

Responsible International Investment: ESG and OFDI in China

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In response to the growing trend of sustainable development in various countries, the specific advantages driving outward foreign direct investment (OFDI) by multinational corporations have undergone significant changes. The emphasis on environmental, social, and governance (ESG) factors and the ESG advantages they create may become a new competitive edge for OFDI. This paper explores the impact and mechanisms of ESG advantages on Chinese enterprises' OFDI, using data from A-share listed companies between 2009 and 2019. The study finds that ESG advantages can significantly and steadily enhance the likelihood and scale of listed companies' overseas investments. The investment promotion effect of ESG is mainly evident in greenfield investments and is slightly more pronounced in non-state-owned enterprises. Mechanism analysis shows that ESG advantages can reduce the capital costs (mainly debt costs) of cross-border investments internally, easing financing constraints. Moreover, when confronted with host countries with different ESG levels, multinational corporations with ESG advantages can flexibly leverage social and governance advantages and overcome the disadvantages caused by environmental factors, thereby enhancing corporate OFDI activities. This paper may be the first to confirm the positive impact of corporate ESG advantages on OFDI, revealing the growing importance of responsible enterprises in building a higher-level open economy system at the micro level. It also provides important insights for promoting the image of responsible enterprises and great power globally and realizing the concept of a community with a shared future of humanity.

Keywords: foreign direct investment; sustainable development; ESG; cost of capital; financing constraints; liability of foreignness

1. Introduction

The social responsibilities arising from sustainable development are reshaping

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corporate business philosophies. Friedman once argued that increasing private profits is the sole social responsibility of businesses, and imposing additional responsibilities on enterprises is not only impractical but also detrimental to the market economy (Friedman, 1970). This view, which prioritizes maximizing shareholder interests, has attracted a wide following (Bénabou and Tirole, 2010). However, as the ESG issues, such as climate change and wealth inequality, become more and more prominent, national-level responses often face political resistance, leading to significant controversy (Hart and Zingales, 2017). Addressing these major social issues requires not only international coordination by organizations but also the integration of environmental (E), social (S), and governance (G) factors into investment decisions. By implementing the ESG concept¹, enterprises can seek solutions to social problems at the corporate level (UN, 2004). Currently, ESG has gained widespread attention from investors and government policies. The global demand for green recovery has driven a continuous rise in responsible investment, with the number of institutions signing the United Nations-supported Principles for Responsible Investment surging by 28% in 2020.² Although China's ESG development began relatively late, it is gaining increasing attention from all sectors of society. Especially since President Xi Jinping proposed the "2060 carbon neutrality" goal at the United Nations General Assembly, the intensity of ESG policies and investments has significantly increased.³

The growing importance of ESG has significantly impacted corporate operations.⁴ Numerous studies have found that an enterprise's outstanding ESG performance can help reduce the cost of equity capital (El Ghoul *et al.*, 2011) and debt cost (Goss *et al.*, 2011), thereby improving financing constraints (Qiu and Yin, 2019). Moreover, ESG can help enterprises mitigate risks (Albuquerque *et al.*, 2019), build trust during crises to withstand shocks (Lins *et al.*, 2017), and enhance corporate performance and long-term value (Friede *et al.*, 2015). However, most discussions on ESG rarely address the expansion of corporate boundaries. Particularly, there is no clear answer to whether ESG affects OFDI and how it does so. Given the significant impact of multinational

¹ Another concept closely linked to ESG is corporate social responsibility (CSR). It is generally believed that ESG encompasses a broader scope than CSR, as it includes aspects of corporate governance not directly covered by the latter (Gillan *et al.*, 2021). However, most literature still interchangeably uses ESG and CSR, and this paper follows this convention.

² The three primary principles of the United Nations' Principles for Responsible Investment (PRI) are: (1) integrating ESG into investment analysis and decision-making; (2) incorporating ESG into ownership policies and practices; (3) ensuring that invested entities appropriately disclose ESG information. For more details, see the PRI website: <https://www.unpri.org/pri/about-the-pri>.

³ The revised *Corporate Governance Guidelines for Listed Companies* in 2018 first established the ESG information disclosure framework. Following President Xi Jinping's proposal of China's 2060 carbon neutrality goal, the *Guidance on Promoting Investment and Financing to Address Climate Change* was promptly released. In 2020, public mutual funds with a 'broad ESG' theme surpassed the 100 billion yuan mark, more than double the amount in 2019.

⁴ Gillan *et al.* (2021) made a comprehensive review of ESG related literature, and an early review can be seen in Kitzmuller and Shimshack (2012).

corporations' global actions on sustainability (Buckley *et al.*, 2017; Montiel *et al.*, 2021), this paper aims to explore the impact of ESG on OFDI, addressing the gaps in this area.

There are other significant reasons to link an enterprise's ESG performance with its OFDI. Firstly, sustainable requirements may alter the intrinsic drivers of an enterprise's OFDI. When enterprises adopt ESG principles and shift their profit maximization goals to balance economic and social values, their competitive dynamics and advantages will undergo profound changes, prompting us to reconsider the theoretical factors influencing OFDI. Secondly, as emerging market countries, the relatively immature domestic market environment serves as a significant institutional incentive for corporate internationalization (Witt and Lewin, 2007). However, this "institutional escape" style of international investment poses more serious legitimacy challenges for these enterprises in host countries, where they may be questioned about their ability to fulfill local social responsibilities (Marano *et al.*, 2017). Therefore, whether the social inclusiveness demonstrated by ESG can help enterprises establish a responsible investor image and overcome the liability of foreignness is a practical issue that requires in-depth exploration.

Introducing the ESG advantages of enterprises based on the Eclectic Paradigm of International Production (hereafter referred to as the OLI theory), this paper analyzes the theoretical impact and mechanisms of ESG advantages on OFDI. Based on this, the study selects non-financial enterprises listed on China's A-share market from 2009 to 2019 as the research subjects. By integrating authoritative greenfield investment and overseas M&A datasets, the study outlines the complete OFDI activities of these enterprises. Then ESG ratings are used to measure ESG advantages, with a focus on exploring how these advantages influence the likelihood and scale of OFDI. Furthermore, the paper examines the potential mechanisms from the perspectives of capital constraints and location selection.

This article may make several marginal contributions. Firstly, by analyzing real-world scenarios and classic theories, the paper introduces the concept of corporate ESG advantages and integrates it into the OLI theory. This not only expands the theoretical framework for the competitive advantages driving OFDI, which enriches the theory of OFDI, but also serves as a significant supplement to the literature on ESG. Importantly, no previous research has explored the decisive role of ESG advantages from the perspective of expanding the OLI theory, which is crucial for theoretically understanding how to construct new international competitive advantages. Secondly, using extensive macro and micro data, the paper delves into the mechanisms through which ESG advantages influence corporate OFDI by reducing capital constraints and increasing locational flexibility. As previously mentioned, ESG plays a crucial role in lowering capital costs, but whether this effect can be translated into a force that stimulates corporate international expansion remains unclear. Additionally, based on the theory of liability of foreignness (Zaheer, 1995), the paper presents a novel

perspective by considering the host country's ESG level as a significant source of foreigner disadvantages. It constructs national-level ESG indicators to theoretically and empirically demonstrate how ESG advantages help enterprises more flexibly leverage their social and governance strengths and overcome environmental weaknesses to adapt to the locational characteristics of the host country, thereby promoting OFDI. This broadens the understanding of the disadvantages faced by outsiders, helping to gain a deeper ESG perspective on the challenges and risks that enterprises from emerging markets encounter during their internationalization process. Moreover, it also reveals the underlying logic that enterprises can use ESG strategies to identify optimal investment locations. Finally, this paper has certain advantages in the selection of instrumental variables. We validated and innovatively used changes in holdings of "broad ESG" funds as instrumental variables for corporate ESG advantages, different from the reliance on industry or regional instrumental variables in existing literature, and providing valuable insights for future research on addressing the endogeneity issues of ESG.

2. Theoretical Analysis and Research Hypotheses

2.1. Social Responsibility Pressure and ESG Advantages of Transnational Investment

In neoclassical economics, the sole objective of business operations is to maximize profits, and OFDI is a crucial method for enterprises to achieve global profit maximization by crossing national borders. However, when an enterprise changes from a domestic one to a multinational investment enterprise, it must overcome the disadvantages and lack of legitimacy associated with its status as an outsider. Therefore, according to the classic OLI theory, an enterprise will engage in OFDI only if it possesses ownership advantages, internalization advantages, and locational advantages. Dunning (1988) argues that ownership advantage is the most critical, encompassing monopolistic advantages in products and production technology, as well as economies of scale. These advantages, derived from the structure of imperfect competition, are essential for enterprises to overcome operational disadvantages and compete with local firms, and they also serve as the intrinsic motivation for enterprises to legally seek monopoly rents in the host country through market mechanisms. It is clear that the OLI theory, starting from the goal of maximizing profits (Caves, 1974), explores the structural factors that drive enterprises to engage in OFDI in pursuit of global profits.

However, as social issues become more prominent, the emphasis on the sustainability of economic, social, and environmental development has gradually become a consensus. The growing focus on sustainability has made non-profit factors increasingly significant in investment and consumption decisions (Riedl and Smeets, 2017; Albuquerque *et al.*, 2019). Enterprises that prioritize profit

maximization may encounter operational challenges due to an underestimation of the social responsibilities that sustainability entails. What does this change in the business environment due to sustainability requirements mean for multinational direct investment enterprises? For multinational corporations, stringent sustainability requirements mean more challenging social responsibility issues compared to domestic enterprises (Buckley *et al.*, 2017). On one hand, many social issues naturally have cross-border transmission characteristics, and multinational enterprises may shift irresponsible operations due to pressure from their home countries (Surroca *et al.*, 2013), such as the cross-border transfer of pollution, which can be seen as a source of “trouble”, exacerbating the legitimacy challenges of operating in host countries. On the other hand, due to the varying social responsibilities in different host countries, global investments by multinational enterprises face a more complex and dynamic business environment and must continuously respond to the responsibility demands of various stakeholders within the host country. This undoubtedly adds new challenges for emerging market enterprises that lack traditional ownership advantages.

Therefore, this paper argues that in the context of increasingly stringent social responsibility challenges due to sustainable development requirements, enterprises that prioritize ESG factors and gradually build specific ESG advantages through their ESG practices will develop a competitive edge in cross-border investments that differs from traditional advantages. This ESG advantage goes beyond the profit-maximizing motive, which is achieved by enhancing the enterprise’s ability to meet social responsibility requirements and actively engage with various stakeholders. Specifically, the ESG advantages discussed in this paper refer to the valuable and scarce resources, systems, and capabilities that enterprises establish through their ESG practices¹, such as green technology, brand reputation, and social responsibility systems, which are considered ESG asset and institutional advantages. Since ESG advantages emphasize meeting the demands of shareholders, consumers, suppliers, communities, and other stakeholders, and pursue inclusive development, they differ from traditional monopoly advantages. They not only create economic value but also continuously generate social value through interactions with non-market factors.

It is important to note that while ESG advantages are built on the resources of the home country and represent the competitive edge of the parent enterprise, their legitimacy is widely recognized. The green technology, brand reputation, and institutional mechanisms gained through ESG practices have relatively low transfer costs. This makes it easier to transplant these benefits to subsidiaries in host countries, thereby localizing ESG advantages. The transferability of ESG advantages is a key assumption that influences cross-border investments. However, why do enterprises

¹ ESG practice refers to the investment of enterprises in environment, society and governance and the disclosure of ESG related information. The connotation of “ESG investment” is similar to it.

opt for OFDI rather than selling or licensing their ESG advantages? In addition to internal transferability, OFDI allows enterprises to internalize the costs of open market transactions, thereby gaining internalization advantages. When transactions occur through market mechanisms, enterprises face issues such as information asymmetry between technology licensors and licensees, and horizontal externalities caused by brand sharing, which can lead to market failures. OFDI, placing key assets under joint governance, avoids market transaction costs and leverages economies of scale and scope within the organization. In summary, this paper proposes:

Hypothesis 1: ESG advantage is an important competitive advantage to promote OFDI of enterprises in the context of sustainable development.

2.2. ESG Advantages of Enterprises, Capital Constraints and Outward Foreign Direct Investment

Financing issues pose a significant challenge for enterprises venturing abroad. Compared to domestic investments, OFDI enterprises face higher fixed and variable costs when entering new markets (Greenaway and Kneller, 2007). These investments require substantial capital, have longer payback periods, and involve greater uncertainty in risks and returns. These factors increase the external financing costs and difficulties for OFDI. Moreover, the underdeveloped financial markets and biased financing patterns in emerging markets further constrain enterprises' ability to make OFDI (Desbordes and Wei, 2017). Research indicates that financing constraints not only limit the likelihood of private enterprises engaging in OFDI, but also reduce the scale of such investments (Wang *et al.*, 2015). Therefore, if ESG advantages can alleviate the financing difficulties of enterprises, they will naturally have a positive impact on OFDI.

Theoretical and empirical evidence suggests that enterprises with ESG advantages attract more socially responsible investors and creditors, which helps to reduce their capital and borrowing costs (El Ghoul *et al.*, 2011; Goss *et al.*, 2011). Firstly, enterprises with ESG advantages actively disclose non-financial information, such as environmental protection and social responsibility, to present a responsible corporate image to investors. This disclosure effectively alleviates information asymmetry in the financing process, reducing financing constraints (Wu *et al.*, 2017). Secondly, ESG advantages are often associated with lower characteristic risks, which can facilitate corporate financing. In contrast, enterprises with poor ESG performance are more likely to confront issues like product safety and financial fraud, making them less attractive to investors and creditors. Lastly, enterprises with ESG advantages, by prioritizing the interests of stakeholders, can reduce agency problems and improve both internal and external financing environments. In conclusion, this paper proposes:

Hypothesis 2: The ESG advantages of enterprises can promote OFDI by reducing financing costs and alleviating financing constraints.

2.3. *ESG Advantages of Enterprises, Location Selection and Outward Foreign Direct Investment*

The concept of sustainable development highlights the significant impact of ESG-related location factors on the OFDI decisions and operations of enterprises. Host countries are increasingly expecting multinational corporations to fulfill their social responsibilities in areas such as environmental protection, employee rights, and public welfare (Buckley *et al.*, 2017). Compared to developed countries, emerging economies lag behind in both ESG knowledge and practice. This ESG gap causes developed host countries to project stereotypes of the source country onto enterprises, resulting in a lack of identity recognition for these enterprises.

The typical characteristics of the disadvantages faced by outsiders include insufficient legitimacy and information asymmetry (Sethi and Guisinger, 2002). However, the inherent legitimacy and transparency of ESG advantages can help enterprises overcome these disadvantages, thereby promoting international investment. In addition to overcoming disadvantages, enterprises can leverage their ESG advantages to gain economic rents from host countries with relatively underdeveloped ESG systems, thereby fueling their OFDI. As the demand for responsible investment in less developed countries grows, enterprises' ESG advantages will help them establish a competitive edge in host countries with lower ESG standards. Therefore, from the perspective of leveraging advantages, when the ESG level of the host country is low, enterprises may be more motivated to use OFDI to gain ESG advantage rents. Overall, when dealing with host country markets of varying ESG levels and barriers, ESG advantages enable enterprises to enter countries with low ESG level as well as having the capability to overcome high barriers to enter countries with high ESG level. The flexibility in investment location selection due to ESG advantages undoubtedly benefits enterprises in their foreign investment activities. Therefore, this paper proposes:

Hypothesis 3: The ESG advantages of enterprises can promote OFDI by overcoming the liability of foreignness or strengthening advantage utilization.

3. Data, Models and Statistics

3.1. *Data Source and Processing*

This paper uses A-share listed companies in China's Shanghai and Shenzhen stock markets as the research sample, covering the period from 2009 to 2019. The data on OFDI of these listed companies includes two components: greenfield investments and cross-border mergers and acquisitions (M&A). Greenfield investments are sourced from the FDI Markets database of the Financial Times, while M&A data is from the SDC Global M&A database of Thomson Reuters. Additionally, the HuaZheng ESG rating data

is used as a core indicator to measure the ESG advantages of companies, sourced from the Wind Information Financial Terminal. Corporate financial information is derived from the CSMAR database. To ensure data accuracy, this paper excludes financial sector and other industries with fewer observations, as well as samples with missing key variables or that do not conform to accounting standards. The final merged dataset includes 20,328 enterprise-year records for 3,353 listed companies from 2009 to 2019, including 990 non-zero observations for 547 OFDI enterprises. To mitigate the impact of outliers, the data for continuous variables are truncated at the 1% and 99% levels.

3.2. Model Setting

To systematically investigate the impact of corporate ESG advantages on OFDI, this paper employs microeconomic data to analyze both investment decisions and investment scales. The decision to engage in OFDI is used as a binary dependent variable (*Decision*), and a Probit model is constructed to examine how ESG advantages influence OFDI decisions. Additionally, the logarithmic value of the enterprise's investment amount ($\ln(\text{Amount}+1)$) is used as an independent variable, and a Tobit model with a left-censored point at zero is selected to explore the effect of ESG advantages on the scale of OFDI. The two sets of equations are as follows:

$$\Pr(\text{Decision} = 1 | \mathbf{X}_{it}) = \alpha_0 + \alpha_1 \text{ESG}_{it} + \alpha_2 C_{it} + \lambda_{ind,t} + \lambda_{pro} + \varepsilon_{it} \quad (1)$$

$$\ln(\text{Amount} + 1)_{it} = \begin{cases} \beta_0 + \beta_1 \text{ESG}_{it} + \beta_2 C_{it} + \lambda_{ind,t} + \lambda_{pro} + u_{it}, & y^* > 0 \\ 0, & y^* = 0 \end{cases} \quad (2)$$

In the model, subscripts i , t , pro , and ind represent enterprise, year, province, and industry, respectively. When enterprise i makes an outward direct investment in year t , *Decision* is set to 1; otherwise, it is 0. y^* denotes the potential logarithmic investment scale, which follows a normal distribution $y^* \sim N(0, \sigma^2)$. Considering the non-linear nature of the Tobit model, this paper follows McDonald and Moffitt (1980)'s approach to calculate the average marginal effect of ESG, $\beta_1 \Phi(\mathbf{X}_{it} \boldsymbol{\beta}' / \sigma) = \beta_1 F(z)$, where $\Phi(\cdot)$ is the cumulative distribution function of a normal distribution, $\mathbf{X}_{it}$ and $\boldsymbol{\beta}$ are the vector of variables and the corresponding coefficient vector, respectively. In both sets of equations, ESG_{it} represents the ESG rating of listed enterprise i in year t , with higher ratings indicating more significant ESG advantages. The Huazheng ESG rating system categorizes all listed companies into 9 levels, and the ratings are ranked in ascending order as follows: C, CC, CCC, B, BB, BBB, A, AA, AAA. Following Lin *et al.* (2021), the benchmark analysis assigns values from 1 to 9 to the ESG ratings of enterprises, with higher numbers indicating better ESG ratings. To mitigate the impact

of omitted variables, this paper includes a series of enterprise-level control variables in the model, such as enterprise size (*Size*), return on assets (*Roa*), debt-to-asset ratio (*Lev*), enterprise age (*Age*), ownership type (*SOE*), R&D intensity (*R&D*), and capital intensity (*Capital*). The literature often uses R&D and capital density to measure the traditional monopoly advantage that motivates OFDI (Kogut and Chang, 1991). In addition, this paper also controls for industry-time ($\lambda_{ind,t}$) and province (λ_{pro}) fixed effects, and reports the cluster standard error of enterprise dimensions.

3.3. Descriptive Statistics

Table 1 presents the descriptive statistics of the main variables for both the full sample and the OFDI sample. The mean value of *Decision* in the sample is 0.0487, indicating that 4.87% of the samples engage in OFDI. The mean and median of $\ln(Amount+1)$ are similar, with no significant skewness, suggesting that the logarithmic transformation is appropriate. Additionally, the mean value of ESG for the OFDI sample is 6.824, higher than the mean value of ESG for the full sample (6.429), indicating a possible positive correlation between ESG and OFDI.

Table 1. Descriptive Statistics of the Main Variables

Variable definition	Variable name	Panel A: Full sample				Panel B: Sample of enterprises with OFDI			
		Mean	Standard deviation	Median	Sample size	Mean	Standard deviation	Median	Sample size
Investment decision	<i>Decision</i>	0.0487	0.215	0.000	20328	1.000	0.000	1.000	990
Investment scale	$\ln(Amount+1)$	0.168	0.876	0.000	20328	3.440	2.124	3.488	990
ESG	<i>ESG</i>	6.429	1.083	6.000	20328	6.824	1.115	7.000	990
Scale	<i>Size</i>	7.587	1.272	7.527	20328	8.693	1.398	8.607	990
Rate of earnings on shareholders equity	<i>Roa</i>	3.567	6.679	3.682	20328	4.472	5.391	3.938	990
Asset-liability ratio	<i>Lev</i>	42.673	21.659	41.385	20328	49.807	18.444	51.462	990
Age	<i>Age</i>	2.786	0.390	2.833	20328	2.790	0.373	2.833	990
Whether it is state-owned	<i>SOE</i>	0.333	0.471	0.000	20328	0.385	0.487	0.000	990
R&D density	<i>R&D</i>	3.859	4.214	3.205	20328	3.902	3.985	3.282	990
Capital density	<i>Capital</i>	12.453	1.126	12.466	20328	12.651	1.092	12.582	990

4. The Basic Results

4.1. Benchmark Regression Results

First, we examine the impact of ESG advantages on an enterprise's OFDI decision. The estimation results are presented in columns (1) to (3) of Table 2. To better interpret the meaning of the estimated coefficients, columns (1) to (3) report the marginal effects of the Probit model. Columns (1) and (2) control for some variables at the enterprise level; however, the former controls for industry, year, and province fixed effects, while the latter controls for industry-year and province fixed effects. The results show that the coefficients of ESG variables in both columns are significantly positive and similar in magnitude, preliminarily confirming the positive impact of ESG advantages on investment potential. To highlight that ESG advantages differ from conventional monopoly or ownership advantages, column (3) adds R&D density (*R&D*) and capital density (*Capital*), two commonly used proxy variables reflecting ownership advantages. The results show that the coefficients of R&D density and capital density are both significantly positive, consistent with the theoretical expectation that ownership advantages drive OFDI. After considering the impact of R&D and capital density, the size of the ESG coefficient decreases by about 13%, but it remains significant. If ESG, R&D density, and capital density each increase by one standard deviation, holding other conditions constant, the average probability of OFDI increases by 0.71%, 1.16%, and 1%, respectively. This indicates that the explanatory power of ESG is equivalent to 60–70% of R&D density and capital density, suggesting that ESG advantages differ from traditional ownership factors that determine OFDI, showing a special significant role.

In addition to investment decisions, columns (4) to (6) also used the Tobit model to examine the impact of ESG advantages on investment scale¹. The results show that ESG variables are significantly positive in all three investment scale equations. The estimation results are not significantly affected by different fixed effects or whether traditional ownership advantages are considered. To better understand the economic implications of the estimated coefficients, the average marginal effect was calculated using McDonald and Moffitt (1980)'s method. For example, in column (6), the average marginal effect of ESG is 0.0256 (0.562×0.0456), indicating that, holding other factors constant, each one-level increase in ESG rating leads to an average 2.56% increase in the enterprise's external investment scale. Similarly, a one-standard-deviation increase

¹ We used the conditional moment test to verify the applicability of the Tobit model. The conditional moment statistics for columns (4) to (6) are 7.258, 16.600, and 10.425, respectively, with the corresponding critical values at the 10% level being 31.303, 82.707, and 83.552. Since the conditional moment statistics are below the critical values, we cannot reject the null hypothesis that the model errors follow a normal distribution, indicating that the selection of the Tobit model is appropriate.

in ESG, R&D, and capital intensity results in an 2.77%, 3.92%, and 3.96% increase in investment scale, respectively. The explanatory power of ESG is approximately 70% that of R&D and capital intensity, consistent with previous findings.

In short, the benchmark results show that when ESG rating is higher, the possibility and investment scale of OFDI of enterprises will increase significantly, which confirms the positive impact of ESG advantages on overseas investment of listed enterprises, and Hypothesis 1 is preliminarily verified.

Table 2. Baseline Regression Results

Variable	Investment decision: Probit model			Investment scale: Tobit model		
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Decision</i>	<i>Decision</i>	<i>Decision</i>	$\ln(\text{Amount}+1)$	$\ln(\text{Amount}+1)$	$\ln(\text{Amount}+1)$
<i>ESG</i>	0.00752*** (0.00189)	0.00757*** (0.00189)	0.00658*** (0.00186)	0.639*** (0.150)	0.646*** (0.149)	0.562*** (0.146)
<i>Size</i>	0.0267*** (0.00246)	0.0271*** (0.00246)	0.0284*** (0.00248)	2.141*** (0.174)	2.171*** (0.172)	2.270*** (0.173)
<i>RoA</i>	0.00107*** (0.000352)	0.00100*** (0.000352)	0.00125*** (0.000362)	0.0879*** (0.0293)	0.0813*** (0.0291)	0.101*** (0.0296)
<i>Lev</i>	0.000486*** (0.000115)	0.000474*** (0.000114)	0.000510*** (0.000117)	0.0437*** (0.00937)	0.0428*** (0.00928)	0.0442*** (0.00949)
<i>Age</i>	-0.00107 (0.00633)	-0.00182 (0.00634)	0.000726 (0.00633)	0.111 (0.501)	0.0419 (0.500)	0.227 (0.499)
<i>SOE</i>	-0.0251*** (0.00547)	-0.0243*** (0.00544)	-0.0254*** (0.00536)	-1.944*** (0.445)	-1.890*** (0.440)	-1.996*** (0.435)
<i>R&D</i>			0.00276*** (0.000557)			0.204*** (0.0440)
<i>Capital</i>			0.00884*** (0.00212)			0.773*** (0.172)
Industry-year	No	Yes	Yes	No	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	No	No	Yes	No	No
Year	Yes	No	No	Yes	No	No
σ				7.131	7.059	6.998
F(z)				0.0455	0.0456	0.0456
N	20328	20328	20328	20328	20328	20328
Pseudo R ²	0.139	0.146	0.153	0.100	0.106	0.111

Note: The Probit model reports the marginal effect; *, ** and *** represent significant at the 10%, 5% and 1% levels, respectively; values in the parentheses are the robust standard error clustered at the enterprise level; the intercept and fixed effect coefficients are not reported due to space constraints. The same applies below.

4.2. Endogeneity Problems

To address the endogeneity issues caused by reverse causality, this paper attempts to construct two sets of instrumental variables. Previous studies have typically used ESG levels at the industry or regional level as instruments for corporate ESG (Breuer *et al.*, 2018). While these higher-level variables are easier to meet the correlation requirements for instrumental variables, they raise significant concerns about the exogeneity assumption (Gormley and Matsa, 2014). Therefore, this paper adopts a different approach, using the rise of ESG-focused public mutual funds in China as an exogenous event. The number of enterprises held by “broad ESG” funds (FQ) and the market value of these holdings (FV) are used as instrumental variables to measure corporate ESG advantages. Fund companies influence corporate governance through methods such as “voting with their feet” (Li and Li, 2008) and tend to adopt proactive shareholder strategies to improve corporate ESG performance. Thus, there is a positive correlation between “broad ESG” fund holdings and corporate ESG. Additionally, “broad ESG” fund holdings are determined by fund companies and managers, and do not directly link with listed companies’ OFDI, thus meeting the exogeneity requirement. Due to the space limitation, the results are included in the Appendix on the Journal’s website, which are consistent with the benchmark regression results.

5. Mechanism Analysis

5.1. Capital Constraint Mechanism

The constraints of financing on enterprises’ OFDI have been widely verified. ESG’s role in alleviating corporate capital constraints will benefit the enterprise’s OFDI activities. Corporate external financing primarily involves debt and equity financing. Therefore, this paper first examines the impact of ESG from the perspectives of debt financing costs and equity capital costs, and then further confirms this from the perspective of financing constraints. To achieve this, the paper uses mechanism variables as dependent variables and ESG as the core independent variable to construct a model:

$$M_{it} = \theta_0 + \theta_1 ESG_{it} + \theta_2 C_{it} + \rho_{ind,t} + \rho_{pro} + u_{it} \quad (3)$$

Among these, M_{it} is the mechanism variable used to measure capital constraints. Following the practices of existing literature, this paper measures the cost of debt financing (*DebtCost*) using the ratio of interest expenses to total liabilities; it measures the cost of equity capital (*EquityCost*) using the PEG model (Mao *et al.*, 2012), which is more suitable for China’s context; and it selects the WW index to measure financing

constraints.

Table 3 presents the estimation results of Model (3). Columns (1) to (3) discuss the debt cost, equity cost, and financing constraints, respectively. The results in column (1) show that the coefficient of ESG variables is significantly negative, indicating that higher ESG levels lead to lower debt financing costs for enterprises. This suggests that reducing debt costs could be a potential mechanism through which ESG advantages promote OFDI. Column (2) shows that while there is a slight negative impact of ESG advantages on equity costs, this effect is not statistically significant, suggesting that the impact of ESG in China's capital market remains to be observed. Finally, column (3) reports that the ESG coefficient is significantly negative, indicating that ESG advantages can significantly alleviate financing constraints, potentially influencing OFDI. In summary, ESG advantages may primarily promote OFDI by reducing debt costs and alleviating financing constraints, thus supporting Hypothesis 2.

Table 3. Mechanism Test I: Capital Constraint

Variable	(1) <i>DebtCost</i>	(2) <i>EquityCost</i>	(3) <i>WW</i>
<i>ESG</i>	−0.000408*** (0.000691)	−0.000170 (0.000491)	−0.00644*** (0.000532)
N	20328	10389	16673
R ²	0.572	0.262	0.659

5.2. Location Selection Mechanism

Theoretical analysis indicates that, confronting host countries with varying levels of ESG development, the ESG advantage can help enterprises flexibly leverage their strengths or mitigate weaknesses to promote foreign direct investment. This section will validate this using national-level ESG indicators. To achieve this, we first utilize 67 indicators from the World Bank's ESG database, grounded in the core principles of ESG and domestic and international ESG evaluation systems. We use the global entropy method to measure ESG indicators across the three dimensions of E (Environment), S (Social), and G (Governance) from a national-time perspective;¹ then, using information on the destination of corporate investments or the industry in which they operate, we construct an ESG index that enterprises might face in their host countries. For non-OFDI enterprises, the average ESG level of the same industry in the same year is used as the potential ESG level of the host country. A higher ESG index in

¹ Interested readers can ask the author for specific calculation steps and index system.

the host country indicates a higher ESG level, which increases the likelihood of foreign investors facing disadvantages due to the host country's ESG level; conversely, a lower ESG index indicates a less advanced ESG development level. To examine the interaction between an enterprise's ESG advantage and relevant locational factors, this paper includes an interaction term between the enterprise's ESG rating and the host country's ESG index in the benchmark model. The regression results are presented in Table 4.

Panel A examines the mechanism of investment decision-making (*Decision*) as dependent variables. The results show that all ESG variables have a significant positive coefficient, but the interaction terms exhibit different signs and levels of significance. In column (1), the interaction term between an enterprise's ESG and the host country's ESG index is significantly negative, indicating that enterprises generally prefer to leverage their ESG advantages in countries with lower ESG standards, which aligns with the hypothesis of advantage utilization. However, when we examine the ESG indicators in more detail, we find that while the interaction terms in columns (3) and (4) are also significantly negative, meaning enterprises will transfer their ESG advantages to host countries with lower social and governance standards to gain economic rents, the interaction term in column (2) is positive and close to the 10% significance level (P-value = 0.117). Panel B uses investment scale $\ln(\text{Amount}+1)$ as the dependent variable, and the core conclusions are largely consistent with those of Panel A. This suggests that enterprises with ESG advantages are more likely to expand their investment scale in host countries with higher environmental standards. In other words, an enterprise's ESG advantage can help it overcome the disadvantages caused by environmental factors, allowing it to invest in regions with higher environmental standards, which aligns with the hypothesis of disadvantage overcoming. In general, ESG advantages facilitate enterprises to adapt more flexibly to the location characteristics of host countries through the way of advantage utilization and disadvantage overcoming, and Hypothesis 3 is validated.

Table 4. Mechanism Test II: Location Selection

Variable	Index= Host country ESG index	Index= Host Country Environment (E) index	Index= Host Country Social (S) Index	Index= Host Country Governance (G) index
	(1)	(2)	(3)	(4)
Panel A. Investment decision: the dependent variable is <i>Decision</i>				
<i>ESG</i>	0.00628*** (0.00186)	0.00658*** (0.00187)	0.00650*** (0.00186)	0.00629*** (0.00186)
<i>ESG</i> × <i>Index</i>	-0.0997*** (0.0331)	0.161 (0.103)	-0.574*** (0.202)	-0.0912*** (0.0316)

Variable	Index= Host country ESG index	Index= Host Country Environment (E) index	Index= Host Country Social (S) Index	Index= Host Country Governance (G) index
	(1)	(2)	(3)	(4)
<i>Index</i>	0.0358 (0.0494)	-0.102 (0.152)	0.220 (0.336)	0.0384 (0.0477)
N	20322	20322	20322	20322
Pseudo R ²	0.155	0.153	0.155	0.155
Panel B. Investment size: explained variable is $\ln(Amount+1)$				
<i>ESG</i>	0.507*** (0.145)	0.552*** (0.146)	0.535*** (0.145)	0.506*** (0.145)
<i>ESG</i> × <i>Index</i>	-7.543*** (2.555)	14.594* (7.996)	-39.883*** (14.908)	-7.121*** (2.455)
<i>Index</i>	-3.643 (3.894)	0.832 (12.066)	-16.993 (24.865)	-3.091 (3.763)
N	20322	20322	20322	20322
Pseudo R ²	0.113	0.111	0.112	0.112

6. Heterogeneity Analysis

First, analysis of the heterogeneity based on investment models. To examine the extent to which different investment models depend on ESG, we analyzed the differential impacts of ESG on greenfield investments and cross-border mergers and acquisitions (M&A). The results are presented in Panel A of Table 5. The analysis shows that the ESG coefficients for greenfield investment equations in columns (1) and (2) are all significantly positive, indicating that an enterprise's ESG advantages can significantly increase the likelihood and scale of greenfield investments. In contrast, the ESG coefficients for cross-border M&A regressions in columns (3) to (4) are positive but not statistically significant, suggesting that the positive impact of an enterprise's ESG advantages on cross-border M&A is relatively weak. From the perspective of corporate establishment and market competition, greenfield investments involve setting up new enterprises through complex processes such as recruitment, purchasing equipment, or land, which intensifies local market competition. In contrast, cross-border M&A primarily involves partial or full ownership transfers, avoiding the need for reconstruction and having minimal short-term impact on market competition. From the government regulation perspective, greenfield investments create new jobs and bring technology, brand, and management knowledge, making them more

appealing to both the government and the local public. On the other hand, M&A projects face stricter policy constraints due to more rigorous safety scrutiny. The estimation results indicate that ESG advantages mitigate the pressures associated with corporate establishment and market competition but have a limited effect on improving the image of M&A investors.

Table 5. Heterogeneity Analysis

Panel A: Test based on investment model				
Variable	Greenfield investment		Cross-border mergers and acquisitions	
	(1)	(2)	(3)	(4)
	<i>Decision</i>	$\ln(\text{Amount}+1)$	<i>Decision</i>	$\ln(\text{Amount}+1)$
<i>ESG</i>	0.00557*** (0.00161)	0.713*** (0.193)	0.00181 (0.00118)	0.254 (0.199)
N	19153	20328	19107	20328
Pseudo R ²	0.212	0.153	0.0905	0.0782
Panel B: Tests based on the nature of ownership				
Variable	State-owned vs. non-state-owned		Central state-owned vs. local state-owned	
<i>ESG</i>	0.00839*** (0.00221)	0.628*** (0.173)	0.00894*** (0.00220)	0.661*** (0.170)
<i>SOE</i>	0.00733 (0.0234)	−0.818 (1.886)		
<i>ESG</i> × <i>SOE</i>	−0.00481 (0.00351)	−0.172 (0.280)		
<i>C</i> <i>SOE</i>			0.0490 (0.0321)	1.630 (2.675)
<i>ESG</i> × <i>C</i> <i>SOE</i>			−0.00958** (0.00470)	−0.419 (0.383)
<i>L</i> <i>SOE</i>			0.00908 (0.0282)	−0.344 (2.277)
<i>ESG</i> × <i>L</i> <i>SOE</i>			−0.00587 (0.00422)	−0.305 (0.339)
N	20328	20328	20328	20328
Pseudo R ²	0.154	0.111	0.155	0.112

Second, analysis of the heterogeneity based on enterprise ownership types. To examine the heterogeneous impact of ESG advantages on enterprises with different ownership types, this paper first introduces an interaction term between SOE and ESG in the baseline regression. Then, SOE is further divided into central SOEs and local SOEs, and the interaction terms between CSOE, LSOE, and ESG are introduced in the

regression. The regression results are shown in Panel B of Table 5. Columns (1) to (2) compare state-owned and non-state-owned enterprises, showing that the ESG coefficients for both groups are significantly positive, but the interaction term coefficient with SOE is negative, and column (1) has a certain statistical significance (P value = 0.171), indicating that the ESG advantage promotes investment decisions in non-state-owned enterprises slightly compared with state-owned enterprises. Columns (3) to (4) examine the differences between central SOEs and local SOEs, finding that the interaction term coefficient between ESG and CSOE in the investment decision equation is significantly negative. In other words, central SOEs rely less on ESG advantages in their investment decisions. The interaction term coefficients in the investment scale equation are not significant. Overall, the ESG advantage has a relatively greater impact on the OFDI of non-state-owned enterprises, especially in investment decisions, while the differences among enterprises of different ownership types in investment scale are not significant.

7. Conclusion and Policy Implications

As the concept of sustainable development gains deeper acceptance, responsible investment has garnered widespread attention both domestically and internationally. This new trend in investment could reshape corporate competitive advantages and significantly impact their international expansion. Therefore, this paper argues that, unlike the traditional monopoly advantage focused on pursuing private profits, the specific advantage of ESG-centered social inclusiveness will become increasingly important in the OFDI of multinational corporations. The study shows that the ESG advantage of listed enterprises positively influences OFDI, enhancing both the likelihood and scale of investments. The positive effects of OFDI driven by ESG advantages not only offer a new perspective on understanding the driving factors and competitive advantages of corporate internationalization but also broaden our comprehensive understanding of the broad impact of ESG. Furthermore, the study finds that the ESG advantage of enterprises significantly promotes greenfield investment and non-state-owned enterprises, partly explaining their advantageous positions in overseas investments.

The mechanism analysis indicates that ESG advantages can significantly reduce corporate debt costs and ease financing constraints, thereby promoting OFDI. This finding not only confirms that ESG advantages can significantly influence the credit allocation process but also shows that the market is willing to allocate scarce resources to enterprises with better ESG performance, providing them with better financing channels. For enterprises aiming to enter international markets through OFDI, the low-cost debt capital and financing convenience provided by ESG advantages will be a crucial support for their expansion abroad. Additionally, this study finds that enterprises can leverage their ESG advantages to invest in host countries with lower

ESG standards, particularly in social or governance areas, to fully capture the benefits of these advantages. Moreover, they can use the inherent legitimacy of ESG advantages to overcome the liability of foreignness, encouraging them to invest in countries with higher environmental development levels. The strategic flexibility offered by ESG advantages is undoubtedly valuable for emerging market enterprises in adapting to the complex international business environment.

China is at a critical juncture in building a new system of a higher-level open economy and making a challenging transition to a sustainable economic model. Given the significant value of ESG advantages in international investment, accelerating ESG governance, optimizing and nurturing responsible enterprises with ESG strengths, and striving to create new competitive advantages on the global stage are not only essential for adapting to the concept of sustainable development, but also crucial for breaking through international blockades, projecting the image of responsible enterprises and major countries, and fostering a community with a shared future of humanity. In terms of policy, the revision of the *Corporate Governance Guidelines* and the establishment of systems related to green overseas investment can be fully utilized to standardize and improve ESG information disclosure and mechanism design. Actively promoting the principles of responsible investment, optimizing capital market governance from both institutional and responsibility perspectives, and continuously strengthening the institutional foundation for enterprise internationalization. With the gradual realization and completion of economic transformation, the responsible enterprises and a higher-level open economic system thus shaped will not only enhance international competitiveness but also allow human society to share in the great achievements and positive future brought by this successful transformation.

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