

Article

Do Cultural Values Shape Responsible Global Expansion? Moderating Effects of Environmental Pressure and CEO Power on Chinese Firms' OFDI Behavior

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Abstract

In the context of the global sustainability agenda, firms are increasingly expected to incorporate environmental considerations into their global expansion strategies. However, existing studies mainly focus on formal institutions and economic factors, while the role of informal institutions remains underexplored. This study examines how Confucian cultural values influence Chinese firms' outward foreign direct investment (OFDI), particularly their investment behavior in environmentally stringent host countries, such as Germany, Sweden, and Canada. Using panel data of Chinese A-share listed firms from 2009 to 2024, this study employs panel regression analysis to test the effects of cultural values, environmental pressure, and CEO power. The results show that cultural values are positively associated with both OFDI intensity and the likelihood of investing in environmentally stringent countries. In addition, environmental pressure strengthens this relationship, whereas CEO power weakens it. This study contributes to the literature on responsible global expansion by highlighting the role of informal institutions and firm-level characteristics. The findings also provide practical implications for policymakers and firms seeking to promote environmentally responsible international investment behavior.

Keywords: outward foreign direct investment; responsible internationalization; Confucian culture; informal institutions; environmental regulatory stringency; CEO power; pollution haven–pollution halo debate; emerging-market multinational enterprises

1. Introduction

In the context of intensifying global economic integration and the ongoing reconfiguration of global value chains, and driven by the growing imperatives of sustainable development, outward foreign direct investment (OFDI) has assumed a pivotal role in firm development (L. Dong et al., 2025; Dunning, 1988). With the increasing economic contributions to the world economy, multinational enterprises from emerging markets (EMNEs), particularly those from China, India and Brazil, have amplified the impact of international investment flows (Ameer et al., 2025; Carneiro et al., 2018; Kumar et al., 2020; Yao & Karoly, 2025). Despite this aggregate expansion, firm-level OFDI behavior exhibits substantial heterogeneity. While some firms actively pursue international expansion through multiple channels, such as cross-border mergers, acquisitions, and subsidiary establishment, others



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remain cautious or refrain from foreign investments (C. Cheng et al., 2022; C. Q. Wang et al., 2012; C. X. Zhou et al., 2016). Such divergent actions underscore the need to examine the underlying reasons for heterogeneous firm-level OFDI behavior.

Prior research has explained OFDI behavior through various lenses, including host-country institutional environments, geographical distance, policy uncertainty, and firm-level resource endowment, as commonly identified in the literature (Barney, 2000; Y. F. Chen et al., 2023; Hutzschenreuter & Harhoff, 2021; Xiao et al., 2024). Valuable insights are offered by these perspectives, but analysis must be extended beyond economic and formal determinants, given the essential role of culturally embedded values and social contracts. Scholars have increasingly incorporated informal institutional factors into analytical frameworks, particularly corporate culture and values, as critical determinants of strategic decision-making (Guiso et al., 2015). Our study focuses particularly on China, given the increasing impact of Chinese EMNEs on cross-border investment flows. Within the Chinese context, Confucian culture serves as a fundamental normative framework that shapes managerial cognition, ethical standards, and long-term strategic orientation (X. Q. Du, 2015a; Y. D. Li & Yao, 2025). Scholars have mostly examined Confucian culture at the macro-level, highlighting how variations in regional cultural intensity, diaspora networks and guanxi-based relational systems promote cross-border economic exchange. Guanxi-based relational systems are informal networks of interpersonal ties built on trust, reciprocity, and long-term orientation. Viewed in this light, Confucian cultural influence has been understood as mitigating transaction costs, easing coordination challenges, and attenuating institutional frictions between home and host environments (Si et al., 2024; Yi et al., 2022; X. Y. Zhao et al., 2023). Additionally, the global diffusion of Confucian culture, for instance, via overseas Confucius Institutes, has been shown to mitigate investment uncertainty and promote bilateral investment flows (H. Wang et al., 2021; C. H. Xu et al., 2020). Other studies have linked regional variations in Confucian cultural strength to differences in investment location attractiveness and the inflow of foreign capital (L. X. Wang & Liu, 2024; W. Z. Ye et al., 2021).

However, research remains limited on how Confucian culture may influence OFDI, encompassing not only investment intensity but also destination choice, particularly given increasingly complex global investment requirements. Specifically, concerns regarding green development and sustainable models have progressively influenced firms' strategic decisions and behavior (Z. H. Cheng & Su, 2024; X. Q. Du, 2015b; Wu et al., 2023; Zhang et al., 2024), particularly in relation to the current trend of responsible international expansions (de Wit & Glass, 2024; Shih, 2025). While Confucian culture may facilitate cross-border investment, its effects are not necessarily uniformly positive, as cultural and institutional differences can pose challenges (Bhardwaj et al., 2007; R. Y. Chen et al., 2026). In particular, whether the Confucian cultural imprint encourages firms to invest in environmentally stringent destinations, or merely fails to deter investment in less regulated environments, remains an open question. This ambiguity is closely related to the ongoing debate between the Pollution Haven Hypothesis, which suggests that firms tend to invest in countries with laxer environmental regulations, and the Pollution Halo Hypothesis, which posits that multinational firms can transfer cleaner technologies to host countries (Y. Dong et al., 2022; K. E. Meyer et al., 2011; Pata et al., 2025). Meanwhile, strategic decisions are also contingent upon internal firm-level factors. In particular, the managerial discretion exercised by top executives can directly shape both the formulation and implementation of complex decisions during the internationalization process (Bai et al., 2025; Sun et al., 2019; Wiersema & Bowen, 2008).

Therefore, the following research questions are addressed: How does the strength of the Confucian cultural imprint influence Chinese firms' OFDI intensity? More importantly,

how does it shape firms' destination choices with respect to host countries' environmental regulatory stringency? Furthermore, how are these relationships moderated by home-country green development pressure and firms' internal power structures? Specifically, this study examines Chinese A-share firms listed on the Shanghai and Shenzhen stock exchanges over the period 2009–2024. Employing panel regression analyses and extensive robustness checks, the findings indicate that a stronger regional Confucian culture imprint is positively associated with both firms' OFDI intensity and their propensity to invest in environmentally stringent host countries. This relationship is amplified for firms operating under higher levels of home-country green development pressure. Moreover, CEO power is found to exert a significant negative moderating effect on the relationship between regional Confucian cultural imprint and firms' investment location choices.

Several important contributions are made by this research. First, the literature on institutional theory and internationalization is advanced by emphasizing the role of informal institutional forces in shaping cross-border investment decisions. Specifically, these forces are shown to influence how investments are allocated across host countries that differ in environmental regulatory stringency. Second, the boundary conditions of informal institutional effects are clarified. This is achieved by jointly considering home- and host-country environments, as well as by integrating external institutional pressures with internal organizational dynamics. Third, drawing on the Pollution Haven Hypothesis and the Pollution Halo Hypothesis from the sustainability literature, a novel perspective is offered for identifying the conditions under which cross-border investments are directed toward more or less environmentally stringent destinations.

The remainder of this paper is organized as follows: Section 2 develops the theoretical framework from the perspective of informal institutions and examines how the Confucian cultural imprint influences firms' OFDI, encompassing both OFDI intensity and the allocation of OFDI toward environmentally stringent host countries. The section further discusses the moderating roles of home-country environmental pressure and CEO power, culminating in the development of six research hypotheses. Section 3 introduces the research design and methodology, which encompass sample selection, data sources, variable definitions, and econometric model specification. Section 4 presents the empirical results, including descriptive statistics, baseline regression analyses, moderation effect tests, and additional endogeneity and robustness checks. Section 5 discusses the main findings, highlights the theoretical contributions and practical implications, and outlines the limitations of the study and directions for future research. Section 6 concludes the paper.

2. Literature Review and Hypothesis Development

2.1. Cultural Imprint and OFDI

Confucianism is widely accepted as the most important cultural norms. It contains the five core virtues, namely benevolence (ren), righteousness (yi), propriety (li), wisdom (zhi), and trustworthiness (xin), which stress moral values such as self-discipline, a sense of responsibility, and a long-term perspective (M. C. Wang et al., 2024; Yuan et al., 2023). Over time, these concepts have been internalized into people's behaviors within China's society, and they profoundly influence the decision-making and behavior of individuals and organizations (M. C. Wang et al., 2024; X. Q. Du, 2015a; Y. D. Li & Yao, 2025).

Confucian culture, as an informal institution, has also influenced corporate practices such as corporate governance and organizational management. Naturally, it has impacts on decision-making and economic outcomes within the companies. A number of studies have documented these effects. For instance, Confucian values help reduce tensions between owners and managers, and also keep companies from pouring too much money into unnecessary projects—both of which lead to smarter use of resources (L. Chen et al., 2019).

These values also motivate companies to uphold higher ethical standards, making their environmental reports more credible (Y. D. Li & Yao, 2025). At the same time, employees in such environments tend to adapt more easily, stay more loyal, and feel more committed to their organizations (Tsai & Tsai, 2022). In addition, existing research shows that interpersonal relationships in Confucian culture can influence corporate governance, financing behavior, and organizational ethics (Hwang et al., 2009; W. L. Li et al., 2020; Lin, 2011).

Furthermore, as firms are embedded in local cultural environments, managers tend to be closely connected to the regions where firms operate. This makes them more likely to internalize local cultural norms (Marquis & Tilcsik, 2013). Drawing on the upper echelons perspective (Hambrick & Mason, 1984), managerial values and cognition act as key conduits through which external cultural influences are translated into strategic decisions. Consequently, regional Confucian cultural norms can shape firm behavior by influencing managerial values, organizational norms, and legitimacy considerations.

OFDI decisions are determined by various factors, including host-country institutional quality, institutional distance, political risk, geographic distance, and cultural and historical ties (Paul & Benito, 2018). Among those, culture as an informal institution has emerged as a critical yet often implicit dimension in the business field. Foundational frameworks such as Hofstede's cultural dimensions and the GLOBE project offer tools for analyzing how cultural differences influence OFDI decisions, entry modes, and performance (Beugelsdijk et al., 2018; House et al., 2004). Scholars have examined how both home- and host-country cultures affect firms' market selection, governance structures, alliance stability, and operational outcomes through managerial mindsets and strategic orientations (Cui et al., 2011; Gaffney et al., 2014; Malik & Zhao, 2013). Some recent studies further explain the role of sub-national cultural variation in shaping firms' decisions of risk control and internationalization directions (Feng et al., 2025; Huang et al., 2026; Liu et al., 2023). However, Confucian culture has been examined primarily at the macro level, focusing on overseas networks, guanxi, and Confucius Institutes as channels facilitating OFDI (Si et al., 2024; H. Wang et al., 2021). Therefore, there is a lack of research on how the Confucian cultural imprint operates at the firm level to influence OFDI decision-making.

Based on existing research and theories, this study argues that Confucian culture promotes corporate OFDI through three primary dimensions: strengthening managers' long-term values, enhancing corporate trust and legitimacy, and mitigating overseas risks in host-country environments through relationship networks. First, institutional theory (Helmke & Levitsky, 2004; Williamson, 2000) and upper echelons theory (Hambrick & Mason, 1984) suggest that Confucian culture, as an informal institution, with its concepts of self-discipline, adherence to propriety, balancing righteousness and profit, and respect for tradition and long-term continuity, can strengthen the long-term value orientation of corporate managers. These values emphasize restraint in short-term behavior and a focus on long-term accumulation, thereby enabling managers to be more patient and strategically steadfast when facing highly uncertain decisions.

OFDI is a strategic choice with long-term benefits yet accompanied by short-term risks (Z. H. Cheng & Su, 2024; Sun et al., 2019), thereby requiring companies to continuously invest resources to adapt to the host country's market and environment. Therefore, whether a company has a long-term orientation is an important prerequisite for its ability to sustain OFDI activities. Managers of firms deeply influenced by Confucian culture are more inclined to create long-term value and recognize the enduring benefits of internationalization. For example, OFDI can enhance competitiveness by acquiring experience and technology, and can diversify risk through market diversification (Sun et al., 2019; T. Wang et al., 2022; Wiersema & Bowen, 2008). Based on this, these managers possess stronger strategic resolve and exhibit a greater willingness to bear the initial risks and uncertainties of overseas in-

vestment. Therefore, such firms will regard OFDI as a pathway for long-term development, actively carry out global layout and continuously make international investments.

Second, according to legitimacy theory (Dowling & Pfeffer, 1975; J. W. Meyer & Rowan, 1977), the emphasis within Confucian culture on integrity, social responsibility, and moral legitimacy assists firms in building a good reputation and image, thereby gaining legitimacy in their business operations in host countries. This culture-based legitimacy advantage helps firms gain acceptance in unfamiliar institutional environments. In the process of OFDI, firms generally face information asymmetry and liabilities of foreignness (Feng et al., 2025; Michailova & Hutchings, 2006; Zaheer, 1995). This problem is particularly pronounced in host-country markets characterized by significant institutional differences or underdeveloped formal rules. However, when firms are strongly influenced by Confucian culture, they are more likely to accumulate reputational assets through integrity and ethical conduct. This fosters a responsible corporate image and trust among host-country stakeholders (Cui & Jiang, 2012; M. H. Li et al., 2014; H. J. Zhao & Ding, 2022), thereby enhancing social legitimacy and increasing the likelihood of successful OFDI.

Third, drawing on network theory (Johanson & Vahlne, 2009), Confucian culture's focus on building up relationships and forming collective identity may help firms build trust within overseas communities and integrate quickly into local settings (Si et al., 2024; Yi et al., 2022; X. Y. Zhao et al., 2023). Relationship-oriented approaches make firms more inclined to enter overseas markets through long-term interactions rather than through one-off transactions. In this case, relationship networks enhance the feasibility of OFDI. Furthermore, relationship-based trust mechanisms can foster stable cooperation between firms and host-country stakeholders. This makes it easier for firms to obtain institutional support and resource coordination when entering new markets, thereby further reducing operational risks during overseas investment. Some research findings indicate that culturally embedded relational norms may reduce cross-border coordination costs and then increase firms' propensity to engage in OFDI. For example, C. Li et al. (2023) demonstrate that the cultural exchange can strengthen bilateral investment by enhancing trust and reducing informational barriers.

In summary, Confucian culture provides crucial intrinsic motivation and institutional support for firms to conduct OFDI by influencing managers' long-term value orientations, enhancing firm legitimacy in host countries, and mitigating uncertainties inherent in transnational operations through relationship networks.

2.2. Green Development Pressure and Responsible Internationalization

Internationalization has gradually shifted from a mainly efficiency-oriented corporate behavior to a legitimacy-sensitive and sustainability-embedded decision (K. E. Meyer et al., 2011; Witt & Lewin, 2007). In particular, foreign direct investment (FDI) encompasses both inward and outward cross-border investments. OFDI, in turn, refers to firms' outward expansion into foreign markets. FDI is widely regarded as a strategic instrument for advancing the Sustainable Development Goals in the increasingly complex global governance environment. Two conflicting environmental consequences have been indicated by current research. On the one hand, the Pollution Haven Hypothesis suggests that FDI can contribute to environmental deterioration as firms shift pollution-intensive production to countries with relatively lax regulations (Y. Dong et al., 2022). On the other hand, the Pollution Halo Hypothesis highlights the potential of FDI to enhance environmental quality through the transfer of cleaner technologies, superior managerial expertise, and environmentally friendly innovations (Pata et al., 2025). Therefore, MNEs have to take environmental responsibility and attend to the social impact which is beyond the ownership advantages, resource-seeking motives, and market expansion logic of OFDI (Dunning,

1988). This transformation is particularly salient for EMNEs. Compared with firms from advanced economies, EMNEs often encounter greater legitimacy challenges in host countries due to perceived institutional distance and governance differences (Cuervo-Cazurra & Ramamurti, 2014). In this context, OFDI for EMNEs represents not only a strategy for asset acquisition and market access but also a process of legitimacy construction and institutional adaptation.

In the view of stakeholder theory (Freeman, 1984) and legitimacy theory (Dowling & Pfeffer, 1975), firms interact with diverse stakeholders and operate within broader social contracts. Under such conditions, responsible internationalization refers to a way for firms to expand across borders while also taking into account sustainability norms and stakeholder expectations. In particular, responsible internationalization integrates long-term value generation, environmental management, and relational accountability into overseas investment decisions (de Wit & Glass, 2024; Shih, 2025). In fact, the actions of responsible internationalization are shaped not only by external institutional pressures but also by normative orientations. According to institutional theory, informal institutions, as internalized norms and values, provide cognitive bases and durable behavioral templates for explaining opportunities and risks (Helmke & Levitsky, 2004; North, 1990; Scott, 2013).

Furthermore, institutional theory suggests that environmental expectations and regulatory changes can activate underlying organizational logics (Greenwood et al., 2011). Although environmental regulation typically increases compliance costs for firms, it may also promote innovation and strategic upgrading (Ambec et al., 2013; Fabrizi et al., 2024; Porter & Vanderlinde, 1995). Additionally, empirical evidence from Y. Dong et al. (2022) further indicates that stricter environmental regulations significantly increase Chinese firms' OFDI, suggesting that regulatory pressure can stimulate outward expansion.

However, regulatory pressure does not operate uniformly across firms, as firms may differ in whether they respond proactively or defensively. The strategic consequences of such pressure depend upon the normative orientation of firms. For firms influenced by the Confucian cultural imprint, environmental regulation reinforces deeply internalized moral commitments to responsible conduct and to maintaining harmony between human activity and the natural environment. Rather than perceiving regulation purely as a coercive constraint, such firms may interpret environmental pressure as being normatively aligned with their internalized values. This cognitive congruence strengthens strategic adaptation rather than defensive avoidance. For example, Guo and Wei (2025) demonstrate that the Confucian cultural imprint enhances environmental protection investment under regulatory pressure. This interaction suggests that the Confucian imprint amplifies firms' proactive response to sustainability governance by reinforcing a stronger sense of responsibility and ethical commitment. When this mechanism is translated to the context of internationalization, it can be argued that environmental pressure strengthens the Confucian imprint–OFDI relationship by activating the long-term and moral dimensions embedded in cultural norms.

Importantly, institutional activation is expected to influence not only the scale but also the direction of internationalization. In line with the Pollution Halo Hypothesis, firms facing intense environmental scrutiny and green development pressure may seek destinations that provide opportunities for reputational upgrading and capability acquisition. Under high environmental pressure, firms with a Confucian imprint are more likely to allocate greater OFDI toward environmentally stringent host countries. In other words, such investment flows may be directed toward destinations that enable firms to acquire advanced green technologies and to signal compliance credibility to stakeholders in both home and host markets.

2.3. Managerial Discretion and Cross-Level Effect

According to upper echelons theory, executives' values shape organizational outcomes when their discretion is high (Hambrick & Mason, 1984). Therefore, although cultural imprint and institutional pressure create motivational drivers, their translation into strategic outcomes depends to some extent on managerial discretion (Sun et al., 2019; Wiersema & Bowen, 2008).

Based on this, CEO power increases managerial discretion and allows executives to exert greater influence over strategic decisions (Hambrick & Mason, 1984; Z. Xu, 2023). It is typically defined by four main dimensions, including structural power, ownership power, expertise power, and prestige power (Finkelstein, 1992). On top of that, some research findings demonstrate that greater CEO power is associated with more pronounced strategic actions, such as higher acquisition intensity and premium payments (Malmendier & Tate, 2008), reduced board monitoring effectiveness (Bebchuk et al., 2011), and more extreme corporate policies, including risk-taking and leverage decisions (Adams et al., 2005). CEO power also allows executives to exercise greater autonomy in shaping corporate strategies, particularly when governance constraints are weak (Quigley & Hambrick, 2015).

With green development becoming increasingly important, recent research further indicates that CEO power influences how firms' respond to environmental and institutional pressures, thereby affecting their ESG engagement, innovation investment, and international expansion strategies (Abdullah et al., 2024; Al-Shaer et al., 2023; Bai et al., 2025; Pucheta-Martínez & Gallego-Alvarez, 2024). Especially when CEO power is high in the organizations, strategic decisions are more strongly shaped by managerial preferences and judgments rather than by institutional norms. As a result, despite environmental pressures, executives may place relatively less emphasis on external legitimacy considerations and culturally embedded expectations. Therefore, although the Confucian cultural imprint tends to promote long-term orientation and moral legitimacy in international investment decisions, strong CEO power may reduce the extent to which these cultural norms constrain firms' strategic behavior. For instance, powerful CEOs may rely more on personal judgment than on culturally embedded norms when making international expansion decisions (Bai et al., 2025; Z. Xu, 2023; Y. Zhou et al., 2021).

To some extent, the interaction between external environmental pressure and internal CEO power reflects a cross-level governance mechanism. Specifically, the environmental pressure fosters normative expectations for responsible internationalization, while CEO power influences how managers interpret and respond to these expectations. More recent studies show that CEO power systematically shapes corporate policies, with outcomes depending on governance constraints and competitive contexts (Brahma & Economou, 2024). For example, the interaction between CEO power and ethical or citizenship-oriented governance influences capital-structure choices and financing outcomes (Ampofo & Barkhi, 2024). And CEO power intensity has also been connected to stronger green-technology innovation performance, especially when patient capital supports longer-horizon investments (Ding et al., 2025). Most importantly, complementary studies further link CEO attributes that proxy discretion and capability (e.g., environmental or industry expertise) to strategic sustainability choices, such as ESG performance and green-oriented investments. And these findings suggest that powerful CEOs can accelerate strategic reorientation when their expertise aligns with the focal domain (Lai et al., 2025; L. C. Wang et al., 2026), which emphasize the importance of professional background of executives.

However, when CEO power is high, corporate strategies are more likely to reflect managerial discretion rather than institutional or cultural constraints. Consequently, the influence of the Confucian cultural imprint on firm international investment behavior is attenuated. In particular, strong CEO power may reduce the extent to which Confucian

values shape firm OFDI intensity and their allocation of OFDI toward environmentally stringent host countries, given that executives rely more heavily on personal strategic judgments than on culturally embedded norms.

In summary, this study proposes the following hypotheses based on the above analysis:

H1a. *Confucian cultural imprint is positively associated with OFDI intensity.*

H1b. *Home-country environmental pressure strengthens the Confucian imprint–OFDI intensity relationship.*

H1c. *CEO power weakens the Confucian imprint–OFDI intensity relationship.*

H2a. *Confucian cultural imprint is positively associated with share of OFDI toward environmentally stringent host countries.*

H2b. *Under higher home-country environmental pressure, Confucian-imprinted firms allocate a greater share of OFDI toward environmentally stringent host countries.*

H2c. *CEO power weakens the Confucian imprint—share of OFDI toward environmentally stringent host countries relationship.*

Figure 1 summarizes and illustrates the conceptual framework of this study. Solid lines represent the direct relationships, while dashed lines indicate moderating effects.

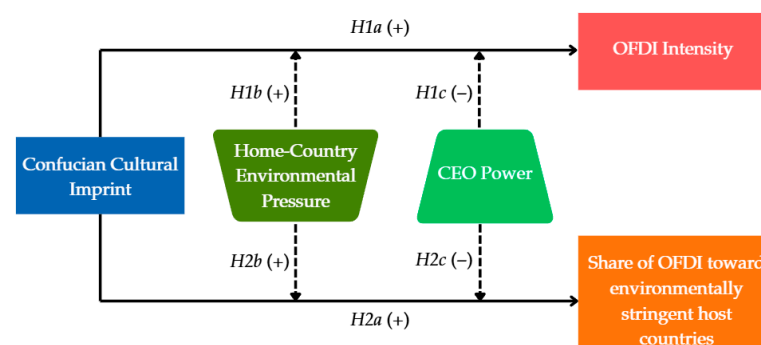


Figure 1. Conceptual Framework.

3. Research Methodology

3.1. Sample Selection and Data Sources

This study is based on A-share Chinese companies listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange between 2009 and 2024. A-share listed firms are selected because they are broadly representative of Chinese enterprises, possess the resources and capabilities to engage in OFDI activities, and provide more standardized and accessible data on investment scale and destination, which enhances the reliability and comparability of the analysis. The initial sample screening followed the following principles: (1) ST and *ST companies were excluded; (2) financial companies were excluded; (3) companies with missing key variables were excluded. Winsorization of the 1st and 99th percentiles were performed on all continuous variables to control for the impact of outliers. After applying the above screening criteria, the final sample includes 18,830 firm-year observations for the OFDI intensity sample and 5690 firm-year observations for the OFDI allocation sample. The geographical location data of the Confucian cultural centers come from Google Maps. Data for the proxy measure of home-country environmental pressure are obtained from the PKU Law Database, while all other variables are sourced from the

CSMAR database. We use the latest available data releases from these established databases to ensure consistency across years and mitigate potential reporting lag issues.

3.2. Variable Description

3.2.1. Dependent Variables

(1) OFDI Intensity

According to Hymer (1960), OFDI intensity refers to cross-border investment characterized by the transfer of control of foreign companies. When a company holds at least 10% of the shares in a cross-border investment in a host country, that investment is considered the company's OFDI, following the standard definition (Z. H. Cheng & Su, 2024; OECD, 2009). In terms of variable construction, this study mainly draws on the approach of Z. H. Cheng and Su (2024), using the total registered capital of subsidiaries, joint ventures, and affiliated companies of listed companies with a controlling stake exceeding 10% and registered outside mainland China to measure the level of listed companies' OFDI. To ensure data comparability, we uniformly convert the OFDI scale to US dollars based on the annual official average exchange rate provided by the World Bank, and takes the natural logarithm of the total registered capital of overseas affiliated companies. Relevant data are sourced from the CSMAR database.

(2) Environmentally Stringent OFDI Share

This study captures firms' OFDI allocation toward host countries with relatively stringent environmental regulations. Consistent with the pollution haven framework and OECD evidence documenting systematic cross-country differences in environmental policy and enforcement (Garsous & Kozluk, 2017; Satoglu & Salmon, 2024), countries with more advanced institutional and regulatory systems are generally characterized by higher environmental policy stringency. Building on this institutional distinction, we classify OECD member countries as relatively environmentally stringent host economies compared with non-OECD countries. Recent empirical evidence further supports this classification, showing that non-OECD economies are more likely to function as pollution havens, whereas OECD countries typically maintain stricter environmental regulatory regimes (C. Fang, 2024).

Accordingly, *ES_OFDI_Share* is calculated as the ratio of a firm's OFDI in OECD countries to its total OFDI in a given year, based on information on overseas investment destinations. A higher value indicates that the company has invested more OFDI in countries with strict environmental regulations. The OECD country classification is obtained from the official OECD database (OECD, n.d.), and firm-level OFDI destination data are collected from the CSMAR database.

3.2.2. Independent Variable

Drawing on the measurement methods of X. Q. Du (2015a) and Y. D. Li and Yao (2025), this study constructs a proxy for regional Confucian cultural imprint (*Confu*) based on the geographical proximity between a firm's registered location and major Confucian cultural centers. Historically, Confucianism has formed seven representative cultural centers during its long-term dissemination, including Shandong, Luoshan, Shushan, Fujian, Taizhou, Linchuan, and eastern Zhejiang.

Specifically, we first obtain the latitude and longitude of both the firm's registered location and the Confucian cultural centers using Google Maps (latest available version) and CSMAR database. We then calculate the average geographical distance (DISN) between each firm and the seven Confucian cultural centers (Y. D. Li & Yao, 2025). Since shorter distances indicate stronger cultural exposure, we transform this

measure into a normalized index of Confucian cultural intensity using the following formula: $Confu = (Max_DISN - DISN) / (Max_DISN - Min_DISN)$. Here, Max_DISN and Min_DISN represent, respectively, the annual maximum and minimum of $DISN$ among all firms. The larger the *Confu* value, the more significant the influence of Confucian culture on the company.

3.2.3. Moderating Variables

(1) Home-Country Environmental Pressure

Home-country environmental pressure reflects the intensity of environmental regulation and compliance constraints faced by firms within their domestic institutional environment, particularly in the context of green development. Prior studies suggest that a higher number of environmental penalty cases indicates stronger regulatory enforcement and greater environmental compliance pressure imposed on firms (Ning & Duan, 2024; H. E. Xu et al., 2025). Accordingly, this study uses the natural logarithm of the number of environmental penalties in the prefecture-level city where the firm is registered as a proxy for home-country environmental pressure (Ning & Duan, 2024). This measure captures the extent to which firms are exposed to regulatory pressure related to environmental protection and green development. Data on city-level environmental penalties are obtained from the PKU Law Database. A higher value for this indicator indicates stronger environmental pressure faced by firms in their home-country institutional environment.

(2) CEO Power

CEO power refers to the degree of influence and control a CEO possesses in the company's decision-making process. According to the power sources theory proposed by Finkelstein (1992), CEO power can be divided into four dimensions: ownership power, structural power, expert power, and prestige power. Drawing on the multidimensional measurement approach widely adopted in prior CEO power research (Brahma & Economou, 2024; F. Y. Wang et al., 2025), this study constructs a comprehensive CEO power index comprising eight dummy indicators corresponding to these dimensions (see Table 1). The index is calculated as the average value of these indicators and serves as a proxy for the overall level of CEO power. A higher value indicates a stronger leadership ability of the CEO in corporate strategic decision-making and resource allocation.

Table 1. Dimensions and Measurement of CEO Power.

Dimension	Variable	Dummy Rule
Ownership Power	CEO_share (CH)	1 if CEO holds company shares
	Institute_share (IS)	1 if institutional ownership below industry median
Structural Power	Duality (DU)	1 if CEO is also board chair
	Insider-Director (DI)	1 if CEO is an internal director
Expert Power	Rank (RA)	1 if CEO holds senior professional title
	Tenure (TE)	1 if CEO tenure above industry median
Prestige Power	Education (ED)	1 if postgraduate degree or above
	Part-time job (PT)	1 if CEO holds external positions

3.2.4. Control Variables

Consistent with prior research (Cesinger et al., 2016; X. L. Wang et al., 2024), this study selects a series of control variables, including firm size (*Size*), firm age (*Age*), leverage (*Lev*),

return on assets (*ROA*), revenue growth rate (*Growth*), board size (*Board*), and ownership concentration (*Top1*). To better capture the relationship between the Confucian cultural imprint and OFDI, we further control for additional governance characteristics, including overseas background of the directors or senior executives (*OverseaBack*) and the proportion of women in management (*Female*).

Table 2 summarizes the definition of all the variables.

Table 2. Summary of Variable Definition.

Type	Name	Symbol	Measurement
Dependent variable	Corporate outward foreign direct investment intensity	OFDI_Int	Ln (overseas investment scale)
	Environmentally stringent OFDI Share	ES_OFDI_Share	Share of OFDI to environmentally stringent countries
Independent variable	Confucian cultural imprint	Confu	Standardized Confucian intensity
Moderating variable	Home-Country environmental pressure	EP	Ln (environmental penalties in the prefecture-level city where the company is located)
	CEO power	Power	The average of eight indicators across four dimensions
Control variables	Firm size	Size	Ln (total asset)
	Firm age	Age	Ln (Current year – Establishment year + 1)
	Leverage	Lev	Debt/total assets
	Return on assets	ROA	Net income/total assets
	Firm growth	Growth	(Current-year revenue/Prior-year revenue) – 1
	Board size	Board	Ln (the number of board directors + 1)
	Overseas background	OverseaBack	Dummy, equals 1 if directors or executives have overseas experience
	Proportion of women in management	Female	Proportion of female executives
	Largest shareholder's shareholding ratio	Top1	Shares held by the largest shareholder/total shares

3.3. Empirical Model Specification

Based on theoretical analysis and research hypotheses, this study constructs model (1) to examine the relationship between the Confucian cultural imprint and corporate OFDI intensity; models (2) and (3) are used to examine the moderating effects of home-country environmental pressure and CEO power on the above relationship, respectively. Similarly, model (4) is used to examine the relationship between Confucian culture and the allocation of corporate OFDI toward environmentally stringent host countries, while models (5) and (6) are used to examine the moderating effects of home-country environmental pressure and CEO power on this relationship, respectively. To mitigate potential multicollinearity, all continuous variables used to construct interaction terms are mean-centered prior to estimation. In addition, regional heterogeneity is partially captured through the use of prefecture-level measures and the inclusion of industry and year fixed effects.

$$OFDI_Int = \beta_0 + \beta_1 Confu + \beta_2 Size + \beta_3 Age + \beta_4 Lev + \beta_5 ROA + \beta_6 Growth + \beta_7 Board + \beta_8 OverseaBack + \beta_9 Female + \beta_{10} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (1)$$

$$OFDI_Int = \beta_0 + \beta_1 Confu + \beta_2 EP + \beta_3 Confu \times EP + \beta_4 Size + \beta_5 Age + \beta_6 Lev + \beta_7 ROA + \beta_8 Growth + \beta_9 Board + \beta_{10} OverseaBack + \beta_{11} Female + \beta_{12} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (2)$$

$$OFDI_Int = \beta_0 + \beta_1 Confu + \beta_2 Power + \beta_3 Confu \times Power + \beta_4 Size + \beta_5 Age + \beta_6 Lev + \beta_7 ROA + \beta_8 Growth + \beta_9 Board + \beta_{10} OverseaBack + \beta_{11} Female + \beta_{12} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (3)$$

$$ES_OFDI_Share = \beta_0 + \beta_1 Confu + \beta_2 Size + \beta_3 Age + \beta_4 Lev + \beta_5 ROA + \beta_6 Growth + \beta_7 Board + \beta_8 OverseaBack + \beta_9 Female + \beta_{10} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (4)$$

$$ES_OFDI_Share = \beta_0 + \beta_1 Confu + \beta_2 EP + \beta_3 Confu \times EP + \beta_4 Size + \beta_5 Age + \beta_6 Lev + \beta_7 ROA + \beta_8 Growth + \beta_9 Board + \beta_{10} OverseaBack + \beta_{11} Female + \beta_{12} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (5)$$

$$ES_OFDI_Share = \beta_0 + \beta_1 Confu + \beta_2 Power + \beta_3 Confu \times Power + \beta_4 Size + \beta_5 Age + \beta_6 Lev + \beta_7 ROA + \beta_8 Growth + \beta_9 Board + \beta_{10} OverseaBack + \beta_{11} Female + \beta_{12} Top1 + \text{Year FE} + \text{Industry FE} + \epsilon \quad (6)$$

4. Empirical Analysis and Results

4.1. Descriptive Statistics and Correlation Analysis

Table 3 presents the descriptive statistics of each variable in the baseline regression. Panel A presents the descriptive statistics of the OFDI intensity sample, while Panel B presents the descriptive statistics of the OFDI allocation sample. The mean of Corporate Confucian cultural imprint (*Confu*) is 0.893 in Panel A and 0.894 in Panel B, which is consistent with the data magnitude reported in existing studies (X. Q. Du, 2015a; Y. D. Li & Yao, 2025).

Table 3. Descriptive Statistics.

Panel A: OFDI Intensity Sample						
Variables	Observation	Mean	SD	Min	Max	Median
OFDI_Int	18,830	4.444	7.020	0	20.35	0
Confu	18,830	0.893	0.0860	0.559	0.999	0.909
EP	18,830	5.485	2.019	0	8.650	5.787
Power	18,830	0.565	0.196	0.125	1	0.625
Size	18,830	22.31	1.278	20.22	26.55	22.07
Age	18,830	2.975	0.303	2.079	3.638	2.996
Lev	18,830	0.381	0.187	0.0550	0.816	0.370
ROA	18,830	0.0460	0.0510	−0.153	0.200	0.0430
Growth	18,830	−0.112	2.178	−13.52	7.521	0.0550
Board	18,830	2.218	0.175	1.792	2.708	2.303
OverseaBack	18,830	0.638	0.481	0	1	1
Female	18,830	0.214	0.123	0	0.545	0.200
Top1	18,830	33.79	14.60	8.990	74.66	31.52
Panel B: OFDI Allocation Sample						
Variables	Observation	Mean	SD	Min	Max	Median
ES_OFDI_Share	5690	0.259	0.404	0	1	0
Confu	5690	0.894	0.0760	0.636	0.999	0.899
EP	5690	5.845	1.858	0.693	8.650	6.196
Power	5690	0.573	0.189	0.125	1	0.625
Size	5690	22.53	1.388	20.28	27.41	22.27
Age	5690	2.964	0.307	2.079	3.638	2.996
Lev	5690	0.394	0.185	0.0510	0.790	0.396
ROA	5690	0.0470	0.0500	−0.143	0.209	0.0430
Growth	5690	−0.0770	2.365	−14.81	9.182	0.0540
Board	5690	2.211	0.184	1.792	2.708	2.303
OverseaBack	5690	0.740	0.439	0	1	1
Female	5690	0.217	0.125	0	0.556	0.200
Top1	5690	34.41	15.16	8.940	76.31	32.03

Note: Confu is normalized between 0 and 1.

Table 4 further reports the pairwise correlation coefficients between the variables in the baseline model. The results show that the correlation coefficients between the variables in both Panel A and Panel B are less than 0.8 (Gujarati, 2003), indicating that the model does not have a serious multicollinearity problem.

Table 4. Pairwise Correlation Coefficient.

Panel A: OFDI Intensity Sample							
	OFDI_Int	Confu	EP	Power	Size	Age	Lev
OFDI_Int	1						
Confu	0.00100	1					
EP	0.109 ***	−0.017 **	1				
Power	0.023 ***	0.032 ***	0.050 ***	1			
Size	0.174 ***	−0.076 ***	0.041 ***	−0.129 ***	1		
Age	−0.015 **	0.014 *	0.033 ***	−0.033 ***	0.155 ***	1	
Lev	0.072 ***	−0.028 ***	0.029 ***	−0.060 ***	0.544 ***	0.119 ***	1
Panel B: OFDI Allocation Sample							
	ES_OFDI_Share	Confu	EP	Power	Size	Age	Lev
ES_OFDI_Share	1						
Confu	0.093 ***	1					
EP	−0.026 *	0.0110	1				
Power	0.0140	0.00700	0.059 ***	1			
Size	−0.084 ***	−0.102 ***	0.00700	−0.169 ***	1		
Age	−0.051 ***	0.0180	0.126 ***	−0.057 ***	0.130 ***	1	
Lev	−0.071 ***	−0.0220	0.0100	−0.103 ***	0.520 ***	0.126 ***	1

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Correlations among control variables are omitted for brevity.

4.2. Baseline Regression Results

4.2.1. Main Effect Estimation

Table 5 shows the baseline regression results for Hypotheses 1a and 2a, which predict a positive relationship between Confucian imprint and corporate OFDI intensity, as well as the proportion of corporate OFDI in host countries with strict environmental regulations. After controlling for industry and year fixed effects and including control variables such as firm size, financial status, and corporate governance characteristics, column (1) of Table 5 shows that the Confucian cultural imprint and corporate OFDI intensity are significantly positively correlated at the 5% significance level, suggesting that firms with stronger Confucian influence are more actively engaged in OFDI. Column (4) of Table 5 further presents that Confucian culture and the proportion of corporate OFDI in host countries with strict environmental regulations are significantly positively correlated at the 1% significance level, indicating a tendency to invest in more environmentally stringent destinations. Therefore, Hypotheses 1a and 2a are both supported.

Table 5. Estimation Results of Baseline Regression.

	Panel A: OFDI Intensity Sample			Panel B: OFDI Allocation Sample		
	OFDI_Int			ES_OFDI_Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Confu	1.346 ** (0.525)	2.019 *** (0.577)	1.283 ** (0.528)	0.451 *** (0.075)	0.510 *** (0.077)	0.447 *** (0.075)
EP		0.323 *** (0.032)			−0.003 (0.004)	
Confu × EP		0.114 **			0.020 ***	

Table 5. Cont.

	Panel A: OFDI Intensity Sample			Panel B: OFDI Allocation Sample		
	OFDI_Int			ES_OFDI_Share		
	(1)	(2)	(3)	(4)	(5)	(6)
		(0.046)			(0.005)	
Power			1.038 *** (0.248)			−0.013 (0.030)
Confu × Power			−0.012 (0.042)			−0.014 ** (0.006)
Size	1.160 *** (0.056)	1.129 *** (0.056)	1.170 *** (0.056)	−0.013 *** (0.005)	−0.011 ** (0.005)	−0.013 *** (0.005)
Age	−0.181 (0.173)	−0.138 (0.173)	−0.163 (0.172)	−0.060 *** (0.019)	−0.057 *** (0.019)	−0.059 *** (0.019)
Lev	0.072 (0.341)	0.116 (0.341)	0.041 (0.341)	−0.082 ** (0.038)	−0.087 ** (0.038)	−0.082 ** (0.038)
ROA	−1.898 (1.207)	−1.863 (1.207)	−1.978 (1.208)	−0.256 * (0.136)	−0.278 ** (0.136)	−0.255 * (0.136)
Growth	0.011 (0.026)	0.015 (0.026)	0.012 (0.026)	−0.002 (0.003)	−0.002 (0.003)	−0.002 (0.003)
Board	−1.767 *** (0.301)	−1.640 *** (0.301)	−1.695 *** (0.302)	−0.046 (0.031)	−0.047 (0.031)	−0.043 (0.031)
OverseaBack	1.814 *** (0.096)	1.753 *** (0.096)	1.811 *** (0.096)	0.052 *** (0.012)	0.052 *** (0.012)	0.052 *** (0.012)
Female	2.290 *** (0.411)	2.017 *** (0.411)	2.185 *** (0.412)	−0.111 ** (0.047)	−0.103 ** (0.047)	−0.112 ** (0.047)
Top1	0.006 * (0.003)	0.005 (0.003)	0.009 ** (0.003)	−0.001 *** (0.000)	−0.001 *** (0.000)	−0.001 *** (0.000)
Constant	−19.969 *** (1.420)	−21.959 *** (1.452)	−20.978 *** (1.438)	0.498 *** (0.143)	0.416 *** (0.146)	0.505 *** (0.145)
Observations	18,830	18,830	18,830	5690	5690	5690
R-squared	0.157	0.161	0.158	0.107	0.110	0.109
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.2.2. Moderation Effect Estimation

To examine whether the relationship between the Confucian cultural imprint and corporate OFDI varies with the level of home-country environmental pressure, this research introduces an interaction term between Confucian culture and environmental pressure ($Confu \times EP$). The regression results are shown in columns (2) and (5) of Table 5. The coefficient of the interaction term $Confu \times EP$ is significantly positive in both Panel A and Panel B, reaching significance at the 5% and 1% levels, respectively. This finding indicates that home-country environmental pressure strengthens the positive effect of Confucian culture on corporate OFDI behavior, suggesting that firms facing stronger regulatory pressure are more likely to translate cultural values into OFDI decisions. Specifically, under strong home-country environmental regulation, firms with higher levels of the Confucian cultural imprint are more inclined to increase OFDI intensity and allocate a great share of their overseas investments to host countries with more stringent environmental regulations. Therefore, Hypotheses H1b and H2b are supported.

Columns (3) and (6) of Table 5 further examine the moderating effect of CEO power. The results show that the interaction term $Confu \times Power$ is insignificant in Panel A, but exhibits a significantly negative coefficient in Panel B at the 5% significance level. This suggests that CEO power does not significantly affect the relationship between Confu-

Confucian culture and OFDI intensity; however, it weakens the positive relationship between Confucian culture and firms' allocation of OFDI toward environmentally stringent host countries. This implies that stronger managerial discretion may reduce the extent to which cultural values shape firms' location choices. In other words, when CEO power is stronger, corporate OFDI decisions are more likely to be influenced by the personal preferences of managers, thereby weakening the influence of institutional constraints and value orientations embodied in Confucian culture. Therefore, Hypothesis H1c is not supported, whereas Hypothesis H2c is supported.

4.3. Endogeneity and Robustness Analyses

4.3.1. Instrumental Variable Estimation

To address potential endogeneity concerns, including reverse causality and omitted variable bias, this study employs an instrumental variable (IV) approach using two-stage least squares (2SLS) estimation. Drawing on existing research (Hu et al., 2025; C. G. Ye et al., 2022), the number of Chastity archways within the prefecture-level city where the firm is located is selected as the instrumental variable for *Confu*.

The validity of this instrument relies on its strong correlation with the Confucian cultural imprint and its exogeneity. Chastity arches are historically rooted in Confucian values emphasizing moral discipline and social norms, making them closely associated with regional Confucian cultural imprint. Empirically, the relevance of this instrumental variable is supported by the first-stage regression results reported in Table 6. At the same time, as a historical cultural legacy, the distribution of chastity arches is unlikely to be directly related to contemporary firms' OFDI decisions, except through its influence on Confucian culture. This supports the validity of the exclusion restriction. In terms of data processing of the variable *Chastity*, this study takes the natural logarithm of one plus the number of chastity arches in the city where the company is registered, and uses it as an instrumental variable in the first stage regression of models (1) and (4).

Table 6. Estimation Results of Instrument Variable Method.

	Panel A: OFDI Intensity Sample		Panel B: OFDI Allocation Sample	
	(1) First Stage Confu	(2) Second Stage OFDI_Int	(1) First Stage Confu	(2) Second Stage ES_OFDI_Share
Confu		7.637 *** (1.306)		0.882 *** (0.141)
Chastity	0.032 *** (0.000)		0.031 *** (0.001)	
Constant	0.966 *** (0.025)	−19.876 *** (2.527)	0.924 *** (0.031)	0.690 ** (0.272)
Control variables	Yes	Yes	Yes	Yes
Observations	18,806	18,806	5690	5690
R-squared	0.194	0.152	0.258	0.102
Kleibergen-Paap rk Wald F statistic	4338.265 [16.38]		2255.480 [16.38]	
Kleibergen-Paap rk LM statistic	$p = 0.000$		$p = 0.000$	

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6 reports the results of the estimation using the instrumental variable method. The first-stage regression results are shown in columns (1) of Panel A and Panel B. The instrumental variable *Chastity* is significantly positively correlated with *Confu* at the 1% significance level, indicating that the relevance condition is satisfied. At the same time,

the Kleibergen–Paap rk Wald F statistics are 4338.265 and 2255.480, respectively, which are significantly higher than the commonly used critical value of 10, indicating that there is no weak instrumental variable problem. In addition, the Kleibergen–Paap rk LM statistics are both significant at the 1% level ($p = 0.000$), rejecting the null hypothesis of unidentifiable variables, indicating that the model is well identified. These results provide support for the validity of the IV approach.

The results of the second-stage regression further support the baseline regression conclusions. Column (2) of Panel A shows that Confucian culture has a significant positive impact on corporate OFDI intensity at the 1% significance level; meanwhile, the results of column (2) of Panel B show that Confucian culture significantly increases firms' allocation of OFDI toward environmentally stringent host countries, also at the 1% significance level. These findings indicate that the main results remain robust after addressing potential endogeneity concerns.

4.3.2. Replacement of Confucian Culture Imprint

Referring to existing research (T. Chen et al., 2020; Tang et al., 2022; Zhu, 2024), this study uses the logarithm of the number of Jinshi (successful candidates in the highest scholarly degree of the imperial examination system) during the Ming and Qing dynasties as an alternative proxy for the Confucian cultural imprint. Since the imperial examinations centered on Confucian classics, the historical distribution of Jinshi effectively captures the long-term regional influence of Confucian culture. Therefore, we construct alternative measures of Confucian culture using the natural logarithm of the number of Jinshi at the prefecture-level city where the firm is located (*js_City*) and at the province level (*js_Pro*), based on historical records.

Table 7 reports the relevant regression results. In Panel A, the coefficients of *js_City* and *js_Pro* are both significantly positive, indicating that firms more deeply influenced by Confucian culture have higher OFDI intensity. In Panel B, both alternative indicators also have a significant positive impact on the proportion of OFDI allocated by firms to host countries with strict environmental regulations, and both are significant at the 1% significance level. These results suggest that the effect of Confucian culture is robust to alternative historical measures. Overall, the research findings remain consistent after using different Confucian culture measurement methods, indicating the good robustness.

Table 7. Alternative Measures of Confucian Culture Intensity.

	Panel A: OFDI Intensity		Panel B: OFDI Allocation	
	Sample		Sample	
	OFDI_Int		ES_OFDI_Share	
	(1)	(2)	(3)	(4)
<i>js_City</i>	0.055 *		0.026 ***	
	(0.032)		(0.003)	
<i>js_Pro</i>		0.229 ***		0.027 ***
		(0.038)		(0.007)
Constant	−19.225 ***	−20.415 ***	0.763 ***	0.700 ***
	(1.334)	(1.350)	(0.124)	(0.135)
Control variables	Yes	Yes	Yes	Yes
Observations	18,399	18,790	5577	5679
R-squared	0.158	0.158	0.110	0.103
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3.3. Changing the Method of Measuring Corporate OFDI Intensity and Allocation

To further examine the robustness of our findings, we replace the measurement methods of corporate OFDI intensity and OFDI allocation.

For OFDI intensity, following the approach of Wen et al. (2023), we construct a binary variable *OFDI_Binary* based on whether the firm engaged in OFDI in the current year. The value is 1 if the firm had overseas investment activities in the current year, and 0 otherwise. Furthermore, we use a Logit model to explore the impact of the Confucian cultural imprint on corporate OFDI intensity. The regression results are shown in column (1) in Table 8, indicating a positive correlation between Confucian culture and OFDI intensity at the 5% significance level, suggesting that Confucian cultural influence increases firms' likelihood of engaging in outward investment. This finding is consistent with the previous conclusions, further validating Hypothesis 1a.

Table 8. Alternative Measures of OFDI Intensity and Allocation.

	Panel A: OFDI Intensity Sample	Panel B: OFDI Allocation Sample
	OFDI Binary (1) Logit	ES_OFDI_Share_EPI (2)
Confu	0.437 ** (0.205)	0.482 *** (0.080)
Constant	−8.689 *** (0.571)	0.520 *** (0.153)
Control variables	Yes	Yes
Observations	18,808	5690
R-squared		0.091
Industry	Yes	Yes
Year	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Regarding OFDI location allocation, this study employs the Environmental Performance Index (EPI) developed by Yale University and Columbia University to classify host countries according to the stringency of environmental governance. The EPI provides a comprehensive cross-country assessment of environmental performance based on multiple indicators of environmental health and ecosystem vitality (Wendling et al., 2018). Consistent with prior studies using EPI to capture national environmental governance performance (Bambe et al., 2026; Gallego-Alvarez et al., 2014), countries are ranked according to their EPI scores. Countries in the top 30% of the EPI ranking are classified as environmentally stringent host economies, while the remaining countries are regarded as relatively less stringent. The 2018 EPI is chosen as the benchmark because it is close to the midpoint of the sample period and this version of the EPI provides broad data coverage with a comprehensive indicator system. Using a fixed-year institutional benchmark also helps avoid the influence of short-term fluctuations and is consistent with the long-term evolution of environmental policy stringency across countries (Botta & Koźluk, 2014; Kruse et al., 2022).

Based on the above classification, we recalculate the share of a firm's OFDI allocated to environmentally stringent host countries and construct an alternative index *ES_OFDI_Share_EPI*. The regression results reported in column (2) of Table 8 show that *Confu* and *ES_OFDI_Share_EPI* are significantly positively correlated at the 1% significance level, indicating that the positive effect of Confucian culture on environmentally oriented investment decisions remains robust under alternative measurement approaches.

4.3.4. Alternative Measures of Moderating Variables

(1) Alternative Proxy for Home-Country Environmental Pressure

As a robustness check, we construct an alternative measure of home-country environmental pressure. Specifically, the number of environmental penalties in the city where the firm is registered is divided by the city's GDP, and the natural logarithm of the resulting ratio is taken (*EP_Alt*). Scaling environmental regulatory indicators by economic activity is commonly used to capture the relative intensity of environmental regulation across regions (Brunel & Levinson, 2013). GDP data are obtained from local official statistical yearbooks and standardized to ensure measurement consistency.

Table 9 presents the regression results, showing that the coefficients of the interaction term *Confu* × *EP_Alt* in both Panel A and Panel B are positively significant at the 1% significance level. This indicates that the increased environmental regulatory pressure from the home country enhances the positive influence of Confucian imprint on OFDI intensity and allocation to host countries with strict environmental regulations, suggesting that the moderating effect remains robust under alternative measurements of environmental pressure.

Table 9. Alternative Measures of Home-Country Environmental Pressure.

	Panel A: OFDI Intensity Sample	Panel B: OFDI Allocation Sample
	OFDI_Int (1)	ES_OFDI_Share (2)
Confu	1.589 *** (0.532)	0.464 *** (0.076)
EP_Alt	0.070 * (0.042)	−0.004 (0.005)
Confu × EP_Alt	0.175 *** (0.047)	0.017 *** (0.005)
Constant	−20.362 *** (1.428)	0.483 *** (0.143)
Control variables	Yes	Yes
Observations	18,828	5690
R-squared	0.157	0.109
Industry	Yes	Yes
Year	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

(2) Alternative Proxy for CEO Power

Based on eight power indicators, this study reconstructs the CEO power indicator (*Power_Alt*) using principal component analysis. The results reported in column (1) of Table 10 indicate that CEO power significantly weakens the positive effect of Confucian culture on firms' allocation of OFDI toward environmentally stringent host countries, suggesting that stronger managerial discretion may reduce the influence of cultural values on firms' location choices.

Furthermore, we employ two alternative dummy proxies shown in Table 1, CEO tenure above the industry median (TE) and CEO shareholding (CH), to capture CEO expert power and ownership power respectively, following the multidimensional framework of CEO power in prior research of Finkelstein (1992) and Henderson et al. (2006). As shown in Columns (2) and (3) of Table 10, the interaction terms remain significantly negative, providing additional support for the moderating effect across different dimensions of CEO power.

Table 10. Alternative Measures and Dimension-Based Tests of CEO Power.

	ES_OFDI_Share		
	(1)	(2)	(3)
Confu	0.445 *** (0.076)	0.613 *** (0.101)	0.775 *** (0.114)
Power_Alt	−0.006 (0.006)		
Confu × Power_Alt	−0.010 * (0.005)		
Tenure		0.004 (0.010)	
Confu × Tenure		−0.024 ** (0.010)	
CEO_Share			−0.002 (0.012)
Confu × CEO_Share			−0.036 *** (0.011)
Constant	0.525 *** (0.147)	0.349 ** (0.155)	0.206 (0.164)
Control variables	Yes	Yes	Yes
Observations	5690	5690	5690
R-squared	0.108	0.108	0.109
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3.5. Alternative Sample Period

The outbreak and rapid global spread of COVID-19 in 2020 significantly disrupted global economic activities and increased economic uncertainty, while containment measures implemented across countries further interrupted international trade and global supply chains (Baker et al., 2020; IMF, 2020). Against this backdrop, Chinese firms' OFDI activities were affected by the COVID-19 shock, as reflected in disruptions to cross-border investment flows (J. Fang et al., 2021), potentially introducing bias into empirical estimations. To address this concern, this study adjusts the sample period by excluding observations from 2020 onward and re-estimates the models using the pre-pandemic sample.

Columns (1) and (2) of Table 11 report the regression results based on the pre-pandemic sample. The results show that the Confucian cultural imprint remains positively and significantly associated with both OFDI intensity and the share of OFDI toward environmentally stringent host countries at the 1% significance level. These findings confirm the robustness of the baseline results and suggest that the main conclusions are not driven by the COVID-19 shock.

Table 11. Robustness Check Using the Pre-COVID Sample.

	Panel A: OFDI Intensity Sample	Panel B: OFDI Allocation Sample
	OFDI_Int (1)	ES_OFDI_Share (2)
Confu	2.145 *** (0.760)	0.563 *** (0.117)
Constant	−24.052 *** (2.144)	0.434 * (0.229)

Table 11. Cont.

	Panel A: OFDI Intensity Sample	Panel B: OFDI Allocation Sample
	OFDI_Int (1)	ES_OFDI_Share (2)
Control variables	Yes	Yes
Observations	8137	2377
R-squared	0.123	0.136
Industry	Yes	Yes
Year	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3.6. One-Period Lagged

To further examine whether the research results are sensitive to the time setting of variables, this study lags the core explanatory variables and all continuous control variables by one period and re-estimates the models. By applying a time lag to the explanatory variables, the negative impact of current corporate decisions on these variables can be reduced to some extent, thereby better identifying causal relationships.

Table 12 reports the regression results. Columns (1) and (2) show that the coefficient of Confucian culture (*L.Confu*) is still significantly positive after a one-period lag, suggesting that the effect of the Confucian cultural imprint on OFDI decisions is persistent over time. These findings indicate that our research findings remain robust under different time settings.

Table 12. Robustness Check Using One-Period Lagged Variables.

	Panel A: OFDI Intensity Sample	Panel B: OFDI Allocation Sample
	OFDI_Int (1)	ES_OFDI_Share (2)
L.Confu	4.335 *** (1.497)	0.437 *** (0.125)
L.Size	0.430 *** (0.121)	−0.006 (0.008)
L.Age	−0.639 (0.432)	−0.070 ** (0.030)
L.Lev	−0.959 (0.893)	−0.012 (0.067)
L.ROA	−7.990 ** (3.336)	−0.105 (0.245)
L.Growth	0.089 (0.097)	0.002 (0.006)
L.Board	−1.068 (0.716)	−0.058 (0.054)
OverseaBack	1.073 *** (0.267)	0.060 *** (0.019)
L.Female	1.248 (1.051)	0.088 (0.081)
L.Top1	0.023 *** (0.008)	−0.001 (0.001)
Constant	−0.740 (3.287)	0.302 (0.240)
Observations	4016	1889
R-squared	0.206	0.148
Industry	Yes	Yes
Year	Yes	Yes

Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5. Discussion

5.1. Summary of Research Findings

Using data from Chinese A-share listed firms, the impact of the Confucian cultural imprint on corporate OFDI and its underlying mechanisms is investigated from an informal institutional perspective. The empirical findings can be summarized as follows.

To begin with, OFDI intensity is significantly promoted by the Confucian imprint. Firms more deeply influenced by Confucian cultural values exhibit higher OFDI intensity. This finding suggests that the long-term orientation, reputational concerns, and relationship-based norms embedded in Confucian culture facilitate firms' internationalization strategies.

A second finding is that Confucian culture not only influences the corporate OFDI intensity but also significantly shapes their investment allocation direction. Firms with stronger Confucian cultural imprint tend to invest in host countries with stricter environmental regulations, reflecting stronger legitimacy-seeking behavior and more sustainable investment strategies.

The third finding focuses on the moderating effect of home-country environmental pressure. The results highlight the complementary relationship between formal and informal institutions. However, the underlying mechanisms differ between OFDI intensity and investment allocation. At the intensity level, stronger environmental pressure increases compliance costs and operational risks, motivating firms to expand abroad to alleviate domestic institutional pressure. In this context, the Confucian emphasis on long-term orientation and risk diversification strengthens firms' incentives to undertake OFDI as a strategic response. At the allocation level, stricter home-country environmental regulation heightens firms' concern for legitimacy and reputation, which aligns with Confucian values emphasizing credibility and social responsibility. Under the joint influence of formal institutional pressure and cultural norms, firms are more inclined to pursue green transformation and long-term investment strategies by investing in environmentally stringent host countries. In doing so, they enhance international legitimacy and promote responsible internationalization.

Finally, CEO power exerts a differentiated moderating effect. While CEO power does not significantly affect the relationship between Confucian imprint and OFDI intensity, it does weaken the positive impact of Confucian culture on firms' investment location choices. This finding indicates that when CEO power is high, corporate strategic decisions are more likely to rely on managers' personal preferences and judgments. At the same time, attention to external institutional pressures and legitimacy considerations is relatively reduced, which reduces the constraining role of cultural values in corporate decision-making.

In addition, this research conducted a series of robustness tests, including instrumental variable estimation, alternative variable measures, and the exclusion of pandemic-period samples. The results are consistent with the baseline regression, confirming the robustness of the main findings.

5.2. Theoretical Contributions and Practical Implications

This study offers several important contributions. First, it advances institutional theory within the context of internationalization by demonstrating how informal institutions, specifically the regional Confucian cultural imprint, shape firm cross-border investment behavior. In doing so, the study moves beyond traditional formal institutional explanations and uncovers how culturally embedded values influence not only OFDI intensity but also the allocation of investments across host countries characterized by varying degrees of environmental regulatory stringency.

Second, this research refines the understanding of the boundary conditions under which informal institutional effects shape firm internationalization behavior. By incorpo-

rating both home-country green development pressure and firms' power structures, the proposed framework integrates external institutional constraints with internal governance dynamics. It thereby clarifies when and how cultural influences become more pronounced in shaping cross-border investment decisions.

Third, by engaging with both the Pollution Haven Hypothesis and the Pollution Halo Hypothesis, the study offers a novel perspective on the driving factors of responsible internationalization. Rather than treating cross-border investment as merely a response to regulatory arbitrage or technological spillovers, this study identifies the cultural and governance conditions under which firms are more likely to allocate OFDI toward environmentally stringent destinations. In this way, this research contributes to a more nuanced understanding of the mechanisms that shape the environmental orientation of global investment flows.

Based on these findings, this study also provides several policy implications. For those firms pursuing global expansion, it is important to integrate long-term orientation cultural values and sustainability considerations into their organizational structures, thereby supporting responsible internationalization strategies. Meanwhile, firms should strengthen the checks and balances in governance structures to ensure alignment between investment decision-making and long-term values. In the view of policymakers, governments should enhance environmental regulation while providing supportive policies that encourage sustainable international expansion. In particular, institutional frameworks such as green investment standards and sustainability disclosure requirements can help steer firms toward environmentally responsible host markets and enhance the global credibility of domestic firms. It is also helpful to support firms' expansion by promoting green technology, environmental innovation, and access to green financing and international cooperation platforms. Furthermore, governments should emphasize high-quality investment by strengthening environmental risk assessments and sustainability standards for overseas projects. Such measures will be beneficial for improving the long-term credibility and sustainability of international development projects, such as Belt and Road Initiative-related investments. Additionally, when evaluating firm overseas investment strategy, investors and other stakeholders should not only consider financial indicators but also comprehensively consider the institutional environment and governance structure characteristics of the company. Understanding the interaction among cultural environment, regulatory pressure, and managerial power can improve assessments of firms' long-term development potential and ESG performance.

5.3. Limitation and Directions for Future Studies

This study also has some limitations that need to be further explored in future research.

First, Confucian culture is measured using city-level indicators based on firms' locations rather than direct firm-level measures. Therefore, this method mainly captures the influence of the external cultural environment and may not fully reflect the degree of cultural influences within various firms. In addition, this proxy may be subject to measurement limitations and may not fully capture firm-level cultural heterogeneity. Future research could utilize methods such as questionnaires, managerial text analysis, or interviews to directly measure firm-level cultural characteristics and the relevant corporate behavior.

Second, this study primarily characterizes internal governance factors mainly from the perspective of CEO power, while corporate power structures can be examined along multiple dimensions. Factors such as board composition, top management team characteristics, and other governance mechanisms may also shape firms' overseas investment decisions and high-quality internationalization strategies. Future research could further

explore the mechanisms by which different internal governance factors affect corporate overseas investment.

Finally, this research primarily focuses on the Confucian cultural context in China. Considering the rising impact of those EMNEs from many different markets with diverse cultural traditions and institutional backgrounds, future studies could extend the analytical framework to other cultural contexts and institutional settings. Future research may also decompose Confucian culture into specific value dimensions and examine their distinct effects. In addition, it may explore the role of external cultural influence (Bhardwaj et al., 2007; R. Y. Chen et al., 2026; J. Du et al., 2012) in shaping firms' internationalization decisions, as different cultural logics may interact with Confucian values in complex ways. Developing more comprehensive and multidimensional measures of Western cultural exposure would help better capture these interactions. Furthermore, focusing on A-share listed firms may limit the generalizability of our findings to non-listed firms, which could be further explored in future research. Such research may further explore how diverse institutional and governance configurations shape firms' paths toward responsible internationalization.

6. Conclusions

This research examines the impact of the Confucian cultural imprint on corporate OFDI from an informal institutional perspective, with a particular focus on the moderating roles of home-country environmental pressure and CEO power. The results show that environmental pressure strengthens the influence of the Confucian imprint on firms' OFDI direction, indicating complementarity between formal and informal institutions, whereas CEO power weakens this relationship, suggesting that internal governance structures shape the extent to which cultural values constrain firms' investment location choices.

Overall, the findings demonstrate that corporate international investment behavior is not solely shaped by external institutional environments or economic motives, but by the joint influence of external cultural contexts and internal governance mechanisms. By integrating external institutions with internal governance perspectives, this study explains how firms' foreign investment directions are formed and shows that the Pollution Haven Hypothesis conditionally holds under different governance settings, thereby providing new theoretical insights into firms' transition toward responsible internationalization.

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Abbreviations

The following abbreviations are used in this manuscript:

OFDI	Outward foreign direct investment
EMNEs	Multinational enterprises from emerging markets
OECD	Organisation for Economic Co-operation and Development
EPI	Environmental performance index

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