., and D. L. Miller. 2015. "A Practitioner's Guide to Cluster-Robust Inference." *Journal of Human Resources* 50, no. 2: 317–372.

Campbell, J. L. 2007. "Why Would Corporations Behave in Socially Responsible Ways? An Institutional Theory of Corporate Social Responsibility." *Academy of Management Review* 32, no. 3: 946–967. <https://doi.org/10.5465/AMR.2007.25275684>.

Cerny, C. A., and H. F. Kaiser. 1977. "A Study of a Measure of Sampling Adequacy for Factor-Analytic Correlation Matrices." *Multivariate Behavioral Research* 12, no. 1: 43–47.

Christ, K. L., K. K. Rao, and R. L. Burritt. 2019. "Accounting for Modern Slavery: An Analysis of Australian Listed Company Disclosures." *Accounting, Auditing & Accountability Journal* 32, no. 3: 836–865. <https://doi.org/10.1108/AAAJ-11-2017-3242>.

Crane, A., G. LeBaron, J. Allain, and L. Behbahani. 2019. "Governance Gaps in Eradicating Forced Labor: From Global to Domestic Supply Chains." *Regulation & Governance* 13, no. 1: 86–106. <https://doi.org/10.1111/rego.12162>.

Cuesta, J. 2013. "Theory and Empirics of Democracy and Crime Revisited: How Much Further Can We Go With Existing Data and Methodologies?" *American Journal of Economics and Sociology* 72, no. 3: 645–674.

Daniel, S. J., A. P. J. K. Cieslewicz, and H. Pourjalali. 2012. "The Impact of National Economic Culture and Country-Level Institutional Environment on Corporate Governance Practices." *Management International Review* 52, no. 3: 365–394.

DiMaggio, P. J., and W. W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48, no. 2: 147–160. <https://doi.org/10.2307/2095101>.

Elamer, A. A., C. G. Ntim, and H. A. Abdou. 2020. "Islamic Governance, National Governance, and Bank Risk Management and Disclosure in MENA Countries." *Business & Society* 59, no. 5: 914–955. <https://doi.org/10.1177/0007650317746108>.

Elmarzouky, M., T. Moussa, and A. Allam. 2025. "Cybersecurity Disclosure: Board Commitment and Regulatory Impact in the UK." *International Journal of Accounting*. Advanced online publication. <https://doi.org/10.1142/S1094406025420053>.

European Commission. 2023. "European Sustainability Reporting Standards (ESRS): Commission Delegated Regulation (EU) 2023/2772." Official Journal of the European Union L 2023/2772, 22 December 2023. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en.

- Flynn, A., and H. Walker. 2021. "Corporate Responses to Modern Slavery Risks: An Institutional Theory Perspective." *European Business Review* 33, no. 2: 295–315. <https://doi.org/10.1108/EBR-05-2019-0092>.
- García-Sánchez, I.-M., L. Rodríguez-Domínguez, and J.-V. Frías-Aceituno. 2015. "Board of Directors and Ethics Codes in Different Corporate Governance Systems." *Journal of Business Ethics* 131, no. 3: 681–698. <https://doi.org/10.1007/s10551-014-2300-y>.
- Gold, S., A. Trautrim, and Z. Trodd. 2015. "Modern Slavery Challenges to Supply Chain Management." *Supply Chain Management* 20, no. 5: 485–494. <https://doi.org/10.1108/SCM-02-2015-0046>.
- Gujarati, D. N. 2009. *Basic Econometrics*. McGraw-Hill Education.
- Hair, J. F., B. J. Babin, R. E. Anderson, and W. C. Black. 2018. *Multivariate Data Analysis*. 8th ed. Cengage Learning EMEA.
- Han, C., F. Jia, M. Jiang, and L. Chen. 2024. "Modern Slavery in Supply Chains: A Systematic Literature Review." *International Journal of Logistics Research and Applications* 27, no. 7: 1206–1227. <https://doi.org/10.1080/13675567.2022.2118696>.
- ILO. 2017. "Global Estimates of Modern Slavery: Forced Labour and Forced Marriage [Report]" http://www.ilo.org/global/publications/books/WCMS_575479/lang-en/index.htm.
- ILO. 2022. "Global Estimates of Modern Slavery: Forced Labour and Forced Marriage" http://www.ilo.org/global/topics/forced-labour/publications/WCMS_854733/lang-en/index.htm.
- Islam, M. A., and C. J. Van Staden. 2022. "Modern Slavery Disclosure Regulation and Global Supply Chains: Insights From Stakeholder Narratives on the UK Modern Slavery Act." *Journal of Business Ethics* 180, no. 2: 455–479. <https://doi.org/10.1007/s10551-021-04878-1>.
- ISSB (International Sustainability Standards Board). 2023a. *IFRS S1: General Requirements for Disclosure of Sustainability-Related Financial Information*. IFRS Foundation. <https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s1-general-requirements/>.
- ISSB (International Sustainability Standards Board). 2023b. *IFRS S2: Climate-Related Disclosures*. IFRS Foundation. <https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ifrs-s2-climate-related-disclosures/>.
- Kaufmann, D., A. Kraay, and M. Mastruzzi. 2011. "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3, no. 02: 220–246.
- Kılıç, M., A. Uyar, and C. Kuzey. 2020. "The Impact of Institutional Ethics and Accountability on Voluntary Assurance for Integrated Reporting." *Journal of Applied Accounting Research* 21, no. 1: 1–18. <https://doi.org/10.1108/JAAR-04-2019-0064>.
- Landman, T., and B. W. Silverman. 2019. "Globalization and Modern Slavery." *Politics and Governance* 7, no. 4: Article 4. <https://doi.org/10.17645/pag.v7i4.2233>.
- Lång, S., and M. Ivanova-Gongne. 2019. "CSR Communication in Stakeholder Networks: A Semiotic Perspective." *Baltic Journal of Management* 14, no. 3: 480–499.
- LeBaron, G. 2021. "The Role of Supply Chains in the Global Business of Forced Labour." *Journal of Supply Chain Management* 57, no. 2: 29–42. <https://doi.org/10.1111/jscm.12258>.
- Lochner, L. 2020. "Chapter 9—Education and Crime." In *The Economics of Education*, edited by S. Bradley and C. Green, Second ed., 109–117. Academic Press. <https://doi.org/10.1016/B978-0-12-815391-8.00009-4>.
- Lucas, B., and T. Landman. 2021. "Social Listening, Modern Slavery, and COVID-19." *Journal of Risk Research* 24, no. 3–4: 314–334. <https://doi.org/10.1080/13669877.2020.1864009>.
- Mehmood, W., A. Ahmad, A. Aman-Ullah, and R. Mohd-Rashid. 2023. "Modern Slavery: A Literature Review Using Bibliometric Analysis and the Nexus of Governance." *Journal of Public Affairs* 23, no. 1: e2832. <https://doi.org/10.1002/pa.2832>.
- Mintah, E. O., M. Elmarzouky, and D. Shohaieb. 2026. "Examining Airlines' Environmental and Social Disclosure: Does Board Gender Diversity Matter?" *Business Strategy and the Environment* 35, no. 1: 1–17. <https://doi.org/10.1002/bse.70164>.
- Monciardini, D., N. Bernaz, and A. Andhov. 2021. "The Organizational Dynamics of Compliance With the UK Modern Slavery Act in the Food and Tobacco Sector." *Business & Society* 60, no. 2: 288–340. <https://doi.org/10.1177/0007650319898195>.
- Moussa, A. S., M. Elmarzouky, and D. Shohaieb. 2024. "Green Governance: How ESG Initiatives Drive Financial Performance in UK Firms?" *Sustainability* 16, no. 24: 10894. <https://doi.org/10.3390/su162410894>.
- Moussa, T., A. Allam, and M. Elmarzouky. 2022. "Global Modern Slavery and Sustainable Development Goals: Does Institutional Environment Quality Matter?" *Business Strategy and the Environment* 31, no. 5: 2230–2244. <https://doi.org/10.1002/bse.3018>.
- Moussa, T., A. Allam, and M. Elmarzouky. 2023. "An Examination of UK Companies' Modern Slavery Disclosure Practices: Does Board Gender Diversity Matter?" *Business Strategy and the Environment* 32, no. 8: 5382–5402. <https://doi.org/10.1002/bse.3426>.
- Moussa, T., N. Krasnikova, M. Postoyeva, A. Hawas, and A. Helfaya. 2026. "Sustainability Performance, Cost of Debt, and Institutional Environment Quality: Global Evidence From the Hospitality and Tourism Industry." *Business Strategy and the Environment* 35: 1712–1734. <https://doi.org/10.1002/bse.70230>.
- Neokleous, C. I., and M. Elmarzouky. 2026. "Strategic Sustainability Reporting, Impression Management and Board Gender Diversity: Evidence From Luxury Fashion Industry." *Business Strategy and the Environment* 35, no. 2: 1627–1645. <https://doi.org/10.1002/bse.70253>.
- Pinnington, B., A. Benstead, and J. Meehan. 2023. "Transparency in Supply Chains (TISC): Assessing and Improving the Quality of Modern Slavery Statements." *Journal of Business Ethics* 182, no. 3: 619–636. <https://doi.org/10.1007/s10551-022-05037-w>.
- Reed, W. R. 2015. "On the Practice of Lagging Variables to Avoid Simultaneity." *Oxford Bulletin of Economics and Statistics* 77, no. 6: 897–905. <https://doi.org/10.1111/obes.12088>.
- Rubin, D. B. 1976. "Inference and Missing Data." *Biometrika* 63, no. 3: 581–592.
- Scott, W. R. 1995. *Institutions and Organizations. Foundations for Organizational Science*. Sage Publications.
- Sendlhofer, T. 2020. "Decoupling From Moral Responsibility for CSR: Employees' Visionary Procrastination at a SME." *Journal of Business Ethics* 167, no. 2: 361–378. <https://doi.org/10.1007/s10551-019-04174-z>.
- Shohaieb, D., M. Elmarzouky, and K. Albitar. 2022. "Corporate Governance and Diversity Management: Evidence From a Disclosure Perspective." *International Journal of Accounting & Information Management* 30, no. 4: 502–525. <https://doi.org/10.1108/IJAIM-03-2022-0058>.
- Shukla, A., G. Goel, and N. Tiwari. 2019. "Consumer Perception of Corporate Social Responsibility and Purchase Behaviour." *International Journal of Business Excellence* 18, no. 1: 22. <https://doi.org/10.1504/IJBEX.2019.099448>.
- Simte, M. C., and N. T. Singh. 2022. "Influence of Customers' Corporate Social Responsibility (CSR) Perception on Satisfaction and Loyalty in Banking Sector." *Journal of Positive School Psychology* 6, no. 6: 2407–2419.
- Such, E., R. Jaipaul, and S. Salway. 2020. "Modern Slavery in the UK: How Should the Health Sector Be Responding?" *Journal of Public Health* 42, no. 1: 216–220. <https://doi.org/10.1093/pubmed/fdy217>.
- UNDP. 2015. "Sustainable Development Goals|United Nations Development Programme" <https://www.undp.org/sustainable-development-goals#decent-work-and-economic-growth>.

- Walk Free Foundation. 2018. *The Global Slavery Index 2018*. Walk Free Foundation. <https://cdn.walkfree.org/content/uploads/2023/04/13181704/Global-Slavery-Index-2018.pdf>.
- Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. MIT Press.
- World Economic Forum. 2018. "Global Competitiveness Index" <http://reports.weforum.org/>.
- World Bank. 2022. *World Development Indicators*. World Bank. <https://databank.worldbank.org/source/world-development-indicators>.
- Yamen, A., A. Allam, A. Bani-Mustafa, and A. Uyar. 2018. "Impact of Institutional Environment Quality on Tax Evasion: A Comparative Investigation of Old Versus New EU Members." *Journal of International Accounting, Auditing and Taxation* 32: 17–29. <https://doi.org/10.1016/j.intaccaudtax.2018.07.001>.
- Young, S., and V. Thyil. 2008. "A Holistic Model of Corporate Governance: A New Research Framework." *Corporate Governance: The International Journal of Business in Society* 8, no. 1: 94–108.