

# Chapter 8

## Information Asymmetry and Greenwashing in the Green Bond Market: Suggesting the Role of Technology for a Rational Green Bond Market

**Sreelekshmi Geetha**

 <https://orcid.org/0000-0002-0114-1951>

*University of Kerala, India*

**Nisha Sheen**

 <https://orcid.org/0000-0003-2174-5215>

*St. Lawrence College, Ontario, Canada*

**Biju Ajithakumari Vijayappan Nair**

 <https://orcid.org/0000-0001-5583-6495>

*University of Kerala, India*

### ABSTRACT

*Disclosure and transparency are two critical components in the green financing sector, especially the green bond segment. Compared to green instruments like green credit, green bond issuances facilitate information dissemination and reduce information asymmetry. Still, concerns stemming from numerous macro-level and firm-level factors impede market advancement. Investors are restrained from green bond financing owing to a fear of potential greenwashing. The nascency of the market, resulting in inadequate disclosure regimes and measurement challenges, exacerbates the problem. Can we find a solution to tackle the dilemma of greenwashing and information asymmetry using emerging, sophisticated technologies? Assessing the major theoretical underpinnings, this chapter presents a comprehensive landscape of how technologies like distributed ledger technologies, blockchain, the internet of things, artificial intelligence, machine learning, and the like fit into the green debt market. While following a theoretical approach, collating research, and the green bond market developments, the authors initiate an investigation into how technology can manage disclosure biases. The assessment signifies the role of technology, specifically FinTech, blockchain, and AI technologies, in spotting greenwashing and information asymmetry.*

DOI: 10.4018/979-8-3693-2346-5.ch008

## 1. INTRODUCTION

The “green transition” necessity has elicited wide interest in green financing. A growing investor segment now weighs the real-world effects of their choices in addition to the usual risk-return trade-off (Barber et al., 2021; Reboredo et al., 2022). Financing sustainability has become the need of the hour, as evidenced by the substantial focus on environmental, social, and governance (ESG) considerations by international agencies, non-profit organisations, blocs, and national governments. Innovative tools and techniques have been emerging, for example, green stocks, green debt instruments like bonds, loans, etc., guarantees, green FinTech applications, and more, to finance the just transition. Green bonds, or climate bonds, are among the many sustainable finance instruments aimed at value addition by procuring debt capital with a specific motive to apply to environment-friendly projects (Baulkaran, 2019; Bhutta et al., 2022). As per Zheng et al. (2023), this direct green financing channel has significant benefits over green credit and other green financial products when considering the debt service cycle, disclosure associated with bond placement, and signaling, through which they alleviate information asymmetry.

Since its first issuance in 2007 by the European Investment Bank, the segment has evolved exponentially. The total green issuances stand at USD 2.6 trillion at the end of Q3 2023.<sup>1</sup> Subscriptions to both corporate and sovereign green issues have seen a majestic rise, even in developing countries. The global interest in the green debt market must be viewed in light of the soaring inflation due to escalating energy costs caused by the logistic disruptions following the Russia-Ukraine crisis that triggered the downfall of fixed-income investments. A reasonable cause may be that bond coupon payments are not typically adjusted to account for inflation, causing an inverse relationship between the real-term value of these payouts and the inflation rate.<sup>2</sup> This emergence of green bonds as a rapidly growing segment in the sustainable fixed-income segment is a result of investors' increasing desire for financial investments that have positive effects on the environment and the economy, through which they signal their environmental commitment and reap its benefits (Flammer, 2021; Pham, 2016). However, a major challenge before the market is that the stakeholders need clarification about whether green bonds are truly green or are simply a novel mode for greenwashing. Examining the divergence of the ESG score, a dominant cause of information asymmetry, Biju et al. (2023a) find a linear relationship between ESG disclosure and greenwashing and show a greater divergence to escalate the chances of information asymmetry and greenwashing. These reflections have implications for the green debt segment, as their issuances have a direct influence on upgrading ESG scores. This has urged investors to overcome ambiguities in green bond terminologies, regimes, and regulations, pulling down market demand.

Fixed-income markets are researched less than equity markets, primarily due to the lack of a developed secondary market and the lack of data in many markets. Although this acts as a major obstacle, plenty of studies on green bonds have been undertaken. Research has shown green debt offerings to help companies broaden their investor base and improve performance post-issuance, and the issuers get cheaper funds (Flammer, 2020; Flammer, 2021; Tang & Zhang, 2020). Despite the burgeoning green bond research on green bond premium, i.e., “greenium,”<sup>3</sup> hedging benefits, supply-side and demand-side perspectives, it remains less vocal on the disclosure aspects from a broader perspective and the technology-orientation or green FinTech dimension. As the disclosure literature remains fragmented and the findings remain independent, efficient decision outcomes are difficult to arrive at. The pace of market growth calls for a 360° understanding of how adequate disclosure and documentation clarity associated with green bond issuances impact bond trading (Lebelle et al., 2022). The confluence of green finance, a major part of which is green debt, and cutting-edge technologies, referred to as “green FinTech,” is yet another

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:  
[www.igi-global.com/chapter/information-asymmetry-and-greenwashing-in-the-green-bond-market/351199](http://www.igi-global.com/chapter/information-asymmetry-and-greenwashing-in-the-green-bond-market/351199)

## Related Content

---

### Quantum Computing for IoT Security

B. K. Tripathy, Sarthak Goeland Anamika Guha (2024). *Fostering Cross-Industry Sustainability With Intelligent Technologies* (pp. 1-20).

[www.irma-international.org/chapter/quantum-computing-for-iot-security/337524](http://www.irma-international.org/chapter/quantum-computing-for-iot-security/337524)

### The Analysis of the Relationship Between Renewable Energy and Human Development

Mustafa Batuhan Tufaner (2023). *Sustainable Growth and Global Social Development in Competitive Economies* (pp. 180-192).

[www.irma-international.org/chapter/the-analysis-of-the-relationship-between-renewable-energy-and-human-development/330094](http://www.irma-international.org/chapter/the-analysis-of-the-relationship-between-renewable-energy-and-human-development/330094)

### Sustainable Analysis of Process Parameters During TIG Welding of Dissimilar Joining Between 304 Stainless Steel and AISI 1018 Mild Steel

Indranil Mandal, Thia Paul, Sabyasachi Dey, Pratik Roy, Shamik Mahanta, Subhankar Dey, Dipak Sarkar, Arpan Kumar Mondaland Tanmoy Ghosh (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-14).

[www.irma-international.org/article/sustainable-analysis-of-process-parameters-during-tig-welding-of-dissimilar-joining-between-304-stainless-steel-and-aisi-1018-mild-steel/295970](http://www.irma-international.org/article/sustainable-analysis-of-process-parameters-during-tig-welding-of-dissimilar-joining-between-304-stainless-steel-and-aisi-1018-mild-steel/295970)

### Innovations Through Mergers and Acquisitions in the Pharmaceutical Sector

Abdul Wajid, Kashif Hasan Khanand Harish Handa (2022). *Research Anthology on Measuring and Achieving Sustainable Development Goals* (pp. 374-384).

[www.irma-international.org/chapter/innovations-through-mergers-and-acquisitions-in-the-pharmaceutical-sector/290919](http://www.irma-international.org/chapter/innovations-through-mergers-and-acquisitions-in-the-pharmaceutical-sector/290919)

### Assessing the Operational Effectiveness of Chemical Companies in Advancing E-Waste Management and Development

Sahini Reddy Pullaand Prakhyath Kandula (2024). *Sustainable Solutions for E-Waste and Development* (pp. 1-11).

[www.irma-international.org/chapter/assessing-the-operational-effectiveness-of-chemical-companies-in-advancing-e-waste-management-and-development/338691](http://www.irma-international.org/chapter/assessing-the-operational-effectiveness-of-chemical-companies-in-advancing-e-waste-management-and-development/338691)