



GREEN BANKING AND ITS DEVELOPMENT IN POLAND

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ABSTRAKT

PURPOSE: The purpose of this work is to determine the current state and key trends in the field of green banking in Poland, drawing on the theoretical concepts and contemporary practices.

DESIGN/METHOD: Using a mixed-methods approach grounded in environmental and financial theory, this study employs statistical, comparative, and qualitative analyses to assess Poland's position on the international stage and institutional initiatives undertaken between 2018 and 2024.

RESULTS/FINDINGS: The findings reveal that Polish banks are gradually integrating green banking practices into their operations. International cooperation and EU regulation have proven instrumental in enabling financial institutions to introduce new green finance products and attract additional capital. However, Poland does not rank among the frontrunners in green banking development within the EU, underscoring the need for a more robust regulatory framework and stronger involvement from the central bank to accelerate the progress.

ORIGINALITY/VALUE: The value of this article lies in its focused analysis of the evolving landscape of green banking in Poland. It bridges a critical gap by combining the theory of sustainable finance and an empirical study of green initiatives of commercial banks. Furthermore, it provides new evidence on the effectiveness of international cooperation in promoting sustainability. By presenting the specific policy recommendations tailored to the Polish financial sector, the study adds significant value to both academics and policymakers seeking to promote sustainable economic growth in green finance markets.

KEYWORDS: green banking, sustainable finance, sustainable bond, green mortgage, Equator Principles.

JEL: G210, E580, Q5.

1. INTRODUCTION

The issues of climate change and environmental protection are central topics in public policy across many countries. Due to stricter legislation, growing public awareness, and evolving sustainability priorities, businesses and organizations are increasingly aligning their activities with the sustainable development goals. However, not all companies are prepared to adjust their priorities and strategies, as the movement to sustainable development, including the adoption of green principles, can be costly. As a result, businesses require support and incentives to facilitate their shift towards sustainability. A key driver of this transition is financing. While banks and financial institutions are not inherently harmful industries, they can contribute to environmental degradation – such as air pollution and climate change – by financing environmentally damaging projects. Conversely, banks also have the potential to make a significant positive impact on the environment by funding green projects. Green banking, however, is a relatively new area within the financial sector. Therefore, it is crucial to understand what green banking entails, identify the main challenges it faces, and recognize its role in advancing the green economy.

Although European countries share a common interest in advancing green initiatives, including green banking, each country has own unique characteristics and challenges in this field. Poland is no exception. The main issue lies in identifying the key trends in green banking and understanding its development within the country. Therefore, to assess the path forward, it is essential not only to examine the overarching trends in green banking and study international experiences, but also to analyze specific examples and methods of green banking development in Poland. At the same time, this paper focuses on the green activities of commercial banks, with a brief exploration of the importance of green risk management, which is traditionally regulated by both national and supranational monetary authorities. This approach helps to understand the broader aspects and areas of green banking while providing a clearer picture of its development in Poland.

The hypothesis of this study posits that green banking in Poland is gradually developing within the framework of major global trends due to the initiatives of the banks themselves, their cooperation with foreign partners, EU regulation and their participation in international initiatives. At the same time, the role of the monetary regulator – the central bank – is limited.

The main objectives of this work are to present the current state of green banking in Poland, highlight the key areas of involvement of Polish credit institutions in green initiatives over the past five years, and identify the challenges and potential pathways for further development in the country.

The methodology of this research is interdisciplinary, incorporating elements of ecology, climate change, and the financial theory. The paper utilizes methods of analysis, synthesis, graphical and statistical methods, and comparative analysis.

In the first part of the paper, the main issues surrounding green banking, along with its advantages and disadvantages, are discussed. This section also provides definitions of the key concepts such as ‘green bank’, ‘sustainable finance’, and ‘green economy’. The second part analyzes major international initiatives in the green finance sector. Polish institutions are actively involved in green activities at both the national and international levels. The third section of the second part presents a study of green initiatives of Polish financial institutions. The fourth part of the paper presents the key findings, focusing on the development and challenges of green banking in Poland.

The article examines a wide range of literary sources. The theoretical part of this research, which addresses the key issues related to green banking, the green economy, and green financial instruments, is based on a broad range of materials, including reports and publications from the Organization for Economic Co-operation and Development (OECD), the UN Environment Programme, the European Commission, as well as research papers in the field of green finance.

The description of international green banking initiatives draws on official information and regulatory documents from various international organizations and initiatives. The key sources include the World Green Building Council, the Climate Bonds Initiative, the Equator Principles, the Energy Efficient Mortgages Initiative, and others.

The analysis of green banking in Poland draws upon several market reports and studies, as well as activities of individual Polish banks in the field of green finance. Additionally, specific initiatives of eleven Polish banks, including the European Investment Bank in Poland, that actively incorporate environmental factors into their operations, were analyzed. Information on the green banking activities of Polish banks was sourced from their official websites and publicly available data..

2. LITERATURE REVIEW ON GREEN BANKING

The Paris Agreement on climate change laid the foundation for the development of different green areas. This Agreement is essential for the achievement of the UN Sustainable Development Goals (SDG). SDG is necessary for the Green Economy development. The green economy means “low carbon, resource efficient and socially inclusive” (United Nations Environment Programme, 2022). Economic growth is provided by investing in energy efficient and environmentally friendly projects, that allow to save biodiversity, prevent, and reduce the negative effects of climate change.

As a new field of green economy, the terminology of green banking is not yet well developed. Nevertheless, the following definitions can be distinguished. The Organisation for Economic Co-operation and Development defines a green investment bank as “a public entity established specifically to facilitate private investment into domestic low-carbon, climate-resilient infrastructure” (Organisation for Economic Co-operation and Development, 2021). The Green Bank Network gives a similar, but broader definition of a green bank. It describes a green bank as “a publicly capitalized entity established specifically to facilitate private investment into domestic low carbon, climate resilient infrastructure and other green sectors such as water and waste management” (Green Bank Network, 2022b).

In some literature, the activities of green banks are understood to include not only environmental but also social aspects. The Indian Banks’ Association defines a green bank as “a normal bank that also considers social and environmental factors for the protection of natural resources” (Tara et al., 2015). In the context of this research, a broader definition of green banking, which includes banking activities directed at achieving ESG (Environmental, Social, and Governance) goals will be adopted. In fact, such banks are more accurately referred to as sustainable banks. It is difficult to draw clear distinctions between sustainable and green banks. Since this paper focuses on the green activities of financial institutions, social and governance goals will also be considered as part of the sustainable functioning of these institutions. Based on the European Commission’s definition, sustainable finance has a broader meaning and represents the process of financing that is based on environmental, social, and governance priorities, where banks and other financial institutions select investment projects and define and implement operational principles in line with the objectives of sustainable economic development (European Commission, 2022).

There are three main groups of activities that characterize green banking.

The first group includes activities aimed at minimizing the bank’s negative environmental impact in its operations as a traditional legal entity. These activities may include reducing paperwork, implementing energy- and water-saving technologies, and encouraging employees to use public transport or bicycles instead of personal cars. While banks are not typically hazardous to the environment and do not cause significant direct damage, energy consumption and waste are still present. These can, however, be minimized if the bank aims to operate sustainably.

Second, as a financial entity, a green bank should implement a green strategy, assess funded projects for environmental impact, prioritize investments in sustainable projects, integrate green risks into risk management, and introduce green financial instruments such as climate bonds, blue bonds, sustainability bonds, green credit cards, green mortgages, and others. In this context, the green strategy includes goals, tasks, and indicators that support the transition to sustainable operational principles, the assessment of financing projects for alignment with sustainable development goals, the use of green instruments, green risk management, and other initiatives that align with sustainability objectives.

Third, sustainable financial institutions are interested in specialized regulation in green finance and actively support national governments as well as international institutions, platforms, and organizations. A sustainable bank typically participates in numerous international initiatives and organizations within the green finance sector, such as the Energy Efficient Mortgages Initiative, the Climate Bonds Initiative, the Equator Principles, and the Green Bank Network (Luzgina, 2021).

These activities are crucial for a bank's sustainability. In the absence of well-developed national legislation, participation in international green initiatives allows banks to establish guidelines for green banking and gain access to green finance markets. However, this alone may not be sufficient to build a well-developed green financial sector that supports the transition of the national economy to sustainability.

Before further analyzing green banking in general and the initiatives of Polish banks in the green sector, it is important to identify the benefits of such a transition from the banks' perspective, as shifting to green banking requires additional expenditures.

The benefits of green banking are not always immediately apparent. The transformation from a traditional to a green bank requires financial investment, specialized knowledge, and skilled professionals. The implementation of new green products is just one part of the green banking initiatives. Green banks must also develop new strategies, integrate green risks into risk management, participate in international associations focused on sustainable development, and implement sustainability principles. At the same time, green banks stand to gain numerous benefits from these activities.

First, sustainable activities help create a positive image for the bank and attract new customers. Sustainability issues are becoming increasingly popular in society, as they contribute to achieving green goals at both the national and international levels. A green bank's openness enhances customer trust, and financial institutions that follow green standards tend to be more attractive to consumers than traditional banks (Gary, 2022).

Second, many governments are developing regulations that take into account the ESG goals and green risk mitigation. Green banks have no trouble adapting to these new regulations, while other financial institutions may face challenges in implementing them.

Third, failing to consider climate-related and environmental risks can lead to financial losses. For example, the negative effects of climate change or the insolvency of certain customers due to stricter environmental legislation can increase the risks of financial instability for banks. Green risk management reduces the potential for unpredictable losses, which in turn helps lower capital costs. The importance of green risk management is highlighted by the development of numerous documents by the European regulators, including the European Banking Authority's Report on the Management and Supervision of ESG Risks for Credit Institutions and Investment Firms, as well as the ECB Guide on Climate-Related and Environmental Risks (European Banking Authority, 2021; European Central Bank, 2020).

Fourth, green banking requires the hiring of ESG specialists. While this can be costly in the short term, the growing demand will attract skilled ESG professionals to the financial sector and push out those who lack the expertise to operate within the framework of green priorities.

Fifth, as green activities focus on more economical energy and water consumption, as well as reducing material and paper usage, they can help lower operational costs (Forst et al., 2021).

Sixth, green banks can attract more financing at affordable prices. International organizations and other institutional investors often view green financial instruments as more attractive and reliable. By issuing green bonds and evaluating financed projects for sustainability, financial institutions can gain access to sustainable finance markets.

Seventh, green banking reduces paperwork not only for the bank but also for its clients. This speeds up the transition to a green economy for both the bank and its customers, lowers processing costs, and increases the efficiency and speed of data exchange through electronic communication channels (Carnprobst, 2021).

Finally, green banks stimulate the development of a sustainable economy. Depending on the projects they finance, certain sectors can experience faster growth. Prioritizing green projects, while imposing restrictions on financing harmful enterprises, will contribute to the quicker and more effective achievement of sustainability goals (Gary, 2022).

3. INTERNATIONAL INITIATIVES IN GREEN BANKING

Given the importance of international green initiatives to the development of sustainable finance in general and green banking in particular, below is a brief overview of the main initiatives in green finance.

The first example is the Energy Efficient Mortgages Initiative (EEMI). It was developed in 2015 and aims to create special criteria, definitions, and methodologies for sustainable investments attraction in the form of mortgage loans to green construction. The EEMI allows banks to build its green loan portfolio and decrease green risks in the sphere of mortgages based on clear rules (Energy Efficient Mortgages Initiative, 2023).

To evaluate the project's compliance with the green requirements, the Initial Recommendations for Energy Performance Indicators, Building Energy Passport as well as EEMI Valuation Checklist Background Explanation and Guidance were developed (Richardson, & Drinkwater, 2018; Energy Efficient Mortgages Initiative, 2019). From February 2021, banks and other financial institutions can hold in their investment portfolios special loans that have the EEM Label. It can be provided for loans of the construction, purchase, and renovation of individual houses, apartments, and commercial properties that are energy efficient. The first labels were issued in 2021 (European Covered Bond Council, 2021).

For the development of energy-efficient mortgages, the Building Assessment Briefings have been presented by the national branches of the World Green Building Council (World GBC), including the Polish GBC, Finland GBC, Italian GBC, and others. According to the Polish Briefing, there are four international sustainability certification schemes for construction that are recognized in the country (World Green Building Council, 2018). One of the most widely used is the Building Research Establishment Environmental Assessment Method (BREEAM). Other commonly used systems include the Leadership in Energy and Environmental Design (LEED), the French building evaluation system (High Environmental Quality in English and Haute Qualité Environnementale (HQE) in French), and the German building evaluation system (German Sustainable Building Council e. V in Eng. and Deutsche Gesellschaft für Nachhaltiges Bauen e.V (DGNB) in German) (Polskie Stowarzyszenie Budownictwa Ekologicznego, 2022).

The Climate Bonds Initiative (CBI) is an international organization that works on financial market development in the direction of climate-related issues (Climate Bonds Initiative, 2022). Based on the International Capital Market Association (ICMA), the principles Climate Bond Standard and Certification Scheme (CBSCS) was developed. The CBSCS can be used to label green bonds and green loans. A specialized taxonomy (classification) has been created for projects across various economic sectors, such as agriculture,

buildings, hydropower, shipping, wind energy, and more. This taxonomy helps investors and issuers determine whether a project aligns with the climate-related goals.

Another important international initiative in the green finance sphere is the Equator Principles (EP) (Equator Principles, 2022). The EP serve as a framework for financial institutions to minimize environmental and social risks in their dealings with potential and existing borrowers. These principles are typically applied by investors to large-scale projects. The following financial instruments can be used in the process of finance: bridge loans, project finance, and project-related finance. The principles are constantly being reviewed and refined.

Before a bank begins working with a borrower, it must categorize the financed project as A, B, or C. Projects with high negative environmental and social risks and/or impacts fall under Category A. Category C includes projects with very low negative environmental and social risks and/or impacts, while Category B encompasses projects with moderate negative risks and impacts that can be mitigated. Projects with higher risks and greater environmental impacts are subject to stricter execution and monitoring requirements (Equator Principles, 2020).

The process of project assessment and monitoring depends on the project's jurisdiction. All countries are classified as either Designated or Non-Designated Countries. The Designated Countries are those with well-developed legislation and governance in social and environmental matters. Such countries must be members of the OECD and classified as high-income by the World Bank. According to official EP information, Poland is considered a Designated Country.

Another key initiative in the green finance sphere is the Green Bank Network (GBN) (Green Bank Network, 2022a). Established in 2015, this initiative serves as a platform for partnership and the exchange of best practices and knowledge in the green finance sector among green financial institutions, including banks, investment firms, and financial funds.

The Green Loan Principles (GLP) and Sustainability-Linked Loan Principles (SLLP) also play an important role in advancing green finance. These principles were developed in collaboration with the Loan Market Association (LMA), the Asia Pacific Loan Market Association (APLMA), and the Loan Syndications & Trading Association (LSTA) (Loan Market Association, 2018).

GLP was created in 2018 on the basis of the ICMA Green Bonds Principles. The aim of the GLP is the development of a special manual with the methodology and standards for the green loan market. In 2022, the SLLP was published. The principles serve as guidelines for the development of the sustainability-linked loans market. According to the principles, these loans encompass various forms of financing, including credits, guarantees, and credit lines, designed to encourage borrowers to achieve sustainable goals (Asia Pacific Loan Market Association, Loan Market Association, Advancing the Corporate Loan Market, 2022). The attainment of these goals is verified through the specific Key Performance Indicators (KPIs). The SLLP provides a list of potential KPIs covering environmental, social, and governance (ESG) areas.

Finally, an important international initiative mentioned earlier is the International Capital Market Association (ICMA) (International Capital Market Association, 2022a). The ICMA acts as the secretariat for the Green Bond Principles, Social Bond Principles, Sustainability Bond Guidelines, and Sustainability-Linked Bond Principles. Approximately 95% of sustainable bonds have been issued on the basis of the ICMA standards.

In April 2021, ICMA developed a Consultation Paper on the Repo Market, highlighting its role in sustainable and green finance (International Capital Market Association, 2022b). The Organization actively participates in various international consultations and initiatives on sustainable finance, including the European Platform on Sustainable Finance.

In late June 2022, the ICMA introduced new definitions for the green and social bond securitization and published an updated registry of the Key Performance Indicators (KPIs) for the Sustainability-Linked

Bonds (International Capital Market Association, 2022c). The ICMA also provides publicly accessible information about issuers of green, sustainability, sustainability-linked, and social bonds.

Besides the initiatives aimed at developing tools and approaches for financing green projects, an important role in the development of green banking is played by the regulation of green risks.

The Guide on Climate-Related and Environmental Risks (the Guide), issued by the European Central Bank in November 2020, contains definitions of these risks, their impact on traditional banking risks, and the ECB's expectations regarding business models, bank strategies, risk management, and information disclosure (European Central Bank, 2020). It is a voluntary document. However, the Guide can serve as a foundation for improving green risk management practices of banks.

According to the Guide, climate-related and environmental risks (green risks) can be divided into physical and transition risks. Physical risks arise in cases of natural disasters (such as tsunamis, floods, earthquakes, and hurricanes) or adverse natural conditions (such as dry summers or cold springs). These changes can disrupt a bank's operations, for example, through telecommunications failures. Nevertheless, the primary risk for financial institutions is the deterioration of customers' solvency, such as from poor harvests or damage to a company's equipment due to flooding.

The realization of transition risks indicates the appearance of negative financial effects arising from the enactment of new legislation aimed at transitioning to a sustainable economy. Stricter regulations in the areas such as environmental protection or harmful emissions result in additional costs for companies to comply with these new requirements. This, in turn, can worsen their solvency regarding bank loans.

The development of the ESG risk management, including its qualitative and quantitative assessment as well as the relationships between the ESG factors and green risks, is discussed in the European Banking Authority's Report on Management and Supervision of ESG Risks for Credit Institutions and Investment Firms (European Banking Authority, 2021). The EBA recommends incorporating the green risk considerations into banks' strategies, internal governance, and risk management frameworks.

Based on this report, the Final Draft Implementing Technical Standards on Prudential Disclosures on the ESG Risks in compliance with Article 449a of the CRR was presented at the beginning of 2022. These technical standards aim to establish clear, unified, and standardized rules for the ESG information disclosure by banks across the EU. The document outlines the quantitative disclosure of the ESG risks by financial institutions and their actions to support the transition of counterparties to sustainable operations (European Banking Authority, 2022ab). In early 2025, the EBA published the final Guidelines on the management of ESG risks, according to which banks must more actively integrate ESG risks into their risk monitoring and management systems. Large banks will have to follow the new rules from 11 January 2026, and smaller banks from 11 January 2027 (European Banking Authority, 2025).

4. ENVIRONMENTAL ACHIEVEMENTS OF POLAND AND THE INITIATIVES OF POLISH BANKS IN GREEN FINANCING IN 2018-2024

All European countries are involved in achieving the Sustainable Development Goals (SDGs), but they demonstrate varying levels of commitment and progress. According to the Europe Sustainable Development Report 2023/2024, Finland, Sweden, and Denmark show the best overall performance in achieving the SDGs (the highest scores), occupying the top three positions in the SDG rankings. Poland ranks 13th out of 34 countries (see Figure 1) (Sustainable Development Solutions Network, 2023/2024). The country demonstrates strong performance in achieving social goals such as the 'No Poverty' and 'Reduced Inequalities'. However, environmental goals, including the 'Climate Action' and 'Responsible consumption and production' fall into the negative (red) category, indicating significant challenges in these areas.

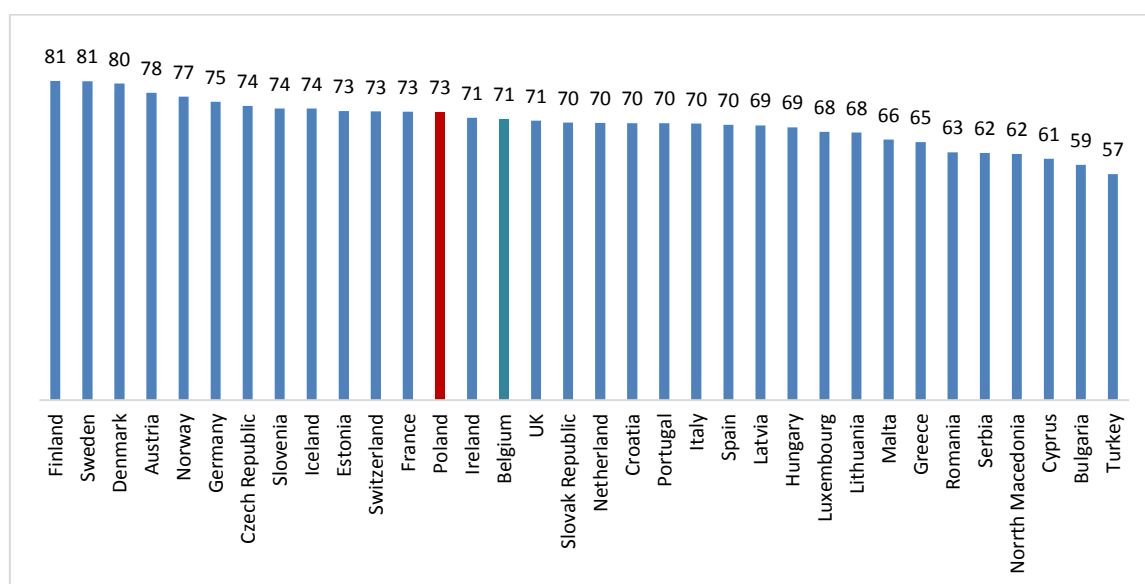


Figure 1. The ranking by score of the SDG achievement

Source: Sustainable Development Solutions Network, 2023/2024.

However, positive trends can be observed. Compared to the 2021 results, the ‘Life Below Water’ indicator moved from the negative to the neutral zone, while the ‘Sustainable Cities and Communities’ demonstrated positive changes. As a result, Poland’s overall score increased from 71 points in the 2021 ranking to 73 points in the 2023/2024 ranking (see Figures 1 and 2).

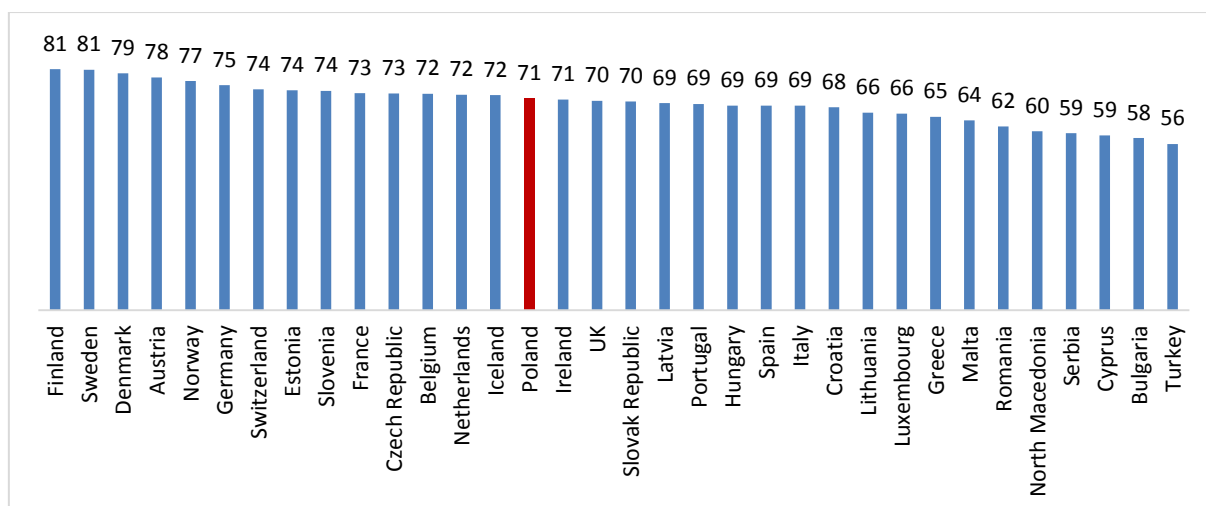


Figure 2. The ranking by score of the SDG achievement

Source: Sustainable Development Solutions Network, 2021.

At the same time, Poland holds the highest position (i.e., the best result) in the spillover score. This index reflects the extent of a country’s positive and negative effects on the ability of other states to achieve their sustainable development goals. Among 31 European countries, Poland, Romania, and Hungary demonstrate the highest levels in this index (see Figure 3). It is noteworthy that these three countries have remained leaders in this ranking for several years (see Figure 4) (Sustainable Development Solutions Network, 2021). Notably, Poland has consistently held the first position and increased its score by 2 points from 2021 to 2023/2024.

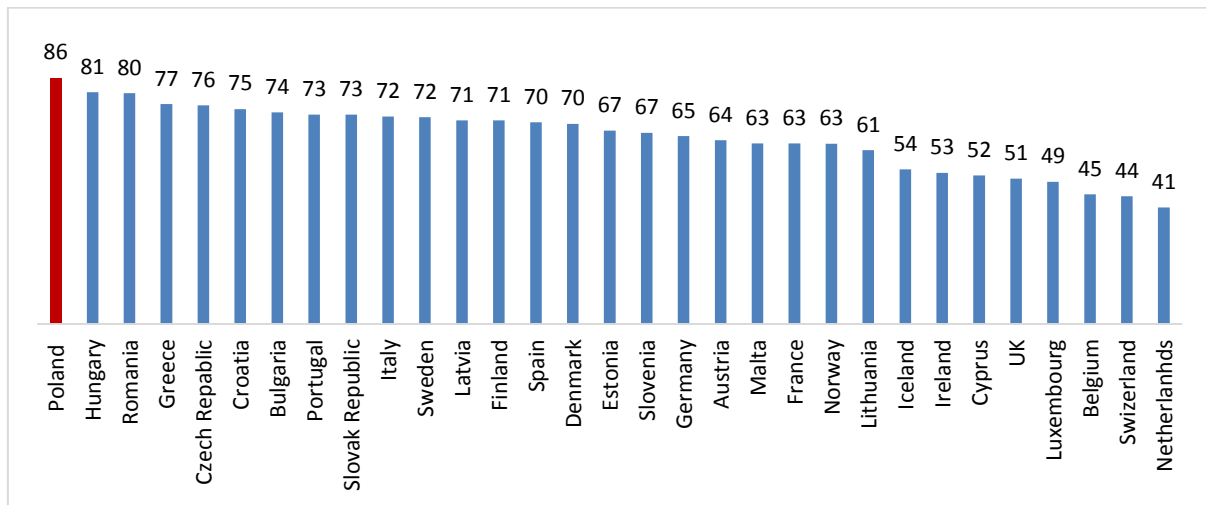


Figure 3. The ranking by the countries' spillover score

Source: Sustainable Development Solutions Network, 2023/2024.

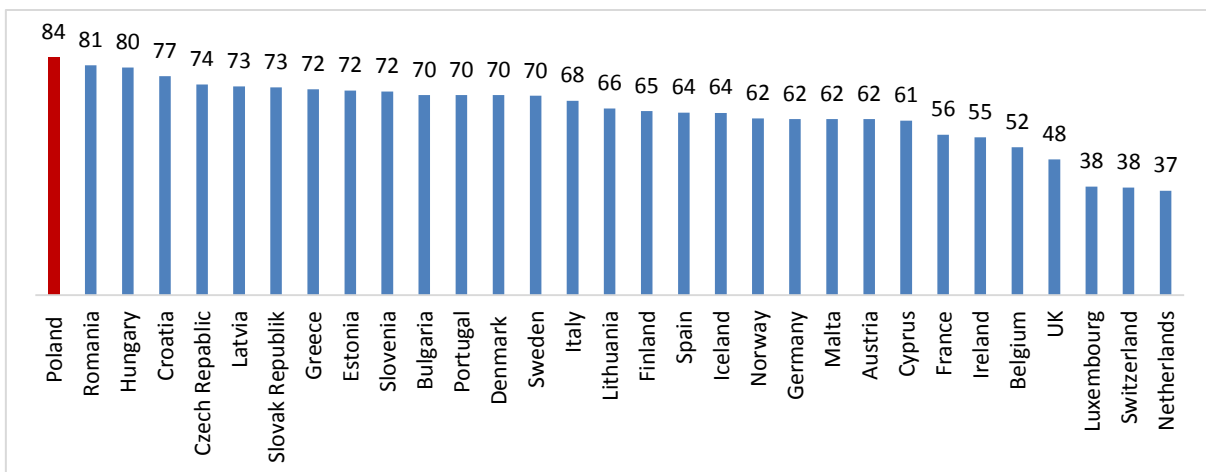


Figure 4. The ranking by the countries' spillover score

Source: Sustainable Development Solutions Network, 2021.

Thus, Poland demonstrates very good results in terms of its impact on the achievement of the Sustainable Development Goals (SDGs) by other countries, but faces challenges in implementing the SDGs domestically, particularly regarding climate issues. However, in recent years, a positive trend can be observed in this area. The active development of green banking can play an important role in achieving these goals.

Polish banks have initiated and participated in the projects specifically in the sphere of green finance. The following subsection will examine the green initiatives of eleven such banks. For example, PKO Bank Hipoteczny S.A. was among the first Polish financial institutions to implement the Energy Efficient Mortgages Initiative (EEMI) in its operations. In February 2021, PKO Bank Hipoteczny S.A. began using the EEM Label (Bank Hipoteczny, 2022). Another example is related to the Green Bank Network (GBN). Between 2019 and 2021, the Green Investment Group (headquartered in Great Britain), a member of the GBN, implemented four investment projects in Poland, focusing on onshore wind farms (Green Investment Group Limited, 2022).

For investments in green housing, a special 'Green House' certificate ('Zielony Dom' in Polish) was developed in Poland. This certification can be used for investments in individual, multi-family, and rental buildings. Bank Ochrony Środowiska S.A. and BNP Paribas Polska S.A. offer special mortgage programs for

purchasing individual houses and apartments certified as Green Houses (Polskie Stowarzyszenie Budownictwa Ekologicznego, 2023).

The Green Loan Principles (GLPs) are also applied in Poland. For example, in 2021, the infrastructure fund Meridiam secured green loan financing for the construction of a waste-to-energy plant. The energy generated at the plant is expected to replace a portion of coal-based energy and heating in the city of Olsztyn. The project's partner companies, which invested in the construction, include the Polish Development Fund, the European Investment Bank, as well as several Polish and international banks (Mężykowski, & Bejm, 2021).

Polish financial institutions also have experience working with the Sustainability-Linked Loans (SLLs). The first sustainability-linked loan in Poland was issued in 2019, prior to the adoption of the Sustainability-Linked Loan Principles (SLLP). Santander Bank Polska S.A., PKO Bank Polska S.A., Caixa Bank, MUFG Bank, and BGK provided a loan to the company Anergia. The loan cost depends on the fulfillment of the ESG KPIs, which are reviewed annually (Santader Bank Polska S.A., 2018). Another example of an SLL in Poland involves Wirtualna Polska Holding S.A., which received a sustainability-linked loan from a group of banks, including mBank S.A., PKO Bank Polska S.A., Bank Pekao S.A., BNP Paribas Bank Polska S.A., and ING Bank Śląski S.A. Similar to the first case, the loan cost (margin) depends on the company's ability to meet its SLL KPIs, such as increasing the proportion of women in leadership jobs, growing the number of publications in the green sector, and enhancing the use of renewable energy (WPholding, 2022).

The bond market is increasingly integrating sustainability elements. Four companies from Poland are registered as issuers of green bonds in the ICMA database: Columbus Energy S.A., mBank S.A. Group, New Energy Investments, and PKO Bank Hipoteczny S.A. Additionally, the Polish government has issued green bonds in alignment with the Green Bond Principles (International Capital Market Association, 2022d).

The experience of PKO Bank Hipoteczny S.A. is noteworthy. As part of the PKO Bank Polski Group, the institution specializes in financing housing construction. In 2019, the bank introduced its Green Covered Bond Framework, which was aligned with the Green Bond Principles 2018 (Sustainalytics, 2019). In June 2022, Sustainalytics, as a second-party opinion provider, confirmed that the bank's Green Covered Bond Framework complies with the Green Bond Principles 2021, enabling the issuance of the green covered bonds (GCB) for financing green buildings. These investments aim to reduce the carbon footprint in Poland's housing sector (Sustainalytics, 2022b). In the same month, the financial institution issued the GCB in the amount of EUR 500 million. PKO Bank Hipoteczny S.A. is the first Polish bank that issued the GCB on the international market. The EBRD bought the GCB in the amount of EUR 65 million (European Bank Reconstruction and Development, 2022). The realization of the green mortgage loan programs allows the issuing of the green covered bonds.

In February 2022, Sustainalytics confirmed the mBank S.A. Green Bond Framework to be consistent with the Green Bonds Principles 2021. In contrast to the previous example, resources will be used not only in green buildings, but in renewable energy, green transport, waste management, energy transmission and storage (Sustainalytics, 2022a).

Despite these initiatives, Poland is not among the leading issuers of sustainable bonds. This arises from an analysis of the ICMA database (International Capital Market Association, 2025). For example, 154 issuers are registered in Sweden, 108 in Norway, 97 in the Netherlands and 56 in Luxembourg. These countries, which do not have the largest economies among the EU countries, are among the top ten leaders in issuing sustainable bonds. In this regard, Poland's indicators look quite modest: 17 issues of sustainable bonds.

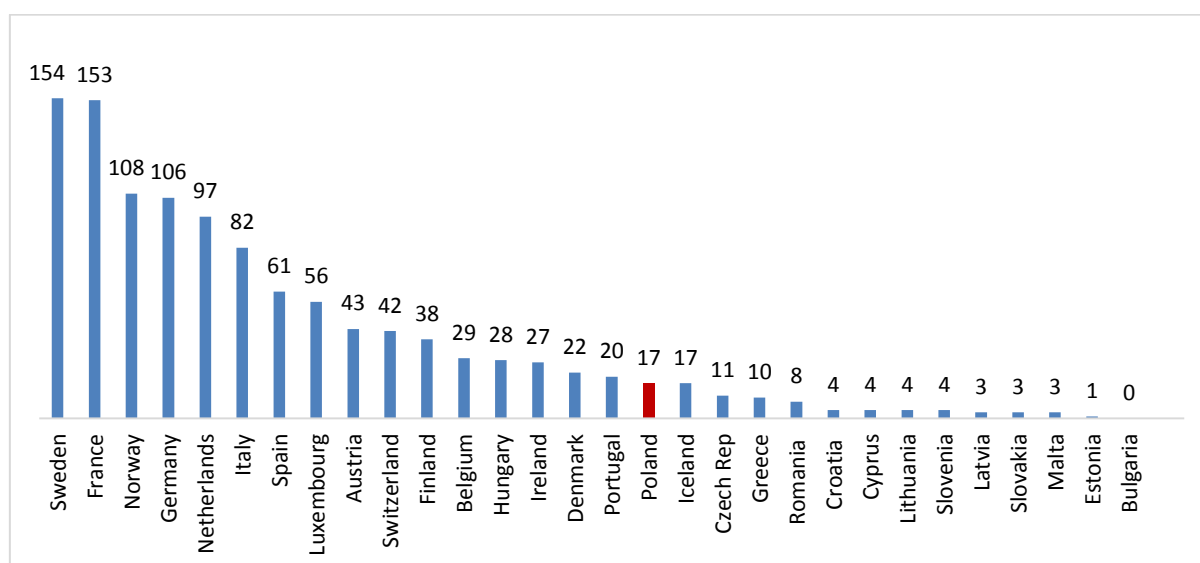


Figure 5. Sustainable bonds issues in European Union, including green, social, sustainability and sustainability-linked bonds issues as of the beginning of February 2025

Source: Author's own analysis based on the International Capital Market Association Sustainable Bonds Database.

In total Sweden, France, Norway, Germany, the Netherlands and Sweden are the leaders in the sustainable securities market (see Figure 5). At the same time, Polish companies, along with legal entities from Portugal, Denmark, Iceland, the Czech Republic and Romania, have yet to demonstrate significant interest in sustainable securities.

Nevertheless, Polish financial institutions are increasingly engaging in green initiatives at both the national and international levels, strengthening their cooperation with international organizations. Sustainable activities open new opportunities and provide various benefits for banks. Some Polish financial institutions specialize in green projects or develop new products in collaboration with international organizations and financial institutions.

For example, in April 2022, Santander Bank Polska S.A. and IFC agreed on the synthetic risk transfer (SRT) that will support the green finance marked development in Poland. The main idea is to provide second-loss guarantees from IFC for possible credit losses for the pool of consumer loans issued by the bank. These guarantees will allow the bank to reduce its deductions on such loans. On the basis of the released capital, the bank will have the opportunity to direct resources in the amount of up to 600 million dollars to new green lending (International Financial Corporation, 2022). The SRT between the IFC and Santander Bank Polska S.A. is the first example of this instrument implementation for green lending development in the emerging markets as a whole and in Poland in particular.

As another example, the following activities of the European Investment Bank Group in Poland (EIB Group) can be considered. In 2021, the institution invested about EUR 1.1 billion in sustainable energy and natural resources projects. The largest loan was received by Polish energy company – Tauron. The financial resources in the amount of PLN 2.8 billion should be invested in a modern distribution network. In 2021, the bank also invested EUR 2.161 billion in infrastructure projects and local government. Investments for the development of low-emission public transport, green areas of the cities and wastewater management systems were received by Kraków, Wrocław, Szczecin and Częstochowa. In 2022, the EIB planned to allocate approximately PLN 304 million for the construction of an onshore wind farm in collaboration with the EDP Renewables (European Investment Bank, 2022a). This project is also co-financed by loans from Santander Bank and CaixaBank Poland (European Investment Bank, 2022b).

In 2023, the EIB increased its financing for Poland's energy system transformation by 80% compared to 2022, totaling EUR 1.78 billion. The share of green projects in the bank's total investment portfolio in Poland rose from 49% in 2022 to 52% in 2023 (European Investment Bank, 2024a).

In November 2024, the EIB and ORLEN Group signed PLN 900 million Loan Agreement for energy transition projects including electricity allocation improvement in North and Central parts of the country as well as further development of the renewable energy systems. This was the first loan under the energy grid development project 2024-2025, with a total sum of financing of PLN 3.5 billion (European Investment Bank, 2024b).

Bank Ochrony Środowiska S.A. (BOŚ) is a leading representative of green banking in Poland, with a primary focus on financing green projects. As of December 2023, 41% of the bank's loan portfolio was allocated to environmental loans. In 1991-2023, the bank financed green projects worth over PLN 27 billion (more than EUR 6 billion). BOŚ experts actively participate in various environment-related meetings and conferences. Additionally, the Bank is planning to digitize its operations, a transformation with positive environmental impacts. Within the framework of its climate policy, BOŚ is committed to reducing its carbon footprint, supporting clients in their green transformations, and refraining from financing environmentally harmful projects. According to the 2024-2026 Strategy, the share of green assets in its corporate client portfolio should be more than 50% (Bank Ochrony Środowiska S.A., 2023).

The Bank Gospodarstwa Krajowego (BGK), Poland's development bank, has made sustainable social and economic development the central priority of its 2021-2025 Strategy. The Bank plans to contribute to the development of a low-carbon economy while enhancing its capacity to participate in public investment programs (Bank Gospodarstwa Krajowego, 2022a). For instance, BGK has provided financial resources to Polish entrepreneurs, which helped preserve numerous jobs during the pandemic. Simultaneously, the Institution co-financed local government investment projects (Bank Gospodarstwa Krajowego, 2022b).

In May 2022, BGK announced the establishment of the 3W Interdisciplinary Innovation Center (IIC) (Interdyscyplinarne Centrum Innowacji 3W, or ICI 3W, in Polish) in collaboration with the Poznań University of Technology. This initiative is designed to foster innovation and drive advancements in sustainable technologies. In 2023, the office of IIC was created at the University. It coordinates the work of 40 universities and scientific institutions in Poland (Politechnika Poznańska, 2025).

Thereby, Polish banks are gradually developing sustainable finance. This trend is confirmed by PricewaterhouseCoopers (PWC) research. The research investigates twelve main banks/banking groups, whose assets are equal to around 66% of the total balance sheet of the Polish banking system. In the 2021 report, only 80% of the surveyed banks took some steps in the sustainable finance sphere, so in the 2024 report (which is based on the 2023 survey results) 92% of the surveyed banks were involved in some form of sustainable initiatives (PricewaterhouseCoopers, 2021; PricewaterhouseCoopers, 2024). The most developed areas include initiatives in the sphere of work conditions, using energy from renewable sources, carbon footprint and social commitments. The core sustainable activities of banks are mostly related to the bank's initiatives as an ordinary legal entity rather than as activities of a credit institution. At the same time, only 33% of the surveyed banks in the 2024 reported calculating the Green Asset Ratio (GAR)¹. But from 2024, the total number of such banks may increase, as from January 1, 2024, the largest European banks will be required to calculate the ratio (CRIF, 2024).

Polish financial institutions do not position themselves as regional or national leaders in sustainable finance. However, they are actively taking steps to integrate elements of sustainable finance into their operations and comply with the requirements. According to the PwC 2024 report, 75% of the surveyed banks planned to implement the regulation in the sustainable development area and 67% of the respondents thought about a green product portfolio. At the same time only 8% of the banks planned to do any organizational changes to strengthen the sustainable development direction of the organization.

¹ The share of taxonomy-aligned financing to total assets.

Based on Deloitte's research for the Ministry of Development, the primary factors that could stimulate the transition to sustainable finance in Poland, while simultaneously acting as the main barriers to the sector's development, include 'policies and regulations' as well as 'education and communication'. These conclusions are drawn from a survey conducted among financial and non-financial companies in Poland. This indicates that potential investors and beneficiaries believe that improving legislation and training highly qualified professionals would significantly boost the development of the sustainable finance sector in the country. Among the main benefits for investors, the study underlines next:

1. Given the planned tightening of legislation in the field of environmental protection, inefficient enterprises, that most likely had a negative environmental effect of their activities, will be forced to stop their work. But in this case, it is necessary to take into account the possible losses of banks due to the declaration of insolvency by some of their clients. That is why green risk management should be implemented as an obligatory part of sustainable finance.
2. Polish banks can receive additional financial resources from the EU funds. For example, green projects within the Recovery and Resilience Plan for Poland will be implemented with the banks' participation.
3. One of the main problems for financial entities is the lack of comprehensive and standardized information in the ESG sphere that enterprises are required to provide. As the sustainable finance system evolves and the ESG disclosure requirements are fully implemented at the national level, financial institutions will gain access to more complete and consistent information (Deloitte, 2020).

An important aspect of a bank's environmental policy should be focused on mitigating green risks (BOŚ Bank). However, not all banks integrate green risks into their risk management practices. In accordance with the EBA regulation, gradually all banks in the European Union, including Polish banks, will have to regulate ESG risks. Large banks will begin this process starting in 2026 (Turkowski, & Piasecki, 2025). The implementation of these initiatives in Plan is primarily driven by regulation at the supranational level.

On the national level a number of steps in the area of green banking regulation are being taken by the Polish Financial Supervision Authority (Komisja Nadzoru Finansowego (KNF)), which regulates the activities of not only commercial banks, but other professional participants of the financial market. The Commission monitors how financial institutions disclose information in accordance with the Sustainable Finance Disclosure Regulation (SFDR) on a voluntary and mandatory basis, together with the EBA, EIOPA and ESMA conducts surveys to identify the level of "green washing" among reporting institutions and participates in some ESG initiatives together with the Polish Banks Association and the Ministry of Finance of Poland (Komisja Nadzoru Finansowego, 2024).

As of today, the Central Bank of Poland (Narodowy Bank Polski – NBP) does not pay significant attention to green issues. This position is consistent with the NBP's primary goal – maintaining price stability in the economy and supporting the government policy, as long as it does not interfere with the functions of the monetary authority. At the same time, the regulator is beginning to take certain steps towards developing sustainable banking. For example, the NBP Action Plan for 2025-2027 includes "development of analytical tools to assess the impact of climate change on the financial stability of banks" in 2025-2027, which marks a shift towards integrating environmental risks into macroprudential supervision (Narodowy Bank Polski, 2024). Moreover, the Main Directions of Monetary Policy indicate that the regulator's activities are aimed, among other things, at ensuring sustainable economic growth (Kotecki, 2023). The Head of the Polish central bank, Adam Glapiński, in 2022 noted, the regulator's function is not to actively intervene, but to monitor and recognize the risks of climate change that may affect the stability of the financial system and price stability (Godusławski, 2022).

But, some central banks in other EU countries are more actively engaged in the green finance sector. For example, the Central Bank of the Netherlands published research on the transition to a low-carbon economy in 2016 and a report on green risks in 2017. The Central Bank of France has developed and im-

plemented its investment strategy in line with ESG factors (Kotecki, 2021). Among the main objectives of the European Central Bank (ECB) are managing climate-related risks, supporting the green transition, and advancing the understanding of climate-related risks (European Central Bank, 2022).

However, climate change and numerous environmental challenges require a transition to sustainable principles across all sectors of the economy, including banking. Financial institutions can accelerate this sustainable transformation and mitigate green risks. Central banks should play an active role in the development of green banking. Changes in monetary policy requirements can redirect financial resources from energy-intensive to sustainable projects. Furthermore, central banks can promote the green transition in the banking sector by conducting research in this field and demonstrating how to develop and implement internal sustainable management practices.

5. KEY FINDINGS

The field of green finance is relatively new and requires further refinement of regulatory requirements. Poland, like other European countries, is involved in the development of green banking but is not a leader in this area. Based on the conducted research, several conclusions can be drawn:

1. Poland has the best result among 31 European countries in the Spillover Index, which measures the level of the country's positive and negative effects on the achievement of the Sustainable Development Goals (SDGs) by other European states. At the same time, Poland ranks in the middle of the Europe Sustainable Development Report, indicating a moderate level of progress. The country faces challenges in fulfilling environmental goals such as the 'Climate Action' and 'Responsible consumption and production'. But recent years have also seen positive trends in achieving environmental goals. The development of green banking could be an effective way to improve Poland's SDG ranking.
2. Green risk management is a critical area for sustainability and competitiveness of banks, as climate change and stricter environmental regulations can adversely affect the financial condition of both banks and their clients. In this regard, European financial institutions, such as the ECB and the EBA, focus on mitigating green risks. Given the importance of minimizing these risks, Polish banks, along with financial institutions in other European countries, will need to assess and manage them effectively. The development of relevant recommendations and requirements by the central bank together with KNF at the national level will play a positive role in this regard.
3. Polish banks gradually introduce some elements of sustainable banking. Over the past five years, financial institutions in Poland have offered various green products and participated in a range of green initiatives. For example, Bank Ochrony Środowiska specializes in green projects for both corporate and individual clients. At the same time, mBank S.A. Group and PKO Bank Hipoteczny S.A. issued green bonds on the basis of the ICMA Green Bond Principles.
4. Cooperation with international financial institutions and participation in multinational initiatives enables the implementation of new green services and attracts additional financing. For example, the key areas of the European Investment Bank's financing in Poland include investments in renewable energy projects, low-emission public transport, and support for environmental projects in the SME sector. For the implementation of green projects, the international financial institution often collaborates with other Polish banks.
5. According to the ICMA database, Poland is not among the leaders in issuing sustainable bonds (including green, social, sustainability, and sustainability-linked bonds). As of February 2025, only 17 entities have issued green bonds that comply with the ICMA Green Bond Principles. A positive development is that the Polish government also issues green bonds.

6. Green mortgages are gradually being developed in Poland as an important financial instrument. According to the Polish Building Assessment Briefing, there are four main certification schemes in the country that confirm the sustainability of buildings. One of them is the 'Zielony Dom' (Green House) certification for both individual and multi-family houses. Bank Ochrony Środowiska and BNP Paribas Polska offer special loan programs for those wishing to purchase apartments or individual houses with the 'Zielony Dom' certificate.
7. The initial hypothesis posits that green banking in Poland is gradually being developed through initiatives by commercial banks themselves, their cooperation with foreign partners, and their participation in international green initiatives. The Central Bank of Poland is not a driving force behind the development of green banking in the country. This is in line with the principle that the primary function of the central bank is to maintain a stable price level and financial system stability. However, measures in the area of green banking development could be broader. More active involvement of the central bank will accelerate the development of green banking.
8. Although Polish banks do not consider themselves leaders in sustainable finance, they are gradually incorporating elements of green banking into their operations and striving to meet the 'green' requirements. If the Central Bank of Poland were more actively involved in the sustainable finance area, the development of this sector in the banking industry would progress at a faster pace.

6. CONCLUSIONS

Based on the analysis above, it can be noted that the elements of green banking are gradually being developed within the Polish banking sector. Financial institutions are involved both in international initiatives and in implementing a number of their own projects. Polish banks actively participate in international cooperation and attract financial resources for sustainable financing. At present, the implementation of green initiatives in the banking sector largely depends on the willingness and interest of the banks themselves. However, the lack of clear rules, coupled with the growing importance of the green risks for Polish banks, may lead to negative consequences in the future.

To establish clear operating rules and requirements, it is crucial to create appropriate legislation and incentives from the Central Bank of Poland. Polish monetary regulatory authorities are implementing certain steps towards regulating green risks. At the same time, this is largely due to the need to comply with EU regulatory requirements. Since financial institutions have traditionally been subject to strict regulations, their transformation into sustainable financial intermediaries requires specific regulatory frameworks for sustainable practices. While participation in international initiatives and EU rules are important, it is not sufficient in a rapidly changing world where climate change and new regulations integrating environmental standards across various sectors of the economy are becoming increasingly significant.

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