

The influence of ESG policies on FDI : A global perspective

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Abstract

As sustainability gains prominence in global economic and investment decisions, countries are increasingly adopting environmental, social, and governance (ESG) policies to attract foreign capital. However, the extent to which ESG performance influences foreign direct investment (FDI) inflows remain an open question. The present research identifies research gap by constructing an innovative ESG index using 15 years of country-level raw ESG indicators from the World Bank and GSCI (Global Sustainability Competitiveness Index), offering a more granular perspective than pre-aggregated ESG scores. Through statistical modelling and comparative analysis across developed and developing economies, the research examines whether specific environmental, social, or governance factors play a more significant role in attracting foreign investment. By uncovering the link between sustainability efforts and investment appeal, the study discloses the significant insights

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for regulators, investors as well as development agencies, shaping future strategies for sustainable economic growth.

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Introduction

Foreign direct investment (FDI) is crucial for economic growth, as it enhances capital inflows into the economy, which in turn creates jobs and improves economic conditions [1]. FDI plays a vital role in modernizing local industries by introducing new technologies and innovative business practices. In recent years, there has been a significant shift in how investors evaluate FDI opportunities, moving beyond traditional factors to include sustainability-related concerns. Many investors now closely assess a country's environmental responsibility, social equity, and governance standards.

It underscores the growing importance of sustainable competitiveness—how effectively a country utilizes its resources, fosters social well-being, and maintains robust governance to attract international capital [2]. While traditional economic indicators such as GDP per capita and trade openness remain essential, the rising focus on sustainability adds new dimensions to global investment dynamics [3]. Moreover, the transition towards a sustainable economy requires significant capital resources, which can be acquired largely through foreign investments [4]. Understanding these factors and evolving trends is crucial for policymakers for building long term investments and sustainable economic development [5].

If the countries follow long term economic progress sustaining the environmental, social and governance (ESG) responsibilities those countries are categorized as having sustainable competitiveness. It encompasses multiple dimensions, including natural capital (a country's environmental resources), resource intensity (how efficiently resources are utilized), social capital (human well-being and societal cohesion), intellectual capital (education quality and innovation capacity), and governance (institutional transparency and regulatory effectiveness). Countries that perform well across these dimensions are more attractive to foreign investors [6]. For instance, higher governance scores, reflecting regulatory transparency and institutional strength, are linked to increased

foreign direct investment (FDI) in both developed and emerging markets [7]. Likewise, a country's intellectual capital—its knowledge, skills, and innovation—boosts its ability to attract long-term investments by supporting technological growth. [8]. Similarly, the importance of ESG factors in the investments decisions has empirically demonstrated that non-financial metrics plays a critical role in large-scale foreign capital contribution [9].

However, the relationship between resource intensity and FDI is more complex. While resource-rich nations often attract substantial investment, inefficient resource use or environmental degradation can deter sustainable capital flows [10]. Additionally, enhancing trade openness relative to GDP can improve sustainable competitiveness. Countries with open economies and strong ESG structures are generally more successful in enhancing FDI [11]. Despite this growing body of research, the understanding of how factors such as natural capital, social capital, and governance influence FDI inflows worldwide remains limited. This study uniquely examines the ESG-FDI relationship across four income groups such as high income, low income, lower- middle income and upper-middle income as categorized by World Bank. This segmentation clarifies how sustainable competitiveness affects FDI in different economic contexts [12].

Literature review

Many previous research how ESG factors can attract the foreign direct exchange (FDI) where on one country invests in another. Narula [10] explored the integration of sustainable investing principles into FDI processes, arguing that while FDI can stimulate economic growth, it may also lead to environmental degradation if ESG standards are neglected. Similarly, The Economist Group [13] found that although sustainability initiatives like the SDGs are gaining traction, traditional factors such as market size and economic stability continue to dominate FDI decisions. Hofbauer and Limanskis [14] assessed the sustainability practices of German companies investing in Latvia. Their empirical study, which involved a survey of 160 firms and statistical analysis using SPSS and Cramér's V correlation, revealed that while German investors exhibited considerable awareness of sustainability issues, the implementation of sustainable practices varied significantly. The authors concluded that a deeper understanding of investor awareness could guide policymakers in promoting sustainable FDI, though the narrow geographical scope

restricts the scope of the findings. Lannutti [7] analysed the impact of ESG related regulations on global investment inflows among the high-income group and emerging economies. The study uses data from UN-PRI and found positive relationship between ESG regulations and foreign inflows in high-income country, whereas in emerging economies the effectiveness of ESG policies depended largely on the quality of governance. The research suggest that the strong institutional systems are important to implement sustainability and to attract foreign investment. Chipalkatti, Le, and Rishi [15] examined how the ESG found that countries with strong environmental and social policies attract more responsible investments, especially with fair governance. Cuervo-Cazurra et al. [16] argue that government policies can encourage international businesses to adopt sustainable practices, like reducing pollution, but their study lacks specific examples and may not account for differences between countries. Su, Liu, and Chen [17] found a strong ESG practices attract responsible investors but can discourage others due to higher costs, with their data analysis showing this varies by country. Similarly, Pathak et al. [18] found that strong ESG performance economy can attract lower risk foreign direct investors.

Moreover, the previous studies highlight the studies where high-income group have influence on foreign investments comparable to other income groups countries. However, many studies do not clearly define the role of sustainable competitiveness. The present explores the relationship between ESG factors and foreign inflows in four income group countries emphasizing the sustainable competitiveness.

Objectives of the study

- To investigate association of ESG variables performance and foreign investment with GDP as mediator.
- To analyse how ESG factors impact FDI inflows across four distinct income groups.

Research Hypothesis

H₀₁: ESG factors has a significant impact on FDI inflows (without mediator)

H₀₂: ESG factors has a significant impact on FDI inflows (with mediator as GDP)

Research Methodology

This study used a quantitative, ex-post facto research design based on secondary data to examine the impact of ESG factors on foreign inflows. The research focuses on 154 countries over 15 years, selected for data availability and reliability from globally recognized sources, including World Bank data and the Global Sustainability Competitiveness Index. A census-based approach was adopted, incorporating all countries meeting the data completeness criteria. Countries were divided into four income groups—high, upper-middle, lower-middle, and low—allowing comparative analysis of the ESG-FDI relationship across different economic contexts. Panel data models were applied to examine the relationship between ESG performance and FDI inflows. Panel EGLS with cross-section weights and GMM (Generalized Method of Moments) methods were used to address endogeneity and account for the dynamic nature of FDI. Lagged FDI was included to capture persistence over time, and GDP was incorporated as a mediating variable. Control variables included GDP growth rate and trade openness. The dependent variable was FDI, while ESG performance was measured through Sustainability Competitiveness, Natural Capital, Resource Intensity, Intellectual Capital, and Governance. GDP served as the mediating variable, with a lagged dependent variable included to account for FDI persistence over time.

Results and Analysis

Descriptive statistics show substantial variation in FDI inflows (LOG_FDI) (mean = 21.28, SD = 2.26) and GDP (\$) (mean = 8.77, SD = 1.40), reflecting economic diversity. Trade openness (TRADE_%) has the highest variability (mean = 86.79, SD = 53.79), indicating differences in market integration. Among ESG factors, Intellectual Capital (IC) (mean = 40.09) and Governance (G) (mean = 48.54) suggest moderate levels, while Natural Capital (NC) and Resource Intensity (RI) show less variation. The Jarque-Bera test confirms significant non-normality ($p < 0.05$) in most variables, supporting the use of robust panel estimation techniques. These patterns highlight the need to account for economic size, trade openness, and ESG dimensions when analyzing FDI dynamics across countries.

Correlation and Q-Q plot analyses conducted to examine variable relationships and check normality distribution before performing model estimations. The correlation matrix shows strong positive relationships between LOG_GDP\$ and LOG_FDI (0.586) and IC and LOG_GDP\$ (0.686),

indicating that economic size and intellectual capital are key drivers of FDI inflows. Moderate correlations between SC (0.452) and LOG_SC01 (0.358) with LOG_FDI suggest that sustainability competitiveness and social capital may also influence FDI. Q-Q plots reveal that most variables align closely with the theoretical quantiles, indicating approximate normality, while GDP_%, SC, and TRADE_% show deviations, suggesting skewness and outliers. This highlights the importance of strong methods for precise and dependable panel data analysis.

Relationship of ESG and FDI with and without mediator

Table 1
Panel Cross Section Estimation model

Variable	Without Mediator	With Mediator
FDI	0.966374 (SE=0.00612, p < 0.001)	0.961848 (SE=0.00632, p < 0.001)
SC	0.001257 (SE=0.00302, p = 0.6773)	-0.000229 (SE=0.00309, p = 0.9411)
LOG_SC01	0.092365 (SE=0.05106, p = 0.0707)	0.061515 (SE=0.05263, p = 0.2427)
NC	0.000363 (SE=0.00099, p = 0.7123)	0.000681 (SE=0.00099, p = 0.4934)
RI	0.001141 (SE=0.00123, p = 0.3541)	0.000870 (SE=0.00124, p = 0.4812)
IC	0.003142 (SE=0.00113, p = 0.0055)	0.002324 (SE=0.00117, p = 0.0464)
G	0.000570 (SE=0.00132, p = 0.6651)	0.000466 (SE=0.00133, p = 0.7262)
TO	0.000213 (SE=0.00017, p = 0.2004)	0.000209 (SE=0.00017, p = 0.2074)
GDP_%	0.023221 (SE=0.00220, p < 0.001)	0.024864 (SE=0.00229, p < 0.001)
LOG_GDP	—	0.030004 (SE=0.01126, p = 0.0078)
Constant	0.038052 (SE=0.21258, p = 0.8580)	0.093778 (SE=0.21364, p = 0.6608)
Weighted R ²	0.962925	0.962667
F-statistic	4291.23	3831.76

Contd...

Prob(F-statistic)	0.000000	0.000000
Durbin-Watson stat	2.569248	2.567587

Source: Estimated by author using EViews using secondary data

Note: The model includes the lagged dependent variable LOG_FDI(-1) and estimated using Panel EGLS with cross-section weights.

Table 1 presents the results from the dynamic Panel EGLS model estimated using cross-section weights for a global dataset for 15 years. The model examines the impact of ESG on Foreign direct investment, incorporating the mediating role of GDP. Adding a one-period lag of the dependent variable (LOG_FDI (-1)) allows the model to evaluate the continuous effects of foreign investment over a time.

Across both models, lagged FDI variable (LOG_FDI(-1)) is highly significant ($p < 0.001$) with coefficients of 0.966 and 0.962, respectively. The slightly lower coefficient in the model including GDP suggests that part of this persistence explained through economic size. When GDP included as a mediator, it is statistically significant ($p = 0.0078$) with a coefficient of 0.0300. This confirms that GDP plays a mediating role in the ESG-FDI relationship. A positive coefficient indicates that higher economic output enhances association between ESG and FDI.

Sustainability Competitiveness (SC) refers to overall score of ESG factors, as per the analysis SC remains statistically insignificant in both models ($p = 0.6773$ without mediator; $p = 0.9411$ with mediator). This suggests that a country's overall ESG performance, as measured by SC, does not directly affect FDI inflows. Social Capital (LOG_SC01) is a variable shows a positive but statistically insignificant relationship with FDI ($p = 0.0707$ without mediator; $p = 0.2427$ with mediator). Its reduced effect when GDP included suggests that part of social capital's influence on FDI may operate indirectly through economic size. Intellectual Capital (IC) is the most crucial factor which impacts foreign investment in both models (without mediator and with mediator). This emphasis that the countries with strong policies on education, research and innovation can enhance the foreign investments. The lower coefficient in the models shows partial mediation of GDP.

Natural Capital and Resource Intensity are not significant but shows positive coefficient in both models. Governance (G) is also statistically insignificant in both models ($p = 0.6651$ without mediator; $p = 0.7262$ with

mediator), indicating that governance quality alone does not directly influence FDI inflows in the global context analysed.

GDP Growth (GDP_%) remains a strong and statistically significant determinant of FDI in both models ($p < 0.001$). The slightly larger coefficient when GDP included highlights the reinforcing relationship between economic growth and FDI. Trade Openness (TRADE_%) is a positive in both models, it does not reach statistical significance.

Income Group-Specific Analysis

Table 2

Panel EGLS Regression Results by Income Group (Mediator Included)

Variable	High Income	Upper Middle Income	Lower Middle Income	Low Income
LOG_FDI(-1)	-0.1118 (0.0122)*** [p < 0.001]	-0.0336 (0.0147)* [p = 0.0277]	0.0659 (0.0429) [p = 0.1332]	0.0659 (0.0429) [p = 0.1332]
LOG_GDP	1.14E-05 (2.19E-06)*** [p < 0.001]	5.01E-05 (8.06E-06)*** [p < 0.001]	3.29E-05 (1.60E-05)* [p = 0.0474]	3.29E-05 (1.60E-05)* [p = 0.0474]
IC	0.0094 (0.0025)*** [p = 0.0004]	0.0072 (0.0028)* [p = 0.0136]	-0.0158 (0.0083) [p = 0.0662]	-0.0158 (0.0083) [p = 0.0662]
NC	0.0156 (0.0026)*** [p < 0.001]	0.0046 (0.0026) [p = 0.0877]	-0.0069 (0.0090) [p = 0.4463]	-0.0069 (0.0090) [p = 0.4463]
RI	0.0236 (0.0036)*** [p < 0.001]	0.0076 (0.0019)*** [p = 0.0002]	-0.0075 (0.0062) [p = 0.2307]	-0.0075 (0.0062) [p = 0.2307]
SC	0.0079 (0.0049) [p = 0.1100]	-0.0229 (0.0027)*** [p < 0.001]	0.0461 (0.0175)* [p = 0.0122]	0.0461 (0.0175)* [p = 0.0122]
LOG_SC01	-0.0013 (0.0020) [p = 0.5113]	0.0057 (0.0019)** [p = 0.0052]	-0.0175 (0.0123) [p = 0.1644]	-0.0175 (0.0123) [p = 0.1644]
G	-0.0035 (0.0028) [p = 0.2142]	-0.0043 (0.0025) [p = 0.0918]	-0.0183 (0.0092) [p = 0.0549]	-0.0183 (0.0092) [p = 0.0549]

Contd...

TO	0.0109 (0.0008)*** [p < 0.001]	-0.0079 (0.0011)*** [p < 0.001]	-0.0017 (0.0064) [p = 0.7963]	-0.0017 (0.0064) [p = 0.7963]
J-statistic	34.7694 (p = 0.6632)	41.4632 (p = 0.2095)	22.6103 (p = 0.7058)	22.6103 (p = 0.7058)
Instrument Rank	48	45	37	37
Mean Dependent Var	0.0286	-0.00096	0.0178	0.0178
Sum Squared Resid	321.0565	226.6971	330.7266	330.7266

Source: Estimated by author using EViews using secondary data

Note: The model includes a one-period lag of LOG_FDI (LOG_FDI(-1)). Significance: *** p<0.001, ** p<0.01, * p<0.05.

Table 2 presents the results of the Panel EGLS model segmented by income group, allowing for a nuanced examination of how the ESG-FDI relationship varies across economic contexts.

In high-income countries, lagged foreign direct investment (FDI) inflows tend to negatively affect current FDI, indicating that the market may be saturated. The GDP of these countries is positively correlated with FDI, suggesting that larger economies are more attractive to foreign investors. Among ESG factors, Intellectual Capital (IC), Natural Capital (NC), and Resource Intensity (RI) all have positive and significant effects on FDI, highlighting that technological innovation, natural resources, and efficient use of resources play a key role in attracting foreign investment. However, Social Capital (SC) and Governance (G) do not show significant impacts on FDI in high-income countries.

In upper middle-income countries, previous FDI (LOG_FDI(-1)) still has a adverse but less pronounced effect compared to high-income countries, suggesting weaker persistence of FDI. GDP remains a strong predictor of FDI inflows. Among ESG dimensions, Intellectual Capital (IC), Resource Intensity (RI), and Social Capital (SC) all positively affect FDI, indicating that skilled labour, efficient resource use, and social cohesion are attractive to foreign investors. Trade openness is negative, suggesting that greater market integration might increase domestic competition and reduce FDI attractiveness. For lower middle-income countries, the lagged FDI variable does not show significant effects, pointing to greater volatility and less persistence in FDI over time. GDP remains a positive and significant driver of FDI. While governance shows

negative and significant effect. Natural capital and resource intensity are not significant with foreign inflows. Lastly, in low-income group countries GDP shows significant driver for foreign inflows, where sustainable competitiveness has positive and significant impact making ESG as core practice to attract the foreign inflows. Governance has negative and significant impact on foreign inflows.

Research Discussions and Conclusion

The analysis confirms that ESG performance influences foreign direct investment (FDI) differently across income groups, with GDP playing a significant mediating role. Economic size and intellectual capital emerge as key determinants of foreign inflows, particularly in high- and upper-middle-income countries. High-income nations benefit from strong intellectual and natural capital, supported by innovation ecosystems, while upper-middle-income countries face negative effects from compliance costs [19]. In lower-income groups, GDP and sustainability competitiveness drive inflows, highlighting the need for governance reforms and institutional transparency. Intellectual capital consistently shows a positive impact, indicating that countries with strong education, innovation, and research systems attract more sustainable FDI. Other ESG dimensions show limited or indirect influence through economic performance. Using robust models like Panel EGLS and GMM, the study validates GDP's mediating role while addressing endogeneity concerns. However, reliance on secondary data and linear models limits the scope. Future studies should include industry-level data, explore additional mediators, and assess regional variations. Policymakers, especially in low-income economies, should focus on strengthening governance, legal transparency, and intellectual capital to enhance investor confidence and attract long-term sustainable investments.

References

- [1] J. H. Dunning, *Multinational enterprises and the global economy*. Cheltenham: Edward Elgar (2008).
- [2] S. Bannour and N. A. Abdelkawy, "Sovereign ESG and foreign direct investment in the GCC: The amplifying role of trade openness in economic diversification," *Sustainability*, vol. 16, pp. 9326 (2024), doi: 10.3390/su16219326.

- [3] J. Chen, "The relationships among ESG, FDI, and economic growth in CEE countries," Master's thesis, Charles University, Faculty of Social Sciences (2023).
- [4] A. Kohli, R. Wadhwa, and G. C. Tripathi, "Sustainable finance from foreign actors into renewable energy and economic growth: An Indian perspective," *J. Stat. Manag. Syst.*, vol. 26, no. 5, pp. 1015–1028 (2023), doi: 10.47974/JSMS-1154.
- [5] J. Zhan and H. Mirza, "GVC transformation and a new investment landscape in the 2020s: Driving forces, directions, and a forward-looking research and policy agenda," *J. Int. Bus. Policy*, vol. 4, no. 2, pp. 206–220 (2021).
- [6] K. Kang, "Political determinants of corporate investments: Evidence from broadband deployment," *J. Public Econ.*, vol. 208, pp. 104637 (2023).
- [7] L. Lannutti, "The role of environmental, social, and governance (ESG) regulations in attracting foreign direct investment (FDI)," in *IISES International Academic Conference, Vienna* (2024). doi: 10.20472/IAC.2024.062.005.
- [8] L. Chen, Q. Zhang, and X. Li, "The role of intellectual capital in promoting FDI inflows across different economic contexts," *J. Sustain. Dev.*, vol. 31, no. 4, pp. 55–72 (2023), doi: 10.1007/s10668-023-02921-x.
- [9] R. Bhatia, N. K. Bhasin, S. Kadyan, and P. Singh, "Environmental, social, governance (ESG) and sustainable finance: Emergence of new era of investing," *J. Inf. Optim. Sci.*, vol. 44, no. 8, pp. 1543–1562 (2023), doi: 10.47974/JIOS-1475.
- [10] K. Narula, "'Sustainable investing' via the FDI route for sustainable development," *Procedia - Soc. Behav. Sci.*, vol. 37, pp. 15–30 (2012), doi: 10.1016/j.sbspro.2012.03.271.
- [11] H. J. Van Norel, "Evaluating sovereign ESG performance as a determinant for attracting foreign direct investments in a COVID-19 context," Master's thesis, Erasmus University Rotterdam (2023).
- [12] World Bank, "World Bank country and lending groups." (2022). [Online]. Available: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>
- [13] The Economist Group, "Sustainability initiatives and FDI: A policy analysis." (2021).

- [14] S. Hofbauer and K. Limanskis, "Sustainability practices of German firms investing abroad: Evidence from Latvia," *J. Int. Bus. Stud.*, vol. 53, no. 2, pp. 321–345 (2022).
- [15] N. Chipalkatti, Q. V. Le, and M. Rishi, "Sustainability and society: Do environmental, social, and governance factors matter for foreign direct investment?," *Energies*, vol. 14, no. 19, pp. 6039 (2021), doi: 10.3390/en14196039.
- [16] A. Cuervo-Cazurra, Y. Luo, R. Ramamurti, and S. H. Ang, "The impact of the home country on internationalization," *J. World Bus.*, vol. 53, no. 5, pp. 593–604 (2018).
- [17] Y. Su, J. Liu, and W. Chen, "The paradox of ESG performance in attracting sustainable FDI," *J. Int. Bus. Stud.*, vol. 52, no. 8, pp. 1485–1502 (2021), doi: 10.1057/s41267-021-00418-6.
- [18] S. Pathak, S. S. Shrotri, S. Fazalbhoy, and S. Bagchi, "A study on the sustainable strategies adopted by Corporates and its impact on profitability and market value," *J. Inf. Optim. Sci.*, vol. 45, no. 6, pp. 1757–1785 (2024), doi: 10.47974/JIOS-1763.
- [19] Abu Dhabi Bank, "Governance reforms and FDI attraction: Evidence from emerging economies," *Emerg. Mark. Rev.*, vol. 54, no. 2, pp. 101–115 (2023).

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