

Transforming Climate Finance and Green Investment with Blockchains

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Chapter 15 - Central Banks and Blockchains: The Case for Managing Climate Risk with a Positive Carbon Price

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Abstract

A central problem of the climate crisis is a need to mobilize sufficient climate finance to generate a low-carbon transition, and to do so quickly enough to prevent dangerous anthropogenic interference with the climate system. In response to this challenge, a case is presented for a coordinated central bank policy that involves a Central Bank Digital Currency (CBDC) for rewarding climate mitigation actions. Justification for the CBDC is framed on a new model for costing externalities and pricing systemic risk. A hypothetical 100-year storyline, called "Avoiding Catastrophe," is presented to illustrate how the CBDC could be used to mobilize trillions of dollars of new climate finance and manage climate risk. Effectiveness of the CBDC reward is appraised by comparing the 100-year storyline with a speech given by Mark Carney—the Governor of the Bank of England—titled "Resolving the climate paradox." A technical brief is provided for a CBDC platform, including recommendations for Blockchain ledgers, smart contracts, rules, and strategies for ensuring accountability and scalability.

Keywords

Central bank; climate mitigation; systemic risk; social cost; carbon; smart contract; Blockchain; mandate; insurance; macroprudential

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"The beauty of *Transforming Climate Finance and Green Investment with Blockchains* is that it brings together top experts from different backgrounds and presents a cohesive, considered and powerful exploration of blockchain's potential in tackling our planet's most pressing challenge. It is a must read for those of us involved in financing and putting resources into green investments, because it's clear that this technology has the potential to positively change the way we work, govern and collaborate in this space."—*Andrew Shaw, FMO, The Dutch Development Bank*

"Blockchain has become a catchword for disruptive innovation in a broad range of issue areas, including climate finance and investment. Frequently invoked and regularly misunderstood, however, this technology and its potential applications to climate change have so far lacked the authoritative scholarly analysis they deserve. By connecting some of the world's foremost experts on blockchain and the complex environmental challenges it could address, this new book fills an important gap."—*Michael Mehling, MIT Center for Energy and Environmental Policy Research*

"Blockchain technology has significant potential to increase confidence in asset ownership, improve transparency and enhance efficiency and effectiveness in support of the World Bank Group's goal to eradicate extreme poverty. We see interesting applications to accelerate decarbonization and broaden and deepen carbon markets through innovative solutions enabled by blockchain technology. This book is a valuable contribution to a debate which is starting to engage institutions, policy makers and practitioners."—*James Close, Director, Climate Change Group, World Bank*

"*Transforming Climate Finance and Green Investment with Blockchains* engages numerous experts on the core issues for the application of distributed ledgers and digital innovations to solve global challenges and scale solutions for sustainability. Although the technology is rapidly changing, this book deals with the fundamental issues and systems, such as governance and finance, that also require significant effort to innovate in order for these emerging technologies to come to full fruition."—*Tom Baumann, ClimateCHECK*

"Blockchains, or more broadly distributed ledger technologies, hold a great potential to spur innovation in a wide range of areas including peer-to-peer renewable energy trading, supply chain management, land titles, and climate finance and investments. *Transforming Climate Finance and Green Investment with Blockchains* can play an important role to raise awareness and to provide in depth academic insights on these emerging [exponential] technologies and their applications in the context of the urgent response needed to address climate change."—*Alexandre Gellert Paris, United Nations*

"No nonsense, hype-free, practical applications of how blockchain could completely transform the way we tackle climate finance. *Transforming Climate Finance and Green Investment with Blockchains* is a fascinating insight into how blockchain could revolutionise climate finance and can help to make this world a better place to live."—*Naseem Naqvi, British Blockchain Association*

"Digital ledger technologies offer the potential to transform the way we store, exchange, and record economic value and will develop over the same time period as the Sustainable Development Goals. This important book marks an early milestone in our understanding of how blockchain can play a role in confronting climate change, and will remain a key reference for policymakers to understand the potential this transformation will make possible."—*Darius Nassiry, Former Adviser to the Director-General of the Global Green Growth Institute*

Transforming Climate Finance and Green Investment with Blockchains establishes and analyzes the connection between this new technology and global efforts to combat climate change. Realizing the benefits of blockchain can only come through a variety of alterations: the adoption of smart contracts, for instance, changes in governance and regulatory structures, and global agreements on privacy issues. Each chapter contains a "problem statement" that describes the challenges blockchain technology can address. The first book of its kind, *Transforming Climate Finance and Green Investment with Blockchains* brings together original insights and opinions from experienced practitioners on a diverse range of practically relevant issues, helping readers understand blockchain technology and how it can accelerate the green economy.



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