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Department of International Economic Relations

QUALIFICATION PAPER

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COMPANIES "

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Qualifying Bachelor's paper contains the results of own research. The use of the ideas, results and texts of other authors has a link to the corresponding source

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MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
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3. The purpose of the qualification paper is to analyze the motivations, challenges, and outcomes of green investments in international companies. It aims to provide a comprehensive understanding of the factors that promote or hinder these practices and identify their potential benefits, risks, and implications for corporate strategies, stakeholder engagement, and long-term sustainability.

4. The object of the research is the investment activities of international companies, specifically focusing on their green investment practices.

5. The subject of research is the mechanisms of corporate green investment, including its aims, contributions, risks, and profits.

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Chapter 2 deals with Examining real-world examples of international companies and their green investment practices. Critically analyzing motivations, barriers, and potential trade-offs encountered by companies operating in a globalized economy. Utilizing quantitative and qualitative data to highlight areas of interest and trends in corporate green investments. Discussing the impact corporate green investment has on recipient country

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ABSTRACT

on bachelor's degree qualification paper on the topic
«GREEN INVESTMENT IN THE WORK OF INTERNATIONAL COMPANIES»
student Tymoshenko Simon Andriiovych
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The main content of the bachelor's degree qualification paper is presented on 34 pages, including references consisted of 59 used sources, which is placed on 7 pages. The paper contains 1 table, and 1 appendix that is presented on 2 pages.

This qualification paper delves into the analysis of motivations, challenges, and outcomes of Corporate Green Investment (CGI) in international companies. In today's globalized world, the role of these companies in promoting environmental sustainability is crucial, given their significant impact. With the escalating pressure on businesses to adopt sustainable practices due to climate change and increasing public awareness, understanding the contribution of international companies to global initiatives such as the United Nations Sustainable Development Goals and the Paris Agreement becomes vital.

The paper aims to provide a comprehensive understanding of factors that facilitate or hinder CGI practices, filling a gap in the existing literature due to the relative novelty and context-dependent nature of CGI. Moreover, it seeks to identify the potential benefits and risks associated with such investments, exploring their implications for corporate strategies, stakeholder engagement, and long-term sustainability, which have been underrepresented in previous research.

To achieve these goals, the paper follows a structured approach. The initial chapter establishes a theoretical and conceptual framework, reviewing existing literature on green investment and its significance for international companies. It also strives to systemize definitions in the academic field, where consensus is lacking, and presents a comprehensive overview of commonly used tools in green investment practices. Additionally, fundamental and currently unsolvable problems within the green investment paradigm are highlighted.

The subsequent chapter adopts an analytical and empirical approach, analysing real-world examples of international companies and their green investment practices. By critically examining different perspectives accompanying these investment decisions, the motivations, barriers, and potential trade-offs

encountered by companies operating in a globalized economy are explored. The chapter draws upon quantitative and qualitative data, shedding light on the areas of interest pursued by corporations in recent years.

In summary, this study aims to enhance the comprehension of Corporate Green Investment among global corporations. By analysing the reasons, obstacles, and results of such investments, it offers valuable knowledge for policymakers, businesses, and researchers striving to encourage sustainable development and strike a balance between economic expansion and environmental preservation.

The research is based on a multi-method approach, employing documentary analysis of academic studies, pre-conducted in-depth interviews, mass media analysis, and participant observation. Data collection relied on a comprehensive search strategy using Google Scholar and relevant keywords to ensure the inclusion of pertinent articles. Additionally, quantitative data from NGO statistical publications were utilized.

The outcomes of this research have practical implications, serving as a foundation for the formulation of strategies related to green investment within international companies. Policymakers, businesses, and researchers can benefit from the insights provided, enabling them to make informed decisions, promote sustainable development, and foster a harmonious relationship between economic growth and environmental preservation.

Keywords: GREEN INVESTMENT, INTERNATIONAL COMPANIES, CORPORATE GREEN, SUSTAINABLE DEVELOPMENT, GREEN PROJECTS, CLIMATE CHANGE, GREEN FDI, ENVIRONMENTAL REGULATIONS.

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INTRODUCTION

Relevance of the topic. Throughout the centuries, the global landscape has been dominated by the prevalence of an economic model, often referred to as the "brown" economy. This model has been associated with the depletion of natural capital and energy resources, the proliferation of poverty in numerous countries, the scarcity of fresh water and food, the widening economic and social disparities between nations and regions, and the exacerbation of environmental challenges on a global level [1]. After the dissolution of the Soviet Union in the early 1990s, countries across Europe and Central Asia (ECA) embarked on an economic transformation, transitioning from centrally planned economies to market-oriented systems.

During the first decade of the new millennium, these nations made significant progress in fostering social unity by enhancing public services, education, and social safety nets. As we enter the current decade, these countries are now on the brink of another transformative phase: shifting from a "brown" growth model to a "green" growth model. This transition holds the potential to promote sustainable production and consumption patterns, enhance overall quality of life, and mitigate the impacts of climate change [2].

The initial upsurge in the literature happened during the period of 1970-1980, with numerous studies being conducted to explore the future of energy and resources. These studies underscored the uncertainty surrounding the impact of energy and resource constraints on future generations. One of the earliest works to address this issue was the report titled "Scarcity and Growth: The Economics of Natural Resource Availability" by H. Barnett and C. Morse, published in 1963 [3].

In 1972, D. Meadows and a team of researchers [4] examined the long-term implications of population growth, resource consumption, industrial production, and environmental pollution. Their findings suggested that by the mid-21st century, global resources would be depleted. To avert this scenario, a shift from the "growth" strategy to a "development" strategy was proposed. This approach would integrate economic and environmental objectives into a unified process, enabling the attainment of a synergistic effect and facilitating the transition from a resource-intensive and energy-consuming economy to a more sustainable and energy-efficient one.

Since then, numerous Western scholars have significantly contributed to the development of green investment theory. For instance, Jeffrey Sachs has emphasized the importance of sustainable development and the role of green investment in achieving global environmental goals [5]. Johan Rockström has made notable contributions to understanding the environmental limits that must not be exceeded for a stable planet [6]. Within the Ukrainian academy, Iryna Vasylchuk has examined relationships between ecological investment and financial indicators for Ukrainian companies [7]. Tetyana Pimonenko's research made a valuable contribution to the understanding of the main determinants and experiences of green investment, and how to adopt western experience to the context of developing countries and Ukraine [8].

It is evident that the world has recognized the pressing need to tackle environmental issues on a global scale. With mounting concerns over climate change, dwindling resources, and ecological damage, the responsibility of businesses, especially those operating internationally, to support sustainable development has come under close scrutiny. To address these challenges, the idea of green investment, which involves investing financial resources in eco-friendly projects and practices, has gained momentum as a possible way to reduce the negative impact of economic activities on our planet.

The aim of this research is to analyze the motivations, challenges, and outcomes of green investments in international companies. In today's globalized world, these companies have a significant impact on environmental sustainability efforts, making it crucial to understand their role in promoting green investment. This topic is especially relevant now as businesses face growing pressure to adopt more sustainable practices due to climate change and increasing public awareness. The United Nations Sustainable Development Goals [9] and the Paris Agreement [10] have set ambitious targets for countries and corporations to transition to a low-carbon and sustainable future, making it important to explore the extent to which international companies are contributing to these global initiatives.

The contribution of this paper is providing a comprehensive understanding of factors that promote or hinder these practices, which are limited in the literature due to its relative freshness and need for deep context. Moreover, this research aims to identify the potential benefits and risks of such investments and explore their implications for corporate strategies, stakeholder engagement, and long-term sustainability, as those are heavily underrepresented as well [11].

To reach these goals, this paper will be organized as follows. First, we will provide a theoretical and conceptual framework in the initial chapter. This will involve reviewing existing literature on green investment and how it is significant to the work of international companies. We will attempt to systemise definitions in the academic field with, seemingly, no consensus and provide a comprehensive overview of the tools which are frequently used in practices of green investment. Finally, we will conclude the chapter by pointing out fundamental and arguably unsolvable for now problems withing the green investment paradigm.

The second chapter will take an analytical and empirical approach by examining real-world examples of international companies and their green investment practices. We will critically analyse different perspectives that accompany their green investment decisions, exploring the motivations, barriers, and potential trade-offs encountered by companies operating in a globalized

economy. We'll draw upon quantitative and qualitative data to highlight the areas of interests that corporations pursued during last years and evaluate the environmental impact their investments have on recipient countries.

In summary, this study seeks to enhance comprehension of green investment among global corporations. Our analysis of the reasons, obstacles, and results of such investments aims to offer useful knowledge for policymakers, businesses, and researchers who aspire to encourage sustainable development and balance economic expansion with environmental preservation.

The Object of research: Investment activities of international companies.

The Subject of research: Mechanisms of corporate green investment. Its aims, contributions, risks and profits.

Methods and information base of research: To achieve the goals of this study, it implements a multi-method approach. The findings rely on data collected utilizing a documentary analysis of academic studies, pre-conducted in-depth interviews, mass media analysis, and participant observation.

For the research scheme, Google Scholar was utilised to locate relevant articles using a search method by adding various journal names and the following keywords: "(Green) AND (investment) AND (international) AND (bonds OR funds OR finances) AND (renewable OR sustainable OR environment)". Other keywords were also investigated to avoid omitting relevant articles: "(management OR risks OR profits OR contribution)".

Concerning the quantitative data, mostly NGO statistical publications were implemented.

1 THEORETICAL ASPECTS OF GREEN INVESTMENT

1.1 "Green" investments: definitions and essence of paradigm

It is now widely acknowledged that the phenomenon of climate change is occurring as a result of human activities, particularly the emission of greenhouse gases from the burning of fossil fuels and land use modifications. The potential consequences of climate change are substantial and can have significant macroeconomic impacts. The increase in global temperatures, the rise in sea levels, and the occurrence of extreme weather events pose significant risks to economic output and productivity [12]. But how do you save the planet? In addition to individual efforts aimed at adopting environmentally friendly behaviours, significant attention is now being given to larger-scale initiatives. These include various measures such as green finance, carbon markets, green taxes, green central banking, green bonds, green quantitative easing, as well as comprehensive strategies like the Green New Deal and the Green Marshall Plan. The notion of "financing" as a response to environmental challenges is not a recent development and has been extensively discussed since the early 1990s. However, there has been a notable shift both in terms of goals and funding levels, with the concept of "sustainable development" being replaced by the more focused idea of a "green economy" in international summits. While previous funds such as the Global Environmental Facility, Green Climate Fund, and Clean Development Mechanism were relatively modest and primarily aimed at adaptation, compensation, mitigation, and development, these objectives have now taken on a secondary role. Since the 2010s, the primary response to the ecological crisis has revolved around massive green investments [13].

That being said, the growing popularity of such a phenomenon of "green" investing has given rise to a significant number of "concepts" and definitions [14], but the major issue is that definitions of green investments are usually either implicit, vague or absent altogether.

There are hundreds of definitions for green investments in circulation and use, and it would be futile to try to list and compare even a fraction of them. For example, some researchers like Euraud, Clements and Wane [15], or Karásek and Pavlica [16] focus on GI as an investment necessary to reduce greenhouse gas and air pollutant emissions, while others like Latysheva [17, p.59] believe that GI best encompassed as "all types of property and intellectual values invested in economic activity and aimed at reducing anthropogenic impact on the environment...".

Seeing as there is a substantial gap between the essence of definitions, it might be more productive for purpose of this research to not take a position on a specific existing definition, but rather to explore what traits are unifying the theory, its commonalties, and inconsistencies, and to come up with a new approach, a more open and dynamic one.

To achieve this, the main fundamental values of the Green Investment can be considered as next [18]:

1. **Existence of the emission gap:** The first statement recognizes the existence of an emission gap, which refers to the disparity between the current level of greenhouse gas emissions and the emission reduction targets necessary to mitigate climate change effectively. Scientific evidence demonstrates that the current trajectory of global emissions is not aligned with the goal of limiting global warming to well below 2 degrees Celsius, as outlined in the Paris Agreement [10].

2. **The need for global transition to a low-carbon economy:** The second statement emphasizes the imperative for a global transition to a low-carbon economy. This transition entails replacing a significant portion of existing infrastructure and adopting low-carbon technologies and practices across various

sectors, including energy, transportation, industry, and agriculture. It recognizes that a fundamental shift in the way society produces and consumes energy is essential to achieve greenhouse gas emissions reductions and mitigate the environmental impacts of economic activities [19].

3. The need for investments to bridge the investment gap: The third statement highlights the critical role of investments in bridging the gap between current emission levels and the required emission reductions. It acknowledges that the transition to a low-carbon economy requires substantial financial resources and investments in sustainable infrastructure, clean technologies, renewable energy, energy efficiency, and other environmentally friendly solutions. The investment gap refers to the shortfall between the funding needed to support the necessary emission reduction measures and the available financial resources. Closing this gap necessitates mobilizing private and public investments at a scale that matches the ambition of climate and sustainability goals [20].

Considering the outlined paradigm and, more crucially, objectives of our paper, a suitable definition of green investments would be an investment approach that considers environmental factors and aims to generate positive environmental impacts while also delivering financial returns. This way, our definition captures the crucial notion that green investments extend beyond mere financial returns for the company, encompassing the pursuit of positive social transformations, mitigation of adverse environmental impacts, and adherence to ethical standards, while also not imposing an implausible assumption that companies do not seek to maximise their profits through such operations [21].

It's important to note that green investing has always been part of a larger investment framework. Therefore, it wouldn't be reasonable to only analyse investments labelled "green" in a strict sense. For the sake of simplicity in this paper, we consider "green" as a subset of various investment approaches like ESG (Environmental, Social, and Governance), SRI (Socially Responsible Investing),

responsible investing, sustainable investing, or other similar terms that are often used interchangeably [22].

1.2 Classification of Green Investments

The essence of GI can be further examined by looking at them through the lens of different asset classes that facilitate these investments. While there is no universal approach to the classification of instruments for financing "green" projects (just like in the case of definitions), there are three main categories of instruments commonly referred to in the literature [22;23, p.14]:

1. Instruments for Direct Financing: These instruments involve the direct provision of funds to support green projects. They include shares (equity investments), credit lines, loans, and grants. Through these instruments, investors contribute capital to finance projects focused on environmental sustainability, renewable energy, energy efficiency, waste management, and other green initiatives. Direct financing instruments play a crucial role in providing the necessary funds for the implementation of green projects.

One straightforward approach to green investing involves purchasing stocks in companies that demonstrate strong environmental commitments. Numerous startups are emerging with a focus on developing alternative energies and materials, while even established industry players are making significant investments in a low-carbon future [24]. This form of financing constitutes a strong commitment [23]. Green equity encompasses various forms and approaches to green investments, yet there is a notable lack of clarity and transparency in this realm. In light of this, it is useful to mention equity indices as they offer a high level of transparency. Equity indices are widely employed as a preferred tool for green investments due to their comparability and their ability to serve as a benchmark for active investment strategies [25].

Investing in "green" shares may seem like a good opportunity with lower risks than debt financial instruments, but there are still investment risks to consider. For example, investing in shares can come with significant transaction costs, and the ability to sell shares and exit the investment depends on well-developed financial markets. Additionally, if a company fails or liquidates, shareholders are usually the last to receive compensation [23].

2. Instruments for Knowledge Transfer and Risk Reduction: These instruments do not directly provide financing but play a significant role in supporting green investments. Guarantees and technical assistance are examples of such instruments. Guarantees help mitigate the risks associated with green projects by providing assurances to investors and lenders. Technical assistance aims to transfer knowledge, expertise, and best practices to project developers, thereby improving project viability and success. These instruments indirectly contribute to the advancement of green investments by reducing barriers and enhancing project confidence.

In developing countries, guarantees play a crucial role in mobilizing private financing for "green" investments. These guarantees, which are offered for a fee, serve to mitigate various risks, including political risks such as expropriation, currency transfer restrictions, war or civil unrest, and regulatory changes like reductions in incentive tariffs. They are often paid to partner banks, enabling these banks to provide loans for "green" projects. However, it is important to note that guarantees come with high transaction costs. The primary objective of this financial instrument is to attract long-term financing by improving the risk profile and potential returns of "green" projects. While guarantees can be applied to various types of projects, their widespread use may be limited due to the associated high transaction costs. Typically, guarantees are provided on a project-specific basis [26, p.94].

3. Instruments for Mobilizing Private Funds: These instruments are designed to attract additional private funds to support green projects. They work by

channelling private capital into green initiatives through the previously mentioned direct financing or knowledge transfer instruments. Two prominent examples of such instruments are "green" bonds and structured funds. "Green" bonds are fixed-income securities that are specifically issued to finance environmentally friendly projects. Structured funds, on the other hand, pool together investments from multiple sources and allocate the funds to green projects. These instruments help leverage private sector involvement in green investments, expanding the pool of available capital.

"Green" bonds are a notable financial instrument within the capital market that offers an alternative to bank loans for projects aimed at addressing climate change. These bonds serve as debt securities, distinguished from conventional bonds solely by their purpose of financing green investment initiatives. By providing direct access to capital markets, green bonds present an effective means of raising funds. Similar to other bonds, they function as fixed-income instruments, enabling the acquisition of capital from investors through the debt capital market [27]. Green bonds possess the advantage of consolidating multiple projects into a single security. This attribute enhances their effectiveness as a financial instrument [23]. In 2021, new green bonds with a total value of around \$1.1 trillion were issued, as reported by the Climate Bonds Initiative [28]. These bonds often offer tax incentives, which enhance their appeal as an investment option compared to conventional bonds [24].

By utilizing these different asset classes, green investments can encompass a wide range of financial mechanisms that support environmentally sustainable projects. The diverse nature of these instruments allows for a comprehensive approach to financing and promoting green initiatives, providing various options for investors, project developers, and stakeholders in the pursuit of environmental sustainability.

It is important to note that these development financing instruments are widely recognized and established. The instruments that we discussed in this study

are not groundbreaking or specifically designed for green financing. This is because there is no compelling need to develop entirely new instruments for green investments. On the contrary, the key focus should be on simplicity in order to attract investors. Rather than striving for innovation in instrument creation, it is more advantageous to enable green investment through the integration of existing approaches, adapting well-known instruments to the specific context of green investment. Additionally, according to G. Inderst, C. Kaminker, and F. Stewart [22], financing instruments cannot even be inherently classified as "green" since their "greenness" is determined by the underlying assets or activities they support. Conventional financing instruments like loans and securities, when used specifically for financing green investment projects, undergo a transformation and therefore can be considered as new and innovative investment instruments through their context, rather than mechanism. This could involve utilizing various instruments in combination for different stages of the green investment project cycle [23].

1.3 Fundamental problems of the Green Investment Paradigm

After a conducted analysis of both the theoretical foundations and financial instruments of GI, it is impossible not to recognise some imperfections and contradictions that theory suffers from (much like most modern strands of economic thought).

The first important shortcoming of the current state-of-the-art is its reductionist framing. The Green Investment Paradigm (GIP) oversimplifies the multidimensional ecological crisis by narrowing it down to a singular objective of

limiting temperature rise, disregarding the intricate interconnectedness of environmental issues. By reducing the crisis to a quantifiable parameter, it fails to acknowledge the socio-historical context and neglects to address the underlying causes of environmental degradation.

The investment gap, which we previously mentioned, reflects the multidimensional ecological crisis. However, within the GIP, it is reduced to the singular problem of limiting temperature increase to 2°C by 2100. This reductionist approach diminishes the significance of various ecological crises, such as the disruption of water, nitrogen, and carbon cycles, deforestation, mass extinction, biodiversity threats, soil degradation, landscape destruction, ocean pollution, overfishing, groundwater pollution, noise and light pollution, among others. These complex and often localized crises are trivialized to a mere question: "How can we prevent a temperature rise of more than 2°C by 2100?" Furthermore, this approach overlooks the underlying causes that contribute to these issues, reducing the problem to a superficial and detached standpoint. Astonishingly, the proposed solution seems straightforward: the primary obstacle in addressing "our problem" is simply a lack of financial resources [18].

Second important drawback of theory of Green Investment is the uncertainty of the term "green" itself. How do we define "green" and what makes some particular technologies or investments "greener" in our eyes than other? The literature does not provide an answer to that, which naturally creates problems. The exclusive emphasis on reducing CO₂ emissions disregards the broader aspects of sustainability and overlooks the potential adverse effects of so-called green technologies when considering their entire life cycle. For instance, society is well aware of the detrimental consequences associated with nuclear power, geoengineering, rare earths extraction (essential for renewable energies and electric cars), soil artificialisation in solar farms, and the destruction of wetlands caused by dams [29]. However, these concerns are often overlooked in the discourse

surrounding Green Investment, as introducing additional layers of complexity proves detrimental to the prevailing narrative.

Such uncertainty around the definition of “green” also facilitates the creation of theoretical paradox. By the definition, investments of the company, whose primary operations are in the “brown” sector of economy, into the green innovations, or lobbying of the green initiatives are still considered to be “green”. Such practice is commonly referred to as “greenwashing”, which is the act of misleading consumers regarding the environmental practices of an organization or the environmental benefits of a product or service [30].

Final issue withing the state-of-the-art that we are going to criticise refers to incommensurability of values [31]. Theory of GI fails to recognise a vital notion that elements of ecology inevitably have different value and significance to different groups of people. While scientifically a forest can be perceived as a simple carbon refinery, it also produces an unquestionable aesthetic, sentimental value. As such it is impossible to reduce it importance to quantitative or qualitative metrics, and consider replacing ruined landmarks with alternatives [18]. Additionally, the concept of social constructs and ties is absent in the discourse of Green Investment. It overlooks the reality that society consists of various social groups with conflicting and diverging interests [32]. As a result, the definition of what is "green" or environmentally friendly becomes a product of conflict, as different groups seek to impose their own definitions that align with their interests, since the agenda of what is "green" would, naturally, differ greatly between the OECD [33] and Guatemalan farmers [34].

2 ANALYSIS OF GREEN INVESTMENTS IN OPERATIONS OF INTERNATIONAL COMPANIES

2.1 Analysis of motivations, costs and benefits behind Corporate Green Investments

Having researched theoretical foundations of the CGI in previous chapter, now we will assess what drives TNCs to invest in “green”, what are their costs and payoffs. In this context, we set aside the challenges associated with defining socially responsible investment (SRI) and instead direct our attention to the goals of ethical investors. Does the benefit derived from excluding specific stocks from one's portfolio stem solely from the contentment of not partaking in the financial gains of irresponsible social conduct?

2.1.1 Motivations

We are going to discuss arguably two most important drivers behind CGI: Corporate Social Responsibility (CSR) in relation to institutional and stakeholder theories, and Risk Mitigation. While there are many more motivations for GI,

which in different contexts gain and lose importance, through our analysis we identified these two as most universal ones.

According to institutional theory [35], stakeholders' attitudes and expectations play a crucial role in shaping a firm's environmental performance, considering various internal and external factors. Under the lens of this theory, corporate green investments are influenced by both coercive and normative pressures. Coercive pressures stem from regulatory forces, including policies, laws, and rules established by authorized entities, and as such, these pressures have a crucial role as drivers of environmental management practices [36]. To guide firms towards desired behaviours, regulatory tools such as incentives and sanctions are employed, motivating compliance not only for legitimacy purposes but also to avoid penalties and foster positive relationships with regulatory bodies [37].

The institutional approach finds support in stakeholder theory, which recognizes the growing expectations of stakeholders, including shareholders, employees, and customers, for companies to embrace sustainability practices. Meeting these expectations is crucial for maintaining trust and fostering long-term relationships [38]. Stakeholder theory and legitimacy theory further emphasize the importance of addressing societal concerns and maintaining a social license to operate [39]. In response to stakeholder scrutiny and the need for environmental compliance, firms are increasingly integrating sustainable development into their corporate culture [40]. By embedding sustainable knowledge for communities and leveraging the social process of knowledge mobilization, companies aim to comply with environmental regulations and contribute to ecologically sustainable practices [41]. Green innovation has become a focal point for firms seeking to develop sustainable processes while remaining competitive in the markets.

Regarding the Risk Mitigation, green investments help companies to suppress risks associated with climate change and environmental regulations. Studies indicate that adopting sustainable practices and technologies can reduce regulatory and legal risks, ensure resource availability, and minimize reputational damage

[42]. These findings align with the risk management theory, which suggests that companies should proactively address environmental risks to maintain long-term viability [43].

2.1.2 Costs

From an investment perspective, there are, naturally, some costs associated with corporate green investments and socially responsible investing (SRI). When company is considering to be an investor, financial assets aligned with SRI principles may forgo business opportunities that do not meet socially responsible criteria, potentially sacrificing profitable outcomes. Early studies have also found that investing in socially responsible mutual funds can lead to lower certainty-equivalent returns compared to funds without such a focus [44]. However, investors may be willing to accept these financial costs due to the non-financial benefits associated with SRI, such as psychological well-being, public recognition, and influence on policy makers [45].

Similarly, if company would decide to issue this type of SRI assets, it would incur additional costs. Green investments are subject to environmental regulations and compliance requirements. Companies must allocate resources to monitor, report, and ensure adherence to sustainability standards. Compliance costs and the need to navigate complex regulatory frameworks can present challenges for companies [46]. These additional costs reflect the luxury aspect of SRI investments [45], which are approached from both the investing and issuing corporate perspectives. Recent research additionally highlights the time-variation in abnormal returns from socially responsible investing, which is positively correlated

with luxury goods consumption in economic theory [47]. These findings suggest that during good economic times, when households have greater financial wealth, there is increased demand for socially responsible investments. However, during economic downturns when household wealth is lower, investors may prioritize conventional alternatives over socially responsible investing.

It also goes without saying that CGI faces both capital and technological constraints. Green investments typically involve significant initial capital expenditures, which can present challenges for companies seeking to invest in green technologies and infrastructure. Research has shown that funding constraints are a critical hurdle for firms considering such investments, leading to variations in their response to regulatory and normative pressures, influenced by their financial performance [42]. Moreover, implementation of green technologies and practices may involve technological barriers and adaptation costs. Therefore technological challenges, such as the need for research and development, staff skill enhancement, and process reengineering, is prone to create substantial obstacles on the transitional stages, discouraging less prepared institutions from doing so altogether [46].

2.1.3 Benefits

After our research of risks and costs of the Corporate Green Investment, it is only reasonable to ask if it is even profitable to invest in green initiatives. Companies that navigate the risks associated with green investments can expect several beneficial payoffs.

Several studies provide insights into the profitability and benefits of corporate green investment. Indriastuti and Chariri [48] found that green investment and corporate social responsibility (CSR) investment activities of manufacturing companies in Indonesia were at a high level, indicating consistency with community values and norms. Moreover, the stock price performance of these companies, listed in the SRI-KEHATI stock index, showcased their commitment to sustainable business practices. Additionally, they found that green investment and CSR investment had a positive and significant effect on financial performance and sustainable performance, emphasizing the voluntary nature of these activities and their alignment with social goals and ethical motives.

Khalid et al. [11] examined the impact of corporate green investment (CGI) on firm profitability using Chinese listed companies' data. Their findings demonstrated that CGI promoted firms' profitability, highlighting the positive relationship between environmental initiatives and financial performance. They also revealed the significance of environmental policy and regional development in enhancing the CGI-profitability relationship. However, environmentally sensitive industries operating under substantial regulatory pressure did not experience the same profitability benefits, as they were already required to fulfil their environmental responsibilities for legitimacy purposes.

Yousaf et al. [45] explored green investments as a safe haven during market downturns, particularly during the COVID-19 pandemic. Their research highlighted the role of green bonds as a strong safe haven investment, providing risk reduction benefits and improved risk-adjusted returns, even outperforming gold during the pandemic period. The study emphasized that green investments are not only a luxury but a financial necessity, offering investors protection against market uncertainty and aligning with responsible investing and environmental-friendly features.

In addition to financial benefits, companies engaging in green investments also enjoy improved reputation and brand image. A study by Gond et al. [49]

shows that consumers increasingly prefer brands that demonstrate environmental responsibility and sustainability practices. By aligning with these values, companies can attract and retain customers, enhance brand loyalty, and gain a competitive edge in the market.

Taken together, these studies suggest that corporate green investments can lead to improved financial performance, sustainability, and risk reduction. Companies that embrace green initiatives and engage in CSR activities not only align their operations with societal expectations but also reap the benefits of enhanced profitability and market recognition.

2.2 Modern trends in Green Investment

With the development of globalization and the increasing influence of Transnational Corporations (TNCs), the focus on sustainable development has shifted from national economies to the corporate level. TNCs, which have significantly grown in number from about 7,000 to 60,000 since the 1970s, play a pivotal role in sectors like agriculture, industry, construction, and energy, determining the trajectory of the global economy towards either business-as-usual or a more sustainable system of production and consumption. In response to these dynamics, a growing number of TNCs are integrating corporate social and environmental responsibility principles into their development strategies, guided by an approach that considers Environmental, Social, and Governance (ESG) factors [50]. These emerging trends, coupled with the ongoing transition of countries towards "green" growth and sustainable development, have raised important questions regarding the impact of Foreign Direct Investment (FDI) on

achieving sustainable development goals. But before addressing the impact they can have, it is important to overview current trends in the Corporate Green Investment.

According to the greenfield investment monitor of the Financial Times, fDi Markets, international investors revealed over 16,000 foreign direct investment (FDI) projects in 2022, showcasing an estimated value of \$1.155tn and contributing to the creation of more than 2.2 million jobs [51]. These figures indicate a steady recovery in FDI activity following the disruptive impact of the Covid-19 pandemic, with project numbers increasing by 16% and capital investment pledges surging by 64% compared to 2021. Notably, last year witnessed a remarkable rise in FDI mega projects, as fDi Markets' cross-border investment data reveals the announcement of 159 large-scale FDI projects valued at a minimum of \$1bn in 2022. This unprecedented number of mega projects accounted for a significant portion, half to be precise, of the \$1tn in capital commitments made by foreign investors worldwide, demonstrating a concentration of global FDI among a select few multinational enterprises (MNEs) that possess substantial resources and engage in cross-border operations [52].

Table 2.1 – Top 10 countries recipients of CGI in 2022 by the amount of projects

	Country	2022, Projects	2020, Projects	Δ,%
1.	USA	2034	1614	26%
2.	UK	1119	868	29%
3.	India	994	372	167%
4.	UAE	879	327	169%
5.	Germany	820	733	12%
6.	Spain	702	448	57%
7.	France	536	385	39%
8.	Poland	493	378	30%
9.	Mexico	433	273	59%
10.	Australia	420	295	42%

Based on the Table 2.1 we can observe significant growth rates in the number of FDI projects for certain countries in the CGI sector. The United States remains the leader with 2,034 projects in 2022, marking a 26% increase compared to 2020. The United Kingdom experienced a similar upward trend, with 1,119 projects in 2022, representing a growth rate of 29% from 2020. Very notably, India recorded a remarkable surge in FDI projects, reaching 994 projects in 2022, a staggering 167% increase from 2020. Similarly, the UAE witnessed substantial growth, with 879 projects in 2022, reflecting a remarkable 169% increase compared to 2020. These growth rates highlight the growing importance and attractiveness of the renewable energy sector in these countries, signaling their commitment to sustainable energy development and investment [51; 53].

Regarding the capital inflows CGI sector exhibited significant growth in several key countries. In North America, the United States remained the top destination country, attracting a remarkable \$158.1 billion in inbound capital investment, representing a substantial 73% increase from 2021 and a noteworthy 59% increase from 2019. This impressive surge indicates a robust recovery from the lows experienced during the pandemic. Across the Atlantic, the United Kingdom emerged as the leading destination country in Europe, attracting an estimated \$101.2 billion through 1119 announced FDI projects. Notably, the renewable energy sector accounted for a significant portion of this investment, amounting to \$72.5 billion. Furthermore, India witnessed a remarkable surge in capital expenditure, with investment rising from \$16.1 billion in 2021 to an impressive \$75.8 billion in 2022. This accounted for 27% of the total recorded investment in the Asia-Pacific region. Major projects, such as Hon Hai Precision Industry's semiconductor and display complex in Gujarat (\$19.5 billion) and Petronas's renewable hydrogen energy plant in Mangalore (\$3.8 billion), contributed to India's growing appeal as a CGI investment destination.

At a regional level, 2022 witnessed a significant influx of FDI projects in western Europe, with an impressive total of 5250 projects. In terms of capital

investment, both western Europe and the Asia-Pacific region proved to be highly attractive, each receiving approximately \$279 billion. Remarkably, Asia-Pacific claimed the top spot by a narrow margin of just \$229.9 million. For a comprehensive breakdown of FDI distribution by country and regions, please refer to Appendix A. These figures highlight the robust investment climate in both regions and underscore the global appeal and competitiveness of their respective economies.

As for top companies that contributed to CGI past year, Switzerland-based office provider International Workplace Group (IWG) emerged as the most active foreign investor in terms of corporate green investments. The company experienced significant growth, recording a total of 160 foreign direct investment (FDI) projects, which represented a 36% increase compared to the previous year. IWG invested an estimated \$324 million in green initiatives during 2022.

IWG's remarkable performance was accompanied by its highest-ever revenue in its 34-year history, with a systemwide revenue growth of 24% to reach \$3.8 billion. This success can be attributed to the growing adoption of hybrid working models, as more companies embraced flexible work arrangements [54].

Among the automotive firms, Germany-based Volkswagen and Netherlands-based Stellantis stood out as the joint-ninth-most active overseas investors in 2022. Both companies announced 25 FDI projects each and made significant investments in the green sector. Volkswagen invested \$9.1 billion, while Stellantis invested \$5.4 billion. Notably, Stellantis announced a \$4.1 billion investment in an electric vehicle battery manufacturing facility in Windsor, Canada, while Volkswagen revealed plans to create a new £2.5 billion facility in Crewe, UK, dedicated exclusively to electric vehicle production.

Furthermore, several companies within the top 20 investors in 2022 had a strong focus on renewable energy. TotalEnergies, Energias de Portugal, Eni SpA, and Acme Group were among the notable players that announced capital-intensive

CGI projects, particularly in the green hydrogen sector. In total, these companies invested an impressive \$343.6 billion across 527 projects in the renewable energy sector, reflecting their commitment to sustainable and environmentally friendly initiatives [51].

2.3 Effects of CGI on the recipient country

Corporate Green Investment plays a significant role in shaping the economic and environmental landscape of recipient countries. It goes without saying that green FDI can have positive effects on the environment, energy, and social aspects, but it is also important to consider both the opportunities and challenges it presents.

One of the most significant benefits of FDI is the transfer of technologies critical to environmental management and mitigation, enabling the recipient country to transition from a less efficient and highly polluting phase of development to a "clean" and resource-efficient one. This technology transfer can enhance the recipient country's capacity for environmental sustainability and help promote best practices [55].

The reduction of greenhouse gas (GHG) emissions is a critical environmental concern, and FDI can play a vital role in this area. The decisions made by top management in fossil fuel-related companies are crucial in redirecting capital toward low-carbon research and development. Through industrial

modernization and the adoption of alternative fuels, FDI can contribute to reducing GHG emissions. According to Demena [56], FDI has been found to have a significant impact on reducing CO₂ emissions in the manufacturing sectors of developing countries.

The potential negative environmental consequences associated with FDI must be acknowledged, particularly in relation to the pollution halo hypothesis. This hypothesis suggests that FDI tends to flow into countries with relaxed environmental regulations, leading to adverse environmental footprints and ecological degradation in those regions. To mitigate these negative effects, it is crucial to implement robust environmental regulations and promote responsible investment practices [57].

On the other hand, the pollution halo hypothesis highlights the positive impact that green FDI can have on the environment. It emphasizes the transfer of new technologies that can decrease energy consumption and the sharing of business knowledge, or "know-how," which can bring significant benefits to countries, especially when multinational companies adopt less pollution-intensive practices. The impact of FDI on the environment is also influenced by the characteristics of the host countries. Countries with higher levels of environmental awareness are less likely to accept polluting FDI, ensuring that the benefits of green FDI are more prominent [58].

Additionally, the pollution halo hypothesis suggests that FDI harms the environment in host countries when firms with strict environmental regulations transfer their polluting industries to countries with more relaxed environmental laws. This strategic move allows them to avoid additional costs and taxes. However, the feasibility of this transfer depends on the ease and cost-effectiveness of relocating industries. It categorizes industries into two groups: strongly mobile and weakly mobile pollution industries. Strongly mobile industries will relocate when environmental regulations become more stringent, while weakly mobile

industries may invest in research and development (R&D) to improve efficiency—an effect known as "Innovation Compensation [59]."

In summary, CGI's impact on the environment is multifaceted, with the pollution halo hypothesis highlighting the potential positive effects through technology transfer and responsible investment practices, and shedding light on the potential negative consequences in regions with lax environmental regulations. Implementing strong environmental regulations and promoting sustainable investment practices are crucial steps toward ensuring that CGI contributes positively to the environment in host countries.

CONCLUSIONS

In conclusion, our research shows that Corporate Green Investment has become a significant source of financing, particularly for developing countries, and has the potential to facilitate the transfer of "clean" technologies and practices that contribute to environmental progress. However, realizing the true potential of "green" FDI requires a clear and standardized definition of "green" and stronger commitments from government and private sector entities to address current environmental challenges.

CGI can serve as a valuable financial tool to create an enabling environment for sustainable economic and social development by supporting local productive, social, regulatory, and institutional conditions. To effectively pursue "green" policies at the state level, there is a need for a comprehensive information base on the scope and trends of foreign direct "green" investment. It is advisable to develop tools to monitor progress in achieving "green" growth, including policies to attract

CGI. This includes aligning initiatives with global sustainable development goals and the requirements of the Paris Agreement. Furthermore, efforts should focus on promoting "green" reinvestment to enhance the efficiency of existing assets, leveraging FDI as a channel for the dissemination of "green" technologies, and revitalizing investment promotion agencies to attract "green" FDI and stimulate economic recovery [23].

In addition to government policies, the emergence of financial technology (fintech) and new market practices, such as green banking and climate risk disclosure, can create additional opportunities and drive demand for "green" FDI [26].

From a managerial perspective, firms need to allocate financial and non-financial resources to address environmental challenges. Proactive approaches to environmental concerns can contribute to greater financial performance, but budget constraints often pose a challenge. Having a realistic instrument to assess the costs and benefits of environmental-financial performance can assist managerial executives in making sustainable financial decisions and developing effective strategies.

Managers of environmentally polluting firms should consider redesigning their green strategies, shifting from reactive to proactive environmental decision-making. By utilizing frameworks like Khalid et al.'s [11], firms can transform their strategies and gain a competitive advantage. It is crucial for managers to understand local institutional contexts, business norms, and regulatory frameworks when operating in different regions. Collaborating with local authorities and understanding their intentions regarding green governance is vital for the successful implementation of green strategies.

Returning to the question of a clear and standardized definition of "green" FDI, it is crucial to recognize the importance of flexibility and adaptability in defining what constitutes "green" investments. As we have established earlier in

this work, different countries and regions have varying priorities, resources, and environmental challenges. Similarly, our examination of financing instruments for green investments has revealed that there is no one-size-fits-all solution applicable to all green projects, nor is there a universally applicable set of such instruments. Therefore, a rigid and inflexible definition may not capture the full range of investment opportunities that contribute to sustainable development [27].

Furthermore, it is important to emphasize that the definition of "green" FDI should not be static but should evolve over time. As technology advances and new environmental challenges emerge, the definition must adapt to incorporate emerging sectors and innovative solutions. This flexibility allows for the continuous integration of evolving environmental priorities into investment strategies, ensuring that FDI remains a powerful force for sustainable development.

By fostering a collaborative and adaptive approach to defining "green" FDI, countries can create an environment that encourages both local and foreign investors to participate in sustainable projects. This collaborative effort can lead to knowledge sharing, technology transfer, and the establishment of best practices, all of which are essential for addressing current environmental problems effectively.

Overall, embracing CGI and adopting comprehensive measures at various levels can drive sustainable development, address environmental challenges, and create opportunities for economic growth both on the corporate and national levels.

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Appendix A

Table 2.2 – FDI BY REGION AND COUNTRY. PROJECT NUMBERS and Capital in 2022

Region	Country	Projects	Capital, \$bn.
Asia-Pacific	India	994	75.80
Asia-Pacific	Australia	420	68.66
Asia-Pacific	Singapore	384	15.78
Asia-Pacific	China	314	16.50
Asia-Pacific	Japan	194	
Asia-Pacific	Vietnam	175	25.81
Asia-Pacific	Malaysia	143	16.68
Asia-Pacific	Philippines	131	
Asia-Pacific	South Korea	98	13.01
Asia-Pacific	Hong Kong	98	
Asia-Pacific	Others	524	24.47
Asia-Pacific	Total	3475	
Europe	UK	1119	101.21
Europe	Germany	820	21.67
Europe	Spain	702	42.38
Europe	France	536	18.88
Europe	Poland	493	17.34
Europe	Netherlands	306	8.82
Europe	Ireland	305	25.18
Europe	Belgium	252	
Europe	Turkey	252	
Europe	Portugal	240	
Europe	Others	1812	61.21
Europe	Total	6837	
North America	New York	231	

North America	Texas	229	15.96
North America	California	197	8.51
North America	Ontario	175	11.86
North America	Florida	155	
North America	Massachusetts	77	
North America	North Carolina	68	6.23
North America	Illinois	64	
North America	Georgia	63	16.26
North America	Quebec	53	
North America	Others	1018	66.26
North America	Total	2330	
Middle East and Africa	UAE	879	10.45
Middle East and Africa	Saudi Arabia	216	13.05
Middle East and Africa	South Africa	157	26.76
Middle East and Africa	Egypt	148	107.00
Middle East and Africa	Qatar	135	29.78
Middle East and Africa	Israel	73	
Middle East and Africa	Morocco	71	15.31
Middle East and Africa	Kenya	63	
Middle East and Africa	Nigeria	49	
Middle East and Africa	Oman	35	9.79
Middle East and Africa	Others	305	27.28
Middle East and Africa	Total	2131	
Latin America and Caribbean	Mexico	433	35.57
Latin America and Caribbean	Brazil	231	17.84
Latin America and Caribbean	Costa Rica	147	2.44
Latin America and Caribbean	Colombia	135	1.64
Latin America and Caribbean	Chile	80	5.39
Latin America and Caribbean	Argentina	63	6.68
Latin America and Caribbean	Peru	33	1.16
Latin America and Caribbean	Dominican Republic	29	3.54
Latin America and Caribbean	Uruguay	24	
Latin America and Caribbean	Guatemala	16	
Latin America and Caribbean	Others	76	2.96
Latin America and Caribbean	Total	1267	75.80