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Does firm internationalization improve ESG performance? Evidence from China

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ABSTRACT

Amidst the current era of economic globalization, the internationalization of emerging market firms (EMFs) and their sustainable development are increasingly prominent. Environmental, Social, and Governance (ESG) has received widespread attention as an important indicator of sustainability. Using a sample from Chinese A-share listed companies spanning from 2012 to 2022, this study employs a difference-in-differences (DID) model to explore whether firms' outward foreign direct investment (OFDI) impacts their ESG performance. The results indicate that firms with OFDI have a higher level of ESG performance than those without, especially in the domain of environmental protection. This positive impact of OFDI on ESG performance is found to be strengthened by stronger CEO clan culture background but is weakened by higher financing constraints of firms. Our findings offer valuable insights for internationally operating EMFs, highlighting the importance of ESG practices in promoting sustainable development.

1. Introduction

As a critical driver of global economic progress, outward foreign direct investment (OFDI) provides access to diverse markets, labor forces, and raw materials, thereby maximizing profitability and efficiency (Cozza et al., 2015; Piperopoulos et al., 2018; Tang et al., 2020; Wu et al., 2017; Xie & Li, 2024). Although smaller in overall size, OFDI from emerging market firms (EMFs) has grown rapidly, demonstrating robust growth over the past decade.[1] In particular, EMFs from China, India, and the Association of Southeast Asian Nations (ASEAN) countries are showing strong development momentum in global investment (Zhang et al., 2016). While benefiting significantly from internationalization, multinational enterprises face growing expectations to contribute to global sustainable development (Nylund et al., 2021; Petricevic & Teece, 2019).

Environmental, social, and governance (ESG), an extension of corporate social responsibility (CSR)(Zhang & de Vries, 2023), have become important indicators for assessing firms' sustainable development (Barros et al., 2022; Mao et al., 2024). Previous studies have primarily explored how the internationalization of developed market firms (DMFs) influences their CSR performance (Attig et al., 2016; Brammer et al., 2009; Jamali, 2010; Kang, 2013; Tan & Wang, 2011). Given the strong stakeholder pressures and well-regulated institutions in developed countries, DMFs are often considered to be motivated by internal factors such as corporate values, board supervision, shareholder preferences, and long-term strategic considerations to engage in CSR initiatives after their

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[1] According to the World Investment Report by the United Nations Conference on Trade and Development, from 2009 to 2022, the average annual growth rate of OFDI in emerging market countries was approximately 10.23 %, while in developed countries it was about 6.28 %.

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internationalization (Campbell et al., 2012; Ioannou & Serafeim, 2012; Marano & Kostova, 2016).

However, these motivations may not work for EMFs, as emerging countries are realized with institutional deficiencies compared to developed countries, including lower economic development, weaker ESG regulations, and limited public sustainability awareness (Ali et al., 2017; Amaeshi et al., 2016; Doh et al., 2016; Sharma, 2019). Therefore, given EMFs' growing role in global investment and the distinct institutional environment with their developed counterparts, it is fruitful to examine how their OFDI activities reshape ESG strategies. Investigating this relationship is critical to enhance sustainable business practices among EMFs and narrowing the ESG performance gap between developed and developing economies, thereby contributing valuable insights for both academics and policymakers.

By using a sample of Chinese A-share listed companies from 2012 to 2022, we analyze the impact of firm OFDI on ESG performance and the moderating effect of CEO clan culture background and financing constraints. China offers an ideal empirical context for exploring our research questions. First, Chinese firms' OFDI are moving toward the center of the world stage.[2] Second, although as a late comer of ESG practices adoption, Chinese companies are increasingly committed to enhancing the ESG practices to their global presence.[3] Third, the clan culture places great emphasis on family connections and social concern in China (Dovì, 2019; Fan et al., 2023). For example, the Doctrine of the Mean emphasizes that people should seek balance in the environment, society, and other aspects, and the idea of "benefiting the world" requires providing benefits to all things within one's capacity, which is likely to align with the ESG principles of focusing on long-term interests (Park et al., 2023) and sustainable development. Our empirical results reveal that, compared to non-OFDI firms, OFDI has a positive impact on corporate ESG performance. This positive relationship between firm OFDI and ESG performance is found to be amplified by CEOs' stronger clan culture background but is weakened by higher financing constraints of firms.

Our study makes contributions to existing literature in the following ways. First, given the significant institutional differences between developed and emerging countries, our study enhances the existing body of knowledge by examining the impact of EMFs' OFDI on ESG performance. Prior studies on the impact of DMF internationalization on its CSR performance have realized the internal factors such as corporate values, board supervision, shareholder preferences, and long-term strategic considerations as the main incentives to engage in CSR initiatives (Campbell et al., 2012; Ioannou & Serafeim, 2012; Marano & Kostova, 2016). Based on the stakeholder theory, our study provides additional evidence for the ESG decision-making of EMFs internationalization, which is mainly dominated by external pressure from supervisors and investors in foreign host countries. Second, few studies have paid attention to the leaders' cultural background characteristics of internationally operating firms (Liu et al., 2023). In this study, we analyze the moderating role of CEO clan culture background, offering a new perspective on understanding the complex relationship between CEOs' personalities and corporate sustainability behavior in the context of internationalization. Third, in response to the call for more studies on the differences in CSR commitments between the internationalization of developed and emerging market firms (Lim & Tsutsui, 2012), our study focuses on EMF internationalization and its impact on ESG performance. This is expected to provide insights into emerging market countries to address institutional deficiencies and achieve sustainable development on the global stage.

The remainder of the paper is structured as follows. In the second section, we reviewed previous research and propose hypotheses for this study. In the third section, we present the research design, including sample and data sources, variable definitions, and model design. The fourth section presents our empirical analysis. The fifth section presents the research conclusions and recommendations.

2. Theoretical analysis and hypothesis development

2.1. EMFs' OFDI and ESG performance

While benefiting significantly from internationalization, multinational enterprises face growing expectations to contribute to global sustainable development (Nylund et al., 2021; Petricevic & Teece, 2019). Given the distinct institutional differences between developed and emerging countries, the theoretical reasoning to motivate DMFs and EMFs to engage in ESG initiatives when operating internationally may vary as well. To be specific, DMFs generally operate within well-developed institutional frameworks that provide robust ESG standards, clear stakeholder expectations, and stable regulatory support (Grewal et al., 2021; Jamali & Karam, 2018). Consequently, ESG often serves as a strategic tool for DMFs to enhance global competitiveness and proactively manage risks (Husted & Allen, 2006; Jamali et al., 2017; Marano et al., 2017).

In contrast, EMFs originate from institutional contexts characterized by weaker ESG regulations, lower levels of economic development, and limited public awareness regarding sustainability (Ali et al., 2017; Doh et al., 2016; Sharma, 2019). As such, ESG

[2] According to data from the Ministry of Commerce of the People's Republic of China, from January to November 2023, Chinese firms made non-financial direct investments in 7913 overseas companies across 154 countries and regions around the world, and the total OFDI across the industry amounted to 147.85 billion US dollars, an increase of 5.7 % year-on-year.

[3] For instance, following the establishment of the Zoomlion-Algeria joint venture in 2018, Zoomlion proactively initiated local talent training programs and addressed local employment challenges. Xiamen International Trade Group Co., Ltd., after launching a platform company in Singapore, adopted green supply chain management practices and established a joint venture to develop "carbon neutrality" solutions, thereby enhancing green production capabilities. Hytera Communications Co., Ltd., which operates over 10 subsidiaries across countries along the "Belt and Road," has guided these subsidiaries to implement energy-efficient production management systems and actively engage in disaster relief efforts in host countries, including donating medical, healthcare, and communication equipment, which has garnered high praise from nations such as the Philippines, Saudi Arabia, and Egypt.

may primarily function as a survival mechanism, helping them overcome inherent institutional disadvantages and respond effectively to stakeholders' expectation after internationalization (Choi & Wang, 2009). Unlike CSR involving a broad stakeholder group, ESG mainly focuses on supervisors and investors (Zhai et al., 2022). Therefore, based on the stakeholder theory, the theoretical mechanisms linking EMFs' OFDI and ESG performance could be explained from the following two perspectives.

From the supervisors' perspective, after OFDI, EMFs face immediate institutional pressures and legitimacy challenges from internal and external supervisors, including consumers, employees, governments, and regulatory agencies (Chebbi, 2024). As for the customers, products from emerging markets are usually considered as inadequate industrial infrastructure, resource shortages, insufficient competition, and lower economic levels(Klein, 2002; Sheth, 2011; Wang et al., 2017). Thus, when operating internationally, EMFs are more likely to confront suspicious and biased consumers who believe the subsidiaries of these enterprises produce poor-quality products. Additionally, with the growing emphasis on sustainable development, consumers are increasingly concerned about the ESG behavior of foreign-funded companies (Tran & Pham, 2024). Consumers with "E preferences," in particular, tend to purchase green products (Yang et al., 2019). Positive ESG performance not only serves as a basis for consumers to judge a firm's capabilities and product quality (Handelman & Arnold, 1999; Lee & Rhee, 2023; Maignan & Ferrell, 2001), but also enhances customer satisfaction and loyalty (Chen et al., 2021; Luo & Bhattacharya, 2006). Therefore, EMFs are more likely to focus on building a strong ESG profile to gain consumers' trust and improve their international market position.

Employees, their behavior, attitude, and stability are also affected by the institutional deficiencies of EMFs in corporate governance, institutional environment, cross-cultural management, and labor protection standards (Luo & Tung, 2007). These deficiencies lead to insecurity regarding career prospects, corporate reputation, and cultural adaptation for both current and potential employees (Khanna & Palepu, 2000; Lee et al., 2018). To overcome these deficiencies and thus adapt to the competitive environment of post-internationalization, EMFs need more appropriate international human resource strategies, which are an important part of the dimension of ESG, to ensure competitiveness and sustainable development in the global market. As such, these firms are more likely to put effort into ESG to improve organizational attractiveness, enhance the enterprise's international image, boost staff satisfaction, and alleviate negative impressions (Jamali & Karam, 2018), providing talent support for enterprises in the international arena.

Third, the host government and regulatory agencies may often hold rigid and negative views of EMFs. These views are usually based on the weak institutional environment of emerging market countries, such as insufficient laws and regulations, lack of enforcement, reliance on informal systems, and lack of transparency (Hu et al., 2023; Madhok & Keyhani, 2012). If EMFs are more active to engage in ESG practice after OFDI in host countries, it helps to transmit positive signals to the local government and regulatory agencies that they are trying to enhance transparency, improve internal governance, and build a strong corporate image. By doing so, EMFs are likely to establish a reliable trust relationship with the government and regulatory agencies and thus obtain legitimacy and social recognition in host countries (Pan et al., 2020; Zhang et al., 2021).

From the investors' perspective, since financing is integral to the entire corporate development process (Buchak et al., 2018), considering investors' preferences and demands is crucial. First, due to information asymmetry and underdeveloped capital markets in emerging countries, investors in host countries may view EMFs as having poor corporate governance, low profitability, and high investment risk, thus reducing their willingness to invest (Cuervo-Cazurra & Ramamurti, 2014). Additionally, as the international community increasingly focuses on sustainable development, investors are gradually incorporating ESG into their investment strategies. This trend is particularly strong among Western investors who often have high ESG standards and awareness (Chen & Xie, 2022). Hence, after OFDI, EMFs encounter clear financial market pressures to meet higher ESG expectations from international investors, compelling these firms to proactively adopt higher ESG standards and practices. (Zhang et al., 2023). Actively improving ESG performance facilitates them to establish a financially reputable image (Benkraiem et al., 2023; Garrido-Ruso et al., 2024; Wang et al., 2023), mitigate information asymmetry between companies and stakeholders (Goss & Roberts, 2011) during internationalization.

Taken as a whole, when engaging in OFDI, EMFs tend to face more stakeholder stereotypes and legitimacy pressures in host countries (Hu et al., 2023; Madhok & Keyhani, 2012), and their stakeholders may become more suspicious and rely more on stereotypes when evaluating them (Marano et al., 2017). Therefore, EMFs engaging in OFDI are more strongly motivated to improve their ESG practices, which helps them earn consumers' trust, enhance organizational attractiveness to employees, gain legitimacy with governments and regulatory agencies, and build financial credibility with investors. From this, we propose hypothesis 1:

Hypothesis 1. EMFs with OFDI have a higher level of ESG performance than firms without.

2.2. The moderating effect of CEO clan culture background

In China, a clan is a group of families descended from a common ancestor and fundamentally bound by kinship ties (Greif & Tabellini, 2017). Clan culture refers to a socio-cultural system centered on families or clans and rooted in kinship ties (Feng, 2013). Deeply embedded in Confucian tradition, Chinese clan culture emphasizes values such as family honor, social responsibility, and communal benefits. Additionally, clans compile genealogies to document family lineage. Historically, it has played a pivotal role not only in shaping family ethics but also in supporting social organization and governance (Li et al., 2024; Xiong et al., 2021). Defined by a long-term orientation, clan culture fosters informal networks of trust and sustained commitments to stakeholders.

According to Imprinting Theory, individuals form deep and lasting imprints during sensitive periods due to early environmental influences, and these imprints persist even as circumstances change (Marquis & Tilcsik, 2013). Given CEOs' pivotal roles in shaping corporate strategies, their early cultural imprints significantly influence corporate decisions, potentially moderating the relationship between firms' outward foreign direct investment (OFDI) and ESG performance (Liu et al., 2023).

Certain principles inherent in clan culture align closely with ESG criteria. For example, the Doctrine of the Mean promotes balance

in social and environmental affairs, while "benefiting the world together" emphasizes contributing to society within one's capabilities (Huang et al., 2022). CEOs raised in this cultural environment typically internalize values such as unity, mutual benefit, and altruism from an early age (Greif & Tabellini, 2010). Consequently, these CEOs naturally prioritize and proactively address stakeholder expectations when their firms expand internationally, thereby enhancing corporate ESG performance (Brammer et al., 2006; Campbell, 2007).

From a psychological perspective, CEOs with a clan culture background highly value corporate reputation and ethical standing, especially when entering international markets where scrutiny from foreign stakeholders is intense (Lu et al., 2024; Marano et al., 2017). Given the institutional voids at home, these CEOs are more sensitive to stakeholder perceptions abroad, motivating them to proactively enhance ESG performance to secure legitimacy, mitigate reputational risks, and build trust among international stakeholders (Aboud et al., 2024; Minor & Morgan, 2011).

Strategically, CEO with clan culture background prioritize long-term sustainable growth, emphasizing stable relationships with stakeholders and proactive ESG initiatives as foundations for building enduring trust, competitive advantage, and reputational capital (Berrone et al., 2012; Liu et al., 2023). By proactively adopting ESG practices, these CEOs strategically respond to stakeholder expectations, securing critical resources, legitimacy, and sustaining competitive advantage. Therefore, CEOs with a clan culture background are more inclined to proactively enhance their firms' ESG performance following internationalization, thereby cultivating a positive corporate image among stakeholders and fostering beneficial relationships essential for long-term development.

A case in point is Nan Cunhui, founder and CEO of Chint Group—a leading power and renewable energy enterprise—who was raised in Yueqing City, Zhejiang Province, a region known for its strong clan culture. From an early age, his family instilled in him the values of diligence, collaboration, and a commitment to helping others. These principles became the foundation of his business philosophy, shaping his emphasis on long-term vision, professionalism, and a steadfast focus on core manufacturing and brand-building. Nan likens managing a business to boiling water, emphasizing the need for patience, persistence, and focus on core strengths rather over pursuing short-term gains. Under his leadership, Chint Group has proactively integrated ESG principles into its global operations, making significant contributions to sustainability. In recognition of these efforts, Forbes China named Chint an 'ESG Innovative Enterprise' in 2023.

Based on these arguments, we propose the following hypothesis:

Hypothesis 2. The stronger the CEO's clan culture background, the greater the positive effect of EMFs' OFDI on ESG performance.

2.3. The moderating effect of financing constraints

Firms must evaluate their financial situation when implementing ESG practices (Attig, 2024), as financing is a key element of corporate finance (Faulkender & Petersen, 2012). High financing constraints and unfavorable financial conditions can heighten corporate behavioral risks (Lin & Paravisini, 2013) and diminish incentives for improving ESG performance (Broadstock et al., 2021; Campbell, 2007; Chan et al., 2017). Therefore, while EMFs strive to enhance their ESG performance for long-term sustainable development following OFDI, significant financing constraints may hinder their motivation to pursue ESG improvements.

Significant financing constraints often force firms to make a trade-off among the competing interests of various stakeholders (Yang et al., 2024). Under such conditions, rational firms tend to prioritize stakeholders directly linked to short-term gains, ensuring their survival and maximizing immediate financial returns (Leong & Yang, 2021). In contrast, ESG practices, characterized by long-term value creation and uncertain returns (Escrig-Olmedo et al., 2017; Jiang et al., 2018), do not fully align with the short profit-driven strategies commonly employed by EMFs under significant financial pressures. Consequently, firms may overlook the needs of stakeholders, particularly those not directly contributing to short-term financial goals (Hillman & Keim, 2001; Lins et al., 2017). Furthermore, high financing constraints reduce the resources available to EMFs (Roper & Ruckes, 2012). For example, overseas investments demand substantial capital for market expansion and capacity building, potentially diverting funds from ESG-related expenditures. As a result, limited resources remain for ESG improvements, which often involve high costs. Consequently, EMFs may struggle to meet stakeholder expectations.

Based on the above analysis, although EMFs are required to enhance their ESG performance to alleviate stakeholder concerns after OFDI, those experiencing significant financing constraints often prioritize short-term returns and face difficulties in allocating sufficient resources to meet stakeholder expectations in ESG improvements when operating internationally. We thus propose hypothesis 3:

Hypothesis 3. The higher the financing constraints, the smaller the positive effect of EMFs' OFDI on ESG performance

3. Research design

3.1. Sample and data

Our sample comprises China's A-share listed companies from 2012 to 2022. The sample selecting criteria are set as (1) Exclude

companies labeled as ST or ST*[4]; (2) Exclude companies with significant missing values (3) Exclude companies in the financial sector. Finally, non-balanced panel data are obtained from 4177 firms, totaling 24,251 observations. We further divide the full sample into a treatment group and control group. Following Yang et al. (2022), firms that engaged in OFDI at least once during the period from 2012 to 2022 are categorized into the treatment group, while others are placed in the control group. Firm OFDI is identified if the firm's subsidiaries, joint ventures, or associated enterprises are registered outside mainland China and its controlling interest exceeds 10 % (Hu & Cui, 2014). As a result, a grand sum of 1689 firms with 11,138 observations are included in the treatment group, while 2488 firms with 13,113 observations are included in the control group. The ratio between the treatment group and control group is approximately 2:3, indicating that the grouped sample has a certain level of reliability and balance, and the potential bias caused by sample imbalance is relatively low.

Firm OFDI data is derived from the Overseas Direct Investment database and the China Stock Market & Accounting Research (CSMAR) database. ESG index data (Hua Zheng ESG Ratings) is sourced from the Sino-Securities Index Information Service (Shanghai) Co.Ltd. Clan culture data is sourced from the CSMAR database and the Chinese Research Data Services (CNRDS) database. Data on CEO age, birthplace, and other financial information are obtained from the CSMAR database.

3.2. Variables

3.2.1. Dependent variable

Following Wang et al. (2024), we use Sino-Securities Index ESG Ratings (Hua Zheng ESG index) to measure ESG performance. This data has covered all of China's A-share listed companies, including the scores of three dimensions: Environmental (E), Social (S), and Corporate Governance (G), as well as the total ESG score.

3.2.2. Independent variable

To investigate the issue of whether companies with OFDI behave differently in terms of ESG performance compared to those without OFDI, we conduct a multi-period difference-in-difference (DID) model, using the interaction term of individual dummy variable and time dummy variable (*Treat* × *Time*) as the investment effect of firm OFDI. *Treat* equals 1 when firms are classified into the treatment group, and 0 for comparison. *Time* equals 1 for the year of each firm's first OFDI engagement and all subsequent years, and 0 otherwise. We also employ a two-way fixed-effects model by taking OFDI volume as an independent variable to investigate whether a larger OFDI volume leads to a higher level of firm ESG performance.

3.2.3. Moderator

(1) CEO clan culture background

Following Liu et al. (2023), CEO clan culture background (*Clan*) is measured as the logarithm of the number of genealogies compiled in the city of CEOs' birthplace per million people. Compiling a genealogy is a typical way to gather clan members, and the number of genealogies can thus reflect the strength of clan culture in a specific region (Tang et al., 2024). The information of CEOs' birthplace (at the city level) for each Chinese listed firm is sourced from the CSMAR database, and the number of genealogies per million people compiled in the city of CEOs' birthplace is from the CNRDS database.

(2) Financing constraints

Drawing on Hadlock &Pierce (2010) and Whited and Wu (2006), we construct the Financing Constraints (*FC*) Index. First, firm size, firm age, and cash dividend payout ratio are standardized annually. Based on these standardized values, firms are ranked and grouped using the upper and lower tertiles: the top 66 % are classified as having low financing constraints (QFC = 0), while the bottom 33 % are classified as having high financing constraints (QFC = 1). Next, a Logit regression (Model 2) is performed to estimate the annual probability (P) of financing constraints for each firm, which is then used to construct FC index. We multiply the result by 10 for simplicity in explanation, without altering its significance. This *FC* index ranges from 0 to 10, with higher values indicating more severe financing constraints faced by the firm.

$$FC = P\left(QFC = 1 or 0 | Z_{i,t}\right) = \frac{e^{Z_{i,t}}}{1 + e^{Z_{i,t}}} \tag{1}$$

$$Z_{i,t} = \alpha_0 + \alpha_1 size_{i,t} + \alpha_2 lev_{i,t} + \alpha_3 \left(\frac{CashDiv}{ta}\right)_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 \left(\frac{NWC}{ta}\right)_{i,t} + \alpha_6 \left(\frac{EBIT}{ta}\right)_{i,t} \tag{2}$$

Here, *size* represents the firm's asset size, calculated as the natural logarithm of total assets. *Lev* denotes the firm's financial

[4] In China's A-share market, ST and ST * refer to financially distressed firms who are special treated and particularly special treated, respectively. Specifically, ST firms have reported net losses for two consecutive years, while ST* firms face severe financial risks such as negative net assets. These firms are subject to trading restrictions and potential delisting, leading to the biased analysis. Therefore, we exclude them to ensure sample consistency.

leverage, defined as the ratio of total liabilities to total assets. *CashDiv* refers to the cash dividends distributed by the firm during the current year. *MB* is the market-to-book ratio, calculated as the market value divided by the book value. *NWC* stands for net working capital, defined as operating capital minus cash and short-term investments. *EBIT* indicates earnings before interest and taxes, and *ta* represents the firm's total assets.

3.2.4. Control variables

Firm age (*Age*) is determined as the logarithm of the difference between the year of firm's establishment and the statistical year. Financial leverage (*Lev*), an indicator of a company's solvency, is calculated as the ratio of total liabilities to total assets. Return on assets (*Roa*) reflects the firm's profitability and is obtained by dividing net profit by total assets. Equity concentration (*Top*) is measured as the proportion of shares owned by the largest shareholder. Cash flow (*CF*) is calculated as the ratio of net cash flow from operating activities to total assets. Table 1 presents the definition of the variables and the sources of the data.

3.3. Model design

Models (1) and (3) are DID models that control year and industry-fixed effects and are used for benchmark regression and mechanism tests. Model (2) is an OLS regression model that examines the relationship between the amount of OFDI and ESG performance.

$$ESG_{it} = \beta_0 + \beta_1 \mathrm{Treat}_{it} \times \mathrm{Time}_{it} + \gamma \mathrm{Control}_{it-1} + \mathrm{year}_t + \mathrm{indcd}_i + \mu_{it} \quad (1)$$

$$ESG_{it} = \theta_1 + \sigma_1 \mathrm{OFD}_{it} + \phi \mathrm{Control}_{it-1} + \mathrm{year}_t + \mathrm{indcd}_i + \mu_{it} \quad (2)$$

$$\mathrm{ESG}_{\mathrm{it}} = \beta_0 + \beta_1 \mathrm{Treat}_{it} \times \mathrm{Time}_{\mathrm{it}} + \beta_2 \mathrm{Treat}_{it} \times \mathrm{Time}_{\mathrm{it}} \times \mathrm{Med}_{\mathrm{it}} + \beta_3 \mathrm{Time}_{\mathrm{it}} \times \mathrm{Med}_{\mathrm{it}} + \beta_4 \mathrm{Treat}_{it} \times \mathrm{Med}_{\mathrm{it}} + \beta_5 \mathrm{Med}_{\mathrm{it}} + \gamma \mathrm{Control}_{\mathrm{it\text{-}1}} + \mathrm{year}_t + \mathrm{indcd}_i + \mu_{it} \quad (3)$$

Where ESG_{it} represents the ESG rating of enterprise i in year t. The rest of the variables are the same. $Treat_{it} \times Time_{it}$ is the independent variable in DID models, and.

Med_{it} represents the two moderating variables CEO clan culture background (*Clan*), and financing constraint (*FC*) of firms. $Control_{it\text{-}1}$ represents control variables.

4. Empirical results

4.1. Descriptive statistics

Table 2 presents the results of descriptive statistics. The ESG score ranges from 1 to 8, with a mean of 4.2328, indicating significant differences in ESG performance among companies. The mean score for the environmental dimension is 1.9821, for social responsibility is 4.3242, and for corporate governance is 5.3941, suggesting that the sample companies perform best in corporate governance. The maximum OFDI amount is 21.0901 million CNY, and the minimum is 0, with an average of 3.8421 million CNY. The descriptive statistics of other variables conform to prior research (Yang et al., 2022; Zhai et al., 2022).

4.2. Main results

Table 3 shows the main results of Model (1). In Column (1), without controlling for other variables and only fixing the year and industry effects, the regression results of DID model reveal a significant positive coefficient for $Treat_{it} \times Time_{it}$ ($\beta = 0.1780, p < 0.01$). In

Table 1
Variable definition.

Variable	Definition	Measurement
Treat	Individual dummy variables of companies	Firms engaging in OFDI during the sample years are assigned a value of 1 as the treatment group, while others are assigned a value of 0 as the control group.
Time	Time dummy variable	At least one instance of OFDI in the sample period, valued at 1 otherwise, 0
ESG	Corporate ESG performance	Sino-Securities Index ESG Ratings
Clan	CEO clan culture background	Logarithm of the number of genealogies compiled in CEOs' birthplace per million people
FC	Financing constrains	$FC = P(QFC = 1or0 \mid Z_{i,t}) = \frac{e^{Z_{i,t}}}{1+e^{Z_{i,t}}}$ $Z_{i,t} = \alpha_0 + \alpha_1 size_{i,t} + \alpha_2 lev_{i,t} + \alpha_3 \left(\frac{CashDiv}{ta}\right)_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 \left(\frac{NWC}{ta}\right)_{i,t} + \alpha_6 \left(\frac{EBIT}{ta}\right)_{i,t}$
Age	Corporate age	The logarithmic difference between the year of firm's establishment and the statistical year
Lev	Asset-liability ratio	The ratio of total liabilities to total assets
Roa	Return on assets	The ratio of net profit to total assets
Top	Equity concentration	Shareholding Ratio of the Largest Shareholder
CF	The ratio of Cash Flow	The ratio of net cash flow from operating activities to total assets.

Table 2
Descriptive statistics of variables.

Variables	N	Mean	Sd	Max	Min
ESG	24,251	4.2328	1.0502	8.0000	1.0000
E	24,251	1.9821	1.1962	9.0000	1.0000
S	24,251	4.3242	1.0950	8.0000	1.0000
G	24,251	5.3941	1.2886	9.0000	1.0000
OFDI	24,251	3.8421	7.1572	21.0901	0.0000
Age	24,251	2.9056	0.3305	4.8040	1.0986
Lev	24,251	0.4090	0.1954	1.0020	0.0080
Roa	24,251	0.0660	0.0462	0.2478	−0.0036
Top	24,251	34.3677	14.8915	89.9910	2.1221
CF	24,251	0.0544	0.0661	0.2489	−0.1462
Clan	3336	3.4449	1.8135	6.6339	0.0000
FC	23,882	4.6571	2.8417	9.8898	0.0000

Column (2), after controlling for the necessary variables and fixing year and industry effects, the results also show a significant positive coefficient for the interaction term ($\beta = 0.1851$, $p < 0.01$), indicating that the level of ESG ratings of Chinese firms with OFDI is on average higher than firms without. This confirms our H1 that after OFDI, EMFs are more likely to engage in ESG practice. It is because to overcome the institutional deficiencies, more active ESG involvement facilitates these internationally operating firms to gain consumers' trust, improve organizational attractiveness to employees, obtain legitimacy and social recognition in host countries, and establish a financially reputable image to investors.

In addition, ESG ratings include three dimensions: Environmental (E), Social (S), and Corporate Governance (G). We thus analyze the impact of OFDI on each dimension of ESG. Columns (3), (4), and (5) present the regression results, implying that Chinese firms' OFDI has the greatest impact on the environment but the smallest impact on corporate governance. This may be because corporate governance structures are deeply linked to a firm's legal environment and strategic planning, primarily influenced by domestic institutional frameworks. Improving corporate governance typically requires a long-term process of gradual change within actual business operations. In contrast, the environmental (E) and social (S) dimensions of ESG performance are directly influenced by regulations in host countries, global market pressures, and broader stakeholder expectations.

As the concept of sustainable development gains widespread acceptance globally, stakeholders have increasingly high expectations for corporate conduct in environmental protection and green production. EMFs are therefore compelled to adopt proactive strategies to alleviate environmental compliance pressures and sustain their international production activities. Additionally, international markets place a significant emphasis on corporate social responsibility (CSR), focusing on areas such as labor rights protection and community development. To forge a robust reputation and meet these comprehensive stakeholder expectations, EMFs are often required to attach importance to CSR initiatives. Consequently, this dynamic environment leads to OFDI having a more pronounced impact on the environmental and social dimensions of firms' ESG performance than on their governance (G) dimension.

4.3. Moderating effect of CEO clan culture background

We continue to use the difference-in-differences-in-differences (DDD) method to investigate the moderating effect of CEO clan

Table 3
Results of baseline regression.

Variables	(1) ESG	(2) ESG	(3) E	(4) S	(5) G
$Treat_{it} \times Time_{it}$	0.1780***	0.1851***	0.1920***	0.1838***	0.1276***
	(13.0506)	(13.5677)	(12.0023)	(13.2206)	(7.4902)
Age		−0.0051***	0.0023*	−0.0052***	0.0013
		(-4.2667)	(1.6735)	(-4.2698)	(0.8899)
Lev		−0.1513***	0.7816***	−0.0103	−1.2754***
		(-3.9557)	(10.3429)	(-0.2402)	(-13.8051)
Roa		2.4275***	0.5974***	2.4543***	2.4593***
		(13.4668)	(2.8474)	(13.4272)	(9.5081)
Top		0.0038***	0.0016***	0.0035***	0.0080***
		(8.2467)	(3.1532)	(7.3277)	(14.2411)
CF		0.3870***	0.3331**	0.3735***	0.4889**
		(3.2877)	(2.3168)	(3.2997)	(2.4089)
Constant	3.4980***	3.2300***	1.7475***	3.2089***	0.1276***
	(33.6595)	(26.5277)	(18.3489)	(25.1532)	(7.4902)
Year	Y	Y	Y	Y	Y
Industry	Y	Y	Y	Y	Y
N	24,251	24,251	24,251	24,251	24,251
R-squared	0.0766	0.0974	0.1195	0.1393	0.1306

Note: *, **, *** represent significance levels of 10 %, 5 %, and 1 %, respectively. The values in parentheses are t-statistics, and Y denotes yes.

culture background. The interaction term ($Treat_{it} \times Time_{it} \times Clan_{it}$) is introduced as an independent variable in the DDD model. In Column (1) of Table 4, the coefficient of interaction term ($Treat_{it} \times Time_{it} \times Clan_{it}$) exhibit a significant positive coefficient ($\beta = 0.0475$, $p < 0.05$). Indicating that CEO clan culture background strengthens the positive impact of firm OFDI on ESG performance. Simultaneously. This finding provides profound insights into dissecting the role of CEO cultural background factors in the sustainable development of Chinese firms. H2 is thus validated.

4.4. Moderating effect of financing constraints

To test H3, we introduce the multiplicative term ($Treat_{it} \times Time_{it} \times FC_{it}$) into Model (3). The regression results in Column (2) of Table 4 indicate that the coefficient of the multiplicative term is significantly positive ($\beta = -0.0570$, $p < 0.01$). This implies that greater financing constraints reduce the positive impact of OFDI on enhancing ESG performance among firms. As multinational corporations encounter greater financing difficulties, their capacity to implement ESG practices diminishes, as they tend to prioritize short-term profit goals critical for survival. H3 is thus validated.

4.5. Robustness tests

4.5.1. Parallel trend test

DID models require ensuring that the treatment and control groups maintain consistent trends before the event. Fig. 1 is a parallel trend graph with a 95 % confidence interval, which intuitively shows that before the occurrence of firm OFDI behavior, the coefficients of relative time dummy variables are not significant and relatively small, satisfying the parallel trend assumption.

From Column (1) of Table 5, before each firm's first OFDI behavior, none of the coefficients on each time dummy variables are significant, suggesting that there is no significant difference in the variation between the treatment and control groups before the occurrence of OFDI behavior. In the second year of a firm's first OFDI, the investment effect coefficient is significantly positive, remaining significant in the following years. It is because, unlike general external policies, OFDI involves legal procedures, site construction, equipment procurement, and other processes (Lin, 2016), the effect of which are believed to lag (Razzaq et al., 2021; Zhang et al., 2020). The results verify that EMFs' OFDI does promote an improvement in ESG performance, reflecting their long-term efforts in the international arena to focus more on fulfilling social responsibilities, enhancing governance levels, and paying attention to environmental sustainability.

4.5.2. PSM-DID

To reduce the sample selection bias, we employ the PSM method for data matching, using the control variables mentioned earlier: firm age (*Age*), financial leverage (*Lev*), return on assets (*Roa*), ownership concentration (*Top*) and cash flow ratio (*CF*) as covariates. Based on covariates, we use the logit model to estimate the propensity score, and the closest neighbor matching is used with a 1:4 caliper matching method to match companies in the control group to those in the treatment group and apply the weighted multiple linear regression. The matching results show that the Average Treatment Effect on the Treated (ATT) for the treatment group and control group is 4.3043 and 4.1614, respectively, indicating that ESG performance improves after being influenced by OFDI behavior, consistent with the previous conclusions. Second, after conducting the balance test following PSM matching, the standardized bias for each covariate is less than 10 %, and the pseudo-R-squared decreases. Both the average and median deviations decrease. These results indicate that the two matched groups have no significant differences in probability scores. Last, we re-conduct a regression on Model (1). From Column (2) of Table 5, the results show that the coefficient of interaction term ($Treat_{it} \times Time_{it}$) is 0.1817 ($P < 0.01$),

Table 4
The moderating effect of CEO clan culture background and institutional distance.

Variables	(1) ESG	(2) ESG
$Treat_{it} \times Time_{it} \times Clan_{it}$	0.0475**	
	(2.4404)	
$Treat_{it} \times Time_{it} \times FC_{it}$		−0.0570***
		(-12.1582)
Clan	−0.0044	
	(-0.3281)	
FC		−0.0594***
		(-15.2385)
Constant	3.6327***	3.8740***
	(11.7634)	(31.2440)
Controls	Y	Y
Interaction Term	Y	Y
Year	Y	Y
Industry	Y	Y
N	3336	23,882
R-squared	0.1649	0.1287

Note: *, **, *** represent significance levels of 10 %, 5 %, and 1 %, respectively. The values in parentheses are t-statistics, and Y denotes yes.

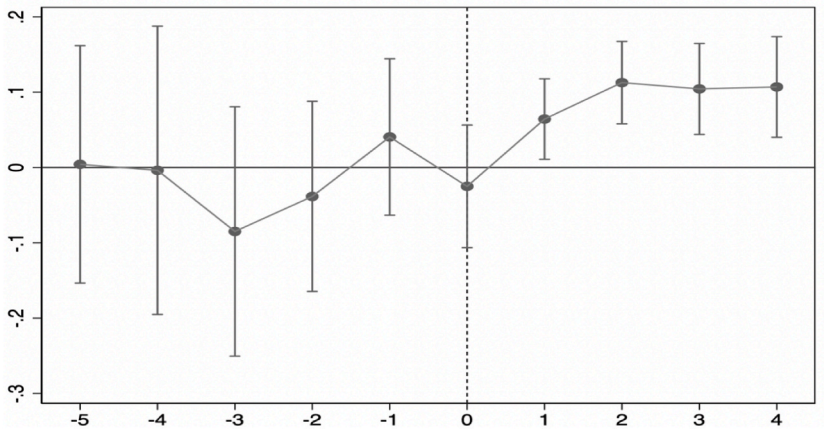

Fig. 1. Parallel trend test.

Table 5
Robustness tests.

Variables	(1)	(2)	(3)	(4)
	Parallel trend	PSM-DID	Replace Variable	Replace Variable
	ESG	ESG	CNESG	MSCI-ESG
$Treat_{it} \times Time_{it}$		0.1817***	0.8325***	0.4310***
		(13.0148)	(6.9163)	(5.8069)
$Before_5$	0.0118			
	(0.1472)			
$Before_4$	0.0109			
	(0.1110)			
$Before_3$	−0.0672			
	(-0.8014)			
$Before_2$	−0.0145			
	(-0.2282)			
$Before_1$	0.0725			
	(1.3773)			
$Current_0$	0.0094			
	(0.2262)			
$After_1$	0.0895***			
	(3.2738)			
$After_2$	0.1482***			
	(5.2836)			
$After_3$	0.1501***			
	(4.8807)			
$After_4$	0.1561***			
	(4.5721)			
Constant	3.3254***	3.1639***	20.9968***	1.3266***
	(27.0776)	(24.9802)	(19.3622)	(5.0609)
Controls	Y	Y	Y	Y
Year	Y	Y	Y	Y
Industry	Y	Y	Y	Y
N	24,251	22,990	24,251	1639
R-squared	0.0849	0.0900	0.4265	0.2480

Note: *, **, *** represent significance levels of 10 %, 5 %, and 1 %, respectively. The values in parentheses are t-statistics, and Y denotes yes.

suggesting that companies with OFDI exhibit better ESG performance compared to those without. It is consistent with the previous findings, thereby reconfirming H1.

4.5.3. Alternative measurement for dependent variables

We replace the dependent variable by using another ESG index (*CNESG*) from the CNRDS database for the robustness test (Yang et al., 2024). In Column (3) of Table 5, the coefficient of the interaction term ($Treat_{it} \times Time_{it}$) is significantly positive at the 1 % level, consistent with the previous conclusion.

Furthermore, to better capture the overseas ESG performance of Chinese firms after internationalization, we employ the internationally recognized MSCI (Morgan Stanley Capital International) ESG rating for robustness tests, although this rating only includes a

small number Chinese listed companies (Zhao et al., 2024). Column (4) of Table 5 shows that the coefficient of the interaction term ($Treat_{it} \times Time_{it}$) is 0.4310 ($P < 0.01$), and it is also consistent with the previous conclusion.

4.6. Further analysis

4.6.1. OFDI volume and ESG performance

We further investigate the impact of firms' OFDI volume on ESG performance. The OFDI volume is determined by converting the RMB value of the registered capital of related parties using the annual official average exchange rates from the World Bank database. This amount is then multiplied by the listed firms' controlling equity proportion to calculate its investment scale in each related party. Finally, the annual OFDI scale of the listed company is obtained by summing up the investment scales across all related parties for the year. Employing a two-way fixed-effects model and the Ordinary Least Squares (OLS) method for regression estimation. Column (1) of Table 6 displays the estimated impact coefficient of firm OFDI volume on ESG scores ($\beta = 0.0102$, $p < 0.01$), indicating that as the volume of OFDI increases, ESG performance improves. Columns (2)–(4) illustrate the impact on each dimension of ESG. The results show that the positive impact of firms' OFDI volume on social responsibility, corporate governance, and environmental protection is decreasing, suggesting that as the volume of OFDI increases, companies have different emphases on different dimensions of ESG.

4.6.2. The impact of CEO clan culture background on ESG performance in Non-OFDI firms

Our analysis indicates that EMFs actively enhance ESG performance after internationalization to secure legitimacy, build trust with global stakeholders, and support sustainable growth, especially when their CEOs possess a clan culture background. Yet an intriguing question arises whether CEOs with clan culture backgrounds similarly influence ESG practices in EMFs operating domestically. As such, we further analyze firms from our control group with no OFDI attempt. The regression results are presented in Table 7.

As can be seen from Table 7, the coefficients of *Clan* are insignificant across all regressions, indicating that CEOs with clan culture background do not significantly enhance ESG engagement in EMFs without international operations. The possible explanation is that the relatively lower ESG regulatory pressures from domestic markets are less likely to motivate CEOs even with a clan culture background to improve ESG practices. Additionally, the pursuit of proactive ESG engagement may conflict with local strategies prioritizing short-term returns, leading CEOs—who may align with influential but short-sighted stakeholders—to neglect ESG initiatives. This finding is consistent with previous studies, suggesting that EMFs often lack intrinsic motivation to proactively engage in ESG practices (Fifka, 2013; Jamali & Karam, 2018; Yin & Zhang, 2012). It further supports our main conclusion of H1 that to overcome liabilities of foreignness and negative stereotypes, EMFs tend to emphasize ESG activities to meet with more pressure and higher expectations from foreign supervisors and investors when operating internationally.

5. Conclusions

Despite the prevalence of EMFs' OFDI and the importance of sustainability development, studies on the relationship between EMFs' OFDI and ESG performance are relatively rare, especially when there are distinct institutional differences between emerging countries and their developed counterparts. By using a sample of Chinese A-share listed companies from 2012 to 2022, we analyze the impact of EMFs' OFDI on ESG performance and the possible mechanisms between them. The results show that compared to non-OFDI firms, firms with OFDI perform better in ESG ratings, suggesting that to overcome the institutional deficiencies of emerging countries, these internationally operating EMFs are more likely to engage in ESG practice. This positive impact of OFDI on ESG performance is found to be strengthened by the stronger CEO clan culture background but weakened by higher financing constraints of firms. In addition, we find that the volume of OFDI by EMFs has a positive impact on ESG performance, whereas the influence of a CEO clan cultural background on ESG is not significant in EMFs that do not engage in OFDI.

Based on the findings, this paper presents the following recommendations. First, our analysis indicates that OFDI can enhance a firm's ESG performance. Therefore, EMFs should focus on enhancing transparency and corporate governance by adopting higher ESG standards. This will foster strong relationships with local stakeholders, including employees, consumers, investors, and government officials, thereby securing local support and effectively communicating the firm's values and intentions. Such strategies can mitigate negative stereotypes of business practices in their home countries and build trust and credibility in host markets. Additionally, EMFs should tailor their ESG initiatives to the specific needs of the host country by investing in sustainability projects, social welfare programs, and governance reforms aligned with international best practices. Effective communication of their ESG efforts—via channels such as social media, press releases, and sustainability reports—can further improve their reputation and counter negative perceptions. By doing so, EMFs can establish a positive and lasting image, promoting both their business interests and broader societal goals.

Second, there are variances in the effect of firms' OFDI on different aspects of enterprise ESG ratings, with the order from greatest to least impact being environment (E), social (S), and corporate governance (G). Therefore, firms need to establish a comprehensive ESG management system, emphasizing the importance of different dimensions. They should formulate sound corporate governance mechanisms, establish environmental management systems, and strengthen the implementation of social responsibility to standardize overall ESG performance.

Third, the positive relationship between firm OFDI and ESG performance can be strengthened by the stronger CEO clan culture background. To this end, during the process of OFDI, companies can establish a coordination mechanism between clan culture and ESG goals, combining the core values of clan culture with ESG principles. Emphasizing the association of ESG with long-term corporate values in the company's culture can stimulate positive performance in ESG areas. Companies should also flexibly adjust their ESG

Table 6
The effect of OFDI volume on ESG performance.

Variables	(1) ESG	(2) E	(3) S	(4) G
OFDI	0.0102***	0.0092***	0.0101***	0.0096***
	(10.8443)	(8.2513)	(10.6126)	(8.7059)
Age	−0.0045***	0.0028**	−0.0047***	0.0017
	(-3.8009)	(2.0288)	(-3.8192)	(1.2185)
Lev	−0.1080***	0.8302***	0.0327	−1.2526***
	(-2.7535)	(10.6246)	(0.7321)	(-14.0007)
Roa	2.4580***	0.6298***	2.4846***	2.4787***
	(13.4702)	(2.9373)	(13.4203)	(9.6149)
Top	0.0037***	0.0015***	0.0033***	0.0079***
	(7.9309)	(2.9043)	(7.0230)	(13.9881)
CF	0.4000***	0.3494**	0.3864***	0.4922**
	(3.2537)	(2.3143)	(3.2684)	(2.4095)
Constant	3.1934***	1.7125***	3.1726***	6.2211***
	(26.0813)	(17.9321)	(24.7517)	(25.8942)
Year	Y	Y	Y	Y
Industry	Y	Y	Y	Y
N	24,251	24,251	24,251	24,251
R-squared	0.0880	0.1170	0.1304	0.1311

Note: *, **, *** represent significance levels of 10 %, 5 %, and 1 %, respectively. The values in parentheses are t-statistics, and Y denotes yes.

Table 7
The effect of CEO clan culture background on Non-OFDI Firms.

Variables	(1) ESG	(2) E	(3) S	(4) G
Clan	−0.0153	−0.0212	−0.0145	−0.0172
	(-1.0586)	(-1.3759)	(-0.9696)	(-0.8998)
Age	−0.0103*	−0.0130**	−0.0095*	−0.0022
	(-1.8831)	(-2.3603)	(-1.7091)	(-0.3106)
Lev	−0.4252**	0.3632**	−0.2842	−1.3477***
	(-2.3365)	(2.2680)	(-1.5373)	(-5.7627)
Roa	1.4414*	0.5732	1.6095**	1.4790
	(1.9338)	(0.8323)	(2.1223)	(1.5435)
Top	0.0065***	0.0035*	0.0054***	0.0081***
	(3.2890)	(1.7639)	(2.7154)	(3.2952)
CF	0.9318**	0.0484	0.9510**	1.7371***
	(2.1979)	(0.1171)	(2.1989)	(3.3194)
Constant	4.2099***	1.8376***	4.2243***	5.5654***
	(25.2850)	(11.5346)	(24.9746)	(25.9387)
Year	Y	Y	Y	Y
Industry	Y	Y	Y	Y
N	1573	1573	1573	1573
R-squared	0.2527	0.2389	0.2633	0.2430

Note: *, **, *** represent significance levels of 10 %, 5 %, and 1 %, respectively. The values in parentheses are t-statistics, and Y denotes yes.

strategies based on the host locations' institutional environments to achieve better social and economic outcomes and prioritize relationships with various stakeholders.

Last, we find the positive impact of OFDI on ESG is weakened by higher financing constraints. This implies that while EMFs must balance short-term and long-term goals, they should establish a transparent communication mechanism and clearly communicate strategic adjustments to stakeholders during financial difficulties. Additionally, both the governments and banks of the host and home countries can help firms in alleviating financial pressures through supportive policies, enabling them to enhance their ESG performance more effectively(Attig, 2024).

We recognize that our study is subject to several limitations. First, our empirical study only investigates Chinese A-share listed companies, limited by the availability of data. Future research could leverage more comprehensive data from other emerging market countries to enhance the universality of conclusions. Second, as the political, economic, and cultural development levels vary in the host countries of a firm's OFDI, and stakeholders' ESG demands may differ, future research can also perform heterogeneity analysis based on the types of host countries. Last, we employ the number of genealogies per million people in CEOs' birthplace to measure CEOs' clan culture background. However, constrained by the availability of data (the CSMAR database only includes about 30 % of samples with information on the birthplaces of chairmen and general managers), the sample size is limited. Future research can employ more precise and authoritative measurement methods to assess the CEOs' clan culture background of listed companies.

Author statement

Jing Zhou: Formal Analysis, Software, Supervision, Writing – review & editing.
Kaiwen Wu: Conceptualization, Formal Analysis, Writing – original draft, Writing –review & editing.
Youwei Li: Formal Analysis, Writing –review & editing.

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Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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