

Artificial Intelligence Driven Responsible Green Finance

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Abstract: We discuss the relationship between financial institutions' artificial intelligence (AI) and (ir)responsible green finance, where environmental-decoupled firms acquire external green finance resources. Using data on 1,209 loan contracts from 2019 to 2023 in China, which is one of the largest implementors of green finance, we find that banks employing AI are more likely to increase loan interest spread for firms with more decoupled environmental information, suggesting that AI is beneficial for responsible green finance. Large-model AI (compared with conventional AI), bilateral AI (compared with internal AI), and open-source AI (compared with closed-source AI) are more effective. The effect of AI is more prominent for loan contracts granted by green-experienced banks and those to non-polluting firms. We confirm the dual re-coupling channels that AI is beneficial for banks' risk identification and legitimacy capability. These findings contribute to the information asymmetry theory and literature on technological change, green finance, and corporate environmental behaviours.

Keywords: Artificial intelligence; Green finance; Environmental disclosure; Bank loan; Responsible finance

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