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Integration of Environmental, Social and Governance Principles in Commercial Banks: A Study on Their Impact on Risk Management, Credit Decision-Making, and Long-Term Performance

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Abstract. Against the backdrop of intensifying global climate risks, an increasingly sophisticated regulatory framework, and growing stakeholder awareness of sustainable development, the Environmental, Social and Governance (ESG) philosophy has become a core guiding principle for transformation and upgrading in the financial sector, driving significant innovation in commercial banks' traditional risk assessment and operational management frameworks. This paper employs a literature review approach to systematically examine the logical relationship between commercial bank performance and the ESG philosophy. It integrates relevant policies and regulatory documents—such as those pertaining to climate risk management and sustainable finance frameworks—to focus on exploring specific pathways for incorporating ESG principles into commercial banks' risk management systems and credit decision-making processes. The study analyzes the mechanisms through which ESG factors influence banks' long-term operational performance and sustainable development capabilities, and compares differences in the implementation of ESG practices among commercial banks in various countries. The research findings indicate that ESG factors represent a significant extension and expansion of commercial banks' traditional risk management systems; they can effectively address the limitations of risk identification based on traditional financial indicators and help standardize banks' credit resource allocation practices.

Keywords: ESG, Commercial bank performance, Risk management, Credit decisions

1. Introduction

In recent years, Environmental, Social, and Governance (ESG) considerations have become increasingly central to the global financial system, driven by intensifying climate risks, evolving regulatory expectations, and growing stakeholder awareness. Climate-related financial risks, including physical and transition risks, have begun to challenge the traditional risk assessment frameworks used by financial institutions. Conventional financial indicators alone are no longer sufficient to capture the full spectrum of risks faced by banks, particularly those associated with

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environmental degradation and social instability. As key intermediaries in capital allocation and risk transmission, commercial banks play a crucial role in integrating ESG factors into their internal operations. Existing literature has predominantly focused on ESG disclosure and its impact on corporate valuation or investment decisions, while relatively limited attention has been paid to how ESG principles are operationalized within banks' internal mechanisms, such as risk management and credit allocation processes [1]. Moreover, incorporating sustainability criteria into financial decision-making has been recognized as an important extension of traditional risk management frameworks, particularly in the banking sector [2].

2. Theoretical framework and literature review

ESG refers to a framework that evaluates corporate performance beyond traditional financial indicators by considering environmental responsibility, social impact and governance quality [1]. ESG has emerged as a key criterion for investors, regulators and financial institutions to assess long-term sustainability and organisational resilience. Compared with non-financial firms, banks play a unique role in ESG integration because their environmental and social impacts arise primarily through financing decisions rather than direct production activities [2]. Consequently, ESG considerations influence banks not only through internal operations but also through credit allocation, investment portfolios and risk management practices. Recent empirical evidence indicates that embedding ESG factors into lending decisions enables banks to identify and price borrowers' ESG risks, which can shape loan conditions and borrowers' financing costs [3]. Furthermore, international regulatory initiatives, including the Principles for Responsible Banking (PRB) launched by the United Nations Environment Programme Finance Initiative, have encouraged commercial banks to incorporate ESG principles into strategic decision-making and risk governance [4]. Therefore, ESG has gradually evolved from a voluntary corporate responsibility initiative into an important component of modern banking management.

The integration of ESG into banking activities can be explained by three major theoretical perspectives. First, Stakeholder Theory argues that firms should create value for all stakeholders rather than focusing solely on shareholders [5]. Banks are accountable not only to investors but also to customers, employees, regulators and society. ESG practices strengthen stakeholder relationships, improve corporate reputation and enhance long-term competitiveness. Second, Risk Management Theory provides an important explanation for ESG adoption in banking. Conventional financial risk assessment tends to overlook non-financial risks such as climate-related hazards, governance lapses and social controversies. Incorporating ESG information enables banks to identify emerging risks more comprehensively, reduce information asymmetry and improve the quality of credit decisions [5]. With climate-related financial risks growing in prominence, ESG has evolved into an indispensable element of enterprise-wide risk management. Finally, Sustainable Development Theory emphasises balancing economic growth with environmental protection and social well-being to ensure long-term prosperity. Under this framework, banks contribute to sustainable development by directing financial resources towards environmentally and socially responsible projects while limiting financing for high-risk or unsustainable industries. Stakeholder theory serves as the foundational value orientation, risk management theory forms the operational core logic, and sustainable development theory provides long-term goal guidance, collectively supporting the ESG integration practices in the banking industry

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3. ESG integration in risk management

3.1. Risk identification and assessment

The integration of ESG factors has fundamentally expanded the scope of traditional bank risk management. Conventional risk assessment mainly focuses on financial indicators such as profitability, leverage and cash flow. However, mounting evidence indicates that non-financial risks — such as climate change, environmental pollution, poor labour practices and inadequate corporate governance—can materially impair borrowers' creditworthiness and long-term financial performance [5]. Consequently, commercial banks are increasingly incorporating ESG information into credit risk assessment and due diligence processes.

Climate-related risks have gained heightened importance in recent years. According to the Network for Greening the Financial System, physical risks caused by extreme weather events and transition risks arising from climate policies may lead to substantial asset value losses and increased credit defaults if they are not adequately managed [6]. Likewise, recent findings from the European Central Bank demonstrate that banks have achieved notable progress in embedding climate and environmental risks within their risk management frameworks. By the end of 2024, 56% of banks had established leading practices for at least some exposures, although 5% still had no practices in place and 17% had only basic practices for at least some exposures [7]. This data clearly reflects that the global banking sector is currently in a transitional phase of establishing an ESG risk framework.

Recent empirical research provides further evidence that ESG performance is relevant to banks' financial risk and asset quality. Based on data from U.S. commercial banks between 2002 and 2021, Liu et al. found that higher ESG ratings were associated with lower non-performing loan ratios, with stronger performance across all three ESG pillars also linked to improved loan quality [8]. Similarly, Cantero-Saiz et al., using quarterly data from 96 banks across 33 countries, identified a positive relationship between ESG performance and bank asset quality, although this relationship could reverse at particularly high levels of profitability [9]. Evidence from 639 European banks also suggests that the risk-mitigating effects of ESG vary across banking business models and ESG dimensions. More recently, Gangwani found that higher ESG disclosure scores were associated with lower insolvency, leverage and liquidity risks among 178 commercial banks in emerging markets [10]. These findings suggest that ESG information can provide banks with additional indicators for assessing financial risk beyond traditional financial metrics, although its effects may vary according to the ESG dimension, banking model and financial conditions.

3.2. Risk mitigation and control

Beyond risk identification, ESG integration also strengthens banks' capacity for risk mitigation and control. Once ESG-related risks are identified, banks can reduce potential losses by incorporating ESG criteria into loan pricing, credit approval standards, portfolio management and post-lending monitoring. For instance, borrowers with weak environmental or governance performance may face tighter lending terms, higher financing costs or intensified monitoring. Numerous international financial institutions have already adopted ESG-aligned risk management frameworks. The Equator Principles, which have been adopted by over 140 financial institutions in 38 countries as of 2024, require banks to assess environmental and social risks before financing large-scale projects [11]. This framework helps financial institutions reduce exposure to high-risk projects while improving the sustainability of their lending portfolios.

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Empirical evidence further attests to both the efficacy of ESG-oriented risk management and the potential benefits of ESG integration for financial performance and risk resilience. Friede et al. reviewed more than 2,000 empirical studies and found that approximately 90% reported a non-negative relationship between ESG performance and corporate financial performance [1]. More recent evidence provides broadly consistent but more nuanced findings. Wang et al. found that ESG disclosure has significant effects on financial performance and risk-related outcomes, although the magnitude of these effects varies considerably across studies [12]. Taken together, these findings suggest that ESG integration can contribute to financial resilience and long-term value creation, while its effectiveness depends on firm-specific and institutional factors. Although the review covers firms across multiple industries, its findings suggest that stronger ESG performance is associated with improved risk resilience and long-term value creation. Therefore, integrating ESG into risk management not only enhances banks' ability to manage emerging risks but also contributes to greater financial stability and sustainable business performance.

4. ESG integration in credit decision-making

4.1. ESG integration in credit approval

The integration of ESG factors has significantly reshaped commercial banks' credit approval processes. Traditionally, lending decisions have relied primarily on borrowers' financial statements, collateral value, cash flow and credit history. However, growing evidence suggests that ESG-related risks have material implications for borrowers' long-term creditworthiness and repayment capacity. Consequently, many banks have broadened their credit assessment frameworks by embedding ESG metrics into borrower due diligence and credit risk evaluation [2].

Environmental performance has become particularly important in industries with high carbon emissions. Firms exposed to environmental liabilities, carbon-intensive production or weak climate adaptation strategies may face stricter environmental regulations, higher compliance costs and declining market competitiveness. Such risks may ultimately raise default probabilities and impair firms' debt-servicing capacity. Therefore, banks increasingly evaluate borrowers' carbon emissions, climate transition plans and environmental compliance before approving loans. Many banks have established explicit carbon intensity thresholds for "three-high" industries including steel and chemicals; new loan applications from firms failing to satisfy such criteria will be rejected outright. Social and governance factors also influence lending decisions. Weak labour practices, inadequate occupational safety standards or poor corporate governance may increase legal risks, operational disruptions and reputational damage, thereby affecting firms' financial stability. Consequently, many financial institutions now include governance quality, board independence, regulatory compliance and ESG disclosure quality as supplementary indicators in credit approval models.

International banking initiatives further reinforce this trend. The Principles for Responsible Banking (PRB), launched by the United Nations Environment Programme Finance Initiative (UNEP FI), encourage banks to align their lending decisions with the Sustainable Development Goals (SDGs) and the Paris Agreement. Meanwhile, the Basel Committee on Banking Supervision recommends that banks incorporate climate-related financial risks into credit underwriting, risk management and internal governance. Regulatory implementation has also progressed in major economies. In the European Union, climate and ESG risks are being increasingly integrated into supervisory stress-testing frameworks, with the European Banking Authority (EBA) confirming that climate risks will be incorporated into the EU-wide stress test from 2027. In China, financial regulators have also required banking and insurance institutions to progressively conduct climate-

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related scenario analysis and stress testing and to gradually integrate the results into comprehensive risk management. These developments indicate that ESG considerations are moving beyond voluntary corporate responsibility initiatives and becoming increasingly embedded in prudential supervision, risk assessment and credit decision-making.

4.2. ESG integration in credit allocation

Beyond approving individual loans, ESG integration shapes banks' credit allocation across industries and projects. Credit allocation determines the distribution of financial resources within the economy and directly affects the transition toward sustainable development. Increasingly, banks are directing capital towards environmentally and socially responsible activities while reducing financing for industries associated with high environmental or governance risks.

Green finance has become one of the most important applications of ESG-based credit allocation. According to the latest Global Sustainable Investment Review published by the Global Sustainable Investment Alliance, assets in funds reporting responsible or sustainable investment approaches reached approximately US$16.7 trillion in 2024, representing a 49% increase over the previous two years under the revised methodology. However, this figure is not directly comparable with the US$30.3 trillion reported in the previous GSIA review because of changes in data coverage and measurement methodology. In the banking sector, sustainable lending has also expanded significantly. OECD data puts global sustainable syndicated loan issuance at US$621 billion in 2024, comprising US$104 billion in green loans and US$472 billion in sustainability-linked loans.

The Equator Principles also provide an internationally recognised framework for ESG-based project financing. As of 2024, more than 140 financial institutions in 38 countries have adopted the Equator Principles, requiring comprehensive environmental and social risk assessments before financing large-scale infrastructure and industrial projects. This framework has improved banks' allocation of capital by discouraging investment in environmentally or socially harmful projects while supporting sustainable development initiatives [11]. Academic evidence indicates that ESG integration influences both the quantity and pricing of credit. Despite these benefits, ESG-based credit allocation also faces important challenges. ESG rating methodologies remain inconsistent across rating agencies, making it difficult for banks to compare borrowers objectively. Furthermore, recent evidence suggests that some banks may improve their ESG image through selective lending practices without substantially changing the environmental characteristics of their overall lending portfolios, raising concerns regarding "ESG washing" [8].

5. Impacts and challenges of ESG integration on long-term performance

One of the most significant benefits of ESG integration is the improvement of banks' risk resilience. By incorporating environmental, social and governance factors into risk assessment and lending decisions, banks are better positioned to identify potential credit, operational and reputational risks before they materialise. Early identification of climate-related risks and governance deficiencies enables financial institutions to reduce loan defaults, improve asset quality and strengthen the stability of their loan portfolios. Although the analysis covers multiple industries, the findings suggest that integrating ESG considerations can enhance long-term value creation and strengthen organisational resilience. Despite these benefits, implementing ESG within commercial banks remains challenging. One major issue is the lack of consistency among ESG rating methodologies. Different ESG rating agencies frequently adopt different indicators and weighting systems, resulting

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in significant variations in ESG scores for the same company. Such inconsistencies reduce the comparability of ESG information and complicate banks' lending and investment decisions.

Another challenge concerns data availability and disclosure quality. Reliable ESG assessment depends on comprehensive, standardised and transparent corporate reporting. However, ESG disclosure standards continue to vary across industries and jurisdictions, making it difficult for banks to obtain consistent and comparable information for risk assessment and credit evaluation. As highlighted by recent systematic reviews, improving ESG data quality and reporting frameworks remains one of the most important priorities for sustainable banking.

Commercial banks also face increasing implementation costs associated with ESG integration. Building ESG assessment frameworks, upgrading IT systems, upskilling staff, and keeping pace with constantly updating regulatory rules all demand considerable financial and organisational resources. Smaller financial institutions, in particular, may experience greater operational pressure because of limited technical capacity, specialised expertise and data infrastructure. In response, regulators and industry bodies have increasingly adopted proportional and capacity-building measures to reduce the implementation burden on smaller banks. Furthermore, concerns regarding greenwashing remain significant. Some institutions may overstate their sustainability performance without making substantive changes to lending practices or portfolio allocation, potentially undermining stakeholder confidence and reducing the credibility of ESG initiatives.

6. Conclusion

ESG factors extend the traditional risk-assessment system by supplementing non-financial information such as climate risks, social impacts and corporate governance, helping banks mitigate information asymmetry and identify hidden credit risks in advance. Embedding ESG criteria into credit approval and capital allocation processes can guide credit resources toward sustainable projects and restrict financing for high risk polluting industries, which is consistent with global sustainable finance regulatory trends. Overall, ESG integration helps commercial banks improve asset quality, strengthen risk resilience and support long-term sustainable profitability. Nevertheless, practical implementation still faces prominent obstacles, including inconsistent ESG rating standards, insufficient high-quality ESG data, rising transformation costs for banks, and the risk of ESG-washing. To realise the full value of ESG, regulators, rating agencies and banking institutions need to work together to unify disclosure standards, optimise data infrastructure and strengthen supervision, so that ESG can deliver real world effects rather than staying at the symbolic level. Future research may further carry out quantitative empirical analysis to measure the actual economic benefits brought by ESG implementation for commercial banks.

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