

ESG Risk Management in Vietnamese Commercial Banks in the context of International Mobility, the Age of Uncertainty and Digital Transformation

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ABSTRACT:

This paper evaluates the degree of ESG risk integration among Vietnamese commercial banks under three systemic driving forces: (i) international migration and cross-border capital flows, (ii) the age of uncertainty involving climate, geopolitical, and financial cycle risks; and (iii) digital transformation. Based on the integrated frameworks of the TCFD for disclosure and climate risk governance, the NGFS for scenario analysis and stress testing, and the Equator Principle (EP4) for project-level environmental and social assessment, the study proposes an ESG management model across the sequence of strategy, risk appetite, data and measurement, stress testing, capital allocation and disclosure or assurance. Industry evidence shows that although the proportion of green credit remains small, it is growing rapidly; only a few banks have disclosed information following TCFD/IFRS S2, issued green bonds, and implemented green bond frameworks; and the national regulatory framework has entered a new phase. The paper provides several key recommendations including standardizing adequacy supervision, applying third-party assurance, and establishing a verifiable Net-Zero roadmap. The results affirm that ESG is not merely a matter of compliance but serves as a shock absorber that enhances banks' resilience against global crises.

Keywords: ESG; Commercial banks; Risk management; International mobility; Digital transformation.

I. INTRODUCTION

The current global context is witnessing profound transformation: rising international mobility, an age of uncertainty by climate and geopolitical risks, and a fast-changing digital

transformation revolution. These trends not only reshape banking operations but also highlight the need to strengthen ESG risk management among Vietnamese commercial banks.

In an era of globalization and deep economic integration, Vietnamese commercial banks are facing three major trends: (i) the strong movement of capital, labor, and technology; (ii) an age of uncertainty with geopolitical shocks, climate change, pandemics and financial volatility; (iii) rapid digital transformation across the banking system and capital markets. These trends simultaneously create opportunities and major challenges for risk management, particularly ESG-related risks.

According to the World Bank (2023), ESG has become a standard for assessing the sustainable performance capacity of financial institutions. For Vietnam—an emerging economy with high growth—ESG integration is not only a requirement from international investors but also a prerequisite for maintaining financial system stability. International mobility, the age of uncertainty, and digital transformation are global forces shaping new banking–finance models, posing significant challenges to ESG risk management in Vietnamese commercial banks. The dual impact of these forces compels Vietnamese banks to adopt a comprehensive ESG risk management framework that integrates climate stress testing, inclusive finance, and social risk control, while strengthening legal and technological governance systems to ensure not only operational efficiency but also strategic sustainability in a volatile global environment.

First, international mobility increases cross-border capital flows, remittance services, and financial needs for migrant workers, leading to environmental risks from project financing with

FDI components, social risks associated with financial transparency and anti-money laundering compliance, and legal risks in multi-jurisdictional environments.

Meanwhile, the age of uncertainty-characterized by climate fluctuations, geopolitical conflicts, and policy shocks-intensifies both physical and transition environmental risks, negatively affecting banks' credit quality and liquidity. Studies have shown that ESG, especially environmental and governance dimensions, serve as stabilizers enhancing bank resilience under heightened risks, reducing endogenous risk, particularly for institutions with medium to high risk exposure (Bătae et al., 2022). Furthermore, during periods of uncertainty, firms tend to enhance their ESG performance to better adapt to volatile economic conditions (Gerged, 2024).

In addition, digital transformation accelerates cross-border digital transactions but simultaneously increases cybersecurity and data protection risks-challenges tied to social and governance dimensions. Banks need to develop robust data governance systems, fraud prevention mechanisms, and digital compliance frameworks to mitigate such risks.

In this context, international organizations have introduced several frameworks to enhance ESG risk management transparency and capacity. The Task Force on Climate-related Financial Disclosures (TCFD) recommends that financial institutions disclose governance, strategy, risk management, and metrics related to climate change, helping banks integrate climate analysis into credit decision-making. The Network for Greening the Financial System (NGFS) encourages central banks and financial supervisors to apply climate scenarios to conduct stress testing, thereby identifying transition and physical risks early. In project finance, the Equator Principles have become an international standard for assessing, managing, and mitigating Environmental-Social risks, particularly in large-scale loans with significant community and environmental impact.

The objective of this paper is to provide scientific evidence for improving the effectiveness of ESG risk management in Vietnamese commercial banks through recommendations on integrating international migration and global volatility into their overall risk management framework, orienting sustainable financial products and services for cross-border labor and capital flows, and proactively meeting international ESG disclosure standards to avoid exclusion from global value chains.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Literature review

Over the past decade, the topic of Environmental-Social-Governance (ESG) has emerged as a global standard for assessing the sustainability and resilience of financial institutions. International studies have shown that integrating ESG into risk management not only enhances banks' reputation and brand value but also mitigates financial losses from non-traditional risks such as climate change, political and social instability, or governance violations (Friede et al., 2015; Ng & Tao, 2016).

In Vietnam, research on ESG risk management in the banking sector remains in its early stages, primarily focusing on three areas: (1) The relationship between green credit, sustainable finance, and risk management (State Bank of Vietnam, 2021; IFC, 2022). (2) ESG reports issued by individual banks, which are mostly informational disclosures rather than analyses of how ESG is effectively integrated into the risk management process. (3) The influence of international commitments-such as the Paris Agreement, the Glasgow Accord, and Basel III standards-on risk management in the banking sector (PwC, 2023; NGFS, 2024).

Some domestic studies have initially proposed frameworks for evaluating ESG integration levels in Vietnamese banks. However, they have not yet examined the combined impact of three interrelated factors: International mobility, encompassing cross-border flows of capital, labor, and knowledge; the age of uncertainty, with macroeconomic fluctuations, financial crises, global pandemics, and geopolitical conflicts; and digital transformation, affecting data governance infrastructure, ESG risk identification, and predictive modeling (Nguyen Thi Hong, 2020; Tran Thi Thu, 2023).

This research gap serves as the primary motivation for the study, which analyzes the current state of ESG risk management in Vietnamese commercial banks under the simultaneous influence of these three contextual dynamics.

2.2 Theoretical framework

2.2.1 Why does ESG matter in Banking?

Numerous international studies confirm that strong ESG implementation reduces cost of capital, improves operational performance, and enhances resilience to crises. Within the banking

industry, ESG plays a critical role in controlling credit, operational, and reputational risks (Friede et al., 2015; Khan et al., 2016). Specifically, Environmental (E) factors are closely linked to credit exposure in high-emission sectors and the physical impacts of climate risks. Social (S) factors relate to labor conditions, customer welfare, and financial inclusion. Governance (G) factors determine transparency, accountability, and regulatory compliance—core components of institutional stability.

Effective ESG risk management thus reinforces banks' long-term sustainability and strengthens their position in international markets where green finance is increasingly prioritized.

2.2.2 International framework for ESG risk management

Several international standards—most notably the Task Force on Climate-related Financial Disclosures (TCFD), the Network for Greening the Financial System (NGFS), and the Equator Principles (EPs)—provide coherent frameworks for transparency and governance in managing climate and Environmental–Social risks.

TCFD (2017) recommends that institutions disclose their governance structure, strategy, risk management processes, and metrics/targets concerning climate-related risks and opportunities, thereby promoting transparency and investor confidence.

NGFS (2020) advises central banks and supervisory bodies to integrate climate scenarios into stress testing and capital planning, enabling early detection of transition and physical risks.

The Equator Principles (EP4, 2020) serve as a global benchmark for assessing and managing Environmental–Social risks in project finance, particularly in large-scale projects with significant community or ecological impact.

These frameworks collectively shape an integrated international reference system for banks to structure their ESG governance and reporting practices.

2.2.3. The relationship between ESG risk management in Vietnamese commercial banks and the context of international mobility, the Age of Uncertainty and digital transformation

The linkage between ESG risk management and the three global megatrends manifests in how internationalization, uncertainty, and digitalization shape banks' risk exposure and governance structures. International mobility

increases the inflow of foreign capital and FDI projects, compelling Vietnamese banks to comply with international ESG standards. The age of uncertainty through climate risks, pandemics, and geopolitical disruptions, drives banks to adopt ESG stress testing in line with NGFS recommendations. Digital transformation facilitates real-time ESG data collection and Big Data analytics, enabling more effective risk management and decision-making. More specifically, the impacts can be analyzed across the three ESG pillars:

Environmental (E) Dimension

Cross-border movement of workers, experts, and entrepreneurs boosts demand for green financial products and sustainable remittance services. Banks must therefore mitigate indirect environmental risks from FDI-related projects and meet international environmental standards to attract sustainable foreign capital. Moreover, climate uncertainty and energy crises require banks to conduct climate stress testing for loans to FDI enterprises and energy-intensive sectors.

Social (S) Dimension

International migration affects labor structures and the demand for financial services—such as remittances, cross-border accounts, and social insurance for foreign workers—creating both social risks and opportunities. Banks must ensure financial inclusion for migrant labor and their families while managing risks of money laundering and fraud in cross-border transactions. In the digital era, banks are further required to protect consumer rights and comply with personal data protection regulations across multiple jurisdictions.

Governance (G) Dimension

Geopolitical instability, including conflicts and international sanctions, increases compliance risks in cross-border transactions, compelling banks to strengthen legal and cross-jurisdictional governance. Meanwhile, digital transformation accelerates cross-border operations, requiring advanced data governance systems, AI-based financial crime prevention, and higher transparency in ESG risk reporting to international investors.

2.2.3 Proposed integrated ESG framework

From the preceding analyses, this study proposes a model integrating the three frameworks

- TCFD, NGFS, and the Equator Principles - into the ESG risk management strategy of Vietnamese commercial banks, as in Figure 1.

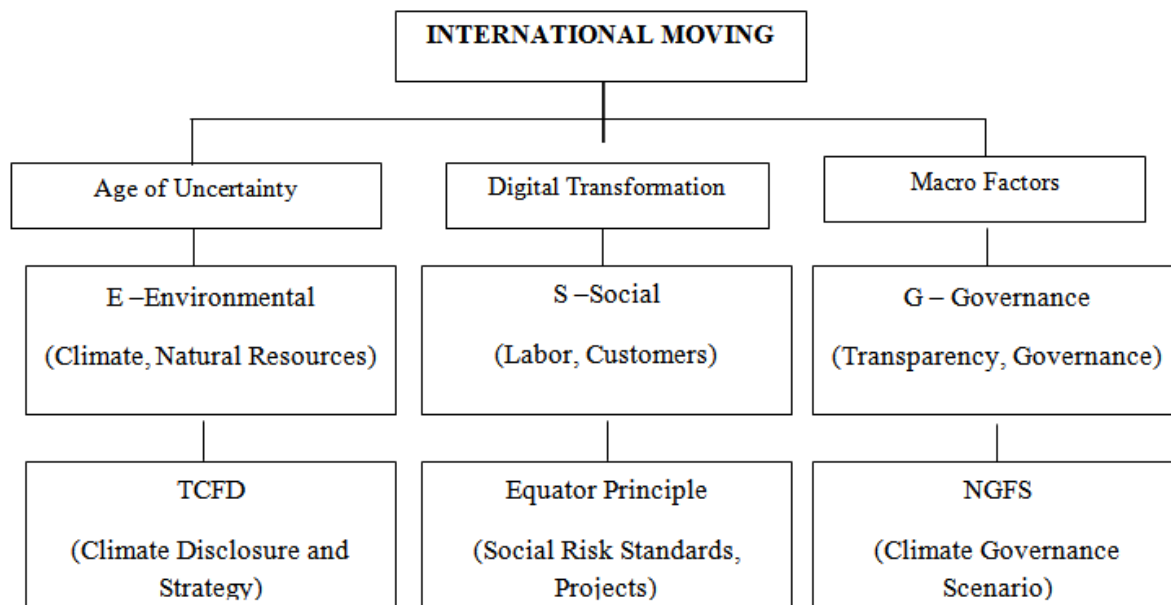


Figure 1. Proposed integrated ESG framework

Source: Author’s proposal, 2025

The model functions as an integrated analytical framework that connects macro-contextual factors - such as international mobility, geopolitical and economic uncertainty, and digital transformation - with the three pillars of ESG.

For instance, fluctuations in international capital flows and labor migration can directly influence the Social pillar (social welfare, labor rights) and the Governance pillar (supply-chain governance and compliance). Likewise, uncertainty in climate or geopolitical policies affects the Environmental dimension (green energy investment), the Social dimension (labor market stability), and the Governance dimension (regulatory compliance and institutional transparency).

Mapping International Standards to ESG Pillars.

The model enables direct alignment of international standards and recommendations with each ESG pillar, ensuring a systematic implementation process. For instance, TCFD supports the Environmental (E) and Governance (G) dimensions through requirements for transparency regarding climate-related risks and opportunities. NGFS reinforces E and G by providing a climate scenario analysis framework and guidance on managing climate-related financial risks.

Meanwhile, the Equator Principles (EPs) strengthen the Environmental (E) and Social (S) pillars by establishing environmental–social assessment standards for project financing.

Consistent Reporting and Risk-Control Platform.

Through the linkage and mapping mechanism described above, the model establishes a unified platform for standardizing ESG reporting methodologies in line with global requirements. It ensures consistency of data, indicators, and risk-control procedures across banks and regulatory bodies; supports cross-border ESG measurement, monitoring, and comparison; thereby reducing information asymmetry and enhancing the capacity to mobilize green capital.

III. CURRENT STATUS OF ESG RISK MANAGEMENT IN VIETNAMESE COMMERCIAL BANKS

3.1. Overview of Vietnamese Commercial banks

In recent years, major Vietnamese commercial banks have begun incorporating ESG into their management agendas - publishing sustainability reports, developing green finance products, and establishing ESG units or integrating

ESG responsibilities into existing risk or board-level committees. However, the extent of implementation varies significantly among institutions. Leading banks such as Vietcombank and BIDV have announced explicit green frameworks or targets, while many medium and small banks remain in early stages, with ESG yet to be systematically embedded into risk management or credit processes.

Common strengths

At least several large commercial banks have started issuing regular sustainability reports and applying environmental–social screening criteria for large-scale loans. New products have emerged, including green bonds, green loans, and financing programs for renewable energy and sustainable agriculture. Many banks have also established partnerships with international organizations such as the IFC, World Bank, and EBA to strengthen their ESG capacity.

According to the State Bank of Vietnam, around 80–90% of banks have partially or fully adopted ESG practices. Nearly 50% have established dedicated green credit risk management departments; 47 banks reported green outstanding loans totaling approximately VND 640 trillion (around 4.6% of total credit), while 34 banks assessed environmental–social risks for about VND 2.9 quadrillion, representing 21% of system-wide credit exposure (Vietnamnews, 2024).

Common limitations

(i) Lack of standardization and inconsistency in disclosure: Definitions of “green projects,” measurement criteria, and reporting frameworks differ across banks. The industry faces challenges such as the absence of unified standards for project classification, limited data infrastructure, insufficient ESG expertise, and the trade-off between profitability and sustainability. (ii) Weak data foundation: Historical, climate, and supply-chain data remain scarce, limiting banks’ ability to conduct climate stress testing or quantify transition risks. According to an IFC (2022) survey, less than 30% of Vietnamese banks had implemented climate stress tests consistent with NGFS guidance. (iii) Limited internal capacity: ESG specialists remain few, and risk management departments lack the technical competence to integrate ESG risks into risk appetite frameworks and capital planning. (iv) Low assurance and transparency: Many reports lack third-party audit or assurance, reducing their

credibility with international investors (Nguyen S., 2024).

3.2. Analysis of ESG pillars of risk management in Commercial banks

3.2.1. Environmental pillar

Environmental screening in credit assessment: Major banks have implemented environmental screening for large-scale loans (energy, mining, infrastructure), but system-wide application to SME portfolios remains fragmented and sector-specific.

Green finance and green bonds: Some banks have financed renewable energy projects and supported green bond issuance; however, the ratio of green loans to total credit is still modest compared with the national energy transition demand.

Climate stress testing: Only a few banks have piloted climate risk analysis tools. Scenario development, portfolio segmentation by physical and transition risks, and integration into capital planning remain uncommon practices.

3.2.2. Social pillar

Financial inclusion and access to services: Many banks have launched programs supporting SMEs and agriculture, with efforts toward digital finance for underserved groups. However, social impact measurement lacks standardized indicators.

Social risks related to migration and remittances: With growing labor mobility, banks face increasing cross-border transactions, heightening anti–money laundering (AML) and counter–terrorism financing (CFT) compliance requirements. Cross-border monitoring systems are still being refined.

Customer and data protection: Personal data protection laws and data governance standards are under development; banks must upgrade cybersecurity systems to mitigate legal and reputational risks.

3.2.3. Government pillar

Governance structure: Many banks have established risk, CSR, or ESG committees at the Board of Directors or executive level, though the scope and authority of these units vary.

Transparency and reporting: Several major banks have begun adopting international standards such as TCFD or GRI, yet most disclosures remain descriptive rather than quantitatively linking ESG risks to financial performance.

Multi-jurisdictional compliance and supply chain governance: Large banks handling

cross-border transactions face compliance risks related to counterparties across multiple countries. “Know Your Customer” (KYC) procedures for cross-border clients require significant enhancement.

3.3. ESG risk management practices in Commercial banks in Vietnam

An analysis of annual and sustainability reports from 2018–2024 for several key Vietnamese commercial banks reveals the following ESG risk management status.

Environmental (E):

Some banks - notably Vietcombank (VCB), BIDV, and Techcombank (TCB) - have incorporated environmental risk screening into credit appraisal. BIDV has developed a Green Credit Framework targeting clean energy and environmental protection. VPBank discloses information in line with TCFD, while HDBank invests in renewable energy. Vietcombank reported approximately VND 47.6 trillion in green credit as of December 31, 2024. BIDV continues to be a major green credit provider in Vietnam’s banking system. Techcombank introduced innovative green products, such as a carbon footprint tracking credit card, and issued a Green Bond Framework. Despite progress, disclosures remain inconsistent and not fully aligned with TCFD recommendations.

Social (S):

Banks like Vietcombank, BIDV, and Techcombank have implemented financial inclusion and SME support programs to promote sustainable development. However, standardized social impact indicators are still lacking.

Governance (G):

Some banks have enhanced Board independence and governance transparency. BIDV, for example, established a Steering Committee chaired by the Board Chairman to oversee ESG activities, reflecting high-level governance commitment. Others, such as ACB, have incorporated ESG indicators into internal assurance programs. Nevertheless, ESG governance at the strategic level remains voluntary rather than mandatory.

Overall, leading banks (BIDV, Vietcombank, Techcombank) have clearly shifted toward green financing - expanding both green credit portfolios and ESG-related capital mobilization through green bonds and deposits. This aligns with national policy commitments

toward Net-Zero 2050 and market demand for sustainable investment.

However, integration depth varies: state-owned banks like BIDV and Vietcombank exhibit clearer ESG governance structures compared with private banks such as Techcombank, which still operate through dedicated ESG focal points.

Transparency and data standardization remain uneven. Many banks disclose key data (green loan volume, bond allocation) verified by reputable third parties such as S&P, Moody’s, or KPMG. Yet inconsistency in reporting methods - e.g., differing green credit definitions or incomplete greenhouse gas disclosure (Scope 1–3) - hinders peer comparison and large-scale E&S risk assessment.

Large credit portfolios, particularly at BIDV and Vietcombank, still require enhanced environmental–social due diligence to prevent “greenwashing” or environmental compliance gaps in major projects. Furthermore, clear Net-Zero targets and disclosure roadmaps remain non-uniform across the sector.

3.4. Compliance with international standards and strategic integration

TCFD Compliance: Some large banks have begun referencing TCFD guidelines in their reports, but quantitative, comparable disclosures are still rare.

NGFS Implementation: Most banks are still in the research or planning stage; only a few collaborate with international organizations for climate stress testing.

Equator Principles (EP4): Application mainly relates to project financing. A few banks adopt equivalent standards for large-scale lending, but implementation remains limited compared to international peers.

Key gaps include absence of binding legal requirements; lack of a national taxonomy for green classification; and absence of mandatory international-standard reporting obligations, leading to voluntary and inconsistent compliance.

Hence, ESG risk management in Vietnamese commercial banks is in a transitional stage - characterized by multiple initiatives and products but constrained by limited standardization, data availability, and technical capacity. Strengthening the legal framework, establishing a national green taxonomy, enhancing analytical capability, and promoting transparency through TCFD-aligned disclosure are pivotal next steps.

IV. DISCUSSION

The results indicate that ESG practices in Vietnamese commercial banks are currently in the formation and standardization phase. The existing situation demonstrates that a transformation process is underway but still falls short of meeting the requirements for comprehensive ESG risk management in the context of international mobility, global uncertainty, and digital transformation.

Vietnamese commercial banks have taken initial steps, such as issuing ESG-related reports and developing green financial products. However, these activities remain fragmented, and banks need to move toward a systematic integration of ESG into their overall governance framework - encompassing risk management, capital budgeting, stress testing, credit approval, and the establishment of ESG performance KPIs for executive management.

Although notable progress has been made, ESG risk management in commercial banks still faces several persistent gaps.

(1) Lack of unified criteria and measurement methodology

Banks apply different definitions and standards for “green projects,” making it difficult to directly compare the scale of green credit portfolios. The absence of harmonized taxonomy limits the consistency and comparability of ESG performance within the sector.

(2) Incomplete emission reporting scope

Many banks have yet to fully disclose greenhouse gas emissions across Scope 1, 2, and 3, or lack specific emission reduction roadmaps with measurable targets and milestones. Without standardized data, it is challenging to assess transition risk exposure or progress toward decarbonization.

(3) ESG risk governance in large credit portfolios

For banks with massive green credit exposure - such as BIDV and Vietcombank - there remains a need to strengthen environmental and social due diligence to avoid compliance deviations or “greenwashing.” Continuous risk monitoring, enhanced project evaluation standards, and independent verification mechanisms are required.

(4) Systemic challenges under global dynamics

The three contextual drivers - international mobility, global uncertainty, and digital

transformation - act both as drivers and pressure sources for ESG risk management.

International mobility fosters cross-border investment and financial flows, compelling Vietnamese banks to align with international ESG and sustainability reporting standards. Global uncertainty, encompassing climate, geopolitical, and financial shocks, heightens the urgency of applying climate scenario analysis and stress testing in accordance with NGFS and Basel Committee recommendations. Digital transformation provides tools for real-time ESG data collection and predictive analytics but simultaneously introduces cybersecurity and data governance risks, expanding the risk spectrum beyond traditional credit or market exposures.

(5) Strategic implications of integrating international ESG frameworks

Adopting international ESG frameworks such as TCFD, NGFS, and the Equator Principles (EPs) can substantially enhance the resilience and transparency of Vietnamese banks by: Improving transparency to meet expectations of investors and international partners; Enhancing predictive capacity and adaptability through climate and social risk scenarios; and Mitigating environmental-social risks in project financing and investment portfolios.

Collectively, these measures strengthen long-term competitiveness and align Vietnamese banks with global sustainable finance standards, particularly under the commitments to Net-Zero 2050 and the national Green Growth Strategy.

V. CONCLUSION AND POLICY RECOMMENDATIONS

4.1. Conclusion

ESG risk management in Vietnamese commercial banks has made remarkable progress, particularly among leading institutions such as Vietcombank, BIDV, and Vietinbank. These banks have established high-level governance mechanisms, expanded green financial products, and gradually adopted international standards including GRI, TCFD, and ICMA.

Nevertheless, inconsistencies in criteria, reporting scope, and the degree of ESG integration continue to hinder standardization and the overall effectiveness of ESG risk governance. The current state reflects a transitional stage, in which awareness and pilot initiatives are widespread but systematic institutionalization and regulatory alignment are still evolving.

4.2. Policy recommendations

To address the gaps in ESG risk management among Vietnamese commercial banks amid international mobility, global uncertainty, and digital transformation, several strategic measures are proposed.

Standardize ESG Criteria and KPIs Across the Banking Sector.

It is essential to establish standardized ESG criteria and performance indicators across the banking sector to ensure peer comparability - particularly regarding the definitions and classifications of green projects.

Strengthen Third-Party Assurance for Key ESG Indicators.

Independent verification or assurance should be enhanced for critical ESG metrics such as green loan portfolios and net emissions, to improve data reliability, transparency, and investor confidence.

Develop Specific Net-Zero Roadmaps.

Each commercial bank should design a concrete Net-Zero roadmap with medium-term targets, integrating ESG risk management into credit portfolios and operational processes in accordance with TCFD recommendations.

Accordingly, state regulators should issue mandatory TCFD-based disclosure guidelines for listed banks and incorporate NGFS climate scenarios into the capital adequacy and prudential supervision framework.

Meanwhile, commercial banks should establish standardized ESG data systems, applying AI and big data analytics to improve risk assessment; and enhance ESG governance capacity through cooperation with international organizations.

Investors and capital markets should be encouraged to issue green and sustainability-linked bonds to finance projects that meet Equator Principles standards.

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