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GREEN FINANCE IN THE EUROPEAN UNION AND ROMANIA: A NORMATIVE-INSTITUTIONAL ANALYSIS OF THE EU TAXONOMY AND ITS IMPLICATIONS FOR EMERGING ECONOMIES

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Abstract:
Green finance has become an essential component of modern financial systems, situated at the intersection of public policy, financial regulation, and sustainable investment practices. This paper analyzes the conceptual evolution and institutionalization of green finance, with a focus on the European Union framework and its implementation in Romania. The study provides an original theoretical contribution by proposing a normative-institutional typology of green financing. The paper establishes the functional dimension, the instrumental dimension, and the institutional-systemic dimension, which can be applied to the analysis of any emerging economy. The results highlight the transition of green finance from a restrictive, environmentally-focused approach to a systemic paradigm that integrates ESG criteria and supports the structural transformation of the economy. Special attention is given to the EU Taxonomy (Regulation (EU) 2020/852), analyzed as a normative instrument with informational, allocative, and transformative functions. Although it contributes to increased transparency and the reduction of greenwashing risks, its effectiveness in redirecting capital flows remains uncertain, in the context of compliance costs and the risk of over-regulation. The case of Romania shows a gradual but uneven development of green finance, supported mainly by public funds and European instruments, while private sector involvement remains limited.

***Keywords**: green finance, sustainability, climate investments, ESG (Environmental, Social, Governance), EU taxonomy, proportionality principle, blended finance, greenwashing.*

1. Introduction

Green finance represents an emerging field within the financial system, situated at the intersection of public policy, financial regulation, and sustainable investment practices. In a global context characterized by climate change and pressures on natural resources, mobilizing capital for projects with positive environmental impact has become a strategic priority for both states and the private sector. The concept of green finance has gradually evolved, starting from specific financial instruments aimed at addressing particular environmental issues to complex paradigms that integrate ESG criteria and contribute to the structural transformation of the economy.

2. Literature review

2.1. Conceptual Clarifications on Green Finance

The concept of "green finance" has been gradually developed and is the result of doctrinal evolutions at the international level. Authors initially focused on concrete economic realities and financial instruments, and later, through a process of abstraction, formulated broader theoretical frameworks regarding the role of finance in the transition toward sustainable development (Böhnke et al., 2015).

The first systematic concerns regarding the integration of environmental considerations into financial mechanisms can be identified after 1980, but they intensified in the early 2000s, against the backdrop of the consolidation of the international agenda on environmental protection and sustainable development (United Nations Environment Programme, 2011). In this context, the World Bank played a pioneering role by developing financial instruments dedicated to environmental projects and launching, in 2008, the first green bonds. This milestone is considered a landmark in the global institutionalization of green finance (World Bank, 2008, 2012).

Subsequently, the International Finance Corporation (IFC), part of the World Bank Group, strengthened this direction by creating specialized structures and programs for financing climate and sustainable investments, contributing to the development of emerging green instrument markets and the integration of ESG criteria into investment practices (IFC, 2018, 2019, 2020).

However, the literature highlights the absence of a unified definition of green finance, the concept being used differently depending on institutional context and objectives pursued (Lindenberg, 2014; OECD, 2013). Some approaches limit the scope of green finance exclusively to climate finance, others include the entire dimension of environmental protection, and an even broader perspective integrates green finance within the wider framework of sustainable finance (Lindenberg, 2014). Moreover, more recent institutional initiatives, such as the European Commission's Action Plan for Financing Sustainable Growth (2018), have helped clarify the regulatory framework, without imposing a universally accepted definition.

Consequently, green finance remains a dynamic concept, situated at the intersection of public policy, financial regulation, and investment practices, whose conceptual boundaries continue to evolve according to global economic and climate priorities.

The first approach to the concept of green finance is the restrictive approach, which considers green finance as the funding of environmental protection activities aimed at addressing specific environmental problems, controlling pollution, and limiting the overexploitation of natural resources (Wang & Zhi, 2016; Zhang et al., 2021).

The **second approach** argues that green finance is a financial innovation designed to protect the environment, consisting of a range of financial instruments and products intended to ensure sustainable development (Flammer, 2021; Tang & Zhang, 2020; Baker et al., 2022). Thus, green bonds have been promoted as essential instruments for financing the transition to a low-carbon economy. However, a central aspect of their effectiveness is the concept of additionality, which refers to the extent to which capital raised through green bonds generates new investments that would not have occurred in the absence of this type of financing. The specialized literature frequently questions additionality, as there is limited evidence that issuers use the funds exclusively for supplementary projects rather than for refinancing initiatives that were already planned or underway (Flammer, 2021; Tang & Zhang, 2020). Although green bonds and sustainable taxonomies represent important developments in green finance, their effectiveness in generating additional investments and structurally redirecting capital at scale remains controversial. Recent literature highlights that, although the EU Taxonomy

may produce certain market effects and price signals, evidence regarding its ability to structurally redirect capital flows is limited and inconclusive, being marked by uncertainties related to regulatory design, investor behavior, and potential efficiency effects (Brühl, 2022; Fuest & Meier, 2022; Garcia-Torea et al., 2024; Degryse et al., 2024).

Finally, the third approach, the extensive systemic one, considers green finance as the totality of environmentally friendly investments (in the form of loans, insurance, investments, including in carbon credit markets) aimed at supporting a society that is environmentally conscious and fundamentally sustainable economically and socially. This approach proposes a structural transformation of the economy (Campiglio, 2016; Dikau & Volz, 2021).

These three doctrinal approaches—restrictive, innovative-instrumental, and extensive-systemic—reflect the progressive evolution of the concept of green finance from an instrument intended to address specific environmental issues to a complex paradigm for reorganizing financial flows in support of sustainable development. The absence of a unified definition does not represent a conceptual limitation, but rather expresses the dynamic and interdisciplinary nature of green finance. It is a field open to new conceptual developments under the influence of changes in environmental and financial factors, which are interconnected and mutually interactive.

Green finance, therefore, represents an emerging area of sustainable finance, aimed at mobilizing capital flows for projects with a positive environmental impact and for achieving global climate objectives (Schoenmaker & Schramade, 2019). The concept is situated at the intersection of market economy and public policy, integrating Environmental, Social, and Governance (ESG) criteria into financial decision-making.

The specialized literature highlights two fundamental components of green finance: green public finance and green private finance, each with distinct mechanisms and functions but converging objectives. This distinction between green public and private finance is essential for understanding how capital can be efficiently mobilized for sustainable projects and for analyzing the interfaces between policy and market.

Green public finance involves the use of government funds, multilateral agencies, and international programs to finance projects with a positive environmental impact (Banga, 2019; OECD, 2020). These flows are often redistributive, oriented toward public interest and sustainable energy transition. Public mechanisms include grants, subsidies, tax incentives, preferential loans, and sovereign green bonds.

Public finance has the strategic role of reducing the perceived risks for private investors, providing a safety framework that encourages their participation in sustainable projects (Banga, 2019). In the context of green infrastructure, the OECD (2020) emphasizes that well-coordinated public policies and risk-sharing mechanisms are essential for mobilizing private capital, highlighting the government's role not only as a financier but also as a market facilitator. Thus, public finance acts as a catalyst, providing the regulatory framework, financial incentives, and initial support for green project development, with emphasis on strategic environmental objectives and social sustainability (Oneț & Alexandru, 2023; Alexandru & Oneț, 2024).

Green private finance refers to capital flows from the private sector—commercial banks, investment funds, corporations, or institutional investors—directed toward green projects with the goal of achieving financial returns while generating a positive environmental impact (Zhang & Wei, 2018; Climate Bonds Initiative, 2024). Specific financial instruments include corporate green bonds, green loans, green mutual funds, and other project finance mechanisms.

Clear public regulations and coherent fiscal policies stimulate the private market by reducing uncertainty and ensuring alignment with international standards (Zhang & Wei, 2018). Similarly, private green bond issuances have grown rapidly, reflecting both investor demand for sustainable instruments and the maturation of private financial markets (Climate Bonds Initiative, 2024).

In essence, green private finance functions as the implementation and scaling engine of green projects, leveraging market efficiency and private financial expertise, while public finance creates the conditions for these flows to be viable and secure.

The relationship between public and private green finance is one of complementarity, with a pronounced constructive and mutually reinforcing character. The government acts as a market facilitator, reducing the risks of private investments and providing incentives for participation in green projects (G20 Green Finance Study Group, 2016). Examples include subsidies, state guarantees, and tax incentives, which reduce perceived risk for private investors and allow the development of new financial instruments. International standards, such as the EU Taxonomy and the Sustainable Finance Disclosure Regulation (SFDR), increase transparency, comparability, and credibility of green investments by integrating environmental and ESG reporting criteria for both public and private projects. These mechanisms create a blended finance framework, in which public capital acts as leverage to mobilize private capital, maximizing the total impact of green investments.

The literature indicates that public finance serves as a strategic framework, providing stability, predictability, and risk reduction for private investors (Banga, 2019; OECD, 2020). Private finance, on the other hand, is the implementation engine, responsible for project execution and multiplication of investment impact (Zhang & Wei, 2018; Climate Bonds Initiative, 2024).

However, there are still gaps regarding:

- combined assessment of financial and environmental impact;
- standardization of green project reporting and verification;
- integration of climate and environmental risks into investment decisions at both public and private company levels.

This clear distinction between public and private finance, as well as the analysis of their synergies, provides an essential conceptual framework for future research on the effectiveness of green finance.

2.2. Green Finance in the European Union Perspective

In the context of the European Union, green finance can no longer be analyzed solely as a market phenomenon or a financial innovation, but rather as a normative construct integrated into European financial law. By adopting the sustainable finance framework, the Union has transformed climate objectives into operational legal criteria for classifying investments, thereby reshaping the informational infrastructure of financial markets. At the core of this architecture lies Regulation (EU) 2020/852 on the EU Taxonomy. This is not merely a descriptive tool; it establishes mandatory technical criteria for determining the sustainability of an economic activity, introduces the “do no significant harm” (DNSH) principle, and aligns climate objectives with financial transparency obligations. Under these conditions, green finance can be viewed as a legal-institutional architecture for capital allocation.

From an economic perspective, the sustainability taxonomy serves three major functions.

The information standardization function manifests through the fact that the sustainability taxonomy acts as an institutional mechanism to reduce informational asymmetries in financial markets. In the absence of uniform criteria, information regarding the environmental performance of economic activities is heterogeneous and difficult to compare, which may lead to adverse selection and inefficient capital allocation (Anghel, 2022). By establishing clear and verifiable technical criteria, the regulatory framework set by Regulation (EU) 2020/852 creates a common language regarding the sustainability of economic activities. Consequently, market transparency increases, and the risk of

greenwashing is reduced. In this way, the taxonomy fulfills an essential informational function for the allocative efficiency of financial markets.

The capital allocation function is achieved by influencing the direction of capital flows toward activities that are compatible with the EU's climate and environmental objectives. By integrating taxonomy criteria into reporting obligations and the structure of financial products, investors can more rigorously assess climate risks and investment opportunities (European Commission, 2021). In this sense, the taxonomy contributes to the internalization of "negative externalities" and to correcting market failures associated with pollution and climate change. Therefore, the taxonomy functions as an indirect economic policy tool, facilitating the transition to a low-carbon economy.

The structural transformation function is achieved because, by establishing technical thresholds (e.g., emission limits or energy efficiency requirements), the taxonomy influences production structures and the direction of technological innovation. Institutionally, the taxonomy represents a governance instrument through standards, shaping the behavior of economic actors without direct price intervention (Anghel, 2022). This function contributes to restructuring carbon-intensive sectors and consolidating the competitive advantages of sustainable activities (Șerban, Mihaiu, Herciu, Ogrean, 2023).
From a legal perspective, green finance becomes part of European financial law through the regulation of EU Green Bonds (EU Green Bond Standard), the integration of climate risks into supervision by the European Central Bank and the European Supervisory Authorities, as well as the establishment of ESG reporting obligations for financial institutions and companies. Through this integration, green finance is no longer voluntary but becomes institutionally regulated.

Thus, green finance in the European Union has evolved from a flexible economic category into a structured legal-institutional construct, integrated into European financial law. Regulation (EU) 2020/852 establishes a normative classification system that redefines the eligibility criteria for sustainable investments, transforming climate objectives into legal standards applicable to financial markets. From an economic perspective, this framework contributes to reducing information asymmetry, limiting greenwashing, and internalizing climate externalities through transparency and classification mechanisms. Consequently, green finance becomes a normative infrastructure for capital allocation, and its efficiency depends on the coherence between the European level and national implementation.

3. Methodology

3.1. Research Methods Used

This study employs a combination of research methods to provide a comprehensive analysis of the developments in green finance in Romania and its positioning within the EU27 context. The methodology integrates document analysis, quantitative data analysis, comparative assessment, and qualitative interpretation, ensuring a rigorous and multidimensional approach.

Documentary and bibliographic analysis is based on secondary data drawn from official reports and publications of the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), the European Commission, and the European Environment Agency. These sources provided detailed information on financial flows, investment projects, and the regulatory framework related to sustainable finance. Documentary analysis allowed the identification of trends, the collection of numerical indicators, and the review of relevant European legislation, including the EU Taxonomy Regulation and non-financial reporting standards (NFRD/CSRD).

Quantitative data analysis is used to process numerical data concerning the volume, allocation, and evolution of green investments. Key indicators include the share of green loans in total bank loans for the years 2024–2025, the total amounts allocated by the

EIB and EBRD during 2024–2025, the share of financing directed toward climate and sustainability projects, and the proportion of green bonds within the financial market. Data were structured in tables to facilitate year-on-year comparison and trend identification.

Comparative analysis is applied to position Romania relative to the EU27 average regarding green financial instruments, ESG regulatory alignment, and market maturity. This allowed the assessment of gaps and opportunities, highlighting both growth potential and areas requiring policy intervention and institutional capacity strengthening.

In addition to numerical analysis, a qualitative interpretation of the data is performed to assess the strategic implications of green financing. This includes analyzing the leverage effect of international financial institutions, identifying structural benefits for Romania's economy, and evaluating challenges related to market awareness, institutional capacity, and regulatory implementation.

The study synthesizes quantitative and qualitative results to formulate evidence-based conclusions and recommendations. The integration of multiple methods ensures a holistic understanding of the dynamics of sustainable finance in Romania and its alignment with European decarbonization and green transition objectives.

3.2. Analysis of Recent Financial Developments in Romania

In order to assess the effectiveness of the measures implemented by Romania regarding green finance, it is useful to provide some information on the mobilization of capital flows for projects with a positive environmental impact.

In Romania, green loans still represent a relatively small share of the total banking portfolio. According to official data provided by the National Bank of Romania, in 2024 green loans accounted for approximately 5.7% of total bank loans contracted by households. Green loans thus increased by roughly 50% in 2024 compared to 2023, with accelerated growth dynamics, particularly in the mortgage segment, where new flows exceeded 20% (NBR, 2024).

For 2025, available data suggest a continuation of this trend, although the lack of consolidated system-wide statistics prevents us from drawing definitive conclusions. Nevertheless, the available information reflects the early stage and still fragmented nature of the green lending market in Romania.

When these data are compared to the EU average, according to the European Banking Federation, the share of green loans in total bank lending is 4.5% (EBF, 2025), which indicates a slightly higher growth rate in Romania than in other European countries. However, these figures do not justify the conclusion that spectacular increases are occurring, although we believe that the emerging trend of this indicator cannot be questioned.

Table 1. Share of green loans in total loans

Indicator	Romania (2024)	EU Average (2024–2025)
Share of green loans in total loans	5.7%	4.5%
Dominant segment	Green mortgage loans	Green mortgage and corporate loans
Maturity level	Emerging	Emerging to consolidated
Data availability	Limited, fragmented	Relatively more recent, but incomplete

Source: NBR (2024), EBF (2025)

This analysis allows us to observe that the green loan market in Romania, although growing, still remains at relatively low levels. The situation in the European Union is not significantly better, although the European average includes countries with higher

performance alongside others with lower performance. At the same time, it should be noted that the international context of recent years, marked by numerous crises, has not been conducive to stimulating the green banking market.

For these reasons, Romania has sought to mobilize alternative capital flows to support green projects, particularly to finance green public policies and corporate projects in sectors essential for development and economic restructuring based on sustainability principles. These include loans granted to Romania by the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), the most important financing institutions in the European Union.

In 2024, the European Investment Bank (EIB) provided Romania with financing amounting to €2.49 billion, directed towards the energy transition, sustainable urban infrastructure, and support for SMEs.

Also, in 2024, the European Bank for Reconstruction and Development (EBRD) invested €707 million in Romania, an increase compared to the previous year, of which 74% was allocated to green projects—a percentage significantly above the regional average of 58%. Investments focused mainly on the energy transition, development of renewable energy capacities, and modernization of energy networks. Furthermore, EBRD programs mobilized nearly €1 billion in public and private sources in 2024 for renewable energy and green investments, contributing to the development of almost 1 GW of new installed capacity.

In 2025, the EIB continued this trend with approximately €1.6 billion in financing. Over half of these funds directly contribute to climate and sustainability actions. The financing supported transport, clean energy, sustainable urban infrastructure, and SME support. Of this amount, approximately €1.17 billion was allocated for transport and sustainable urban infrastructure, €185 million for energy projects, including the transition to clean energy, €170 million for SMEs, and over €150 million for innovation and digitalization.

The EIB was also a lead investor in corporate green bond issuances and provided specialized loans to Romanian banks to support SMEs and climate projects (e.g., €25 million to Patria Bank and €25 million to CEC Bank). The total of €1.6 billion in new financing mobilizes estimated total investments of approximately €5 billion in cohesion and sustainability projects in the economy.

In 2025, the EBRD invested a record €955 million in 37 projects in Romania, marking the largest amount since its operations in the country. Approximately 81% of these investments were dedicated to the green economy, well above the regional average, reflecting a strong focus on decarbonization and renewable energy.

Table 2. Total Financing Provided to Romania

European Financial Institution	2024	2025	Trend
European Investment Bank (EIB)	€2.49 billion	€1.6 billion	Volume decrease, but green focus maintained
European Bank for Reconstruction and Development (EBRD)	€707 million	~€955 million	Significant increase

Source: EIB (2024, 2025), EBRD (2024, 2025)

Table 3. Green Financing

European Financial Institution	2024 – % Green	2025 – % Green	Observations
European	Mainly green-	>50% for climate	Sustainable

Investment Bank (EIB)	oriented (aggregate data)	and sustainability	transport, clean energy, urban infrastructure
European Bank for Reconstruction and Development	74% green	~81% green	Above regional average; focus on renewables

Source: EIB (2024, 2025), EBRD (2024, 2025)

The analysis of developments during 2024–2025 highlights the strengthening role of international financial institutions in supporting Romania's transition to a green economy. The significant volume of financing provided by the EIB and EBRD confirms that the multilateral financial sector is a key pillar of investments in sustainable infrastructure, renewable energy, and sustainable urban development.

The data show not only continuity in financial support but also an intensification of orientation towards green projects. The increase in the share of investments dedicated to climate action, particularly in the case of the EBRD, indicates closer alignment with European decarbonization objectives and sustainable finance principles. At the same time, the structure of financing reflects the complementarity of interventions: the EIB primarily supports major infrastructure and cohesion projects, while the EBRD plays a significant role in developing renewable energy capacities and mobilizing private capital.

A key aspect highlighted by the analysis is the leverage effect of these financings. Beyond the volume of direct financing provided, the interventions of international financial institutions contribute to attracting additional private resources, reducing investment risks, and creating a favorable environment for the development of the local green finance market. Consequently, their impact goes beyond the strictly financial dimension, having structural implications for the modernization of Romania's economy.

In conclusion, the period analyzed confirms that international financing plays a strategic role in accelerating the energy transition and consolidating green finance in Romania. However, to ensure long-term sustainability, further integration of private capital, development of innovative financial instruments, and strengthening of institutional capacity for the absorption and implementation of green projects are necessary.

At the same time, the analysis reflects a clear strategic orientation of financing towards green and cohesion projects, highlighting the essential role of international financial institutions in supporting Romania's sustainable development.

3.3. Romania's Position in Green Infrastructure Investments at the EU Level

In a comparative analysis between Romania and the EU27 average regarding green finance (European Commission, 2025), recent data show that Romania's green financial instruments market is still consolidating: sovereign and corporate green bond issuances have attracted over €2 billion by 2025, while international financial institutions such as the EIB and EBRD have financed sustainable projects worth several billion euros combined, contributing to the energy transition and sustainable infrastructure in the country.

Regarding the level of green finance, it can be observed that within the EU27, green finance (green bonds, green loans, sustainable investments) is steadily increasing, with the average share of green bond issuances around 6–7% of the total financial market, whereas Romania is still in an early stage compared to the EU average. The share of green bonds and green loans in Romania is under 2% of the total financial market (European Environment Agency, 2025). Therefore, a gap exists between the potential for sustainable investments and their actual implementation.

In view of this reality, the analysis was extended to the legal framework, which allowed the observation that the EU has a clear and standardized framework through the EU Taxonomy and the Non-Financial Reporting Directive (NFRD/CSRD), facilitating comparability and transparency among member states. Romania is gradually adopting these standards, resulting in delays in practical application, as reporting and verification of sustainable projects remain limited.

Regarding awareness of the need for green finance, the EU27 average shows that banks and investors are much more conscious of the importance of ESG and its impact on portfolio risk and reputation. In Romania, awareness is lower, as most banks and companies still treat green finance as a niche segment.

Studies show that in the EU, green investments bring not only environmental benefits but also medium- and long-term financial advantages (higher profitability, access to EU funds). In Romania, preliminary analysis indicates a limited positive impact, mainly due to the small volume of projects and lack of experience in managing green risks.

Overall, at the EU27 level, standardization and transparency are strengths, while challenges include green risk assessment and greenwashing. In Romania, challenges are deeper, relating to lack of know-how, limited infrastructure, and insufficient financial resources for implementing green projects.

Table 4. Comparative Analysis of Green Finance: Romania vs. EU27

Indicator / Aspect	Romania	EU27 Average	Key Observations
Share of green bonds in total market	< 2%	~6-7%	Romania below EU average; high growth potential
ESG / Taxonomy Legal Framework	Partially implemented	Fully implemented	EU standardized; Romania still adapting regulations
Awareness and Adoption	Low / niche segment	High / wide adoption	Green financial education needed in Romania
Annual Green Investment Volume	Limited (~billions RON)	Significant (~tens of billions €)	EU stimulates large projects; Romania still small-scale
Financial Impact	Limited positive	Positive and measurable	Better profitability and EU fund access in EU average
Main Challenges	Lack of know-how, limited resources, infrastructure	Greenwashing risk, risk assessment	Romania needs to build internal capacity

Source: European Commission (2025), European Environment Agency (2025)

From this comparative analysis, the following observations can be summarized:

- Romania's level of green finance in terms of volume and diversity is below the EU27 average, but there is significant growth potential, especially through the implementation of the EU Taxonomy and ESG rules.
- Rapid adoption of EU regulations and stimulation of the local market (subsidies, guarantees, de-risking schemes) are essential to narrow Romania's gap with the EU27 average.
- In Romania, green investments will not increase significantly without strengthening the green financial culture among banks, companies, and institutional investors.
- Expanding green finance in Romania can drive both the energy transition and sustainable economic development, providing a long-term competitive advantage within the EU.

Looking ahead, the development of private green finance in Romania depends on deepening the integration of ESG criteria in the financial system, stimulating demand for sustainable financial products, and strengthening public-private partnerships. Expanding the use of innovative instruments—such as green bonds, thematic investment funds, and blended finance mechanisms—can accelerate the mobilization of private capital and contribute to achieving national decarbonization and sustainable development goals (Zugravu, Vatamanu, 2025).

4. Results/findings

This study aims to highlight how Romania has managed to utilize green finance as a tangible tool for growth and development. Therefore, in order to ensure relevant conclusions, we have described the presence of green finance within Romania's institutional and economic-financial framework.

4.1. Green Finance in Romania

Green finance encompasses all financial flows (public and private) that support investments and activities with a positive environmental impact in areas such as renewable energy, energy efficiency, water and waste management, sustainable mobility, sustainable agriculture and forestry, and climate-adapted infrastructure. These flows rely on ESG (Environmental, Social, Governance) criteria in the capital allocation process.

Romania develops green finance within the context of EU regulations and international commitments on climate change, such as the European Green Deal.

The main pillars of European legislation underpinning Romania's actions refer to the implementation of Regulation (EU) 2020/852 – EU Taxonomy for Sustainable Activities, which provides a unified framework for classifying investments considered "green." As a member state, Romania applies this regulation across all EU-funded programs, as well as Regulation (EU) 2019/2088 – Sustainable Finance Disclosure Regulation (SFDR), which requires financial institutions to report ESG impacts, including the traceability of green investments. These regulations have begun to influence Romania's financial and investment product offerings.

To implement these European decisions, Romania has also developed several strategic documents, such as the National Strategy on Climate Change (SNSC) 2024–2030 (Government of Romania, 2024), which incorporates green financing instruments aimed at emission reduction. The Large Infrastructure Operational Program (POIM) 2014–2020 included green investment components in transport, environment, and energy, most of which were co-financed by the EU and subject to robust sustainability criteria. It was replaced in the 2021–2027 financial cycle mainly by the Sustainable Development Program (PDD) 2021–2027, which focuses directly on the transition to a green economy, biodiversity, energy efficiency, water/wastewater, and the circular economy.

Other sources of green investment financing in Romania include the Just Transition Program (PTJ) and the Modernization Fund. The main directions of green investment are:

- Water protection and wastewater management through infrastructure development and the transition to a circular economy;
- Environmental protection through biodiversity conservation, air quality improvement, and remediation of contaminated sites;
- Climate change adaptation through risk management and environmental interventions;
- Energy efficiency through smart energy systems and networks.

4.1.1. Public Green Finance in Romania

By utilizing combined public financial instruments to support sustainable development, Romania seeks to stimulate green investments and restructure its economy to align with recent developments at the EU level.

Thus, public subsidies for green investments from the state budget are provided through state aid schemes, direct budgetary facilities, tax exemption ceilings, or government programs co-financed from the central budget. Although public financing instruments are often linked to European funds (Modernisation Fund, PNRR, etc.), there are also components supported directly from the state budget.

In Romania, public support for green investments primarily derives from subsidies granted directly from the state budget, complemented by EU funds managed nationally, such as the Modernisation Fund or components of the National Recovery and Resilience Plan (PNRR). These mechanisms aim to increase renewable energy production, energy efficiency, and reduce greenhouse gas emissions, thereby contributing to the achievement of national and European energy transition and sustainable development objectives.

A concrete example is the state aid scheme for investments in electricity storage capacities, approved by Order no. 1,355/2024 (Romanian Ministry of Energy, 2024). Implemented under Article 41 of Regulation (EU) No. 651/2014 and the provisions of Law no. 376/2023 (Romanian Parliament, 2023), this scheme provides non-reimbursable grants for economic operators developing storage capacities connected to renewable sources, thus supporting the flexibility and resilience of the national energy system.

Another support instrument is the Contract for Difference (CfD) mechanism, regulated by the Energy Law no. 123/2012, Government Decision no. 318/2024, and Ministry of Energy regulations, which ensures differential payments to renewable energy producers. Through this mechanism, the Romanian state guarantees revenue stability for green projects, thereby stimulating private investments in photovoltaic, wind, or small hydro capacities without relying exclusively on European funds.

Subsidies for local administrations represent another category of public support. Through government decisions and annual budget allocations, local authorities can benefit from direct funding for renewable energy projects or for improving energy efficiency in public buildings, such as installing photovoltaic panels or efficient heating systems. In this context, the state budget functions both as a funding source and as a co-financing mechanism for projects receiving complementary EU support.

Moreover, tax incentives constitute an indirect form of subsidy from the state budget. According to the Fiscal Code, companies investing in green technologies benefit from tax exemptions or accelerated deductions for eco-friendly equipment and infrastructure, reducing the net cost of investments and encouraging private decisions in favor of sustainable projects.

More recently, government programs and co-financing through the PNRR or POIM have complemented direct public support, providing significant resources for large-scale green projects, including sustainable transport infrastructure, water management, and energy efficiency of public buildings. Thus, the state budget, together with European instruments managed nationally, constitutes a key pillar of green finance in Romania, both through direct grants and strategic fiscal incentives and co-financing.

In conclusion, state budget subsidies for green investments in Romania manifest through a diverse spectrum of instruments: grants and state aid schemes, CfD mechanisms, funding for local administrations, tax incentives, and co-financing for major programs. These mechanisms significantly contribute to stimulating the energy transition and achieving environmental objectives established at the national and European levels, while also reflecting the adaptation of Romanian public policies to the EU Taxonomy and the European Green Deal.

4.1.2. Private Green Finance in Romania

The development of private green finance in Romania has intensified over the past decade, driven by alignment with the European Union's climate objectives and the strengthening of the sustainable finance regulatory framework. The integration of ESG (Environmental, Social, and Governance) principles into financial institutions' strategies, growing investor interest in sustainable assets, and access to European support mechanisms have contributed to shaping an emerging green finance market.

The banking sector plays a central role in this process by developing dedicated products — green loans for energy efficiency, financing for renewable energy projects, and credit lines for SMEs aimed at sustainable investments.

In parallel, the capital market has begun to integrate specific instruments, such as green and sustainable bonds, issued by both public authorities and private companies, contributing to the diversification of financing sources for the energy transition.

As previously shown in this paper, a significant boost to the expansion of private green finance was provided by collaboration with international financial institutions such as the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD), which offered co-financing mechanisms, guarantees, and technical expertise, reducing investment risks and stimulating private capital mobilization. These interventions have facilitated increased investments in renewable energy, green infrastructure, and modernization of energy networks.

However, Romania's private green finance market remains in a consolidation phase. Identified challenges include the relatively low level of financial intermediation, the limited sophistication of the capital market, high initial costs of green projects, and the need for legislative clarity and stability. Additionally, the capacity of companies, particularly SMEs, to develop bankable projects compliant with EU green taxonomy standards is a limiting factor.

Green bond issuances are another financial instrument Romania has recently utilized. To create an appropriate institutional framework, the General Framework for Bonds for Environmental Protection and Climate Change Mitigation was developed (Romanian Government, 2023).

Through two green bond issuances, Romania raised 10.85 billion RON (approximately €2.18 billion) for projects with a positive environmental impact — in areas such as low-emission transport, sustainable water management, climate change adaptation, and natural resource protection. This represents the first phase of sustainable financing by the Romanian state via the international capital market. Green bond issuances are a concrete example of public and/or private green financing, and the results achieved in a relatively short time are encouraging (Romanian Ministry of Finance, 2025).
Alongside green bonds issued by the Romanian state, corporate green bonds are beginning to emerge in Romania. The energy company Electrica completed its first corporate green bond issuance worth €500 million, with participation from the European Investment Bank (EIB). The funds will be used to expand renewable energy and energy storage capacities in line with the EU taxonomy for sustainable activities. Such an event can be seen as an indicator of the development of Romania's private green finance market.

4.2. Observations

4.2.1. Regarding the Taxonomy

The adoption of Regulation (EU) 2020/852 establishing a framework to facilitate sustainable investments must also be analyzed in light of the principle of proportionality, enshrined in Article 5(4) TFEU and consistently developed in the jurisprudence of the

Court of Justice of the European Union. According to this principle, Union action must not exceed what is necessary to achieve the objectives of the treaties, and the measures adopted must be appropriate, necessary, and strictly proportionate to the pursued goal.

From the perspective of suitability, the taxonomy aims to achieve the Union's climate objectives, notably enshrined in the European Commission's regulatory framework for the European Green Deal (European Commission, 2019) and in Regulation (EU) 2021/1119 (European Parliament and Council of the European Union, 2021). The legal classification of sustainable economic activities is, in principle, capable of contributing to the redirection of capital flows toward sectors compatible with climate neutrality by reducing informational uncertainty and increasing investment comparability—an objective reaffirmed by the EU Taxonomy framework under Regulation (EU) 2020/852 (European Parliament and Council of the European Union, 2020; EU Technical Expert Group on Sustainable Finance, 2020).

In the absence of standardized criteria, the market tends to underestimate climate risks and allows the proliferation of greenwashing practices. The taxonomy thus functions as an informational infrastructure and governance-by-standards tool, intended to correct these market imperfections and facilitate more efficient capital allocation in the context of the climate transition (European Commission, 2021; Platform on Sustainable Finance, 2025). Romanian scholarly literature also emphasizes the necessity of coherent reporting and classification criteria for sustainable activities in order to reduce transaction costs and increase transparency in the domestic capital market (Anghel, 2022). This approach aligns with international trends regarding taxonomy interoperability and harmonization of sustainability criteria to mobilize large-scale green investments (OECD, 2020).

The necessity test for a measure must answer whether the pursued objectives could have been achieved through less restrictive measures. Before the adoption of Regulation 2020/852, the dominant approach was voluntary, through private ESG initiatives and non-uniform standards for green bonds (EU Technical Expert Group on Sustainable Finance, 2020; Anghel, 2022). Normative fragmentation and lack of comparability prompted legislative intervention, necessitating harmonization at the European level (European Parliament and Council of the European Union, 2020; OECD, 2020). It can be argued that harmonization via a regulation, as a directly applicable act, was justified to avoid national divergences that could have affected the internal capital market (European Commission, 2021; Platform on Sustainable Finance, 2025). However, the highly detailed technical nature of the selection criteria, set out in delegated acts, raises the question of whether such a level of granularity is strictly necessary or if a more flexible, principle-based framework would have sufficed.

Regarding proportionality, the balance between the intended benefits and the burdens imposed on economic operators is evaluated. The taxonomy generates compliance costs, complex reporting obligations, and requires technical expertise to assess the eligibility of activities (European Commission, 2021; Platform on Sustainable Finance, 2025). For large entities, these costs can be absorbed relatively easily; however, for SMEs and emerging economies such as Romania, the administrative burden can be significant (Anghel, 2022). Thus, the issue of proportionality is differentiated according to institutional capacity and the level of financial market development (OECD, 2020). From a normative-economic perspective, the proportionality test must be correlated with the efficiency of capital allocation. If the benefits generated by informational standardization and the reduction of systemic risks exceed compliance costs, the intervention can be considered justified (EU Technical Expert Group on Sustainable Finance, 2020).

4.2.2. Regarding the Use of Green Finance in Romania

Statistical data and recent developments indicate that Romania continues to evolve in the field of green finance, but notable progress has been made regarding

European green funds. Both cohesion and structural funds (2014–2020 and 2021–2027) have allocated significant amounts to environmental projects in areas such as water networks and wastewater treatment, energy efficiency, sustainable urban transport, etc. Additionally, the National Recovery and Resilience Plan (PNRR) dedicates a portion of funds to the energy transition and green infrastructure.

At the same time, Romania has issued its first green municipal bonds, and private issuances targeting environmentally impactful projects have emerged. However, the market is still in its early stages compared to other countries, even among the eastern flank of the European Union.

Regarding the private sector and ESG criteria, it should be noted that in recent years Romanian commercial banks have started offering green loans or financial products linked to environmental criteria. Some local investment funds also incorporate ESG criteria into their portfolio strategies, and SMEs applying for EU funds must demonstrate sustainability criteria. Nevertheless, the level of ESG integration in Romania's private sector remains limited compared to the EU average.

If we were to identify the most important challenges that Romania must address to ensure robust growth of green finance, they include:

- Increasing institutional capacity, as the lack of specialized expertise in green projects and difficulties in preparing EU Taxonomy-compliant projects are major barriers for SMEs and local administrations;
- Improving standardization and transparency processes, since ESG reporting is still voluntary for many entities, affecting data comparability;
- Enhancing access to finance for SMEs, which face difficulties in obtaining green financial products due to high transaction costs and demanding requirements;
- Integrating ESG into corporate strategies, as large companies and banks can lead change;
- Expanding the supply of green products, such as green loans, green leasing, and green municipal bonds;
- Government support through instruments such as subsidies, tax incentives, and guarantee schemes for green projects;
- Education and advisory support for SMEs to prepare projects eligible for EU financing;
- General financial education of the public, which remains low, resulting in limited overall awareness of the importance of green finance.

Thus, it can be observed that in Romania, green finance is in a phase of consolidation and transition. While significant progress has been made in integrating EU criteria and accessing European funds, institutional and market challenges remain substantial. Enhancing administrative capacity, developing private financial instruments, and establishing robust ESG reporting represent key directions for accelerating green finance in the coming years.

5. Discussions

5.1. Regarding the Taxonomy

Although the taxonomy represents a major step in the institutionalization of green finance, it is not without structural limitations and legal and economic risks (Mironiuc, 2021).

The risk of regulatory rigidity arises when the detailed technical criteria, adopted through delegated acts by the European Commission, can create excessive rigidity in a field characterized by rapid technological innovation (European Commission, 2021; EU Technical Expert Group on Sustainable Finance, 2020). Overly granular regulation may quickly become outdated, requiring frequent revisions and generating legal uncertainty. From an economic perspective, excessive specification may inhibit innovation, as

operators tend to comply strictly with existing criteria, avoiding emerging technological solutions that are not yet reflected in the taxonomy (Anghel, 2022).

At the same time, the taxonomy operates at the intersection of environmental policy, the internal market, and financial regulation. The EU's expanded role in classifying economic activities may be perceived as a consolidation of competencies at the expense of member states' discretion, which could be seen as an extension of EU powers and potentially generate constitutional tensions. Although the legal basis is found in provisions regarding the internal market, its material dimension has direct effects on national energy policies (European Parliament, Council of the European Union, 2020). This may create tensions regarding subsidiarity and proportionality, especially in states with different economic structures or with high dependence on certain energy resources (OECD, 2020). Moreover, the overlap between the Taxonomy, SFDR, CSRD, and the European green bond standard creates a complex regulatory ecosystem, posing risks of over-regulation and systemic costs (European Commission, 2021; Platform on Sustainable Finance, 2025). If the interaction between these instruments is not managed coherently, an "over-compliance burden" may arise, where reporting and verification costs exceed the direct economic benefits. For economies such as Romania, where the capital market is relatively small, there is a risk that high compliance standards may discourage green issuances or limit SME access to finance (Anghel, 2022; Mironiuc, 2021).

Although the taxonomy is presented as a technical and objective instrument, the selection of eligible activities reflects political choices and economic trade-offs, which may create the illusion of technical neutrality (European Commission, 2021). The classification of certain activities, such as natural gas or nuclear energy under specific conditions, demonstrates the contestable nature of defining "sustainable" activities. This can affect legal predictability and investor confidence.

In conclusion, the relationship between the taxonomy and the principle of proportionality highlights the structural tension between the need for regulatory intervention to correct market failures and the risk of over-regulation in a sector characterized by technological and financial dynamism.

From a normative-institutional perspective, the effectiveness of the taxonomy depends on maintaining a proper balance between:

- Standardization and flexibility;
- Harmonization and subsidiarity;
- Transparency and compliance costs.

5.2. Regarding the Use of Green Finance in Romania

The analysis undertaken in this study highlights the need for normative and institutional restructuring in Romania to intensify the growth of green finance and, consequently, the development of a green economy. Our proposals focus on:

a) Adaptation to economic and administrative specifics.

Romanian authorities, such as the National Bank of Romania (BNR), the Financial Supervisory Authority (ASF), and the Ministry of Finance, should develop simplified technical guidelines for SMEs and green bond issuers, while maintaining compatibility with EU criteria. The introduction of financial support mechanisms and consultancy for companies adopting taxonomy criteria would help reduce compliance costs.

b) Institutional coherence.

Romania should integrate the taxonomy into a national green finance strategy, aligned with the National Recovery and Resilience Plan (PNRR) and EU funds dedicated to sustainable investments. The creation of a single reporting and verification point would reduce fragmentation and the complexity of compliance.

c) Flexibility and the principle of proportionality.

Taxonomy criteria should be adapted to the size and institutional capacity of Romanian entities: SMEs, listed vs. unlisted companies, and local authorities. The possibility of applying "gradual" standards for small entities would help maintain a balance between environmental protection and economic sustainability.

d) Educational integration and evaluation capacity.

Development of training programs for financial experts and legal professionals in green finance, including the assessment of eligible activities under the taxonomy. Strengthening the administrative capacity of Romanian institutions to monitor and verify compliance would reduce the risks of over-regulation.

6. Conclusions

This study provides an original theoretical contribution by proposing a normative-institutional typology of green finance, applicable to the analysis of any emerging economy:

- **Functional dimension** – financing that addresses externalities and promotes environmental protection.
- **Instrumental dimension** – financial innovation dedicated to sustainable investments.
- **Institutional-systemic dimension** – the legal and regulatory framework that incorporates the principle of proportionality and EU standards, functioning as an effective mechanism for capital allocation.

This typology demonstrates how European legal norms can operate as tangible economic instruments, offering a coherent analytical framework for other member states with comparable economic and institutional profiles.

The analysis of green finance in Romania reveals a positive but gradual evolution in both the public and private sectors. Public green finance, supported by the state budget and European funds (PNRR, Modernisation Fund, POIM), has facilitated the development of renewable energy capacities, improved energy efficiency, and implemented sustainable infrastructure projects. Direct subsidies, Contracts for Difference mechanisms, tax incentives, and co-financing for local authorities have proven essential in stimulating green investments.

The private sector and the green capital market in Romania are still in a consolidation phase. Commercial banks have started integrating green loans and sustainable financial products, while green bond issuances, both public and corporate, have attracted significant capital. These developments demonstrate the local market's potential to mobilize private resources for climate-related projects. International financial institutions, such as the European Investment Bank and the European Bank for Reconstruction and Development, have played a catalytic role by mitigating investment risks and encouraging private sector participation.

Compared to the EU27 average, Romania remains below average regarding the volume of green financing, the share of green bonds, and ESG integration. Key challenges include limited know-how, constrained institutional capacity, low awareness of the importance of green finance, and regulatory fragmentation. Moreover, compliance costs and reporting complexity can pose barriers for SMEs and smaller entities.

The adoption of Regulation (EU) 2020/852 – the EU Taxonomy – represents a major step in the institutionalization of green finance, providing clear standards and reducing the risk of greenwashing. However, the taxonomy also entails potential risks, including technical rigidity, over-regulation, and tensions related to subsidiarity and proportionality, particularly in emerging economies such as Romania. To fully leverage the benefits of the taxonomy, Romania must implement measures adapted to its economic and administrative context, strengthen institutional coherence, apply the principle of proportionality, and enhance its capacity for evaluating and monitoring green projects.

Overall, green finance in Romania is in a transitional and consolidation phase. Its future development depends on:

- Deeper integration of ESG criteria into the private sector and corporate strategies;
- Expansion of innovative financial instruments accessible to SMEs;
- Strengthening institutional capacity for the implementation and monitoring of green projects;
- Enhancing financial literacy and public awareness regarding the benefits of sustainable investments;
- Promoting public-private partnerships and ensuring the efficient use of European funds and guarantee/co-financing mechanisms.

By addressing these areas, Romania has the opportunity to accelerate its energy transition, reinforce the green economy, and narrow the gap with the EU27 average, generating sustainable economic, social, and environmental benefits over the medium and long term.

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