



The Synergy of Blockchain and FDI: Frameworks for Advancing Cross-Border Investment Security and Efficiency

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Abstract: This study explores the integration of blockchain technology in Foreign Direct Investment (FDI), aiming to address inefficiencies, opacity, and security challenges in traditional FDI processes. It examines blockchain's potential to enhance cross-border investment efficiency and security through a comparative analysis with conventional FDI mechanisms. The paper proposes a strategic framework for blockchain adoption in FDI, focusing on optimizing transactional processes, fostering innovative investment models, and navigating complex regulatory environments. Key findings highlight the transformative impact of blockchain in streamlining FDI operations, enhancing transparency, and reducing costs. The framework underscores the need for technological adaptation, regulatory harmonization, and collaborative global efforts. This research contributes to the discourse on blockchain in international finance, offering insights for policymakers and stakeholders in the FDI arena. The study concludes with the recognition of blockchain's significant potential in FDI, while acknowledging the challenges in its implementation. It calls for further research on blockchain's evolving role in global economic structures.

Keywords: blockchain; FDI; cross-border investment; strategic framework; regulatory harmonization.

JEL Classification: F21; G15; L86; O16

1. Introduction

In the last decades we witnessed an accelerated evolution of the global economy, at the same time FDI was seen as a way of evolution for developing countries and considered as a pillar that changed the traditional concept of corporations and shaped the economic trajectories of nations. Starting from the definition of FDI, it emphasizes that in addition to the transfer of capital, countries that adopt a pro-FDI policy benefit from a transfer of technology and expertise that help stimulate the growth and development of the host country. More and more recently, with the increased interest in security, the lack of FDI transparency and FDI efficiency in relation to the risks that investors and host countries alike may be subject to is invoked.

A convincing solution to the perennial problems that currently affect FDI can be represented by blockchain technology, a technology that was the basis of the creation and trading of cryptocurrencies, but which has recently attracted interest from several fields, being shared in an increased interest both from corporations as well as governments regarding this technology. We predict that FDI can become more efficient and safer by introducing blockchain technology into its mechanisms.

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Exploring the potential synergy between blockchain and foreign direct investments is the starting point of this study. The purpose of the study is to see how FDI can be transformed in a positive way with the help of blockchain technology, therefore the limitations and the negative effects that can appear will be studied in specialized literature.

The efficiency of FDI with the help of blockchain technology may at first glance seem like a winning book, but in this article, we will carefully analyze the specialized literature to carefully observe what is the current understanding and what are the limitations in research in both fields, both FDI and blockchain. Starting from the blockchain applications and especially those used in FDI encountered in the research so far, we want to emphasize the strategic frameworks through which FDI can become effective with the help of blockchain technology. Through a critical discussion we can synthesize the main points of attraction regarding the FDI and blockchain fields that can establish a future direction regarding the development of new consensual policies between investors and governments.

This article can become a starting point for researchers who are attracted to the fields of blockchain and FDI, who want the investments, whether cross-border, to have increased efficiency and security. The synergy between blockchain and FDI represents more than a simple academic investigation, the new technology that can provide transparency, immutability, decentralization, traceability, automatic transactions and last but not least lower costs, is attractive to researchers, governments and tax collectors alike.

2. Literature Review

We propose that through a careful review of the specialized literature both in the field of blockchain and in that of FDI, following their synergy potential to create effective solutions with improved security.

Blockchain technology: The history of this technology is known to the general public through the advantages offered regarding the emergence and development of the crypto market (Nakamoto, 2008), but more and more studies show advantages regarding the development of other fields of industry with the help of blockchain technology. We started from works that study in a complex way the applicability of blockchain technology in industry sectors (Tapscott & Tapscott, 2016, Ambrozie, 2021), but also the beneficial value brought by this technology through its decentralized system for governments, offering at the same time speed, increased security, elimination of third parties, immutability and transparency in data transfer. According to the two works specified above, but also of other studies, blockchain can become a new alternative in the transformation of FDI for the new era.

Foreign Direct Investments: Dunning (1993) brought to the attention of the general public the economic role and political implications of foreign direct investments on the host countries, but also the beneficial transformative role for developing countries, countries whose economy develops in an accentuated way with the help of FDI. More recent studies such as Kogut (2012) and Topliceanu (2022) show certain limitations such as the difficulty of the operational process and inefficiencies and blockages in processing transactions for FDI, and the accelerated pace of FDI development has led governments to adopt new policies and regulations to create a competitive and sustainable domestic framework and to protect citizens. These limitations as well as the accelerated way of transforming industries in the 4.0 era show the need to transform the current FDI's and blockchain can be one of the technologies that can do this.



Blockchain in FDI: In the specialized literature, there are not many studies that emphasize the role of blockchain application in FDI, our attention was drawn to Gane's work that analyzes how blockchain can bring transparency in transactions but also reduce costs. This can be a starting point towards a fertile research ground on the beneficial transformations and limitations that blockchain applications can bring to FDI.

In the current body of literature there is a research gap regarding a link between FDI and blockchain, there are studies that carefully analyze the influence of blockchain in different industry sectors (Attaran, 2019; Aboujaoude 2019; Ambrozie, 2021) but that do not emphasize how the applications of the technology blockchain can act in the FDI's context. A framework that synergizes FDI and blockchain can create a new area for research to determine whether the effective applicability of blockchain in different sectors can be reflected in an operational efficiency improvement and in security investments

The emergence and rapid transformation of blockchain technology, still seen as a revolutionary technology with applicability in a wide range of industry sectors, but the application of this technology in FDI represents a paradigm shift that is committed to solving the risks and inefficiencies traditionally associated with cross-border investments. As has been highlighted in several studies, FDI has an important role in the global economy and the most common blockages regarding their good functioning are determined by security, efficiency and transparency (Iftode & Pirju, 2014). The features offered by blockchain technology offer a gratifying prospect for solving a large part of these problems.

It is necessary to understand the basic characteristics of blockchain technology; therefore, we will pay more attention to blockchain applications and their applicability in FDI. *Decentralization*, an important feature of blockchain technology, is a potential advantage for a continuous and sustainable development of networks, networks that span different jurisdictions and regulations, reducing the risk and improving the security encountered in the current centralized control. Another characteristic of blockchain technology is *immutability*, that is, once the data is registered in the system, if blockchain technology is implemented, the changes that may occur can only be made with the full agreement of the parties. Immutability offers the integrity of transactional data, but blockchain technology offers an advantage through the potential to add new data only with the consent of the parties. Continuing with another characteristic, *transparency*, so necessary in the current systems and a reason for its lack has been emphasized many times by the governments involved, emphasizing the serious damages, such as those of corruption and fraud, that can be brought the states involved. A transparent system is absolutely necessary for the proper functioning of FDI because they have activity in different states and face different jurisdictions and laws. Last but not least the blockchain *cryptographic feature*, which can give weight to the above features considering particularly critical aspects of cross-border investments, where sensitive financial data is often exchanged. A solid basis for improving and simplifying FDI processes can be determined by the characteristics of blockchain technology.

Practical applications and emerging case studies highlight potential theoretical advantages of blockchain application in FDI. A blockchain-based platform dedicated to FDI can offer a safe, fast, simplified, transparent, but at the same time decentralized solution to the various actors involved such as investors, governments and other authorities or various third parties necessary in the process.

2.1. Challenges and Considerations

Despite the huge potential that the application of blockchain technology in FDI can have and despite the steps taken by large corporations such as UPS, Carrefour, Louis Vuitton, and governments such as the USA, South Korea or the EU, which in recent years have priority strategies for the development of blockchain systems, the challenges that may appear must be taken into account. First of all, there are and may appear new technological barriers, the application of blockchain technology can be a tortuous one in many countries at the moment, especially in developing ones, where there is a lack of qualified personnel and there is no technological infrastructure. Another aspect and another challenge can be represented by the different way in which blockchain technology is developed by corporations and governments and whether it will have an effective applicability in FDI. Secondly, at the moment there is a high challenge of harmonizing regulations and the decentralized nature of blockchain technology can complicate regulatory applicability. Both international cooperation and the development of a consensual and simplified framework for the application of regulatory standards and ensuring compliance throughout the borders are necessary.

In conclusion, good communication and an efficient involvement of the main actors must be adopted in the development of international regulations, in the creation of an internationally applicable technological framework and in the development of blockchain technologies that can be compatible with FDI at the international level.

3. Framework for Transformation

Next, we will propose a strategic framework designed for the exploitation of the new frontiers that blockchain technology can welcome in the field of foreign direct investments, emphasizing the transformative effects and focusing on optimization, innovation and regulation.

Table 1. Leveraging Blockchain for Transformative Foreign Direct Investment: Navigating New Frontiers

Framework Component	Objective	Strategies	Implementation Steps	Expected Outcomes
1. Optimizing Transactional Efficiency and Security	To reduce operational costs and enhance security in FDI transactions.	Utilize blockchain and smart contracts for automating transactions and ensuring cryptographic security.	Develop blockchain solutions for FDI transactions; Implement smart contracts for automation; Ensure robust cryptographic measures.	Reduced costs and time in transactions; Increased investor confidence; Enhanced security against fraud.
2. Innovating Through Decentralized Models	To democratize access to FDI and diversify investment strategies.	Leverage tokenization and decentralized investment models facilitated by blockchain.	Identify assets for tokenization; Develop decentralized platforms for wider investor participation.	Broader investor base; Diversified investment risks; More sustainable development projects.



3. Navigating Regulatory Compliance and Standardization	To simplify compliance across international jurisdictions.	Develop standardized blockchain protocols; Collaborate with regulatory bodies and financial institutions.	Draft standardized protocols for blockchain FDI transactions; Engage in dialogues with international regulators; Pilot test protocols in select jurisdictions.	Harmonized regulations; Simplified compliance processes; Enhanced global investment flows.
4. Case Studies and Practical Applications	To illustrate and validate the framework through real-world applications.	Implement blockchain-based FDI platforms for tracking and due diligence.	Launch pilot blockchain FDI platforms; Monitor investment flows and impacts; Refine platform features based on feedback.	Increased transparency and efficiency; Improved risk assessment and compliance.
5. Challenges and Forward Path	To address potential barriers and outline a roadmap for blockchain adoption in FDI.	Address technological adoption, infrastructure development, and regulatory alignment.	Start with pilot projects to test technologies and regulatory approaches; Gradually expand successful pilots; Continuous dialogue with stakeholders for evolution.	Successful integration of blockchain in FDI; Aligned global regulatory framework; Sustainable and efficient FDI ecosystem.

Optimizing Transactional Efficiency and Security: The first pillar of the framework emphasizes the optimization of transactional processes in FDI. Blockchain offers solutions to streamline operations, reducing both time and cost, as evidenced in the comparative analysis earlier. Smart contracts, a key feature of blockchain, can automate various aspects of FDI transactions - from compliance checks to fund transfers. Additionally, the cryptographic security inherent in blockchain mitigates the risks of fraud and data breaches, enhancing investor confidence.

Innovating Through Decentralized Models: Innovation in FDI through blockchain technology is not limited to improving existing processes; it also involves rethinking investment models. Decentralized models facilitated by blockchain can enable more inclusive and diverse investment strategies. For example, tokenization of assets could open FDI to a broader range of investors, democratizing access to international investment opportunities. This approach also facilitates smaller investments, diversifying risk, and fostering more sustainable development projects.

Navigating Regulatory Compliance and Standardization: A critical aspect of effectively leveraging blockchain in FDI is navigating the complex web of international regulatory environments. The framework proposes the development of standardized protocols for blockchain-based FDI transactions. These protocols would aim to harmonize regulations across jurisdictions, simplifying compliance for investors and recipient countries alike. Collaborative efforts with international regulatory bodies and financial institutions are essential to achieve this standardization.

Case Studies and Practical Applications: To illustrate the framework’s application, consider the example of a blockchain-based FDI platform. This platform could facilitate real-time tracking of investment flows and impacts, offering unprecedented transparency to stakeholders. Such a platform



could also streamline the due diligence process, making it easier for investors to assess risks and comply with international standards.

Challenges and Forward Path: While the potential of blockchain in transforming FDI is immense, challenges such as technological adoption, infrastructure development, and global regulatory alignment must be addressed. The framework acknowledges these challenges and advocates for a phased implementation approach, starting with pilot projects and gradually expanding as technology and regulatory environments evolve.

Leveraging blockchain for transformative foreign direct investment requires a comprehensive and strategic approach. The proposed framework focuses on optimizing transactional processes, fostering innovation through decentralized models, and navigating regulatory challenges. By embracing this framework, stakeholders can navigate the new frontiers of blockchain in FDI, harnessing its potential to create a more efficient, secure, and inclusive global investment landscape.

4. Discussions

Investigating the field of foreign direct investments and especially how they can be shaped and transformed with the help of blockchain technology has revealed a territory full of promising perspectives, but which brings with it challenges that require intelligent approaches and adaptability. This article started from a fundamental understanding of fields such as FDI and blockchain, then focusing on the adaptability of the application of blockchain technology in FDI by analyzing the main challenges that may arise. In the framework of these debates, deep ideas are analyzed, examining the challenges and opportunities offered by this technological convergence.

Reflecting on Blockchain's Transformative Potential in FDI

The transformative role of blockchain technology with the integration in FDI was analyzed in this article. Emphasizing the basic features of blockchain such as decentralization, transparency, immutability and security have shown that blockchain technology has not only a transformative role, but also an efficient and secure one, offering a step towards more efficient global investment flows. FDI tokenization it could mean FDI democratization and could change the current market in which more and more investment sources can appear.

4.1. Challenges and Limitations

As it was highlighted in the proposed framework, a technological integration cannot be done without challenges, at this moment there are regulatory, technological and infrastructural obstacles for the adoption of the blockchain. The technological gap between countries could prevent a rapid and homogeneous application of FDI processes enhanced by blockchain. Global regulations and their applicability can bring new difficulties in the standardization process of blockchain applications in FDI. Taking into account these aspects, a fair approach requires a rapid development of the infrastructure and a technological progress harmonized by the new regulations.



4.2. Future Directions and Research Opportunities

As a perspective on the future, the dynamic and complex panorama of changes brought by blockchain technology to FDI requires continuous exploration and research. In a constantly evolving global economic environment on the one hand and the evolutionary nature of the blockchain on the other, it requires in-depth studies. Future research must start from a framework like the one proposed in this paper, frameworks in which all actors are involved and which simultaneously address the emerging challenges and pilot studies that must be done to test the applicability of these frameworks in concrete contexts and, last but not least, longitudinal studies that can analyze over a longer period of time the applicability and evolution of the integration of blockchain technology in FDI.

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