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Banking Green Financing Synergy in Supporting the Circular Economy Transition: A Descriptive Study of the Green MSME Scheme

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ABSTRAK

The transition toward a circular economy requires effective financial support, with the banking sector playing a strategic role through green financing. Despite increasing green financing initiatives in Indonesia, the implementation of circular economy practices among Micro, Small, and Medium Enterprises (MSMEs) remains limited, indicating that institutional synergy has not yet been fully optimized. This study aims to examine the institutional synergy among financial regulators, including the Financial Services Authority (OJK), Bank Indonesia, the Sustainable Finance Committee, and banking institutions in supporting green financing for MSMEs to accelerate the circular economy transition. A descriptive qualitative approach was employed using library research and document analysis of official policies, institutional reports, and national and international scholarly publications published between 2017 and 2026. The findings reveal that green financing for MSMEs is implemented through four main mechanisms: green financing products, business matching and capacity-building programs, green bond and Green Sukuk issuance, and digital assessment tools such as the Green Calculator. However, implementation remains constrained by limited MSME awareness, the absence of a fully standardized national green taxonomy, and financing capacity that is still insufficient to meet Indonesia's climate investment needs. Strengthening inter-institutional coordination, harmonizing green finance policies, and improving MSMEs' access to green financing are essential to accelerating the country's transition toward a circular economy.

Keywords: *Green financing; banking; circular economy; MSMEs; sustainable finance.*

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Introduction

Climate change and the pressures of environmental degradation have driven a transformation of the global economic paradigm from a linear (take-make-dispose) model to a circular economy model that emphasizes resource efficiency, product life cycle extension, and waste minimization. In Indonesia, this transition has gained strong policy momentum, marked by the launch of the Indonesian Circular Economy Roadmap and National Action Plan 2025-2045 by the Ministry of National Development Planning/Bappenas. However, the transition to a circular economy cannot proceed without adequate

financial support, making the role of the financial services sector—particularly banking—crucial as a primary enabler of this transformation.

Recent developments have shown significant growth in green financing for national banking. Bank Indonesia recorded that as of July 1, 2025, green financing disbursed by banks reached IDR 33.7 trillion for green housing and electric vehicles (BI, 2025). Furthermore, a pilot program successfully classified IDR 29.3 trillion in financing disbursed to green MSMEs, both directly and through supply chains (BI, 2025). Meanwhile, a business matching program organized by Bank Indonesia in collaboration with 14 Ministries/Institutions and 10 financial institutions successfully matched 394 MSMEs with financing providers, resulting in financing commitments of over IDR 300 billion from February to June 2025 (BI, 2025). The complete data is presented in Figure 1.



Figure 1. Realization of Green Financing in Indonesian Banking as of July 1, 2025 Source: Bank Indonesia (2025), processed by the author.

On the other hand, the achievement of circular economy implementation nationally shows a contrasting condition. Based on Bappenas calculations in 2023, Indonesia's circular economy achievement level for five priority sectors is a circular material input rate of 9 percent, a product durability rate of 4 percent, and a recycling rate of 5 percent (Bappenas, 2024), an achievement considered very low compared to other countries. However, the potential benefits of a circular economy by 2030 are projected to be very large, including an additional GDP of around IDR 593-638 trillion, the creation of 4.4 million green jobs with 75 percent of the workforce being women, a reduction in waste generation of 18-52 percent compared to business as usual, and a reduction in greenhouse gas emissions of 126 million tons of CO2 (Bappenas, 2024). The gap between the low actual achievement and the large potential benefits is presented in Figure 2.

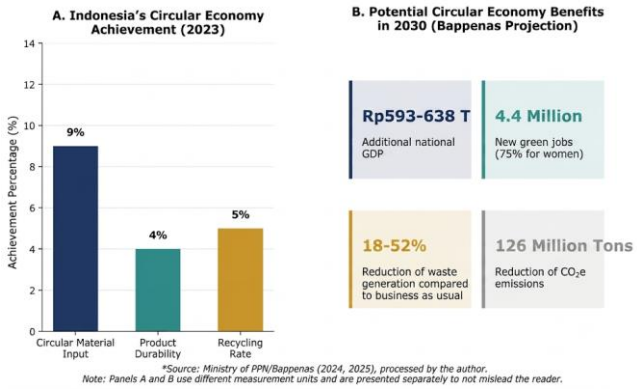


Figure 2. Gap between Indonesia's Circular Economy Achievements and Potential Benefits in 2030 Source: Ministry of National Development Planning/Bappenas (2024, 2025), processed by the author.

This gap is even more pronounced when compared to the scale of national climate action funding needs. The Ministry of Finance stated that Indonesia requires a budget of up to IDR 14,000 trillion for climate action funding, including all Sustainable Development Goals (SDGs), while the funding capacity of the state budget remains quite limited (Ministry of Finance, 2025, in Siplawfirm, 2025), making the involvement of the private sector and financial markets—including banking—key. The government has responded to this need for sustainable financing governance by establishing a Sustainable Finance Committee (SFC) as mandated by Law No. 4 of 2023 concerning the Development and Strengthening of the Financial Sector (P2SK), as part of efforts to bridge the national climate financing gap (CPI, 2025).

Several studies have demonstrated that Green Sukuk has emerged as a significant financial instrument for promoting sustainable finance, although the existing literature remains predominantly focused on macroeconomic perspectives and sovereign capital markets. For instance, the study published by INOMATEC (2026) highlights the strategic role of Green Sukuk in financing environmentally sustainable projects, including renewable energy development, waste

management, and sustainable transportation. The findings confirm that Green Sukuk is an effective instrument for supporting sustainable development objectives. Nevertheless, the study primarily concentrates on sovereign capital market instruments and does not examine the utilization of Green Sukuk-based financing schemes to improve access to finance for Micro, Small, and Medium Enterprises (MSMEs).

Research on the determinants of Green Sukuk issuance has also been conducted by Abdullah and Keshminder (2020). Their findings indicate that leadership is the most influential factor driving the successful issuance of Green Sukuk across different countries. This study provides valuable insights into governance and public policy aspects of sustainable Islamic finance. However, its analysis is limited to a cross-country macroeconomic perspective and does not address the operational mechanisms of green financing, particularly those implemented through Islamic banking institutions to support MSMEs.

At the national policy level, the Indonesian Financial Services Authority (Otoritas Jasa Keuangan/OJK), through the *Sustainable Finance Roadmap Phase II (2021–2025)*, reports that Indonesia's financial services industry has responded positively to the implementation of sustainable finance principles. Despite this progress, the roadmap identifies several key challenges, including the limited understanding of sustainable finance among financial institutions and the absence of a universally accepted national standard for green taxonomy. While the roadmap serves as an important policy framework for advancing sustainable finance, it does not provide an empirical evaluation of inter-institutional collaboration in promoting green financing schemes for MSMEs.

From a legal perspective, a study published in the *Rechts Vinding Journal* (2021) examines Indonesia's circular economy legal framework. The study concludes that the existing regulatory framework provides a normative foundation for achieving the Sustainable Development Goals (SDGs). However, the analysis is primarily doctrinal in nature and does not explore how these legal frameworks are operationalized through banking-sector green financing instruments, particularly in facilitating the transition of MSMEs toward sustainable business practices.

Furthermore, research published in the *AKTIVA Journal of Accounting* (2024) emphasizes that Green Sukuk strengthens Indonesia's position in the global Islamic financial market. The study demonstrates the significant potential of Green Sukuk in expanding Islamic capital markets while supporting environmentally sustainable investment projects. Nevertheless, the research focuses primarily on sovereign Green Sukuk as a large-scale financing instrument and does not investigate its application as a financing mechanism for MSMEs through Islamic banking institutions.

Meanwhile, Bank Indonesia, through its 2025 press release on Green Financing Synergy, reports encouraging progress in green financing realization accompanied by various business matching initiatives for green MSMEs. These achievements reflect the commitment of multiple stakeholders to strengthening Indonesia's sustainable financing ecosystem. However, the report is essentially descriptive, presenting program achievements without offering an in-depth academic analysis of institutional collaboration patterns, governance mechanisms, or the effectiveness of inter-agency synergy in supporting green financing for MSMEs.

Based on the foregoing studies and policy documents, it can be concluded that the existing literature on Green Sukuk remains largely concentrated on sovereign capital market instruments, regulatory frameworks, governance issues, and macro-level sustainable development policies. Consequently, there remains a substantial research gap regarding the operational implementation of Green Sukuk as a green financing mechanism through collaborative arrangements involving the government, financial regulators, Islamic financial institutions, and MSMEs. Therefore, this study seeks to address this gap by examining a Green Sukuk-based financing synergy model designed to support sustainable MSME development in Indonesia.

Based on this mapping, three main research gaps were identified. First, studies of green financing (green bonds/green sukuk) generally focus on capital market instruments for large corporations or government-owned enterprises, and have not yet addressed microfinance mechanisms for MSMEs. Second, studies of circular economy policies (Bappenas, legal

studies) are conceptual and normative in nature and have not been explicitly linked to operational banking financing instruments. Third, there has been no descriptive research specifically mapping the institutional synergy patterns between regulators (OJK, BI, Ministries/Institutions, and the Sustainable Finance Committee) in channeling green financing to MSMEs as the driving force of the circular economy transition. This gap underpins the urgency of this research.

This research aims to describe the latest patterns and achievements of national banking green financing for green MSMEs based on the most recent data and emerging phenomena, analyze institutional synergies among stakeholders in supporting the transition toward a circular economy through green financing for MSMEs, and identify the challenges and opportunities for optimizing these synergies to accelerate the national circular economy transition. Theoretically, this research is expected to enrich interdisciplinary studies of sustainable finance and the circular economy, which have largely developed as separate fields. Practically, the findings are expected to serve as a reference for regulators, including the Financial Services Authority (OJK) and Bank Indonesia, as well as banks and MSMEs, in designing more effective, collaborative, and applicable green financing schemes to promote sustainable business practices and accelerate the adoption of a circular economy in Indonesia.

Literature Review

This section contains relevant literature related to the research and development of the proposed hypothesis (if any). This section also briefly discusses the theory used to describe the relationship between concepts (presented in the subtitles) and the relationship between these concepts is presented in the form of a conceptual framework drawing.

The Concept of Green Banking Financing

Green financing is the distribution of funds by financial services institutions to business activities that consider environmental, social, and governance (ESG) aspects. In Indonesia, the obligation to implement sustainable finance is regulated through Financial Services Authority Regulation Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies (OJK, 2017), which was later reinforced by the Indonesian Taxonomy for Sustainable Finance (TKBI) as a classification of economic activities supporting sustainable development (OJK, 2024). Theoretically, Rivai and Buchari (2009) emphasized that both Islamic and conventional financial systems oriented towards sustainability need to balance profitability with socio-environmental responsibility in their financing distribution.

Circular Economy as a Paradigm for Sustainable Development

A circular economy is defined as an economic model that applies a systemic approach to minimizing resource use, designing products for extended usefulness, and returning waste from the production-consumption process to the value chain (Ministry of National Development Planning/Bappenas, 2024). Academically, the circular economy is understood as a new sustainability paradigm that replaces the linear economic model (Geißdörfer, Savaget, Bocken, & Hultink, 2017), although the concept is still debated and requires a more precise operational definition (Kirchherr, Reike, & Hekkert, 2017). Other studies also emphasize that the circular economy has conceptual limitations that need to be anticipated in policy implementation, particularly regarding measuring the real impact on sustainability (Korhonen, Honkasalo, & Seppälä, 2018). In Indonesia, the circular economy implementation framework refers to the 9R principle (refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle) which is applied to five priority sectors: food, plastic packaging, electronics, construction, and textiles (Bappenas, 2024).

Green MSME Financing Scheme in Indonesia

To encourage the green transition for small businesses, Bank Indonesia has provided the Green MSME Business Model Guidelines and the Green Calculator as tools to help calculate carbon emissions, provide mentoring, and strengthen the green financial market (BI, 2025). Bank Indonesia has also relaxed the Macroprudential Inclusive Financing Ratio Policy (RPIM) to encourage financial institutions to channel financing to the green sector (BI, 2025). Green financing

instruments are also strengthened through the issuance of green bonds and green sukuk, which in Indonesia have become a global pioneer — Indonesia was recorded as the world's first green sukuk issuer in March 2018, worth US$1.25 billion (Ekonomica Sharia, 2023). International studies show that leadership is a critical determinant of the success of green sukuk issuances in various countries (Abdullah & Keshminder, 2020), while other studies confirm green sukuk as a sustainable financing instrument for infrastructure development in Indonesia (Abubakar & Handayani, 2020).

Theoretical Framework: Stakeholder Synergy in Sustainable Finance

This research uses the stakeholder synergy theoretical framework to explain how regulators, financial institutions, and businesses interact within the green financing ecosystem. This framework emphasizes that the success of the circular economy transition depends on effective cross-institutional coordination—from the establishment of regulations and incentives by regulators, to the disbursement of financing by banks, to the adoption of environmentally friendly practices by MSMEs, the smallest yet most numerous economic units.

Method

This study uses a descriptive qualitative approach with library research and document analysis methods. The data used are sourced from official secondary data, including: (1) press releases and Bank Indonesia reports related to green financing; (2) Financial Services Authority policy documents (POJK 51/2017, TKBI Taxonomy, Sustainable Finance Roadmap); (3) Roadmap and National Action Plan for Indonesia's Circular Economy 2025-2045 from the Ministry of National Development Planning/Bappenas; and (4) national and international scientific publications for the 2017-2026 period relevant to green financing and the circular economy.

The data analysis technique was carried out through the following stages: (1) data reduction — selecting data and documents relevant to the research focus; (2) theme categorization — grouping data into the themes of green financing, circular economy, and institutional synergy; (3) data presentation in the form of descriptive narratives and graphic and diagram visualizations; and (4) drawing conclusions based on patterns identified from the data synthesis.

Result and Discussion

Green Financing Synergy Model in the Green MSME Scheme

Based on the synthesis of policy and institutional data, this study describes the synergy pattern of green banking financing in the green MSME scheme as depicted in Figure 3. This synergy involves three main layers of stakeholders: (1) regulators (OJK, Bank Indonesia, and Ministries/Institutions through the Sustainable Finance Committee) that determine regulations, incentives, and policy coordination; (2) national banks as the main channel of financing; and (3) four operational instruments — green credit/financing, business matching and mentoring, green bonds/green sukuk, and green calculators — that directly reach MSMEs.

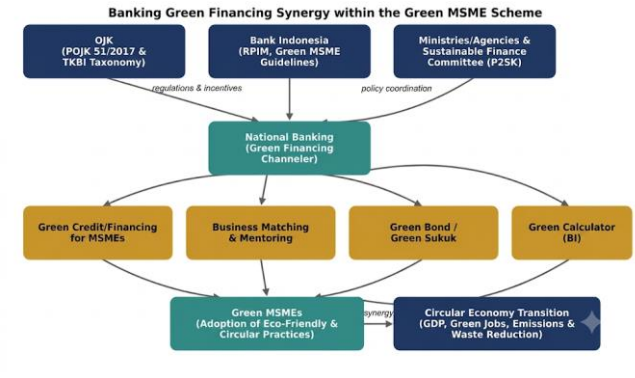


Figure 3. Descriptive Model of Green Banking Financing Synergy in the Green MSME Scheme Source: Processed by the author based on OJK (2017, 2024), Bank Indonesia (2025), and Law No. 4/2023.

This pattern indicates that synergy is driven top-down from a regulatory perspective, but its implementation in the field relies heavily on temporary/programmatic business matching initiatives—as reflected in the significantly smaller value of business matching financing commitments (Rp0.3 trillion) compared to the total classified green financing (Rp33.7 trillion and Rp29.3 trillion, respectively, see Figure 1). This scale gap indicates that intensive mentoring instruments (business matching) have not yet

become the primary channel for financing distribution, but rather are still complementary to regular credit schemes.

The Gap between Green Finance and Circular Economy Achievements

The findings in Figures 1 and 2 reveal a paradox: on the one hand, green banking financing shows a positive growth trend, but on the other hand, the national circular economy achievement at the operational level (circular material input 9%, product durability 4%, recycling 5%) remains far from optimal. This condition confirms the findings of the OJK Phase II Sustainable Finance Roadmap, which identified the low level of industry understanding of sustainable finance and the lack of agreement on standardization of green categories at the national level as key obstacles (OJK, 2021). In other words, the availability of financing instruments has not been automatically followed by the capacity and readiness of MSMEs to adopt circular economy practices in practice.

Challenges and Opportunities for Optimizing Synergy

1. The scale of green financing for MSMEs (Rp29.3 trillion) is still very small compared to the national climate action funding needs of Rp14,000 trillion, so broader involvement of the private sector and capital markets is needed.
2. The green taxonomy standardization (TKBI) needs to be continuously disseminated widely to MSMEs so that "green" criteria no longer become an administrative obstacle in applying for financing.
3. The role of the Sustainable Finance Committee post-P2SK Law has the potential to become a new coordination node that bridges policy fragmentation between the OJK, Bank Indonesia, and technical ministries/institutions.
4. The expansion of green retail sukuk instruments can be an alternative financing opportunity for green MSMEs, considering the participatory philosophy of retail sukuk that involves contributions from the wider community.
5. Business matching and mentoring need to be transformed from temporary programs into permanent mechanisms integrated with the regular banking system.

Conclusion

This study describes that the synergy of green banking financing within the green MSME scheme in Indonesia has shown positive quantitative achievements, reflected in the realization of green financing worth IDR 33.7 trillion and the classification of green MSME financing of IDR 29.3 trillion as of July 2025. However, this synergy has not been fully effective in driving the circular economy transition at the operational level, as reflected in the low national achievement in the circular material input indicators (9%), product durability (4%), and recycling (5%). The identified synergy model is top-down from regulators to banks, with business matching instruments that still play a complementary role and are small-scale compared to regular credit schemes.

Acknowledgment

Further research is recommended to empirically test this synergy model through in-depth interviews with MSMEs receiving green financing, OJK/Bank Indonesia officials, and distributing banks to validate the effectiveness of the institutional synergy described in this study. Further quantitative research is also recommended to measure the correlation between the volume of MSME green financing and improvements in circular economy indicators at the regional level.

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