

IMPLICATIONS OF GREEN INVESTMENT FINANCING IN POLISH ENTERPRISES

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Purpose: The primary objective of the study is to explore the changes occurring between enterprises implementing green investments and banks financing this process in Poland.

Methodology: The presented research used a qualitative method of semi-structured individual interviews designed to deepen, enrich, and supplement the research conducted in recent years on ESG implementation strategies and models. The research methodology for the analysed problem was based on literature studies, empirical research from secondary sources, and participant observation.

Design approach: At the Paris meeting in 2015, sustainable development was adopted as an ESG strategy. It was based on the assumption that economic processes should lead to zero greenhouse gas emissions. The adopted formula has raised and continues to raise a series of concerns about the risks associated with implementing an ESG strategy. The imposed goals and targets of an ESG strategy are at odds with rational management, resulting in resistance to its adoption, particularly among micro-entities. The implementation of an ESG strategy is therefore constantly at risk. The process is accompanied by an intensification of EU regulations aimed at increasing the effectiveness of an ESG strategy and its adaptability by economic entities in EU member states. The research focuses on assessing the changes occurring between credit institutions financing the green economic deal and enterprises implementing green investments. It identifies their nature, propensity to adapt, and impact on the implementation of an ESG strategy in Poland.

Findings: The research results presented herein allow for the assessment of the scope and nature of barriers affecting the effectiveness of green investment financing in Polish enterprises. They highlight the direction of their impact on the adaptability of an ESG strategy in domestic enterprises and banks.

Research limitations: Research limitations stem from the methods used. The results of the semi-structured interviews allow for a deeper understanding and explanation of the existing limitations in the cognitive process of ESG implementation. However, it should be noted that the assessment of the analysed process is largely declarative in nature, which has an impact on the objectivity of the results obtained and the possibility of scientific inference. On the other hand, it is worth highlighting the cognitive value of the research conducted, as it enables an assessment of the current challenges related to financing green investments in Poland during the highly dynamic and largely chaotic process of ESG implementation. In-depth research on

the effectiveness and efficiency of ESG implementation will be an essential complement to the cognitive process.

Originality/value: The semi-structured individual in-depth interviews conducted in 2025 enrich the questionnaire research methods used previously, objectifying the research results in the field of an ESG strategy.

Keywords: commercial banks, implication of the strategy, ESG regulations, green investment financing.

Category of the paper: viewpoint.

1. Introduction

The ESG strategy implemented in all EU member states, connected with the publication of the European Green Deal in 2019, has transformed the concept of sustainable development into a new formula aimed at achieving climate neutrality in the EU economy by 2050. The solutions adopted in the business environment involve taking rapid and concrete actions to change their existing production profiles. Meanwhile, each calendar year sees an increase in the number of regulations relating to the implementation of the ESG strategy in EU member states. The year 2025 began with further regulatory changes in the European Union. They are related to the so-called Omnibus package (Directive (EU) 2025/794), which has far-reaching consequences for companies, investors, and financial market participants. They raise several controversies because they modify existing regulatory arrangements and change the conditions for implementing the ESG strategy. Thus, in turn, the risk of green investing increases, thereby hindering its implementation. Uncertainty relating to the geopolitical situation of the global economy is also growing. There is an increasing number of spectacular barriers to implementing the ESG strategy as well. Despite steadily increasing risks, the level of political sensitivity in assessing their impact on achieving ESG strategy goals and targets remains high. A review of the literature indicates that, despite the perceived weaknesses in implementing the ESG strategy, the conclusions drawn remain largely positive, and EU directives are accompanied by enforcement measures aimed at increasing green investments by economic entities. However, such measures do not increase the expected outcomes of green investment financing. The dominant view is that progress in implementing the ESG strategy is unsatisfactory. Therefore, there is an urgent need to launch large-scale research projects that will objectively verify the willingness of economic entities to adopt the ESG strategy. So far, research has lacked a systematic perspective. A significant part of the research conclusions are very similar, focusing only on certain aspects of the greening of the EU economy. As a result, research gaps emerge that require empirical investigation of entities implementing green investments. However, access to them is largely limited. The above-mentioned problems justify continuous monitoring of the ESG strategy and periodic verification of research results.

The publication concentrates on the analysis and evaluation of studies conducted in the first half of 2025. The research was based on semi-structured in-depth interviews. It was conducted among representatives of the 10 largest commercial banks in Poland. The scope of this study was broad, which allowed for the identification of the motives of domestic banks in greening the Polish economy and to verify the research findings against previously reported results based on questionnaire surveys (Pyka, Nocoń, 2023, 2024; Pyka, Pyka, 2023, 2024). The primary research objective is to explore the changes occurring between enterprises implementing green investments and banks financing this process. Therefore, only a small part of the research findings obtained was used in the study, supplemented with additional methods verifying the relationships between the economic entities included in the research. The research was guided by the hypothesis that domestic banks, by announcing the adoption of ESG strategies, consistently declare their willingness to implement them, whereas enterprises perceive ESG-related risks as a significant barrier when adapting to green investments.

2. Materials and Methods

2.1. Research methods

Previous team-based research conducted by the authors since 2020, focused on green financing, has so far relied in its empirical dimension primarily on questionnaire-based methods. The research covered the 10 largest commercial banks in Poland, including: PKO BP S.A., Bank Pekao S.A., Santander Bank Polska S.A., ING Bank Śląski S.A., mBank S.A., BNP Paribas S.A., Bank Millennium S.A., Alior Bank S.A., Citi Handlowy S.A. And Velo Bank S.A. Given that the total value of the assets of these institutions represents 79% of the total value of the assets of the Polish banking sector (KNF, 2022; Kotecki, 2025), it was assumed that the obtained research results are representative of the entire banking sector in Poland. In 2025, the empirical study employed semi-structured in-depth interviews. This is a technique used to collect qualitative data, particularly suitable for examining phenomena for which a comprehensive body of knowledge has not yet been established. The method facilitates flexible data collection while allowing respondents to raise issues that were not initially included in the interview scenarios (Griffith et al., 2015; Merriam, Tisdell, 2015; Bell et al., 2018). The findings of this research complement the results of previous stages, verifying and objectifying the research conclusions. Respondents were selected based on their knowledge and experience in the field of green finance. They are mainly people representing key positions in sustainable development and ESG, or the management division responsible for their implementation. The interviews lasted on average about 60 minutes. Finally, the data collected from the interviews was compared with information presented in annual ESG reports, on banks'

websites, in press releases, and other online sources related to each bank. The use of these secondary sources allowed us to integrate and verify the data collected during the interviews. Triangulation of data from various sources was essential to ensure the accuracy of the conducted analyses (Yin, 2003; Merriam, Tisdell, 2015). Only a small number of the research findings were used in the study, as most pertain to different banking challenges in green investment financing. Assuming that the ultimate effect of the green transition can only be achieved through the integration of financial institutions' activities and investments made by manufacturing enterprises, the research findings were selected based on this criterion. The publication also uses other research methods, including in-depth and critical analysis of the literature, secondary data analysis, observation, and synthesis.

2.2. Trends in the implementation of ESG business strategies

Since its emergence in the economic environment of EU member states, the ESG strategy has become the embodiment of the possibility of eliminating observed climate change and achieving high social prosperity. Only in a few cases was it pointed out that the burden of its implementation would fall primarily on micro-entities, uneven allocation of production factors, and their concentration in sustainable development sectors. New green technologies were closely linked to high levels of economic innovation, while the associated costs, primarily borne by small and medium-sized enterprises, were largely overlooked. The significance of restructuring, including the exit of many inefficient entities under the new climate protection conditions and the concentration of financing on large green investments, was similarly neglected. From the perspective of EU regulatory authorities, the primary condition for ESG implementation was the accumulation of significant financial resources. However, as time passed, the expected results did not materialize. The green transition is progressing, but its results are not satisfactory. ESG risk is increasing among economic entities that finance and implement green investments. Implementing strategic goals and targets is at risk due to systemic risk and the continuing instability of the global economy. Without a doubt, the energy crisis caused by Russia's aggression against Ukraine has been a significant factor in exacerbating the European Union's economic problems (Koczan, 2023; Nowak, Zaniewicz, 2021; Pronińska, 2014, 2022). This has contributed to rising inflation driven by higher energy prices, while simultaneously underscoring the need to enhance energy self-sufficiency within the EU economy. The trend towards replacing existing CO₂-emitting energy resources with ecological sources, despite their 'shortcomings,' has become a major impetus for accelerating the implementation of the ESG strategy. However, this situation has become more complex over time. Replacing traditional energy sources with sustainable ones has proved costly and varied across the member states of the European Union.

At the same time, fairly broad estimates of the EU funds needed to finance the ESG strategy do not keep up with the identified needs. Initially, it was assumed that the majority of financing for the energy transition would be sourced from European Union funds (UN trade & development).

It is currently estimated that more than half (up to 56%) of the total green transition will have to come from the private sector, i.e., the own funds of companies and financial institutions. However, in Poland, the financial outlays required for the energy transition will undoubtedly be higher than in many other EU member states. This is a result of the extremely unfavourable structure of energy sources in Poland. Hard coal and lignite play a dominant role in the national energy mix, and although their share is decreasing, it still exceeds 50%¹. Poland is one of the world's most emission-intensive countries in terms of unit emissions from primary energy consumption, which translates into CO₂ emission costs and the competitiveness of Polish enterprises. Furthermore, financing the ESG strategy requires combining state capital with private financial resources. Meanwhile, the finances of our country remain consistently unbalanced. The very high public debt and an annually increasing fiscal deficit increase the likelihood of EU sanctions being imposed on Poland for non-compliance with treaty rules, mainly the so-called Six-Pack (Pronińska, 2014). At the same time, the high demand of the public sector for debt financing will result in a higher cost of financing the green transition in Poland. As a result, domestic green enterprises are increasingly dependent on private foreign financing. Meanwhile, the financial resources of the European Union are shrinking in the face of the needs of the green transition. According to the European Commission's estimates, Europe will need investments of EUR 350 billion per year by 2030 in the areas of climate and energy alone. Moreover, it is estimated that approximately EUR 130 billion will be required to achieve other environmental objectives. On a global scale, achieving all sustainable development goals is expected to require between EUR 5.4 and 6.4 trillion (Kotecki, 2025). Meanwhile, foreign green loan capital is also becoming more expensive for several reasons, one of which is unquestionably the green transition of the global economy. Given these circumstances, domestic enterprises implementing the ESG strategy are exposed to high investment risk. This is particularly significant given that the green energy transition is inherently capital-intensive. Domestic enterprises, however, do not own sufficient internal capital. They therefore direct the process of green investment towards external financing. The main source of this financing is the domestic banking sector. Consequently, mutual relations between banks and enterprises play a crucial role in this process. Meanwhile, banks are in a significantly better position in terms of green finance compared to enterprises. The universal nature of banking activities allows them to build a diversified portfolio of green assets. Green bonds can be an alternative to green loans. However, the geopolitical situation in the European Union has

¹ In 2024, it amounted to 56.2%. This is a decrease of 4.3% compared to 2023. It is worth noting that, compared to 2015, there was a 33% reduction in hard coal consumption.

resulted in bank capital being increasingly directed toward military expenditures (Ramotowski, 2025). Therefore, banks' financial resources may not be sufficient to cover the needs of green investment financing in our country. The study presents the findings of research conducted in the first half of 2025. The scope of this study was broad, allowing for the identification of the domestic banks' motives in greening the Polish economy and verifying previously published research results ((Pyka, Nocoń, 2023, 2024; Pyka, Pyka, 2023, 2024). This publication presents only a portion of the research findings, guided by the verification of the hypothesis that domestic banks, by announcing the adoption of an ESG strategy, continue to express their willingness to implement it. In contrast, enterprises are concerned about the high ESG-related risks in implementing green investments. The study indicates that domestic banks remain focused on implementing the ESG strategy. All respondents occupying key positions in sustainable development and ESG, or in the management divisions responsible for its implementation, are familiar with the concept of ESG and its components. All the banks included in the research have also implemented the ESG strategy. The research findings indicate that 35% of domestic banks have already implemented an ESG strategy in the form of a formal document, 56% have announced plans to adopt such a strategy in the near future, and 9% intend to do so contingent upon the introduction of further EU regulations (see Figure 1).

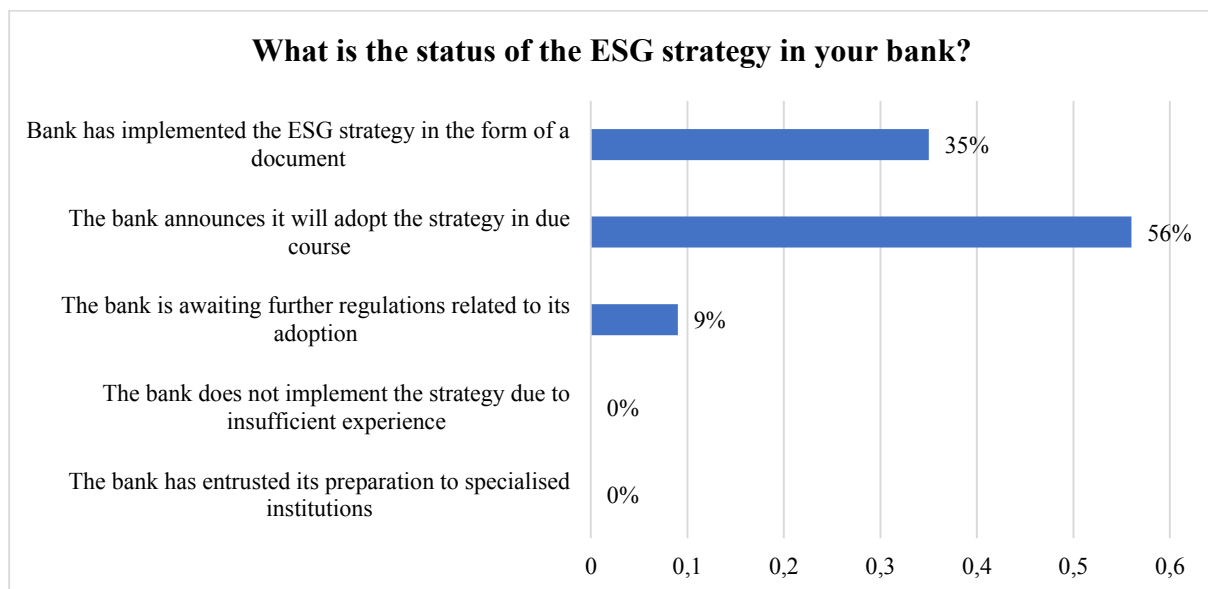


Figure 1. Status of the ESG strategy in banks.

Source: own elaboration.

Domestic banks are strongly interested in implementing the ESG strategy, although they approach it with great caution. They control their propensity to grant loans for green investments by indicating the areas in which they undertake environmental protection measures (Figure 2). Respondents place particular emphasis on green investments related to carbon dioxide emissions, targeting climate neutrality or the acquisition of alternative energy resources. They also finance investments that reduce environmental pollution with by-products or waste products.

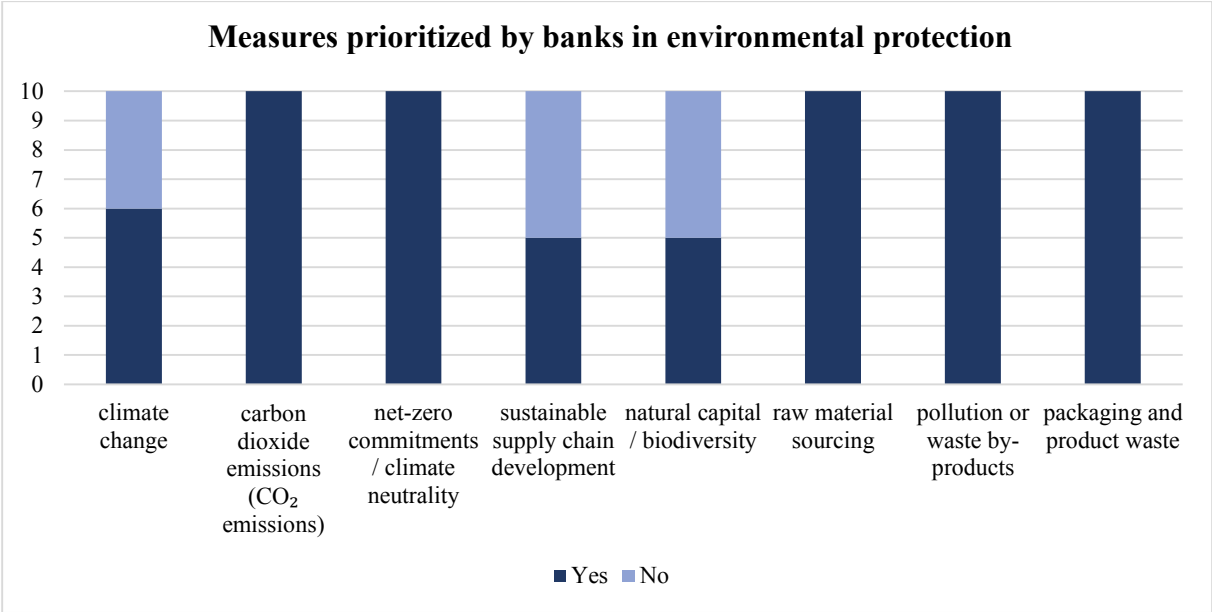


Figure 2. Banks’ orientations regarding directions of support for environmental protection.

Source: own elaboration.

The objectives indicated vary in terms of expected ESG results, particularly given the innovative techniques and technologies needed to curb the trend of economic decline in EU member states (The future of..., 2025). Table 1 also shows the significant fragmentation of banks' financial resources for green transition. Respondents indicated that the ESG strategy is implemented in all areas, i.e., environment, social responsibility, and corporate governance. Banks assess the effectiveness of green financing through appropriate ESG KPIs (ESG Key Performance Indicators) that confirm their commitment to implementing the ESG strategy. These declarations primarily reflect the scale of banks’ formal involvement in ESG strategy implementation, without necessarily translating into a clear reorientation of capital allocation toward green investments.

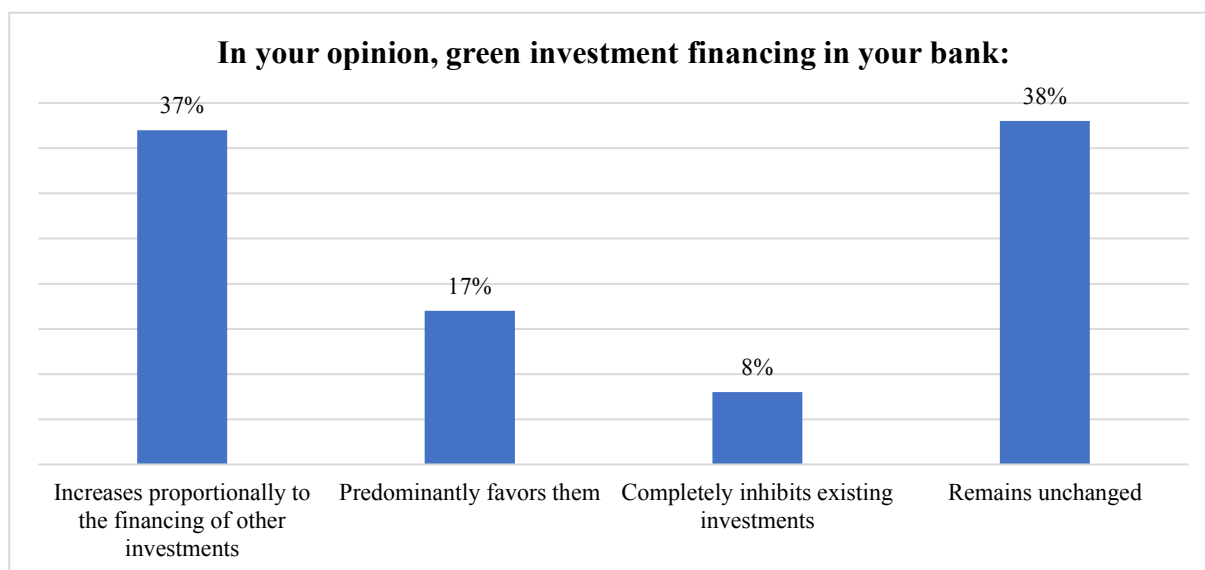
Meanwhile, the qualitative elements of this strategy, i.e., changes in corporate governance and social responsibility (SG), have no direct and significant impact on achieving green investment outcomes. Therefore, the ESG strategy requires, above all, political demystification and the establishment of a platform for its critical analysis. Only in such circumstances can the scale of greenwashing, perceived as one of the factors weakening the expected effects of the ESG strategy, be reduced (Kmita, 2024), or the contradiction between its administratively determined objectives and tasks and the rationality of investment decisions be limited. Research shows that the level of green investment financing in the Polish banking sector has indeed not changed significantly. 38% of respondents do not notice such changes, while 37% report that it is growing proportionally

Table 1.*Key ESG performance indicators (ESG KPIs) used in commercial banks in Poland*

KPI - environment	KPI - social responsibility	KPI - corporate governance
<ul style="list-style-type: none"> – Green Asset Ratio (GAR) – share of assets compliant with the taxonomy in the bank's portfolio – Annual volume of new financing for green projects – Reduction of CO2 emissions – Share of electricity purchased with green certificates 	<ul style="list-style-type: none"> – Share of women in managerial positions – Reduction of the gender pay gap – Employee turnover and voluntary resignation rate – Employment of people with disabilities – Digital education and social inclusion 	<ul style="list-style-type: none"> – Organization of the ESG structure in management – ESG risk indicators – ESG compliance and audit

Source: own elaboration.

with the financing of other investments. Only 17% of respondents recognise the advantages of green investments, and 8% consider them superior to existing investments (see Figure 3). The results highlight the need for continuous identification of the factors underlying the slower-than-expected pace of the green transition. This is particularly important as these factors evolve over time, both at the macro and micro levels of economic activity in Poland. The research shows that domestic banks place strong emphasis on compliance with ESG requirements in their strategies. However, they do not recognise the significance of the ESG policy pursued.

**Figure 3.** Scale of green investment financing in domestic banks.

Source: own elaboration.

Respondents, when asked about the possibilities of implementing the bank's ESG strategy in the current political climate, indicated both a lack of opportunities and a low, medium, and high level of impact. This means that they do not recognise the significant impact of political risk on the implementation of the adopted ESG strategies. In such circumstances, it can be expected that banks' behaviour regarding the implementation of the ESG strategy may not reflect their actual decisions concerning the allocation of capital resources to the green transition. It is challenging to determine the strength of this dichotomy. Its existence is

indirectly supported by statements from other respondents. All of them acknowledged that banks attach great importance to assessing their clients in the ESG implementation process (see Figure 4). This means that not every green investment project will be granted bank financing. By doing so, banks reduce the ESG risk associated with their green investment portfolio.

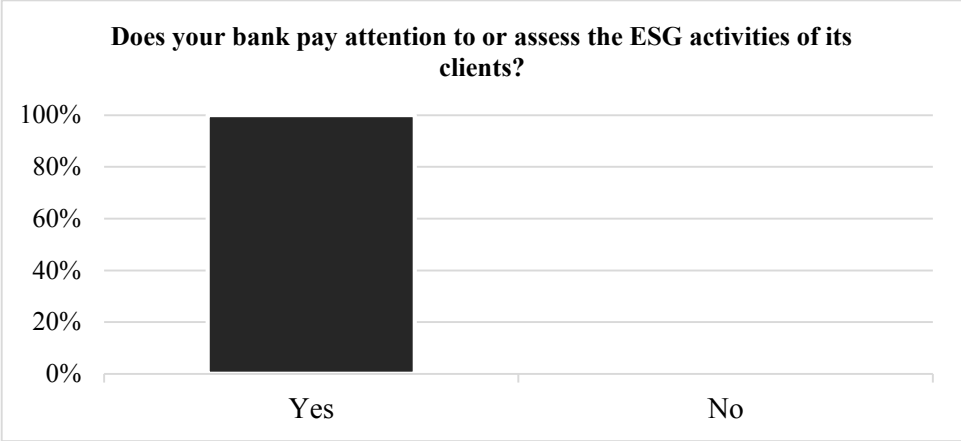


Figure 4. Banks' conduct in the process of green financing of corporate investments.

Source: own elaboration.

On the other hand, green investment projects that meet ESG criteria are willingly financed and rewarded in various ways (see Figure 5) with full awareness that they narrow the base of clients who could potentially benefit from them. They recognise that there are, on average, 27.3% fewer of them (on a scale of 0 to 100, where 0 = 'none' and 100 = 'completely').

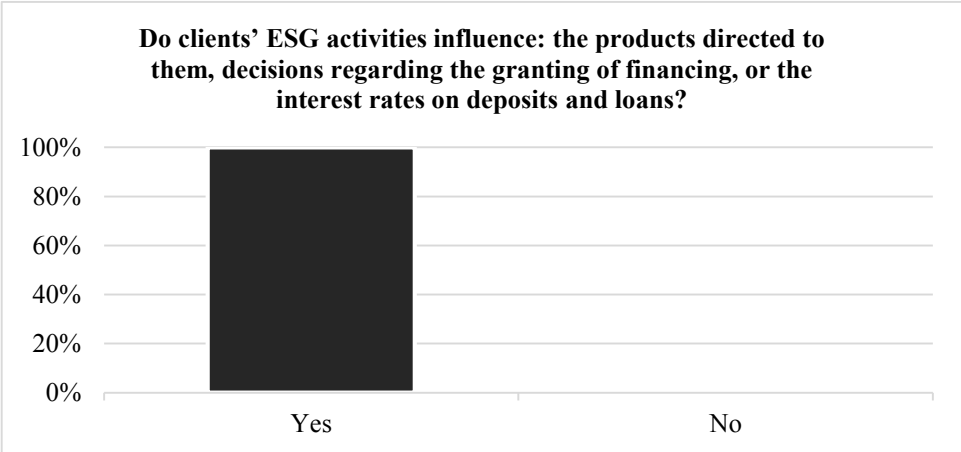


Figure 5. Bank ESG incentive tools.

Source: own elaboration.

That is why they do not exclude financially strong entities from their client base solely because they do not implement ESG activities (see Figure 6). This means that they intend to finance investments of enterprises that are in good manufacturing and financial condition and meet all the criteria for creditworthiness.

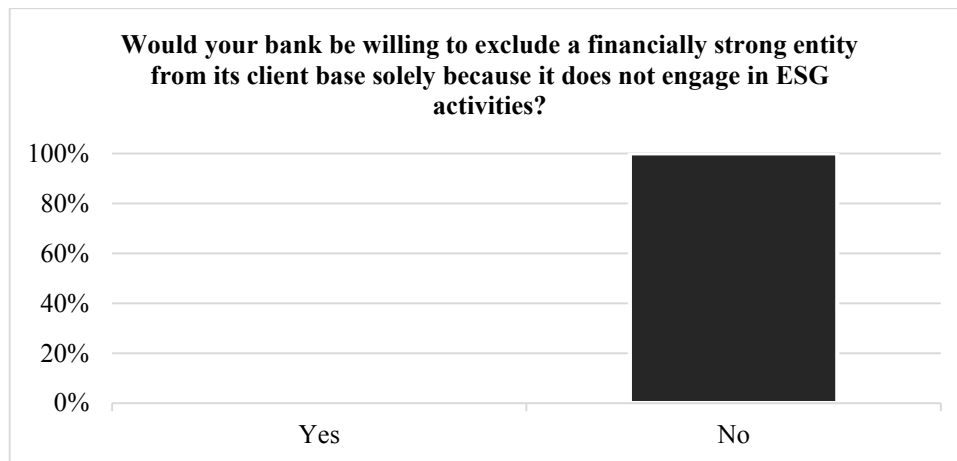


Figure 6. Banks' priorities in terms of financial capital allocation.

Source: own elaboration.

While these investments reduce the availability of funds in banks for the green transition, they have a positive impact on the efficiency of their business activities. They also clearly highlight the lending priorities of banks regarding domestic enterprises. Respondents, in turn, were asked whether the bank would accept as a client an entity that implements ESG activities, even if its financial standing alone does not make it an attractive investment. All respondents answered affirmatively (see Figure 7). Interpreting this response is not straightforward, however, as it contradicts the rational behaviour of banks to a certain extent. It can therefore be assumed that banks care about their image as reflected in their ESG strategies. Nevertheless, further research is clearly needed to explain the underlying causes of the observed inconsistency.

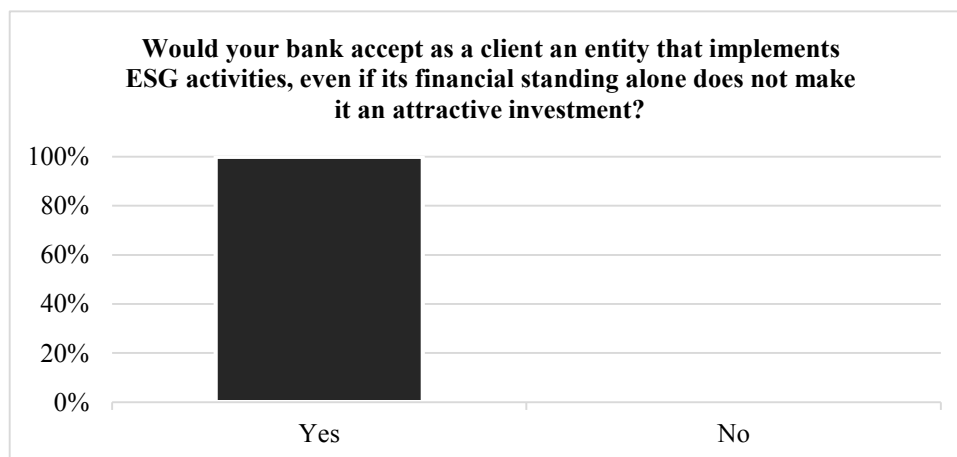


Figure 7. Banks' priorities in terms of financial capital allocation.

Source: own elaboration.

It cannot be ruled out that this is due to the constantly changing EU regulations on green corporate financing. In January 2023, the Omnibus Directive was introduced into the Polish legal framework (Directive (EU) 2019/2161). It imposed new obligations on businesses in consumer transactions. Simultaneously, on 5 July 2024, the Directive of the European

Parliament and of the Council on corporate sustainability due diligence and amending Directive (EU) 2019/1937 (Corporate Sustainability Due Diligence Directive, CSDD Directive) was published in the Official Journal of the EU (Directive (EU) 2024/1760). The directive entered into force on 25 July 2024. As of that date, EU member states have two years to transpose the provisions of the CSDDD into their national legal systems. Naturally, both enterprises and national banks are still obligated to comply with previous regulations related to the green transition. They are required to disclose and report on the implementation of their ESG strategies, adapt their operational plans accordingly, and introduce ESG risk management into their systems. The obligations of national economic entities, therefore, pose a serious challenge to the implementation of the ESG strategy. The problems are particularly noticeable when modified or new EU regulations change the rules of the green transition game. Large corporations tend to cope better with ESG legal instability, while SMEs lack specialist knowledge of green financing. They are usually concerned about the scale of the obligations that accompany green investment financing procedures. Their capacity to collect diverse data and prepare specific disclosures is extremely limited. Emerging information bureaus and various consulting firms offering such services tend to increase the cost of green financing, thereby discouraging these entities from making green investments. Small and medium-sized enterprises also frequently struggle to meet the requirements of the Taxonomy (Jeziolowicz, 2025). Therefore, a significant proportion of the adaptation problems associated with the ESG strategy arises in manufacturing enterprises, which block green financing in domestic banks.

3. Results

The method of semi-structured in-depth interviews used in the empirical research in 2025 enabled the collection of new qualitative data, expanding the existing knowledge base on green transition. This method enabled respondents to raise certain issues that were not initially included in the interview scenarios. In this article, the analysis of green investment financing focuses on changes in the relationships between enterprises implementing green investments and banks acting as financing institutions. The balance between the resources financing green investments and the demand for them constitutes a fundamental condition for the high effectiveness of implementing ESG goals and targets. Maintaining this balance, however, presents a significant challenge for all participants in this process. Research shows that estimating the total amount of financial resources for green investments is like predicting the next viral pandemic. There is a continuously growing demand for financing the implementation of an ESG strategy in the global economy and the European Union. The scale of financial burdens on individual economies remains uneven, public resources for financing the energy

transition are shrinking, and bank capital is taking over the role of the main source of financing. The observed trend generates significant investment risks across various segments of the financial market and system, while proponents of the concept remain convinced that managing this process through successive regulations on green financing of the economy is the solution to all challenges. Meanwhile, the implementation of green investment financing processes is taking place in conditions of high uncertainty and a deteriorating economic situation in EU member states. As a result, ESG risk is increasing, driving up the cost of green investment financing. While investment risk is a constant feature of manufacturing processes in large corporations, SMEs are generally unable to overcome such barriers. Banks financing green investments are also exposed to ESG risk. However, research indicates that they can hedge this risk. They have incorporated it into their banking risk management systems, drawing on the extensive experience gained to date. In this context, two distinct and incompatible ESG risk management systems emerge: one within banks and one outside the banking sector. Enterprises fall into the latter group, thereby incurring higher associated costs. In conclusion, it should be emphasized that ESG strategies, despite being founded on the contentious premise linking climate change to human economic activity, are being implemented consistently. Based on the contradiction between the administrative goals and targets of ESG and economic rationality, it inherently increases resistance to its adaptation by financial and non-financial economic entities. The consistently growing need for green investment financing requires the establishment of priorities in which the significance of S and G, social and governance, elements, is minimal or negligible. Therefore, an ESG strategy requires, above all, political demystification and the continual verification of its goals and targets.

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