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SUSTAINABLE FINANCING AS A FACTOR INFLUENCING ECO-FRIENDLY BUSINESS TRANSFORMATION: EXISTING CHALLENGES AND POTENTIAL SOLUTIONS

Tolstaia Olga Valerievna
Ph.D. in Economics, Researcher, Sustainability Solutions Ltd, Russia

Gorbacheva Irina Igorevna
Director, Leading expert on corporate sustainability, Sustainability Solutions Ltd, Kazakhstan

Abstract
This study underscores the slow adoption of eco-friendly practices, particularly in high-emission sectors ("brown" businesses), and emphasizes the role of sustainable financing in implementation of environmentally sustainable business practices, with a particular interest in such types of corporate financing as sustainability-linked loans and a relatively new type of financing provided to companies with core business falling under eligible green criteria (loans for green businesses). The purpose was to identify existing challenges preventing promotion of these two types of sustainable financing and borrowers' sustainable transformation, and propose potential solutions addressing these challenges. The analysis was performed based on a vast literature review. The study revealed the existence of such challenges as borrowers' profit-driven motives, lack in regulatory transparency, concerns of financial institutions about their profitability and risk of greenwashing, and insufficient governmental support. To address these challenges, regulatory measures are recommended to incentivize financial institutions to offer reduced interest rates on loans for green business and sustainability-linked loans, with governments compensating such losses through imposing higher taxes on "brown" businesses. The study also proposes a potential action plan on amending the regulatory framework with the main focus on the need to develop respective changes with the involvement of all relevant stakeholders. It also addresses the need of establishing mandatory criteria for recognizing businesses as green to qualify for green business loans, and obligatory KPIs for each industry outlining clear targets for improving a company's sustainability profile to be eligible for sustainability-linked loans. These obligatory criteria and KPIs may be adjusted by financial institutions depending on aspects being material for the borrower. The borrower's compliance with criteria set for green business loans should be regularly reported and verified by an expert company, similarly to the existing rules for sustainability-linked loans. Further, the study proposes incorporating a regulatory body to oversee compliance of financial institutions with these regulations and introducing penalties for their violations, and performing monitoring and adaptation of a regulatory framework, if necessary. The suggested amendments, being subject to a comprehensive feasibility study, are intended to promote the considered types of sustainable financing and boost transit to eco-friendly business practices.

Keywords Environmentally sustainable business transformation, eco-friendly business practices, ESG, sustainable financing, loans for green business, sustainability-linked loans.

INTRODUCTION

Climate change represents significant challenges for the planet, seriously affecting ecosystems and human wellbeing [9]. In response to these challenges the United Nations established sustainable development goals (SDG) aimed to eliminate poverty and minimize negative impact on the environment [23]. At the same time, the majority of ecology-related SDG targets set for 2020 have not been achieved [22], which means that additional efforts of green agenda business integration should be done by all actors and in particular the polluting industries.

Significant contribution to climate change comes with greenhouse gas (GHG) emissions. The biggest volume of GHG emissions arises from transportation industry via burning predominantly petroleum-based fossil fuel by various types of vehicles, electricity and heat production for different industries and residential sector mostly coming from burning fossil fuels such as coal and natural gas, agricultural soils and livestock in agricultural sector, and some industrial processes [17]. As a result, industries such as oil and gas extraction, fossil fuel production and coal mining are responsible for the majority of GHG emissions, with 71% coming from only 100 organizations [13,20]. Moreover, in 2010-2019 many governments continued incentivizing the fossil fuel industry, including oil, gas and coal mining companies, promoting the development of these practices [22].

On the other hand, recent studies show that in realization of their projects many businesses depend on bank financing, although small and medium-sized enterprises are more reliant on this form of financial support than large ones [1]. Banks offer various funding options, and current trends highlighting ecological priorities are closely tied to sustainable finance practices which can make sustainable financing an additional driving force for business transition towards eco-friendly practices. There is wide range of ESG-related (environmental, social and governance) bank products, including: ESG-focused bank loans, green and sustainability-linked bonds, trading instruments such as green accreditive, factoring and guarantee, and sustainability related services which may include green insurance, mortgage, leasing, green asset management and educational services, ESG risks assessment and assistance with ESG transformation [7, 18, 19].

In its turn, there are various types of ESG-focused bank loans developed in-line with the Green taxonomy which may include project financing such as green loans dedicated to realization of a particular environmental project and sustainability loans focused on particular projects addressing both ecological and social issues [2,15]. There are also sustainable corporate loans which include sustainability-linked loans determined as a loan instrument for which economic terms can fluctuate based on the borrower's ability to achieve ambitious, material, and measurable sustainability performance targets [2,14]. Another relatively new type of corporate financing identified by some banks represent loans provided to companies with core business falling under eligible green criteria (hereinafter - loan for green business or green business loan) [2].

This article is focused on the investigation of corporate financing driving strategic business transformation rather than assisting with realization of particular projects. The purpose of this study was to analyze the influence of two types of corporate sustainable financing (sustainability-linked loans and loans for green business) on a borrower's transition towards environmentally

sustainable business practices, identify existing challenges and propose potential solutions for stimulation of eco-friendly business transformation among banks' customers via improvement of regulatory and economic frameworks for two mentioned types of loans.

METHODS

The study was focused on the analysis of information regarding the performed investments to polluting and low-carbon industries, the level of funding of such businesses by selected leading financial organizations, and existing regulations connected with the considered types of loans. This analysis was based on literature review, including scientific articles, data from open sources, ESG reports of the leading financial organizations for 2022 and 2023, and relevant legislative acts.

DISCUSSION AND RESULTS

The role of sustainable financing in eco-friendly business transformation

According to recent studies, financing remains crucial for realization of projects promoting environmental, social and economic sustainability, and about 90% of respondents in a recent study declared financial sustainability as a key factor for sustainable business transformation [11]. This means that many businesses will need to resolve financial issues in order to introduce eco-friendly practices, which may require obtaining bank financing for covering respective investments.

Many companies have already started transition to sustainable practices with significant investments made into construction of renewable energy facilities such as wind, solar and geothermal power plants experiencing growth by more than 50% for the last 10 years, electrified transport being the largest sector with sustainable investments as of 2023, and investments into creation of power grids [6]. As of the end of 2023, total energy transition investments worldwide amounted to approximately 2 trillion US Dollars, including China as the leading country with about 676 billion US Dollars of investments, the USA with 303 billion US Dollars, as well as Germany, the United Kingdom and France cumulatively investing about 225 billion US Dollars [6].

At the same time, this level of investments into green energy technologies is not sufficient for achieving global net zero targets by the middle of the present century, with around 5 trillion US Dollars required every year until 2030 [6]. This underinvestment becomes even more crucial with the continuous increase in global levels of energy transition investments demand and supply [4], and growing levels of fossil fuel energy supply investments, including oil, gas and coal, in 2023 in comparison with previous few years, although being slower than the rise of clean energy investments [12]. According to this statistics, additional stimulation of businesses is needed to ensure transit to eco-friendly practices.

In support of low-carbon initiatives, various financial institutions in leading economies enhanced their product portfolio with different types of sustainable financing. For example, Barclays bank announced that sustainable finance instruments represent from 3.5 to 6 trillion US Dollars annual issuance opportunity by 2030 across the United Kingdom and the rest of Europe, North America and Asia Pacific, and declared a target to facilitate 1 trillion US Dollars of sustainable and transition to green finance between 2023 and 2030, with loans representing second big portion of such financing [3]. In 2023 the bank also reported exceeding the target set for 2030, including facilitation of about 20 billion pounds of general-purpose financing for environmental business practices (loans for green business) and around 6 billion pounds of sustainability-linked financing incorporating environmental performance [3]. Raiffeisen Bank

allocates approximately 30% of its product portfolio to ESG-linked financing, which more than doubled in 2023 compared to 2021 [16].

Besides, financial institutions introduce various additional sustainability practices such as ESG-scoring of corporate clients, assessment of ESG risks and practices, assistance with ESG transformation of the customers and education of their employees [19]. Banks also apply green operational practices internally such as renting green offices, implementing energy efficiency and waste management practices [7]. Certain financial organizations contribute to promotional of ESG programs at a regional level which includes assessment of present implementation of ESG practices in various regions across the country based on the established criteria, creation of the regional ESG profile, and design of ESG-strategy for the regional development, providing underdeveloped regions with sustainable financial instruments for attraction of investments into realization of decarbonization and other environmental programs [19].

However, as of 2022, the proportion of funding provided by financial institutions for low-carbon energy supply projects was inadequate to drive significant green transformation among corporate clients, and it was approximately 30% lower than the financing allocated to fossil fuel-related projects [5]. Sustainable financing saw an increase in 2022 compared to 2020, with financial institutions ranking third as a key source of funding [12]. However, around 80% of sustainable finance remains heavily concentrated in advanced economies, underscoring the urgent need for its expansion in developing countries, as well as continued promotion in ESG-advanced regions, to support a meaningful transition to environmentally sustainable practices [12].

Existing challenges in applying considered types of sustainable financing

To determine the next steps for promoting implementation of eco-friendly initiatives among companies from various industries and improving access to the considered types of sustainable financing, it is crucial to identify the existing barriers to their further development.

The analysis of the literature review, encompassing scientific publications, mass media articles, and reports from professional advisors, identified four major challenges that hinder the expansion of sustainable financing and the transition of certain businesses to eco-friendly practices.

Challenge 1 - Profit prioritization and uncertainties of green practices.

Companies in highly polluting and extremely profitable sectors, such as oil and gas, have shown a particularly slow move toward adopting sustainable practices. This hesitancy is primarily driven by their emphasis on maximizing short-term profits instead of prioritizing environmentally friendly measures [24]. The significant revenue generated from traditional, carbon-intensive operations acts as a strong deterrent to switching to greener alternatives. Additionally, considerable upfront costs and perceived uncertainties associated with implementation of sustainable technologies, often seen as less profitable in the immediate term, further discourage this shift. Consequently, financial incentives continue to take precedence over environmental concerns, hindering substantial progress toward sustainability in these industries.

Challenge 2 - Lack of transparency in sustainable finance regulations.

Approximately 83% of respondents of a recent study acknowledge that the lack of awareness and understanding of sustainability performance targets, green business criteria and sustainability

financing mechanisms represents a significant obstacle to advancing sustainable development [11]. Absence of a clear guideline on criteria for obtaining green business loans and sustainability-linked loans prevents companies from attracting such types of financing and aligning their operations with eco-friendly principles. Therefore, adjustments in regulatory framework are required making requirements transparent both for borrowers and financial institutions.

Challenge 3 - Uncertainty about the bank's profitability and risk of greenwashing

. The need for assessing a borrower's ESG performance for issuing loans for green business or sustainability-linked loans may force potential clients to obtain financing at financial institutions which do not have sustainability check requirements. In this situation, regulated banks may face the challenge of promoting sustainability-linked financing, and a potential solution may be associated with offering lower interest rates to encourage clients to adopt sustainable practices, though this raises concerns about profitability of financial institutions. To bridge the gap between market rates and reduced rates, government subsidies or alternative compensation mechanisms may need to be considered.

On the other hand, in absence of appropriate strong regulatory frameworks and effective oversight of both client sustainability commitments and banks' compliance, this may promote the risk of greenwashing as unsustainable companies could exploit lower-interest loans intended for environmental sustainability while banks, driven by profit, might approve such loans despite non-compliance with ESG principles and obtain compensation from the government [8]. This underscores the need for building a regulatory system that ensures transparent reporting and strict monitoring of a borrower's environmental performance and banks' compliance with sustainable financing regulations [14].

Challenge 4 - Lack of governmental support and control.

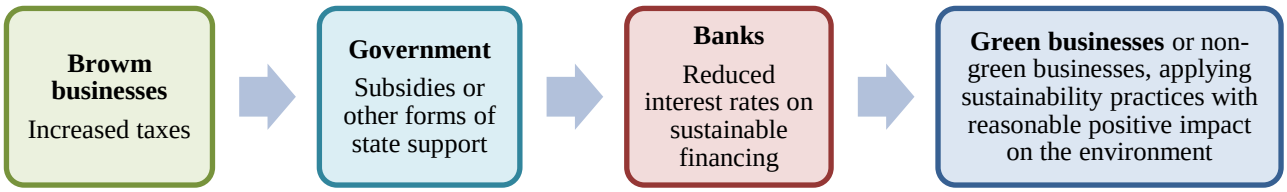
A recent study found that approximately 85% of respondents believe that the government has a crucial role in financing sustainable development initiatives [11]. This suggests a potential need for more active involvement from policymakers and governmental bodies to provide oversight and support in respect of relationships associated with obtaining considered types of sustainable financing and promotion of sustainability practices, such as, for example, the already mentioned mechanism allowing to compensate to the banks losses caused by issuing the discussed types of sustainable financing at lower interest rates.

At the same time, the cost of subsidies provided to financial institutions has to be compensated with additional income for the budget. Historically, there are numerous cases when leading countries introduced additional taxes aimed to reduce negative ecological impact [21]. A similar approach could be adopted by introducing additional taxes on "brown" businesses with high environmental footprints and reluctance about ecological agenda. The revenue generated in the budget from these additional taxes could be used to fund subsidies that compensate financial institutions for the amount of interest rate difference associated with issuing considered types of sustainable financing, thereby supporting eco-friendly business transformation. Furthermore, increasing taxes on brown businesses unwilling to change sustainably could serve as an additional driving force, pressuring such companies to initiate a transition towards more environmentally sustainable practices.

Alternatively, high-polluting industries may respond with the increase of prices for the final

customers. In prevention of this, governments may need to establish state-regulated maximal pricing limits for respective goods and services associated with such brown businesses which may not be exceeded. At the same time, before any such measures are implemented, a comprehensive feasibility study must be conducted to ensure their economic, social, and environmental viability, and respective investigation and potential update of relevant policies may be needed.

The potential cash flow generated through the implementation of proposed incentivizing solutions outlined in Challenges 3 and 4 is illustrated in Picture1.



Picture 1. Potential cash flow in case of introducing proposed incentivizing measures aimed to promote loans for green business and sustainability-linked loans.

Potential solutions for improving situation

To effectively address existing challenges in implementing eco-friendly business practices and promote considered types of sustainable financing, a comprehensive and well-coordinated regulatory approach is essential, involving a series of structured measures with engagement of all major stakeholders. The following steps outline a pathway for potential adjustment of the regulatory framework for green business loans and sustainability-linked loans.

In order to determine the roadmap of potential regulatory changes, at Step 1 it is essential to perform comprehensive analysis allowing to engage key stakeholders (including representatives from financial institutions and other industries representing potential borrowers, policy-makers, academics) and prioritize achieving positive impact on the environment and society while maintaining long-term business and economic sustainability of both financial institutions and their customers. This stage should allow to identify all existing gaps in legislation and balance expectations of relevant stakeholders. At the same time, considering slow progress in sustainable transformation by the companies from the most polluting industries, the primary focus should be set on promotion of gradual transition of brown businesses towards environmentally friendly business practices supplemented by other changes which will allow to make the discussed types of sustainable financing transparent for all players on the market.

Step 2.1 involves regulatory adjustments relevant for potential borrowers. In respect of loans for green business, this step may focus on defining clear criteria for what constitutes a green business. To achieve this, regulatory amendments should develop a list of mandatory criteria for recognizing eligible activities as green (by the analogy with EU Green Taxonomy) as well as criteria for identifying when combination of eligible green activities should mean that the company qualifies for a green business loan [10]. Based on the Barclays bank

example, at a legislative level it may be established that total revenue from eligible green activities should be greater than 90% of the company's total revenue [2]. Compliance with this criteria can either be demonstrated at the time of the loan application or, alternatively, companies could commit to meeting these criteria over a reasonable timeline pre-agreed with the lending institution.

At the same time, to enhance regulations aimed at increasing the volume of sustainability-linked financing, slightly different regulatory changes need to be considered for borrowers being companies from various industries without recognizing them as a green business. In this case industry-specific mandatory key performance sustainability indicators (KPIs) must be developed for such non-green companies by the government, outlining clear targets for improving a company's sustainability profile, as it is currently indicated in the Sustainability-linked loan principles, although left completely to the mercy of a borrower and a bank [14]. Such KPIs may be already met by the borrower upon applying for a bank loan, or upon agreement with the bank the parties may agree on a certain reasonable period for achieving these obligatory KPIs in line with the set targets.

The next step addresses the need for enhancing regulations for financial institutions (Step 2.2). To avoid fraud cases, regulation should prescribe requirements for financial organizations to adhere to mandatory criteria set at Step 2.1 when recognizing borrowers as green businesses, and to follow obligatory KPIs set for businesses from particular non-green industries upon considering sustainability-linked loans. Furthermore, financial institutions may finetune criteria for recognizing a company as a green business in line with obligatory criteria established at Step 2.1 for green business loans, and introduce additional KPIs material for borrower's core sustainability and business strategies and agree on the relevant targets for each KPI in respect of sustainability-linked loans, as it is currently mentioned in the Sustainability-linked loan principles [14]. Besides, in order to enforce granting sustainability-linked loans driving brown business to implement sustainable practices instead of traditional loans, it may be recommended to introduce obligatory minimal percentage of sustainability-linked financing in total volume of the bank's financial portfolio, with potential gradual introducing a condition that all loans for non-green businesses should become a sustainability-linked in the future.

Furthermore, in order to incentivize banks to offer loans for green businesses and sustainability-linked loans, for the initial transition period the government may need to establish ranges of reduced interest rates on loans for green business and sustainability-linked loans to be covered by subsidies or any other form of state support. On the other hand, to avoid any violations, penalties for financial institutions may be established in case of non-compliance with these special regulations.

Step 3 will require establishing a detailed regulatory framework to compensate banks for any financial losses resulting from offering lower interest rates under green business loans or under sustainability-linked loans within the approved ranges of reduced interest rates during the transition period. This state-backed support would help to ensure that considered types of sustainable financing remain economically viable for lending institutions while promoting environmentally responsible investments and sustainable transformation among their customers. As proposed upon the discussion of Challenge 3, to compensate for the amount of subsidies and drive transition of brown businesses to green practices, the government may need to design additional taxes or increase existing ones for companies from such brown industries unwilling to perform transit

to eco-friendly practices.

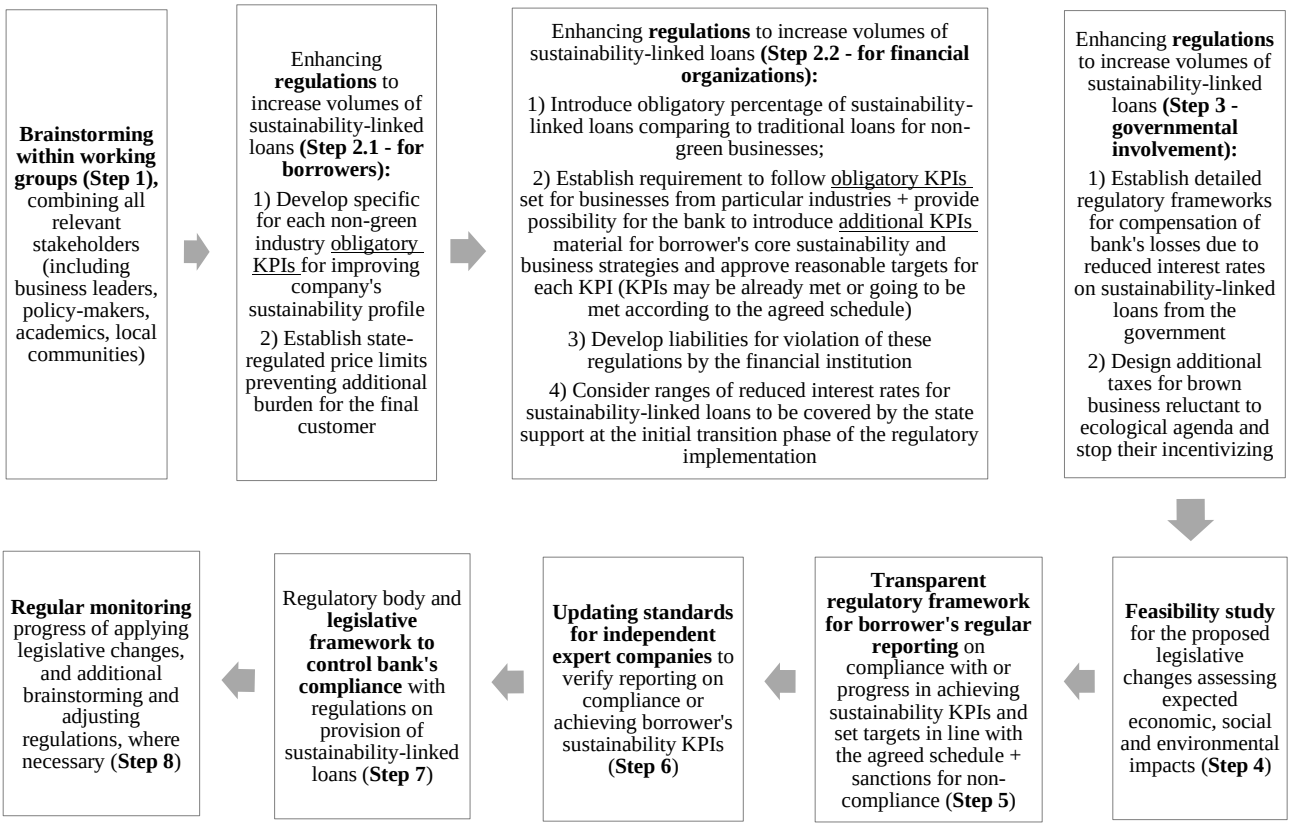
Before these changes are implemented, a comprehensive feasibility study should be undertaken at Step 4 to assess the expected economic, social, and environmental impacts. This assessment is crucial to ensure that the proposed legislative changes are practical and beneficial, not only from an environmental perspective but also in terms of broader economic and business outcomes.

To ensure transparency and accountability, regular reporting on compliance with or the progress in achieving green business criteria or sustainability KPIs and set targets for sustainability-linked loans in line with the agreed schedule would be required. To ensure proper and timely reporting, detailed transparent guidelines regulating such reporting should be designed at Step 5. As indicated in Sustainability-linked loan principles, the accuracy of these reports should be further verified by a qualified external reviewer [14]. Therefore, Step 6 may require introducing certain amendments to respective standards as a guideline for such an independent reviewer. In case if these two steps reveal that the borrower is no longer compliant with green business criteria or sustainability KPIs or does not achieve the set sustainability targets (if respective criteria were not met at the date of loan application), it may be essential to consider certain penalties such as raising the interest rate to the market level, which would help to mitigate the risk of greenwashing.

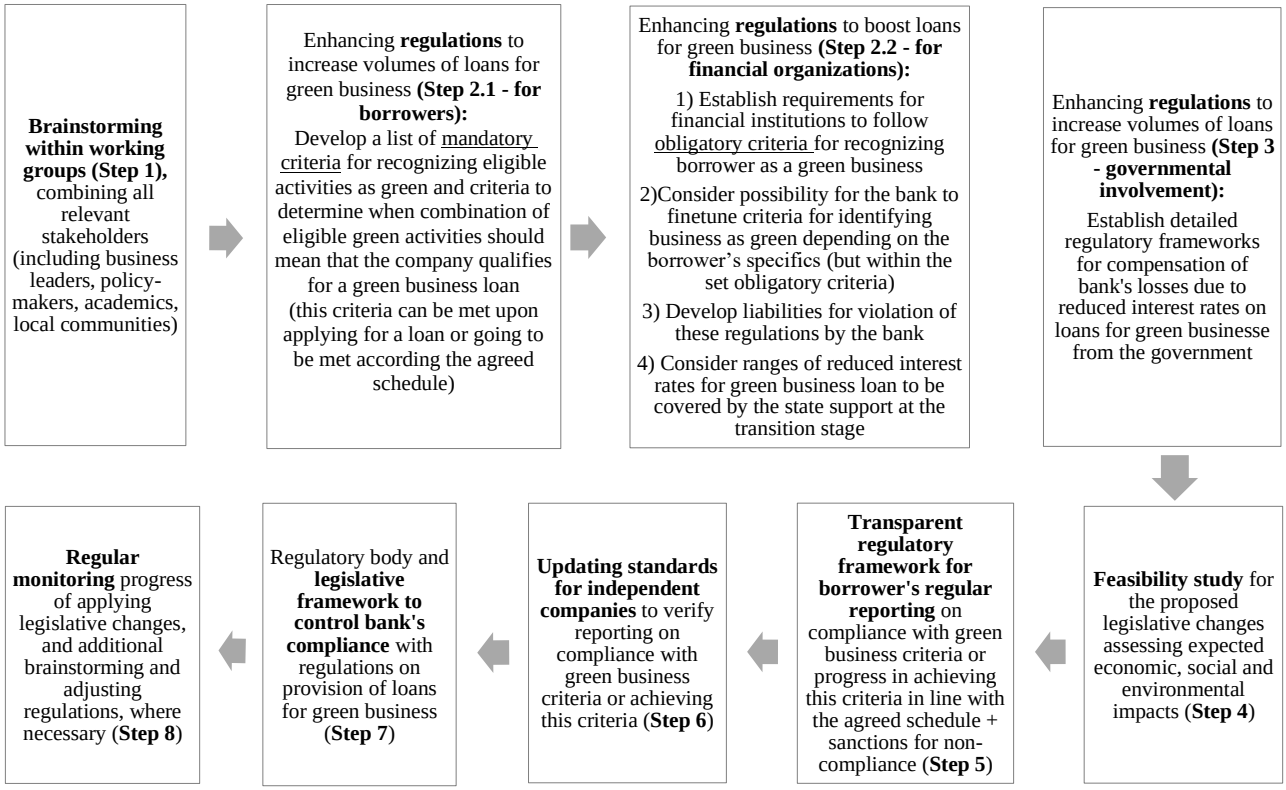
In parallel, a regulatory body and a legal framework (Step 7) should be established to oversee the banks' compliance with the discussed regulations for the considered types of sustainable financing established at Step 2.2. This regulatory body should review and verify that financial institutions are following the established guidelines when granting loans for green business and sustainability-linked loans, thereby safeguarding the integrity of the system, and that they effectively and for its intended purpose use state support received to cover the difference between market and reduced interest rates (if applicable).

Finally, it is important to implement regular monitoring of the progress in applying legislative changes and conducting periodic reviews to identify any gaps or challenges during the first several years (transition period) after their introduction (Step 8). This review should be performed in collaboration with the working group of relevant stakeholders, and respective adjustments to the regulations may need to be performed in order to ensure that the adopted norms are economically viable, regulations are transparent, and implemented changes lead to the expected positive results of the environment and society.

The whole process described in Steps 1-8 is illustrated on Picture 2 for sustainability-linked loans and on Picture 3 for green business loans.



Picture 2. Action plan for regulatory changes regarding sustainability-linked loans to promote environmentally sustainable transformation among bigger number of companies, including brown businesses



Picture 3. Action plan for regulatory changes regarding loans for green business to promote environmentally sustainable transformation among bigger number of companies

CONCLUSIONS

This study revealed that while many companies have initiated the adoption of eco-friendly practices, numerous businesses, particularly those in high-emission sectors ("brown" businesses) with significant greenhouse gas emissions and environmental pollution, are progressing slowly. Given the urgency of addressing global climate challenges, it is crucial to develop additional strategies to accelerate the sustainable transformation of these businesses. A key driver for this transition could be the attraction of sustainable financing, including green business loans for companies generating the majority of their revenue from eco-friendly activities, and sustainability-linked loans, where non-green businesses are required to meet predefined sustainability performance targets.

The analysis indicates that although many financial institutions have significantly increased the share of sustainable financing in their portfolios, several challenges hinder the more rapid expansion of such funding. These challenges include the profit-driven nature of brown businesses and their hesitation in implementing green practices, a lack of transparency in sustainable finance regulations and sustainability performance criteria, concerns over the profitability and feasibility of green initiatives for financial institutions and risks of greenwashing, and insufficient governmental support and monitoring.

In order to tackle some of these challenges and boost transit to environmentally friendly business practices, at the initial transition phase of

promoting loans for green business and sustainability-linked loans, banks may offer reduced interest rates to incentivize borrowers to adopt sustainable practices, with the government compensating banks for any resulting financial losses. To fund these subsidies or any other forms of state support, the government could introduce additional taxes or increase existing ones on "brown" businesses with high environmental footprints and reluctant about ecological agenda, directing the revenue towards offsetting the cost of the compensation to financial institutions. Additionally, regulatory measures may be needed to impose price controls on goods and services from brown businesses, preventing them from transferring the financial burden to final consumers.

Furthermore, to effectively promote loans for green business and sustainability-linked loans, a comprehensive regulatory framework comprising eight essential steps is recommended. This regulatory framework should be developed through collaboration with all relevant stakeholders, ensuring a cohesive approach to sustainability. Key elements of this framework include the introduction of regulatory amendments that establish clear, obligatory criteria for recognizing businesses as green and creation of mandatory KPIs for each type of non-green industry to assess the sustainability performance of such businesses, which may be further finetuned by financial institutions depending on the borrower's specifics, although within the set obligatory green business criteria and sustainability KPIs. Besides, special guidelines may need to be developed to establish allowable ranges of reduced interest rates for the initial stage of implementing these practices and approach to obtaining compensation from the government, initially raised from brown businesses unwilling to transform in the form of additional taxes (if such compensatory practice is implemented). It is also recommended to cease incentivizing such brown businesses reluctant to the environmental agenda to create an additional driver for their transition to eco-friendly practices.

Besides, the regulatory framework should incorporate detailed transparent guidelines for borrower's reporting on compliance with or progress toward achieving the status of green business or the established sustainability targets for predetermined KPIs, with prescribing sanctions for the borrower in case the mentioned targets are not met. Updated standards for the verification of these reports by a qualified independent reviewer may be also necessary to ensure transparency and accountability throughout the process. The implementation of a regulatory body responsible for overseeing and ensuring banks' adherence to these regulations will further strengthen the system, including introduction of potential penalties for violation of these regulations. To maintain its effectiveness, the framework must also include mechanisms for continuous monitoring, evaluation, and making adjustments to the regulations as needed to respond to emerging challenges and ensure contentious viability of the proposed adjusted regulatory framework.

This structured approach may help to introduce a robust and transparent system allowing to promote loans for green business and sustainability-linked loans, and drive more systematic business transition to eco-friendly practices, especially among brown businesses, contributing to achieving net zero targets, environmental protection, positive social outcomes and long-term economic growth and sustainable business development. At the same time, all proposed measures should undergo a comprehensive feasibility study to assess their viability from economic, environmental, social, and governance perspectives. This study should

involve collaboration with business leaders from financial institutions and other relevant industries, policymakers, and academics, ensuring the development of a practical science-based methodology aimed at achieving optimal outcomes from the proposed solutions.

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