

OPPORTUNITIES OF GREEN LENDING TO FINANCE ENVIRONMENTAL PROJECTS TO ACHIEVE THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT

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ABSTRACT

Objective: The transition to the green economy is a critical aspect of sustainable development, which requires significant investment flows in low-carbon infrastructure. This transition is being considered by central banks and public and private banking institutions.

Methods: The article analyzes the essence of green bank lending, describes the characteristics and features of its use, and evaluates the structure of green lending.

Results: The study has identified the main obstacles to green lending and the main priorities of banking institutions involved in the development of green lending. Authors highlights the need to adapt financial institutions to new realities and prioritize green investment risks when establishing green financial institutions through the adaptation of green lending practices.

Conclusion: In the article the problems and priorities of green lending in the global banking market and emphasizes the importance of sustainable development practices and administration in the financial sector were considered.

Keywords: Banks. Financial institutions. Green lending. Bank lending.

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OPORTUNIDADES DE EMPRÉSTIMOS VERDES PARA FINANCIAR PROJETOS AMBIENTAIS PARA ALCANÇAR OS PRINCÍPIOS DO DESENVOLVIMENTO SUSTENTÁVEL

RESUMO

Objetivo: A transição para a economia verde é um aspecto crítico do desenvolvimento sustentável, que requer fluxos de investimento significativos em infraestrutura de baixo carbono. Essa transição está sendo considerada pelos bancos centrais e instituições bancárias públicas e privadas.

Métodos: O artigo analisa a essência do empréstimo bancário verde, descreve as características e recursos de seu uso e avalia a estrutura do empréstimo verde.

Resultados: O estudo identificou os principais obstáculos ao empréstimo verde e as principais prioridades das instituições bancárias envolvidas no desenvolvimento do empréstimo verde. Os autores destacam a necessidade de adaptar as instituições financeiras às novas realidades e priorizar os riscos do investimento verde ao estabelecer instituições financeiras verdes por meio da adaptação de práticas de empréstimos verdes.

Conclusão: No artigo foram considerados os problemas e prioridades do empréstimo verde no mercado bancário global e enfatiza a importância das práticas de desenvolvimento sustentável e administração no setor financeiro.

Palavras-chave: Bancos. Instituições financeiras. Empréstimos verdes. Empréstimos bancários.

OPORTUNIDADES DE PRÉSTAMOS VERDES PARA FINANCIAR PROYECTOS AMBIENTALES PARA ALCANZAR LOS PRINCIPIOS DE DESARROLLO SOSTENIBLE

RESUMEN

Objetivo: La transición a la economía verde es un aspecto crítico del desarrollo sostenible, que requiere importantes flujos de inversión en infraestructura baja en carbono. Esta transición está siendo considerada por los bancos centrales y las instituciones bancarias públicas y privadas.

Métodos: El artículo analiza la esencia de los préstamos bancarios verdes, describe las características y características de su uso y evalúa la estructura de los préstamos verdes.

Resultados: El estudio ha identificado los principales obstáculos para los préstamos verdes y las principales prioridades de las instituciones bancarias involucradas en el desarrollo de los préstamos verdes. Los autores destacan la necesidad de adaptar las instituciones financieras a las nuevas realidades y priorizar los riesgos de inversión verde al establecer instituciones financieras verdes mediante la adaptación de prácticas de préstamos verdes.

Conclusión: En el artículo se consideraron los problemas y prioridades de los préstamos verdes en el mercado bancario global y se enfatiza la importancia de las prácticas y administración de desarrollo sostenible en el sector financiero.

Palabras clave: Bancos. Instituciones financieras. Préstamos verdes. Préstamos bancarios.



INTRODUCTION

The banking sector plays a crucial role in the current global system of financing sustainable development, which is a key institutional channel for the accumulation and redistribution of financial capital in the world economy and the effective transformation of total savings into total investments accompanied by the deep integration of national financial systems of different countries into the global financial environment. The strategic tasks of green economic development are implemented by the governments of states and regions based on green banking and mechanisms for its diversification in global conditions. All this plays a key role in supporting the adaptation of national economies to climate change and increasing their financial stability, as well as mitigating the impact of climate risks on macroeconomic growth (Bahl, 2012). These challenges determine the scientific and practical task of identifying the role of green lending in the global banking market.

LITERATURE OVERVIEW

According to Manolas et al. (2017), green bank lending is a loan instrument provided for the partial/full financing or refinancing of new or existing environmental projects at or below the market rate of interest. Scholars claim that bank loans are the main tools for financing long-term green investment projects (Lalon, 2015). However, banks are not interested in the long-term repayment of their loan obligations by borrowers (Wang & Zhi, 2016). Being provided by banking institutions in accordance with the developed and approved corporate lending policy, green loans not only optimize the structure of bank loan portfolios (Thombre, 2011) but also reduce the level of credit, economic, and legal risks of creditor banks (Leonard, 2014), improve their brand reputation, and develop their competitive advantages in the market (Meena, 2013).

In the United States, more than 100 banking institutions currently issue green loans, with an annual increase in their number and the role of large banks in green lending (Rai et al., 2019). Almost half of the banking institutions in developing economies offer their customers green loans. The latter are the most common green financial products, followed by green insurance, advisory services, and green investment funds (Tu & Yen, 2015). Although more than half of such banks do not provide green financial services (Linh & Anh, 2017), most of them are interested in the development of banking customer service (Park & Kim, 2020).

In turn, the geographical structure of green lending indicates the unconditional dominance of the European region, which accounted for 46-65% of total funding in 2015-2021 (Debnath



& Roy, 2019). It is followed by the Asia-Pacific (17-27%) and American regions (11-24%), with a relatively small share of the African region (Zhang et al., 2011). In leading countries, the green banking policy covers measures to encourage the disclosure of information by companies and investors in the transition of their activities to green growth (Luo et al., 2017); preferential loans to banks lending to the environmental and energy business (Bukhari et al., 2022); the principles of environmental social governance (ESG) when purchasing assets and accepting collateral (Dialysa, 2015). In developing countries, such activities launch mechanisms for refinancing green initiatives, setting a threshold level for the share of green financing in bank portfolios, and forming corporate banking systems for managing environmental and social risks (Cui et al., 2018). As part of green lending, banks direct capital mainly to low-carbon projects, including energy-efficient modernization in the commercial and residential sectors, and the construction of wind farms and solar power plants (Chowdhury et al., 2013). Due to green loans, several other significant goals can be achieved: reducing CO₂ emissions, supporting the development of local communities, optimizing energy costs, developing markets for green technologies, creating jobs, building green cities, etc.

Given the foregoing, the article aims at determining the problems and priorities of banking institutions in the development of green lending at present.

METHODS

To solve the research objective, we used such general scientific methods as a) theoretical (the analysis of scientific sources on the research topic) and b) empirical (an expert survey).

The study was conducted in three stages between January and March 2023. At the first stage, we studied scientific and analytical works on the research topic. The analysis of publications allowed us to consider scientific approaches to the concept, essence, and structure of green lending, as well as to determine the main existing tools for green lending.

The second stage involved online communication with experts. The expert survey was conducted in Russian using e-mail. E-mails were sent to 44 experts from the banking sector working on green lending. The experts were asked to substantiate their answers in free form. All in all, 41 experts provided answers.

Considering the objective and tasks of the study, we asked the experts the following questions:

1. What are the main institutional obstacles that hinder green lending?



2. What are the main priorities of banking institutions in the development of green lending?

After submitting their answers, the experts were asked to arrange the main obstacles and priorities for the development of green lending in ascending order depending on their significance and assign points to them. According to the points given, the ranking of each of the tools was determined.

For a more objective analysis of the data obtained during the expert survey, the consistency of expert opinions was measured through mathematical processing using the Kendall concordance coefficient (W) calculated with the help of the SPSS software. Further, the information obtained during the expert ranking was processed to determine the impacts of expert opinions.

RESULTS

The results of an expert survey reveal certain institutional obstacles that hinder green lending (Table 1).

Table 1. Obstacles to green lending

No.	Obstacles to green lending	Ranking	Impact
1	Limited application of green lending principles	1	0.38
2	Maturity mismatch of green loans	2	0.29
3	Information asymmetry	3	0.20
4	No capacity for analysis	4	0.13

Note: based on the results of the expert survey; the concordance coefficient $W = 0.73$ ($p < 0.01$), which indicates a strong consistency of expert opinions.

According to the calculations, the most significant obstacles are the limited application of the principles of sustainable lending (0.38) and the discrepancy between the repayment terms of green loans (0.29).

While processing the results of the expert survey, we also determined the main priorities of banking institutions in the global development of green lending (Table 2).

Table 2. Priorities of banking institutions in the development of green lending

No.	Priorities	Ranking	Impact
1	Introduction of voluntary green lending principles	1	0.33
2	Application of innovative tools to finance long-term investments and overcome the maturity mismatch	2	0.24
3	State assistance	3	0.16
4	Integration of green factors in bank lending	4	0.13
5	Raising capital for green lending	5	0.09
6	Development of green lending through educational platforms	6	0.05



Note: based on the analysis of scientific literature; the concordance coefficient $W = 0.71$ ($p < 0.01$), which indicates a strong consistency of expert opinions.

According to the calculations, the most significant indicators are the introduction of voluntary principles of green lending (0.33) and the use of innovative tools to support the financing of long-term investments to overcome the maturity mismatch (0.24).

DISCUSSION

Currently, a considerable number of green projects are financed through banking institutions. Each year more and more banks incorporate ESG factors in their business models. Central banks also recommend that commercial banks include ESG criteria in asset risk assessments. These and softer measures, leading commercial banks towards more sustainable and responsible lending, are a new way to apply macroprudential regulation and create more green banking products (Park & Kim, 2020). This practice is used by OECD countries and China.

By incorporating environmental factors into decision-making, banks can effectively manage the risks associated with dirty financing and increase the resilience of the whole financial system. By providing green loans to responsible borrowers, banks can promote the development of green projects, generate financial profits, and create a positive image and reputation of a reliable green borrower. The development of green lending is mainly related to the state policy considering environmental problems the factors of financial risks and the demand of households for such loans.

Considering the obstacles that hinder green lending (Table 1), the experts argue that there are several voluntary initiatives but their application is limited due to misunderstanding their importance, no alignment between risk management principles and green lending guidelines (at the country or bank level), and the lack of reporting practices leading to difficulties in evaluating the effectiveness of green lending.

Another obstacle is the inconsistency in repayment terms of green loans since some banks are limited in financial capacity or are not interested in providing long-term green loans due to a relatively long repayment period. However, some studies demonstrate that most green projects (related to water treatment, solid waste management, development of renewable energy sources, low-emission transport, and energy efficiency measures) are long-term and, as a rule, have a higher CapEx (capital costs) and lower OpEx (operating costs) than conventional projects (Meena, 2013). If capital markets are less developed (few green credits or other



financial instruments) and/or banks do not effectively use the bond market to increase their sources of long-term funding, this maturity mismatch could be a major obstacle to financing long-term green projects (Dialysa, 2015).

Information asymmetry as an obstacle to green lending lies in the fact that most countries of the world developing green lending do not use or do not have complete information on borrowers (how much CO₂ emissions are generated by borrowers or which green technologies they use to reduce their level), which limits the ability of banks to assess the level of environmental risks associated with a particular project and corporate financing (Rai et al., 2019). Industry-specific data are insufficient to provide a comprehensive analysis of business and market risks related to the environment. These problems often arise due to the lack of cooperation between countries and actors of different levels in these countries since environmental information is disclosed by public and private institutions (for example, state requirements to disclose information about the quality of the environment or the activities of private actors regarding green business and environmental responsibility), and banks cannot solve these issues on their own.

A similar obstacle is the lack of opportunities for analysis, i.e. a banking institution cannot fully assess the risks and their complexity without the necessary tools. In particular, studies show that there is no toolkit required for quantifying the environmental benefits and costs of new projects, assessing how environmental costs can result in future default risks, and reporting on the performance of green projects and related business spheres (Linh & Anh, 2017). Failure to assess the potential of green lending can lead to over-investment into “dirty” sectors of the economy and reduce investment in the green sphere.

In relation to the priorities of banking institutions in the development of green lending (Table 2), the further development and expansion of these practices depend on specific local conditions. To counter-balance the above-mentioned obstacles, the experts propose the following measures:

– The introduction of voluntary principles of green lending establishes the cooperation of the country developing green lending, international financial institutions, and the private sector to develop, improve, and implement voluntary principles for assessing the progress in the field of green lending. Such actions allow the banking system to expand green lending and reduce the risks of resource depletion and pollution of economic sectors (Rzabay et al., 2022). This step can also create uniform conditions for all countries to introduce green lending, which will increase its scale (Luo et al., 2017). The Equator Principles are commonly used for risk management but only cover project finance. Banks and other financial institutions can take on



such obligations (introduce their own principles of green lending) and supervise them at their own level (conduct a climate risk assessment) (Thombre, 2011). As a result, only projects that have passed an environmental-friendly test are funded.

– The use of innovative tools to support long-term investments and overcome the maturity mismatch provides for the possibility of issuing green bonds as a way to solve the problem arising from the limited ability of banks to provide green loans. In addition, this refers to the issue of securitized products (with a long maturity) through green loans and long-term secured loans backed by income, for example, from energy service contracts or the sale of greenhouse gas emissions permits (Nurgaliyeva et al., 2022).

– Government assistance means that public authorities can promote green lending (to address internal challenges in the banking sector) by consulting with key stakeholders, including banking associations, regulators, line ministries, stock exchanges, and credit unions. Such steps can help define the key concepts of green lending, policy directions to stimulate the market, raise awareness and empower stakeholders, and enhance discipline through environmental disclosure. Cooperation in this sphere can also lead to centralized data collection (for example, based on the established National Processing Center), which will become the basis for the analysis and risk management of banks (Debnath & Roy, 2019).

– The development of green lending through educational platforms implies the training of bank executives and risk managers (Bukhari et al., 2022). These platforms provide technical guidance for banks to evaluate project-level environmental loss/benefit, as well as to conduct risk analysis and performance reporting.

Today there is no universally accepted policy for integrating green factors into bank lending. There are only several key initiatives, such as the Equator Principles (Thombre, 2011), which are used in the management of environmental and social risks and cover more than 70% of international financing for projects in emerging markets. In addition, some banks include environmental factors in their investment research and are also exploring environmental stress testing tools (Cui et al., 2018) at the bank level.

CONCLUSION

In the course of the study, we revealed the main obstacles to green lending and the main priorities of banking institutions involved in the development of green lending.

The study results proved that green lending endows financial institutions with special powers and grants them access to various sources of capital to finance various environmental



projects. In general, the development of green lending by commercial banks varies depending on the country. Banks respond to environmental and social issues differently. Their ability to provide green loans depends on the rating of a particular banking institution, as well as market conditions and the regulatory environment.

Further research should focus on a consistent analysis of the entire set of green banking tools in the modern context.

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