ISSN 1648-0627 / eISSN 1822-4202

VILNIUS TECH
Vilnius Gediminas Technical University

BUSINESS: THEORY & PRACTICE

2024
Volume 25
Issue 1
Pages 83–94
https://doi.org/10.3846/btp.2024.19193

STILL DIRTY: THE EFFECT OF GLOBAL RISKS AND DEVELOPMENT ON FOREIGN DIRECT INVESTMENT INFLOW

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Article History:
- received 21 May 2023
- accepted 16 October 2023

Abstract. There needs to be more research on the global risks and developmental determinants of foreign direct investment inflow with green investment campaigns. This article presents new evidence covering 116 countries (2018–2020) using least squares regression. We show that *ceteris paribus*, higher perceived environmental and geopolitical risks are more likely to increase foreign direct investment. We also find that lower business environment, safety and security, and environmental sustainability increase foreign direct investment inflow. Meanwhile, foreign investment inflow increased positively according to price competitiveness, infrastructure quality, and natural resources. One development variable, information, and communication technology readiness, becomes significant when the analysis is performed only on developing countries. Economic risks, societal risks, technological risks, health and hygiene, human resources, and international openness are not significantly affecting investment inflow. An insightful theoretical implication regarding the finding is that some supports exist for the pollution haven hypothesis. Implications for practice include creating supportive policies that appreciate sustainable practices, such that investors are attracted to the country not as opportunistic polluters but as sustainability pioneers.

Keywords: global risks, development, foreign direct investment, green investment, COVID-19.

JEL Classification: F13, F18, F21, F64.

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1. Introduction

Encouraging foreign direct investment (FDI) entry is essential for increasing a country's economic growth. FDI has been shown to increase productivity through intangible assets such as knowledge and skills in producing and marketing products (Burböck et al., 2018). Many studies have been conducted to find the factors that encourage FDI inflows. These factors include corruption prevention, infrastructure quality, labor market, and gross domestic product (GDP) (Burböck et al., 2018).

Even so, three factors were highlighted over time, not empirically but normatively. These three factors are environment, social, and governance (ESG). ESG is highlighted because humans have entered an era of severe environmental damage due to industrialization in the past. FDI is a source of finance for the industry, and because of this, it is required to prevent further damage and even carry out rehabilitation through sustainable investing activities (Chipalkatti et al., 2021). This push for sustainable investing is starting to pay off. In 2020, the US SIF Foundation (2020) reported that investors in the United States have started using ESG as an investment consideration. In that year, the level of consideration was 42% higher than in 2018, and one-third of investments in the United States are ESG investments.

While scholars have extensively researched the factors driving FDI inflows, whether investors globally consider ESG in making investments is still being determined, particularly from a temporal orientation perspective in FDI decisions. The temporal orientation means that investors consider the risk (future) and development situation (present) in making FDI decisions. ESG can be a part of a risk variable or a development variable.

This study aims to understand the following question: "What is the effect of global risks and development on FDI inflow?" Secondary data was retrieved from World Bank and World Economic Forum and analyzed with the least square regressions to achieve the objective.

2. Temporal orientation in FDI decision

FDI is a process by which investors or companies from a source country obtain long-term investments in other

companies in other countries (OECD, 2018). This long-term investment has implications for the ownership of assets intended to control production, distribution, and other activities in the country where the investment is made (Burböck et al., 2018). As a long-term relationship, FDI reflects interests and controls across countries (United Nations Conference on Trade and Development, 2021).

Research in the field of FDI is directed at identifying factors determining investment decisions. Temporarily, these factors can be grouped into three types: historical factors, present factors, and future factors. Historical factors are manifested in the present so that they can be combined with present ones. The present factor refers to the current situation of the FDI destination country. In this study, current factors are referred to as development or growth factors, because they reflect ongoing and ongoing development in FDI destination countries. The future factor is related to risk because it has not actually happened.

If viewed from this temporal perspective, the theoretical basis of FDI can be divided into two groups: growth theory and risk theory. The most commonly used risk theory is prospect theory. Prospect theory divides investors into two categories: risk-averse and risk-seeking. Risk-averse investors tend to avoid risk so that risk is assessed negatively. Investors with a risk-seeking orientation assess risk as a business opportunity and therefore have a favorable view of investment risk. This risk orientation then makes prospect theory intersect with entrepreneurial marketing theory. Entrepreneurial marketing theory places risk as something that must be accepted and mitigated to get business opportunities that will then be exploited for profit. In this way, risk can present an opportunity for even greater rewards than a risk-free situation as long as investors can manage the risk effectively (Barry & DiGiuseppe, 2019).

Other theories place risk as something positive for ideological reasons or reasons of dirtiness. The firmly held theory of communism by the Chinese government explains ideological reasons for investing in high-risk countries. The Chinese government argues that they are willing to invest in high-risk countries because they want to show the supremacy of their communist ideology, which treats all equally for social justice, over the ideology of capitalism which is only oriented towards personal gain.

The dirt theory or "pollution-haven hypothesis" explains that investors take steps to invest in high-risk countries because they like it for the smooth running of their business. A country with a high environmental risk, for example, means that the country is tolerant of pollution from factories. Therefore companies investing in that country do not have to pay for environmental remediation and make a sustainability report. The pollution-haven hypothesis favors countries with abundant natural resources because it provides significant capital for exploiting the environment (Audi et al., 2021; Ali & Zulfiqar, 2018; Yiadom et al., 2022). The pollution-haven hypothesis contradicts ESG, which is the basis of sustainable investment.

Theories that view risk as something negative fall into the same category as the view that current favorable conditions in a country are a solid, attractive factor for investment (Giwa et al., 2020). This development or growth theory emphasizes the importance of a country's economic growth and its accompanying institutional forces to encourage investment. Sustainable economic growth is an attractor for FDI because investors no longer have to be pioneers, and they will have a very supportive business climate for the smooth running of their business in the destination country (Haque et al., 2022). Ideally, the interaction of economic growth and FDI becomes a snowball where economic growth encourages FDI, and more and more FDI accumulates to encourage further economic growth.

Risk factors and development factors can determine investors' FDI decisions. The risk factor represents how investors look at future parameters to weigh the possibility that their investment will yield a profitable return, while the development factor looks at present parameters to weigh the feasibility of investing.

With the above in mind, the following empirical analysis will test whether there is a relationship between risk factors and development factors, and FDI and will take this relationship into account in a global, pandemic, and developing country context. The pandemic context is one of the highlights here, considering that the COVID-19 pandemic has taken a toll on the economy and limited FDI flows to many countries (Badmus et al., 2022; Fu et al., 2021).

3. Methodology

To empirically test the effect of risk and development on FDI, this study analyzed how some risk and development variables affected FDI inflow in three years, namely 2018, 2019, and 2020. The risk and development variables' values are considered the same in these three years. FDI Inflow data is pulled from the World Bank's World Development Indicator. FDI Inflow is converted to logarithmic form to prevent overdispersion in the data.

Risk variables are measured based on The Global Risks Report (GRR) from the World Economic Forum because it provides detailed risk data for every country worldwide. There are five types of risks calculated by the Global Risks Report: economic, environmental, geopolitical, societal, and technological. Each risk has sub-risks, so there are 35 sub-risks in the five risks. The GRR data is sourced from a survey of 12,000 chief executives in 124 countries. Respondents were asked to choose the five risks that would most critically threaten their country in the next two years from a list of 35 existing risks. They were asked to rank the five risks from the biggest to the slightest. Therefore, Risk 1 is the most significant, and Risk 2 is the second biggest risk, up to Risk 5. If the risks are balanced, the risk is placed in a higher position while the below position becomes vacant.

The researcher's strategy to quantify this risk ranking is to treat the risk level as a Likert scale so that Risk 1 is worth 5, Risk 2 is worth 4, Risk 3 is worth 3, Risk 4 is worth

2, and Risk 5 is worth 1. Next, researchers look at the level of risk in each country and assign a value according to the type of risk involved, whether economic, geopolitical, environmental, social or technology. If there are two such risks in a country, the risk with the highest rating is used. For example, Indonesia contains the following risks: Risk 1 is "debt crises in large economies" and "human-made environmental damage"; Risk 2 does not exist because it has been migrated to Risk 1; Risk 3 is "Employment and livelihood crises"; Risk 4 is "geopolitization of strategic resources"; and Risk 5 is "Failure of cybersecurity measures." Per the risk category of the GRR, Risk 1 is economical and environmental, Risk 2 is absent, Risk 3 is a societal risk, Risk 4 is geopolitical risk, and Risk 5 is technological. In line with this categorization, Indonesia has an economic risk score of 5 because the economic risk is at Risk 1, an environmental risk score is 5, the geopolitical risk score is 2, the social risk score is 3, and the technological risk score is 1. Complete calculation results for each country are shown in Table 1.

Table 1. List of countries and country scores of risks

Country	Economic	Environment	Geopolitics	Social	Technology
Albania	2	4	5	1	3
Armenia	4	3	5	3	1
Australia	1	4	0	2	5
Azerbaijan	4	5	2	2	0
Bahrain	5	0	0	2	0
Bangladesh	0	2	4	5	4
Barbados	4	5	0	3	0
Benin	5	0	0	2	0
Bosnia and Herzegovina	5	5	0	3	2
Botswana	3	0	0	5	0
Brazil	5	2	1	4	3
Bulgaria	2	5	3	4	0
Cabo Verde	4	3	0	5	1
Cambodia	4	5	0	3	3
Cameroon	3	2	4	5	0
Canada	5	4	0	2	0
Chad	5	1	2	4	3
Chile	5	1	2	4	0
China	4	5	1	3	0
Colombia	3	4	2	5	0
Costa Rica	5	1	2	4	3
Cote d'Ivoire	4	1	5	2	0
Croatia	5	2	4	1	3
Cyprus	4	5	3	2	0
Czechia	5	0	0	2	0
Dominican Republic	3	5	0	4	2
Ecuador	4	0	0	5	1

Continued Table 1

Country	Economic	Environment	Geopolitics	Social	Technology
Egypt, Arab Rep.	3	5	0	4	0
El Salvador	5	3	4	2	1
Estonia	4	1	5	0	0
Finland	5	3	0	1	0
France	4	2	4	5	1
Georgia	3	0	5	1	4
Germany	2	5	1	4	3
Ghana	1	5	3	5	2
Greece	5	4	2	0	1
Guatemala	5	3	4	2	0
Honduras	2	3	5	4	0
Hong Kong SAR, China	5	0	2	3	0
Hungary	5	4	1	2	0
India	4	0	5	3	2
Indonesia	5	5	2	3	1
Iran, Islamic Rep.	3	2	0	5	0
Israel	4	0	5	0	2
Italy	5	5	2	0	1
Japan	5	4	3	1	2
Jordan	5	3	0	4	0
Kazakhstan	5	0	2	5	0
Kenya	4	3	2	5	0
Korea, Rep.	5	1	0	4	0
Kuwait	5	1	3	5	3
Kyrgyz Republic	1	2	4	5	3
Lao PDR	5	3	0	4	1
Latvia	4	0	5	0	3
Lebanon	2	4	5	3	0
Lesotho	1	3	0	4	5
Lithuania	4	1	5	0	0
Luxembourg	5	4	2	0	2
Malawi	5	4	0	1	0
Malaysia	3	5	2	4	0
Mali	3	0	5	5	1
Malta	4	5	0	0	2
Mauritius	5	2	0	3	0
Mexico	5	0	3	2	1
Moldova	5	2	3	4	0
Mongolia	3	5	3	4	0
Montenegro	3	1	4	5	2
Morocco	3	5	1	4	2

End of Table 1

Country	Economic	Environment	Geopolitics	Social	Technology
Nepal	1	4	3	5	1
New Zealand	4	1	0	4	5
Nicaragua	4	3	5	3	0
Nigeria	4	1	5	3	0
North Macedonia	3	5	0	4	1
Pakistan	5	4	0	0	2
Panama	4	1	0	5	2
Paraguay	5	2	1	4	3
Peru	4	1	5	3	2
Philippines	5	3	0	2	4
Poland	2	5	3	4	0
Portugal	5	0	0	3	2
Romania	3	5	3	4	0
Russian Federation	4	0	5	3	0
Rwanda	4	3	0	5	2
Saudi Arabia	5	4	2	4	0
Senegal	4	2	3	5	1
Serbia	4	5	1	3	2
Sierra Leone	3	4	0	5	0
Singapore	5	1	0	4	2
Slovak Republic	5	3	0	4	1
Slovenia	5	2	4	0	0
South Africa	5	0	3	4	0
Spain	4	2	2	5	0
Sri Lanka	4	5	0	3	1
Sweden	5	3	4	0	0
Switzerland	5	0	3	0	0
Tanzania	5	3	0	4	0
Thailand	5	4	0	1	2
Trinidad and Tobago	5	1	0	4	3
Tunisia	4	0	5	3	0
Turkiye	4	2	3	5	1
Ukraine	5	3	4	0	0
United Arab Emirates	4	1	0	5	3
United Kingdom	4	1	0	2	5
United States	5	4	0	1	0
Uruguay	5	2	0	3	0
Vietnam	4	5	2	3	0
Zambia	4	2	0	5	0

Meanwhile, for development variables, researchers used data from The Travel & Tourism Competitiveness Report and the World Economic Forum (2017, 2022). Although the theme of this report is tourism, there are some standard parameters. These general parameters are business environment, safety and security, health and hygiene, human resources and labor market, ICT readiness, international openness, price competitiveness, environmental sustainability, air transport infrastructure, ground and port infrastructure, and natural resources, each rated on a scale of 1–7. ICT readiness was removed from the list of variables because it experienced multicollinearity based on variance inflation factors (VIF) analysis.

Researchers used GDP growth, GDP per capita (logged), inflation, and FDI policy as the control variables. The first three control variables are taken from the World Development Indicators from the World Bank, while FDI Policy from The Travel & Tourism Competitiveness Report. In the report, FDI policy is one of the sub-indicators of the business environment indicator. The business environment indicator has 12 sub-indicators, so using one sub-indicator of this indicator could be more influential statistically to cause autocorrelation with the business environment.

Least Squares analysis was used on all variables studied. The least squares method was chosen because it assumes that the existing relationships are linear so that they are convex; that is, they can reach a single, definite, and unique solution (Rencker, 2019). The challenge of this method is its inability to consider geographic factors as a result of only operating in one dimension (Iyanda et al., 2021). Although the geographical factor is sometimes of significant value in the study of FDI (Kaukab & Surwandono, 2021), this factor is only considered if the research is focused on the unique identification of source and destination countries of FDI. This study does not consider national identity, so geographical challenges do not prevent using the least squares method.

The GDP growth, GDP per capita, and inflation are from the previous year. So if the dependent variable was FDI Inflow in 2020, then the GDP growth, GDP per capita, and inflation used are 2019 data. To ensure output quality, researchers examined each model's variance inflation factor (VIF), and variables with VIF > 10 were removed from the model. Three models are calculated in this analysis, namely the full sample model, the pandemic model, and the developing countries model. The pandemic model uses a sub-sample from 2020 for FDI inflows. The developing countries model takes samples from developed countries according to the developed country category from the World Bank.

Lastly, a robustness check was carried out by including two new variables commonly used as robustness checkers for FDI research: control of corruption and regulatory quality. These two indicators are sourced from the World Development Indicators. A variable is considered robust and stable if, after one of these new variables is included, there is no change in the significance level from significant

to not or vice versa, from insignificant to significant. The mean scores of the research variables are shown in Table 2 below.

4. Results

4.1. Risks, development, and FDI

Table 3 presents the results of the least square regression. The conceptual framework predicts that global risks have a role as an FDI attractor. The results of the analysis show support for two of the five types of risks studied, namely environmental risk and geopolitical risk, both at a very significant level (1%). Meanwhile, out of 10 development variables, eight show a significant relationship with FDI inflow. Safety, security, and price competitiveness significantly affect FDI inflow at the 5% level, while the human resources and labor market only affect the 10% level. Health and hygiene and international openness have no significant effect on FDI inflow. Human resources and labor market, price competitiveness, infrastructures (air transport and ground and port), and natural resources positively affect FDI inflow.

Variance inflation factors (VIF) are calculated to check for potential multicollinearity events. The assessment results show that almost all VIF, except for GDP per capita (log), are below 5. However, the VIF value for GDP per capita (log) is still below 10, which is the most stringent threshold for multicollinearity criteria.

The health and hygiene variables in the above model have no significant effect on FDI inflow. Even so, this variable can be significant during the COVID-19 pandemic. For this reason, an analysis was carried out with samples from 2020 only. Table 4 shows the results of the analysis of 99 samples for 2020. Even though it has a negative sign according to predictions, the health and hygiene variables still have no significant effect on FDI inflow during this pandemic.

Meanwhile, GDP growth and business environment are insignificant, with only a significance at the 10% level. Geopolitical risks, infrastructures, and natural resources are still significant but fall at 5%. The business environment continues to hurt FDI inflow. Most of the variables that predict FDI inflow during a pandemic are insignificant. These variables include environmental risk, safety and security, human resources and labor market, price competitiveness, and environmental sustainability.

The results of the analysis do not separate developed countries from developing countries. Investors can make different considerations in making FDI decisions in the two countries. For this reason, according to the World Bank's classification, developed member countries were excluded from the sample. The relationships between risks and development variables with FDI inflows in developing countries are reported in Table 5.

In this sample, there are four significant risk variables, leaving only societal risk that does not significantly affect FDI inflow. The technological risk variable becomes significant at the 5% level. The two new risk variables (economic and technological) positively affect FDI inflow. Development variables have changed with the disappearance of the significance of human resources, labor market, and price competitiveness. The degree of significance of the business environment has also weakened from the initial threshold of 1% to only 5%. On the other hand, international openness is significant and negatively affects or reduces FDI inflow. FDI policy is no longer significant in the context of developing countries.

In summary, the three analyzes above show several things. First, the higher the environmental and geopolitical risks, the greater the FDI channeled into the country. Second, the pandemic pushed aside many factors that investors initially considered when considering FDI. Health and hygiene are not one of factors considered, but factors outside this study's framework. Third, risks are increasingly attracting investment in developing countries, especially economic and technological risks.

4.2. Robustness check

Robustness check aims to check the consistency and stability of research results when new variables are entered into the model. Table 6 presents the results of the robustness check for all samples using two variables, namely Control of Corruption and Regulatory Quality (Cicatiello et al., 2021). In general, the inclusion of the control of corruption variable only has an insignificant impact on one variable, namely human resources and the labor market. This variable in the initial results (Table 3) is already at a marginal level, so it tends to be unstable.

The results of the robustness analysis with the regulatory quality variable show that health and hygiene have a negative effect at the 0.10 significance level. When combined, the results of the two analyzes show that the influence of the human resource and labor market and health and hygiene variables is unstable and cannot be stated to have a significant effect in a particular model. Another result that emerges from the results of the robustness analysis is that control of corruption and regulatory quality, two worldwide governance indicator variables, have a significant influence on FDI inflow, both positively.

5. Discussion

The findings of this study raise a number of questions. Why do all risk variables have a positive effect while some development variables harm FDI Inflow? Why are health and hygiene not significant in determining FDI inflow during a pandemic? Why is it that, at this time, only a few risk and development variables have a significant effect? What is the relevance of these findings to ESG-based investments? Furthermore, which orientation is heavier for investors between considering future and present conditions in FDI decisions?

The likely explanation for the risk variable's positive effect is that investors view that risk as an investment

opportunity (Yiadom & Mensah, 2020). Entrepreneurial marketing theory sees opportunities that can be proactively identified and exploited through innovative approaches to risk management (Morrish & Jones, 2020). Entrepreneurial marketing sees the importance of accepting risk while seeking opportunities and seizing opportunities while managing and mitigating risks. Morrish and Jones (2020) observe this phenomenon in understanding post-disaster business recovery which involves a significant degree of risk as well as wide-open business opportunities. Investors, in this case, are trying to recognize entrepreneurial opportunities in uncertain times, one of which is a risk.

In the case of this study, two risk variables play a significant role: environmental risk and geopolitical risk. Environmental risk characterizes the potential for severe environmental damage in an FDI destination country. Investors can see this as an opportunity to carry out unsustainable economic behaviors, which they cannot freely do in developed countries (Mbena, 2022). Environmental risk is often the output of FDI (Zubedi et al., 2022; Yiadom et al., 2022; Xaisongkham & Liu, 2022), so environmental risk indicates the existence of FDI. The presence of FDI signals that further FDI can enter safe conditions and join the agglomeration (Liu et al., 2018; Ramachandran & Sasidharan, 2022). The industry does not have to undertake environmental remediation, so this practice is especially beneficial for resource extraction and pollution-intensive production (Odugbesan et al., 2022). This evil will also explain why environmental sustainability hurts FDI inflow in developing countries (Opoku et al., 2022). The tighter the sustainability regulations, the more reluctant investors, are to invest in the country.

The second explanation can also be put forward with the opposite logic: investors are motivated to invest because they can demonstrate their ability to remediate the environment or take steps to prevent risks from occurring strategically (Barry & DiGiuseppe, 2019). If an FDI destination country has considerable environmental risk, the investor can become a hero who saves the environment. This action will increase the company's competitiveness through its positive image as an environmental pioneer. This image, in turn, allows the investment to provide added value in the performance and sustainability of the company itself. This heroism is relevant to the product lifecycle (PLC) theory (Paul & Feliciano-Cestero, 2021). According to PLC, companies are willing to take risks by investing in countries with low institutional quality to get better quality institutions later in their product life cycle (Contractor et al., 2020). In this case, investors can actively support

Table 2. Mean scores of research variables

Variable	Full Samples	2020	Developing Countries	Developed Countries
GDP growth (%)	3.51	3.13	3.87	2.89
GDP Per capita (US$)	14,579	15,450.20	4,490.52	32483.84
GDP per capita (log)	3.86	3.88	3.53	4.44
Inflation (%)	3.54	3.32	4.52	1.81
FDI policy	4.64	4.65	4.40	5.06
Economic risk	3.95	3.95	3.76	4.29
Environmental risk	2.64	2.66	2.76	2.44
Geopolitical risk	2.00	2.03	2.16	1.70
Societal risk	3.11	3.07	3.54	2.34
Technological risk	1.19	1.20	1.12	1.32
Business environment	4.55	4.57	4.33	4.95
Safety and security	5.17	5.17	4.79	5.84
Health and Hygiene	5.19	5.21	4.69	6.08
Human resources and labor market	4.59	4.61	4.34	5.04
International Openness	3.26	3.27	2.91	3.88
Price competitiveness	4.90	4.88	5.11	4.52
Environmental sustainability	4.15	4.16	3.96	4.50
Air transport infrastructure	3.04	3.05	2.51	3.99
Ground and Port Infrastructure	3.49	3.52	2.90	4.54
Natural Resource	3.30	3.27	3.26	3.37
FDI Inflow (US$)	16,099,557,808.77	16,590,614,003.25	8,303,179,259.44	29,936,373,792.73
FDI Inflow (log)	9.42	9.36	9.12	9.95

Notes: risk variables (1–5 (best)), development variables (1–7 (best)).

internal reform efforts at local institutions with funding for activists or remain passive while waiting for the product cycle to change.

Another significant risk is geopolitical risk. Previous research has found that geopolitical risk reduces FDI (Soltani et al., 2021; Nguyen et al., 2022). Feng et al. (2023) found that geopolitical risk positively affects FDI inflow, but only in developed countries. In developing countries, geopolitical risk hurts FDI inflow. In contrast to these studies, this study finds that geopolitical risks increase FDI inflows, including FDI inflows to developing countries. This effect can arise if we see that FDI is part of international trade relations and can become a geopolitical instrument (Dias & Teixeira, 2018). Several geopolitical actions can take the form of FDI actions. The high geopolitical risk indicates that foreign interests are involved in a country. This foreign interest can support FDI if it is the country of origin or an allied country to the country of origin of the interest. These foreign interests can also constrain FDI if those interests originate from a rival, geopolitical rival, or adversary to the country of origin of the FDI. If the foreign interest supports FDI, then FDI is attracted to enter temporarily. If the foreign interest is against FDI, then FDI can still be attracted to enter to balance geopolitical influence or take place in the favorite location of various existing geopolitical interests and gain various benefits.

Skovoroda et al. (2019) argue that FDI to conflict countries can occur for two reasons: conflict can accelerate resource extraction as early as possible and prevent the government or one particular group from seizing company assets. The reasons for the opportunity to extract resources as early as possible and the security from competition for assets explain the investment behavior of 250 US oil and gas sector companies in 44 countries in 2007–2013 (Skovoroda et al., 2019).

Another explanation was put forward by Yang et al. (2018) explaining why Chinese companies invest in countries with high institutional risk. According to them, Chinese investors are driven by state-owned companies, so they cannot be profit maximizers. Investments made by state-owned enterprises from China contain an ideological component to demonstrate the supremacy of the

Table 3. Relationships between risks and development variables with FDI inflows, total samples

Variable	Coefficient	t-Statistic	Prob.
Constant	5.32	7.31	***
GDP growth	0.046	3.28	***
GDP per capita (log)	0.723	4.92	***
Inflation	0.020	2.58	**
FDI policy	0.136	2.04	**
Economic risk	0.033	0.91	
Environmental risk	0.068	3.22	***
Geopolitical risk	0.072	3.43	***
Societal risk	0.015	0.62	
Technological risk	0.017	0.68	
Business environment	–0.369	–3.56	***
Safety and security	–0.112	–2.42	**
Health and hygiene	–0.065	–1.28	
Human resources and labor market	0.186	1.70	*
International openness	–0.034	–0.63	
Price competitiveness	0.135	2.29	**
Environmental sustainability	–0.233	–2.98	***
Air transport infrastructure	0.248	4.70	***
Ground and port infrastructure	0.207	3.80	***
Natural resource	0.181	4.42	***
Observations			308
Countries			107
R^2			0.672

Note: Full sample. All independent variables lagged one year. Dependent variables: FDI Inflow (log); *p < 0.10, **p < 0.05, ***p < 0.01.

Table 4. Relationships between risks and development variables with FDI inflows, 2020 samples

Variable	Coefficient	t-Statistic	Prob.
Constant	4.78	3.15	***
GDP growth	0.058	1.84	*
GDP per capita (log)	0.990	2.97	***
Inflation	0.020	1.34	
FDI policy	0.144	0.99	
Economic risk	0.072	0.92	
Environmental risk	0.068	1.52	
Geopolitical risk	0.098	2.16	**
Societal risk	0.016	0.31	
Technological risk	0.044	0.82	
Business environment	–0.403	–1.80	*
Safety and security	–0.109	–1.14	
Health and hygiene	–0.122	–1.12	
Human resources and labor market	0.004	0.02	
International openness	–0.037	–0.33	
Price competitiveness	0.194	1.53	
Environmental sustainability	–0.265	–1.58	
Air transport infrastructure	0.278	2.44	**
Ground and port infrastructure	0.272	2.35	**
Natural resource	0.164	1.90	**
Observations			99
Countries			99
R^2			0.650

Note: Samples from 2020. All independent variables lagged one year. Dependent variables: FDI Inflow (log); *p < 0.10, **p < 0.05, ***p < 0.01.

Table 5. Relationships between risks and development variables with FDI inflows, excluding developed countries samples

Variable	Coefficient	t-Statistic	Prob.
Constant	7.45	7.90	***
GDP growth	0.030	1.92	*
GDP per capita (log)	0.528	2.91	***
Inflation	0.025	3.35	***
FDI policy	–0.030	–0.36	
Economic risk	0.082	1.91	*
Environmental risk	0.090	3.30	***
Geopolitical risk	0.090	3.52	***
Societal risk	0.004	0.13	
Technological risk	0.065	2.09	**
Business environment	–0.318	–2.57	**
Safety and security	–0.125	–2.55	**
Health and hygiene	–0.034	–0.60	
Human resources and labor market	0.076	0.68	
International openness	–0.176	–2.88	***
Price competitiveness	0.031	0.39	
Environmental sustainability	–0.309	–3.12	***
Air transport infrastructure	0.252	3.21	***
Ground and port infrastructure	0.240	2.88	***
Natural resource	0.282	5.94	***
Observations			197
Countries			68
R^2			0.700

Note: All independent variables lagged one year. Dependent variables: FDI Inflow (log); *p < 0.10, **p < 0.05, ***p < 0.01.

Chinese version of communism, which can bring prosperity to many people far better than the western version of capitalism. The second reason is that Chinese companies already have experience dealing with complex bureaucracies in their countries. Chinese investors can easily play in countries with similarly complex bureaucracies and gain an advantage over FDI-origin countries that are not used to such complexities. However, their analysis shows that Chinese companies are motivated by high returns and cheaper resources to invest in countries with high institutional risk, not for ideological reasons.

The other three risks: economic, social, and technological, do not play too significant a role in FDI Inflow. Economic and technological risks only significantly affect developing countries, while social risks do not play a role in all models. Social risks appear not to be considered because investors may see them as something local and can be addressed using socially responsible actions toward the community (Shapiro et al., 2018). After all, FDI is something that tends to be non-physical so that social risks do not threaten it. On the other hand, economic risk is quite significant for developing countries because it represents an opportunity for investors to invest and turn the country into a new market. Technological risks are also favorable for FDI inflows as they offer opportunities for investors to invest in technological sectors.

Table 6. Robustness check relationships between risks and development variables with FDI inflows, whole samples

Variable	Model 1		Model 2	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	6.06***	7.23	6.84***	7.55
GDP growth	0.047***	3.28	0.040***	2.80
GDP per capita (log)	0.669***	4.47	0.600***	3.94
Inflation	0.021**	2.56	0.026***	3.16
FDI policy	0.150**	2.24	0.108	1.62
Economic risk	0.036	0.99	0.039	1.08
Environmental risk	0.069***	3.27	0.075***	3.52
Geopolitical risk	0.075***	3.58	0.073***	3.52
Societal risk	0.018	0.76	0.027	1.12
Technological risk	0.014	0.56	0.013	0.50
Business environment	–0.444***	–3.98	–0.481***	–4.36
Safety and security	–0.132***	–2.78	–0.126***	–2.73
Health and hygiene	–0.057	–1.12	–0.095*	–1.85
Human resources and labor market	0.172	1.57	0.143	1.31
International openness	–0.046	–0.85	–0.072	–1.31
Price competitiveness	0.165***	2.70	0.184***	3.02
Environmental sustainability	–0.291***	–3.44	–0.305***	–3.74
Air transport infrastructure	0.236***	4.44	0.234***	4.46
Ground and port infrastructure	0.205***	3.76	0.224***	4.13
Natural resource	0.188***	4.57	0.192***	4.71
Control of Corruption	0.142*	1.76		
Regulatory quality			0.314***	2.76
Observations	308		308	
Countries	107		107	
R^2	0.676		0.681	

Note: Full sample. All independent variables lagged one year. Dependent variables: FDI Inflow (log); *p < 0.10, **p < 0.05, ***p < 0.01.

The bottom line is that risk has to be seen as an opportunity in terms of FDI. This perspective explains why the business environment, safety and security, and international openness in developing countries, the three development variables, also negatively affect FDI inflow. All three also reflect opportunity. Low business environment quality, low safety and security, and low international openness are opportunities for investors to gain privileges through non-ethical business actions contrary to ESG, or vice versa, opportunities to demonstrate business excellence in a challenging environment (Ratten, 2020).

On the other hand, infrastructure and natural resources are essential factors for FDI Inflow. The infrastructure allows good production flows and is an obligation that cannot be refused, especially considering that some FDI can be channeled to remote areas such as mining sites in the mountains (Dimitrova et al., 2020; Rehman et al., 2020; Sabir et al., 2019). Natural resources are also necessary because they provide an investment sector that is relatively non-renewable and can be directly exploited (Audi et al., 2021; Kamal et al., 2019; Bunte et al., 2018). It can be concluded that the positive meaning of natural resources is a kind of terrible meaning, where investment comes to exploit and then leaves to leave the condition of natural resources being depleted (Khan et al., 2022; Waqih et al., 2019; Shahbaz et al., 2018).

Next, we move to the pandemic model. Health and hygiene, which are expected to be significant, remain insignificant in determining FDI inflow. One possible explanation is that health and hygiene are irrelevant development parameters in the context of FDI. FDI is more immaterial and can flow without requiring significant movement of people and goods. Health and hygiene are only vital if the objects flowing are material and require a unique level of security from the spread of the virus.

The pandemic model has few significant variables, confirming that 2020 is a particular year for global investment (Fu et al., 2021; Zhan, 2020; Badmus et al., 2022). The pandemic delayed various economic activities, including investment activities (Koçak & Barış-Tüzemen, 2022). The data we obtained for 2020 contained only 99 samples out of an ideal 107 samples, indicating that eight samples of negative FDI could not be logarithmic and included in the analysis. FDI is negative, meaning many investors withdraw their investment from the source country.

On the other hand, the developing country model contains many significant variables. Only price competitiveness, health and hygiene, human resources and labor market, societal risk, and FDI policy have no significant effect on FDI inflow. We have explained why societal risk, health, and hygiene are insignificant in FDI Inflow. The FDI policy is no longer significant, indicating that the policy is only relevant in the context of developed countries (Saini & Singhania, 2018). In the context of developing countries, FDI policy does not play a role in attracting FDI because weak FDI policies characterize the characteristics of developing countries. Descriptive data shows the developing country's FDI policy score in the sample is 4.40, while the developed country's FDI policy reaches 5.06. The human resources and the labor market are also meaningless for investors because, in developing countries, the quality of the human resources and the labor market is perceived to be low, and investors can use human resources from their home countries. The human resources score for developing countries is 4.34, while for developed countries is 5.04. Price competitiveness is also not meant for developing countries because it is understood that developing countries have higher price competitiveness than developed countries (5.11 vs. 4.52) (Broncek, 2018).

For green investment, this finding means that FDI practices are still unsustainable (Chipalkatti et al., 2021). Investors still place too much emphasis on profit over sustainability, especially environmental sustainability. This unsustainable business orientation contradicts the concept of green investment and, on the other hand, supports the pollution haven hypothesis (Luo et al., 2021). This finding indicates that climate change denialism is still high and low awareness of sustainable business for investors in 2018–2020.

Two worldwide governance indicator variables used in the robustness test in this study are control of corruption and regulatory quality. Both have a significant effect on FDI Inflow. This result is in line with previous studies (Cicatiello et al., 2021; Sabir et al., 2019; Shan et al., 2018). These two variables practically affect FDI inflow because they reflect how seriously the government provides services to stakeholders, including investors. Control of corruption prevents social uncertainty and eliminates hidden costs for investors (Shan et al., 2018). Meanwhile, regulatory quality measures contract viability, profit repatriation, and payment delays as regulatory risks in FDI destination countries.

Overall, investors have their own considerations regarding risks, or more precisely, what opportunities need to be taken into account and what development factors need to be looked at in determining the amount of FDI. Opportunities that are taken into account are environmental risks and geopolitical risks. At the same time, a country's development factors include the business environment, safety and security, human resources and labor market, price competitiveness, environmental sustainability, air transport infrastructure, ground and port sustainability, and natural resources. In the context of Covid-19 in 2020, only geopolitical risks are considered, along with air transport infrastructure, ground and port sustainability, and natural resources. In the context of developing countries, technological, environmental, economic, and geopolitical risks become meaningful, as well as business environment variables, safety and security, international openness, environmental sustainability, air transport infrastructure, ground and port sustainability, and natural resources.

6. Conclusions

After exploring the role of risk and development, which means paying attention to the future and the present, in making FDI decisions for a country, this research produces the following findings.

First, the most influential risk variables in FDI decisions are environmental risk and geopolitical risk. Two new risks are also considered in developing countries: economic and technological. Social risk has never been a consideration in determining the flow of FDI to a country. Interestingly, this positive effect indicates that the higher the perceived risk, the greater the flow of FDI.

Second, the development variables influencing FDI decisions are the business environment, security and safety, environmental sustainability, air, land, sea infrastructure, and natural resources. The business environment, security and safety, and environmental sustainability negatively affect FDI inflows.

Third, health and hygiene factors are not that important during a pandemic. This factor is irrelevant to FDI because FDI is not a physical object that needs to be quarantined. However, many risk and development variables were also insignificant in the model during the pandemic, indicating that factors other than those studied contributed to FDI inflow during the pandemic.

In addition, our results remain robust when we investigate the impact of risk and development by including two new variables: control of corruption and regulatory quality. The unstable variables are human resources, the labor market, and health and hygiene.

For the theoretical implication, the finding of this research supports the pollution haven hypothesis as opposed to sustainable FDI. Many variables are supposed to affect FDI inflow under the sustainability theoretical lens negatively. However, the analysis found the relationships to be positive. High environmental risk and low environmental sustainability increase FDI inflow, making the worst countries get the best investments.

This finding has practical implications for improving the quality of policies supporting foreign investment. Governments must increase the quantity and quality of infrastructure needed to facilitate access to locations that attract foreign investors. Better infrastructure will attract more investment because of the easiness of building and operating their business. Governments also need to develop an appreciation for sustainable practices, such that investors are attracted to the country not as opportunistic polluters but as sustainability pioneers. The positive effect of environmental risk on the FDI means that the investor is attracted to the potential of environmental disaster in the home country. The study did not test the investors' motivation, whether to benefit from the destruction of nature or to be the environmental pioneers that want to be the first company to apply sustainability practices and gain sustainable competitive advantage from the practice. For the government, and hence the society, the environmental pioneers are better ones. So states need to create relaxing policies for foreign investors entering the country with the promise to withhold the sustainability principles. It will be better if the investors have historical commitments to green investment, such as their practices in other countries. The incentives could be lower tax regimes or some trade and business facilities. The incentives will also become a barrier for polluters to enter the country and make the country pollution heaven.

The limitation of this research is that this research did not count physical variables such as port qualities. Future research needs to involve the variables and use better analysis methods. Future research must examine risk and development variables that impact FDI outflow, especially during a pandemic. The research will complement this and can be the building block for more general research involving FDI inflow and outflow.

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