THE BANKING SYSTEM – "LIMPING" TOWARD A SUSTAINABLE FUTURE. IS GREEN FINANCE A "THING" IN ROMANIA AS OF MARCH 2023?

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Abstract
Green finance became a trending topic in the European Union after the 2015 adoption of the Paris Agreement, which acknowledged in Article 2 the relation between the "financial flows" and investment projects promoting "low greenhouse gas emissions and climate-resilient development". Banks are uniquely positioned to direct financial flows toward these projects as they are the leading financial intermediaries in the European Union[1]. In this context, to understand where banks in Romania stand as of March 2023 in innovating financial products that are included in the green finance sector of the financial markets (and, in a few cases, in the social or sustainable finance sectors), I systematically reviewed public information on each bank's website, sustainability reports (where available), press releases and a financial products consolidation website (www.conso.ro). I found that banks in Romania are "limping" toward a sustainable future because (1) only half of the commercial banks manufactured and distributed at least one green financial product, (2)

[1] As of 2020, the assets in the banking system of European Union (EU) Member States accumulated to approximately 300% of the EU's GDP. The banking sector represents the most significant financial intermediary, but the non-banking financial sector has been growing steadily with the accumulation of assets in pension funds, mutual funds, insurance firms, etc. https://ec.europa.eu/eurostat/cache/digpub/european_economy/bloc-3d.html?lang=en.

many banks ticked the green financial products checkbox with the low-hanging fruit of providing loans for newly built houses which, due to EU-level regulation, should be energy efficient just because they are new and (3) only two banks engaged in issuing green/sustainable bonds.

Based on the findings from this article, the answer to the question in the title is "Yes, but…". In the last 6 years, banks in Romania have slowly adopted green, social, and sustainability-labeled financial products and started "greening" their balance sheets. These special-purpose products accelerate the directing of financial flows toward companies and projects aligned with the Paris Agreement objectives. However, the stock of green financial products is below potential and further research is needed to understand how much greenhouse gas emissions are avoided by banks' efforts and how the banking sector mitigates greenwashing and conflicts of interest risks.

Keywords

Commercial banks; green bonds; green finance; green loans; European Union; Romania

1.INTRODUCTION

Banks are critical stakeholders in advancing the sustainability agenda and the shift of funding from conventional to the green economy[1] because they hold the dominant position in overall financial intermediation across the European Union (Cappiello et al. 2021, 9). The banking sector (commercial banks) leads

[1] UN Environment Programme (UNEP) defines a green economy "as low carbon, resource efficient and socially inclusive. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services." https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy.

financial intermediation[1] in Romania. The non-banking financial sector (pension funds, mutual funds, private equity funds, insurance firms, etc.) has grown steadily during the last 10 years but continues to be small-scale. As of Q3'2022, 76.5% of all assets in the Romanian financial system[2] were held by approximately 30 credit institutions that provide direct financial services in Romania: 24 commercial banks registered in Romania and another 6 subsidiaries of foreign banks.

Considering the systemic importance of the banking sector for the financial system and the objective outlined in Article 2[3] of the Paris Agreement[4] of shifting financial flows toward "low greenhouse gas (GHG) emissions and climate-resilient development", I researched if the Romanian banking sector manufactured and started distributing financial products aligned with green finance definitions (covered in chapter 2 of this article). For this, I conducted a systematic review of public information on each bank's website, sustainability reports (where available), press releases and a financial products consolidation website (www.conso.ro) to find green financial products. I also considered the

[1] In a broad sense, financial intermediation refers to linking an investor and borrower or someone with available funding with someone who needs funding. An intermediary is acting as a middleman between these two parties. Intermediaries are commercial banks, mutual funds, pension funds, etc.

[2] Data provided by the National Bank of Romania in the December 2022 report on financial stability developed by the Financial Stability Department (Raport Asupra Stabilitatii Financiare decembrie 2022) https://www.bnro.ro/DocumentInformation.aspx?idDocument=41912&idInfoClass=19966

[3] Article 2 c) states one of the objectives of the Paris Agreement: "[m]aking finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development." unfccc.int

[4] "The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on the 4th of November 2016. Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." However, in recent years, world leaders have stressed the need to limit global warming to 1.5°C by the end of this century." unfccc.int

other potential labels, such as social financial products, sustainability or sustainability-linked financial products.

I found that half of the banks in Romania developed green mortgages, green loans and even social loans. Two banks issued green and sustainable bonds. Green products manufacturing is not normalized across the banking sector, and until March 2023, some banks have not designated any financial product as green, sustainable or social. Some banks have designated only one financial product as green: the green mortgage. This might have been enabled by regulatory developments such as the regulation on the energy performance of buildings (imposing nearly zero energy building standards or NZEB standards)[1] and the EU Taxonomy[2]. While on the assets side of the banks' balance sheet there is some innovation with green financial products, on the liabilities side, only two banks issued green and sustainable bonds.

As of the end of 2022, according to a survey of the National Bank of Romania, the stock of financial assets explicitly designated "green" was approximated at 1.5% (EUR 2 billion) of the total stock of bank assets (Direcția stabilitate

[1] I am referring here to the Energy Performance of Buildings Directive from 2010 (Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings). NZEB law was enforced across the EU in 2019 and the implementation norms were ready in Romania in 2023 RA Monitorul Oficial. 2023. 'Metodologie de calcul a Performantei Energetice a Cladirilor, Indicativ Mc 001-2022'. 2023. https://monitoruloficial.ro/e-monitor/.

The European Commission is already working on a revision to the NZEB regulation, proposing the Zero-Emissions Buildings (ZEB) as a step forward https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6683

[2] "The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. It could play an important role in helping the EU scale up sustainable investment and implement the European Green Deal. The EU taxonomy would provide companies, investors and policymakers with appropriate definitions for which economic activities can be considered environmentally sustainable. In this way, it should create security for investors, protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed." https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en

financiară, National Bank of Romania 2022, 39). The loans went to funding the acquisition of green houses (42% of total loans), investments in electricity, heating, cooling systems (24%), investments in energy efficiency (13%) and other investments meant to support the climate change fight. At the same time, according to a report issued by the National Committee for Macroprudential Supervision (Comitetul Național pentru Supravegherea Macroprudențială), green loans summed up to approximately EUR 1 billion as of March 2021, so the stock doubled by the end of 2022. The report estimated that the overall share of green assets in the portfolio of the Romanian banking sector was, as of the middle of 2021, around 3 percent (generated by green and non-green financial products) (Bocse et al. 2022, 12), significantly less than the EU average of 7.9% as of the end of 2020 based on a survey conducted by European Banking Authority. The potential for green financing is placed by the same report at EUR 60 billion by 2030, creating important funding opportunities for the banking sector.

This research shows that the banking landscape in Romania is very diverse when it comes to adopting green finance, with some banks being preoccupied with adopting it in their loans granting activities (assets side), others trying to add green products to both assets and liabilities sides of the balance sheet, while others remaining outside the efforts of manufacturing/issuing green products although, out of these, some might provide funding to EU Taxonomy aligned activities but in the form of conventional products. Research on green finance is limited and green finance driven by the banking system is almost absent from academic literature. This raises many gaps in understanding how banks acknowledge their role in advancing sustainable development. The banking sector can act for climate-resilient development only if greenwashing and conflicts of interest risks are mitigated. Greenwashing, according to the EU Taxonomy[1], "refers to the practice of gaining an unfair competitive advantage by marketing a financial product as environmentally friendly, when in fact basic environmental standards have not been met." Among other measures,

[1] The definition of greenwashing is available on page 14 of the EU regulation 2020/852: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852.

greenwashing risks can be mitigated by harmonizing the definitions of economic activities and financial products designated green (e.g., the EU Taxonomy), by improving reporting and transparency around non-financial factors (e.g., Corporate Sustainability Reporting Directive[1]) or by adherence to industry standards advancing good practices and sharing of practices among members (e.g., Net-Zero Banking Alliance[2]).

2. GREEN FINANCE, WHAT IT IS AND WHY IT MATTERS

2.1. Literature review addressing the main relevant concepts: green finance, green financing, greening finance, climate finance, sustainable finance

The "Green and sustainable finance"[3] Briefing of the European Parliament distinguishes between "greening finance" and "green financing". "Greening finance", as in "greening the financial system", "corresponds to the diffusion of new tools, procedures and regulations aimed at inducing the financial system to take due account of climate and environmental considerations in financial risk management and, consequently, in investment decision-making" (Spinaci 2021, 3). "Green financing" or shorter "green finance" refers to funds directed toward enabling the greening of the economy or the transition to a green economy[4]. Green financing aims to increase "the level of financial flows toward green investment" (Spinaci 2021, 5). While the first definition targets the financial system and how it can and should manage the climate and environmental risks

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1 Corporate Sustainability Reporting Directive, the link to eur-lex portal: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0189.

2 More on Net-Zero Banking Alliance: https://www.unepfi.org/net-zero-banking/

3 European Parliamentary Research Service, Green and sustainable finance https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/679081/EPRS_BRI(2021)679081_EN.pdf.

4 I made this distinction between funds aimed to green the economy and funds aimed at enabling the transition to a green economy to capture the two types of activities considered by the European Union Taxonomy: enabling and transition activities. ('Questions and Answers: political agreement on an EU-wide' n.d.).

for building resilience, the second definition reflects the financial system's role in the economy and in meeting the net-zero emissions objective of 2050[1]. For this article, I will work mainly on the spectrum of the second definition: green financing (verb) and green finance (noun).

One of the first definitions of green finance was given in 2011 “broad term that can refer to financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy” (Höhne et al. 2011). Similarly, Berensmann and Lindenberg (2016) discuss of green finance as (1) financing of public and private investments aligned with sustainable objectives and (2) the “public policies that support green initiatives”. They propose that for green finance to replace traditional financing gradually, multiple conditions must be met, from the common ones specific to any financing activity, such as maintaining an environment that supports business initiatives, to the specific ones referring to clear definitions of “green”, development of standards, rules, principles and regulation to be followed in manufacturing and distributing green financial products and services and an integrated approach across the economy and financial markets. The same authors identify the main actors in greening the financial sector as the “institutional investors, international financial institutions (IFIs), regulatory authorities, and central banks” (Berensmann and Lindenberg 2019).

The role of the financial sector in greening the economies is theoretical or implicit as of the beginning of 2023 due to multiple limitations and constraints in measuring, regulating and aligning all the stakeholders. Among the financial market participants, central banks are considered one of the most critical actors in advancing the greening of the economies because they can (1) make decisions impacting the financial system and the economy, (2) act to encourage sustainable investments via their policies targeting banks and (3) put their

[1] Net-zero emissions objective or carbon neutrality by 2050 is an objective set by the EU and the EU Member States (some setting more ambitious deadlines than 2050) to reach a zero-sum balance between emitting carbon and removing carbon from the atmosphere (by carbon sinks and sequestration).

expertise into encouraging behavioral changes (Spinaci, Höflmayr, and Hofmann 2022). However, Șimandan and Păun (2021, 22) argue that when considering costs and tradeoffs, having central banks participate in the fight against climate change is not as simple as the existing literature proposes. Most central banks are mandated to target price stability. Considering the challenge of climate change in their actions and decisions should be weighed carefully. While central banks are equipped to intervene in both greening finance via prudential policies enforcement and green financing via incentives to banks under their watch to provide funding to climate-aligned projects (Campiglio and Ploeg 2021, 15–17), acting outside their price stability mandate might lead to loss of independence, loss of reputation and ideological reorientation which could fuel higher inflation so an outcome opposite to the original mandate of the central bank (Șimandan and Paun 2021, 14).

The Intergovernmental Panel for Climate Change (IPCC) Sixth Assessment Report[1] highlights that "market-oriented policies, such as carbon taxes and green finance, can promote low-carbon technology and encourage both private and public investment in enabling transitions." The report mentions robust evidence with a high agreement between researchers regarding availability and access to finance are among the "major barriers to GHG emissions mitigation". The role of financial supervisors and central banks is underlined in relation to "greening finance" (i.e., mitigating the potential material financial impacts of climate change on the financial sector) (Shukla et al. 2022, 516; 1584; 1987).

Concerns regarding the role in advancing green finance might also be voiced for the commercial banks. Extending the definition of optimal capital allocation between projects to include sustainability criteria might push banks too far from their role as financial intermediaries. A study covering a sample of Japanese public companies and banks showed, on a sample of loan-level data from 2006 to 2018, that bank lending to firms with higher GHG emissions has significantly decreased (Takahashi and Shino 2023) because banks in Japan have already

[1] The IPCC Sixth Assessment Report is available here: https://www.ipcc.ch/report/ar6/wg3/.

adjusted their role as financial intermediaries by halting funding to companies with high GHG emissions business models. Still, things might not be straightforward and the role and challenges of those high GHG emitting companies should be assessed. It should not be assumed that projects/companies with low GHG emissions are default-risk-free or higher-value companies. Some companies will always go bust; that is normal and, to some degree, healthy (Schumpeter 1943)[1].

Moreover, "runs"[2] on brown assets, referring to the risk of having no bank willing to fund projects and businesses that are not "green", threaten the stability of the financial system and might require special regulatory mechanisms to prevent a hazardous divestment of brown assets (Jondeau, Mojon, and Monnet 2021). Also, should banks and investment funds drop brown assets in sync, there is not a big enough universe of investable sustainable assets to which to shift the funding and the level of the resulting stranded assets would put the financial system and real economy at risk (Sen and von Schickfus 2020; Bolton et al. 2020).

Green finance has been defined differently in different papers, regulations, or industry-led standards. Also, the definition has been refined and altered throughout time. The "green" label has been placed before various financial concepts and instruments to show their relations with green finance. This led to the development of green bonds, green mutual/pension/private equity funds, green cards, green loans, ESG scoring for companies etc. Reviewing the definitions and the role of "green finance" is a complex exercise as non-conventional (besides profit-generating) finance initiatives also fall under the definitions of "climate finance" and "sustainable finance". Environmentally friendly projects, such as those related to renewable energy generation, avoidance of carbon emissions or carbon capture and storage, fall either in the

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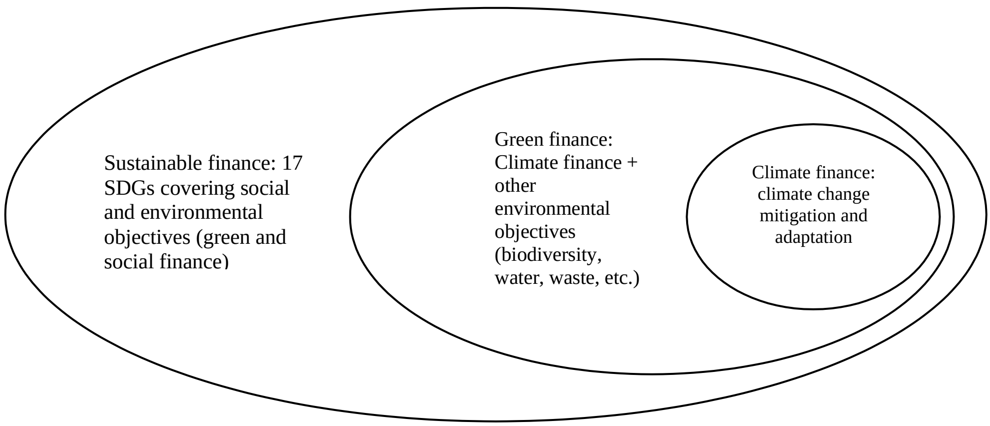
[1] A study on Romania for the period 2010-2020 showed that the "probability of default is 10 percent lower for companies with green loans compared with the rest of companies financed by banks" (Dragu et al. 2021).

[2] The term defines the fire sale of assets under stress conditions, in large volumes and in a short time.

narrower category of climate finance, referring to climate change mitigation and adoption activities, or in the extended category of green finance. Climate finance should not be used interchangeably with green finance, which is a broader category, including climate finance, but not limited to it. Besides climate finance, green finance also provides funding for "other" environmental objectives like biodiversity protection and conservation, water sanitation and conservation, waste processing, etc. (Höhne et al. 2011, 7).

Figure 1 – Relation between sustainable, green and climate finance



Source: Own representation

The Paris Agreement proposed "climate finance" as one of the funding sources needed for mitigation and adaptation to climate change. Climate change mitigation refers to investments in large-scale projects that reduce GHG emissions. Adapting to climate change implies financial resources that support the fight against the impact of adverse weather and extreme climate variability. Ozili (2022) investigated literature differences between green finance terminology across continents and found that "climate finance" is a terminology preferred in Africa and Europe, while "sustainable finance" is used across all continents. Sustainable finance is the broader term relating to the Sustainable Development Goals[1] (SDG). Projects that support specific goals of the 17 United Nations' SDGs could qualify for sustainable finance funding. These projects address social (people) or green objectives (planet) or both social and green objectives, leading to sustainable or sustainability-linked finance.

The rise of China as a superpower in many areas of research is well documented (Lin and Chang 2022; Xie, Zhang, and Lai 2014; Marginson 2022; Zhou 2015; Xin 2016) and potentially the same reasons identified in other fields could be relevant for the dominance of Chinese literature in green finance. I conducted a search on the Web of Science[2] and found that two-thirds of the entire literature on "green finance" relates to China. I limited the usage of literature relating to China where possible as the EU and, consequently, Romania adopted practices and regulations specific to the bloc or international standards, whereas China relies more on nationally developed standards.

As seen in Table 1, the co-occurrence of "green finance" and "banking" is very limited in the existing literature (March 2023), with just 210 papers covering both subjects and half the papers relating to China, while only 8, respectively 12, discussing Europe and European Union. As "sustainable finance" and "climate finance" represent the broader, respectively narrower aspects of "green finance", I checked whether they received more coverage in the literature. Their coverage is similarly limited but more diverse as literature related to China is still significant but not as overwhelming as in the case of "green finance". This confirms the finding of Ozili (2022) regarding different regions adopting different terminologies or somehow showing interest in different subjects.

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[1] "The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity." https://www.undp.org/sustainable-development-goals.

[2] The Web of Science (WoS) is a platform/portal providing access to databases of references and citation data from academic journals, conference proceedings, etc., in various academic disciplines.

“Green finance” is a topic in more than 80% of the papers where it comes up anywhere in the text or the publications’ title. For “climate finance”, the treatment is even more strict; in more than 90% of the papers mentioning “climate finance” the notion is also a topic. “Sustainable finance” seems to be used more loosely. Only 40% of the papers mention this notion, making “sustainable finance” one of the main research topics. This consolidates the concern regarding greenwashing and that “sustainable” is a catch-all term used with limited care by researchers and those claiming to have sustainable practices or products.

Table 1 – Literature covering the concepts of “green finance”, “sustainable finance” and “climate finance” and selected countries and regions

Country – all fields	"Green finance" – all fields	"Green finance" - topic	"Green finance" all fields and banking all fields
China	750	639	109
Europe	34	29	8
European Union	32	26	12
Poland	14	13	5
Romania	**11**	**11**	**2**
Hungary	12	10	4
"United States"	11	9	0
Sweden	10	6	1
Finland	9	5	1
"Czech Republic"	7	5	1
Other	222	154	67
Total	1,112	907	210

Country – all fields	"Sustainable finance" - all fields	"Sustainable finance" - topic	"Sustainable finance" all fields and banking all fields
China	106	63	21
Europe	54	37	10
European Union	83	57	17
Poland	54	28	12
Romania	**17**	**16**	**3**
Hungary	11	5	4
"United States"	16	8	1
Sweden	38	21	2
Finland	10	7	1
"Czech Republic"	11	6	0
Other	699	221	50
Total	1,099	469	121

Country – all fields	"Climate finance" - all fields	"Climate finance" - topic	"Climate finance" all fields and banking all fields
China	81	78	16
Europe	19	13	0
European Union	53	40	9
Poland	3	2	0
Romania	**2**	**1**	**1**
Hungary	3	3	2
"United	16	13	2

States"			
Sweden	40	38	4
Finland	10	9	0
"Czech Republic"	2	2	0
Other	466	430	53
Total	695	629	87

Source: Web of Science, author's screening

Literature covering green finance and the banking sector is still developing and limited. A meta-review study found that the UK is leading in contribution to research on green finance in banking institutions (11 researchers from 8 institutions), followed by Italy (18 researchers in 12 institutions), and other researchers from the Netherlands, Spain, France, Germany, Poland, and Luxembourg (Akomea-Frimpong et al. 2022, 8). As highlighted in Table 1, Romania is aligned with neighboring countries where mentions of green, climate or sustainable finance and banking render few to no articles. As of March 2023, the development of literature regarding green finance in Romania comprises efforts from the National Bank of Romania and Comitetul Național pentru Supravegherea Macroprudențială, reports issued by Big4[1] advisors or individual efforts of banks and other nonfinancial companies. The academic literature on this topic is limited. Romanian authors wrote two papers on the topic, but they refer to central banks (in general) and developments of green financing in the USA, Canada and Brazil (Șimandan and Paun 2021; Batrancea et al. 2020). As the Romanian banking sector started manufacturing some green financial products, issuing sustainability reports or adhering to various international initiatives, scholars have grounds to start looking into the green "performance" of the Romanian financial sector.

[1] Big4 is a popular name given to the main global advisory and audit companies: PricewaterhouseCoopers, KPMG, Ernst & Young and Deloitte Touche Tohmatsu.

2.2. Green Finance on European Union's Environmental Policy Agenda with direct relevance for the banking sector

2.2.1. The Paris Agreement

The United Nations Environmental Program (UNEP) Emissions Gap Report 2022, titled "The Closing Window" (UNEP 2022, 65–67), addresses the way the financial system has to transform to align with Article 2 c) of the Paris Agreement (UNFCCC 2015, 3). Business as usual, is no longer an option for the financial system, which must simultaneously green itself (greening finance) for risk management purposes and contribute to greening the economy (green finance/financing). As of the beginning of 2023, the instruments to measure and assess the impact of the financial system on greening the economy are still in progress. However, the role of banks in the climate transition (Weber and Elalfy 2019) is amplified by the fact that greening the economy is a two-folded proposition: the financial system must channel funding toward green initiatives while discouraging or even halting funding that flows into the brown economy (Deichmann and Zhang 2013). The role of finance is further developed by Article 9[1] of the Paris Agreement (UNFCCC 2015, 13), which stipulates that the flow of funding must also be directed from developed to developing countries so they are not left behind in the race to fight climate change, which in many cases was not caused but their industrial activity or economic growth intensity.

Article 2 c) of the Paris Agreement maintains an intentional ambiguity on how financial flows will become "consistent with a pathway toward greenhouse gas emissions and climate-resilient development" (Zamarioli et al. 2021, 579). However, the European Commission (EC), working with the European Securities and Markets Authority (ESMA) and the European Banking Authority (EBA), put significant efforts into drafting regulations aimed at clarifying and

[1] Article 9 of the Paris Agreement states: "Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention."

advancing the role of the financial system in allocating funding for sustainable development. To list some of these EU-broad efforts:

- EU Taxonomy (Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088)
- Sustainable Financial Disclosure Regulation (SFDR) (Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector)
- Corporate Sustainability Reporting Directive (CSRD) replacing Non-Financial Reporting Directive (NFRD) (Proposal for a Directive of the European Parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting).

2.2.2. *The European Union Taxonomy and the Green Assets Ratio - first "sustainability" Key Performance Indicators[1] (KPIs) for the banking sector*

The introduction to the EU Taxonomy[2] mentions: "In view of the scale of the challenge and the costs associated with inaction or delayed action, the financial

[1] According to kpi.org, "Key Performance Indicators (KPIs) are the critical (key) quantifiable indicators of progress toward an intended result. KPIs provide a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most."

[2] "The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. It could play an important role [in] helping the EU scale up sustainable investment and implement the European Green Deal. The EU taxonomy would provide companies, investors and policymakers with appropriate definitions for which economic activities can be considered environmentally sustainable. In this way, it should create security for investors, protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed." https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en.

system should be gradually adapted to support the sustainable functioning of the economy. To that end, sustainable finance needs to become mainstream, and consideration needs to be given to the sustainability impact of financial products and services." To enable the gradual tilt of the financial system toward sustainable projects, Article 8 of the EU Taxonomy established mandatory non-financial disclosures, which require that credit institutions periodically report the proportion of taxonomy-aligned assets compared to the total assets, the so-called green assets ratio – GAR, and the proportion of capital expenditures (CapEx) and of operations expenditures (OpEx) associated with economic activities considered sustainable from an environmental and social perspective.
GAR is meant to be a KPI for the banking sector and one of the first measures to provide information regarding the sustainability profile of credit institutions. The first disclosure of the GAR is due in January 2024, when EU banks will publish their GAR for the financial year 2023 (de Wergifosse 2023). The banking sector will likely have to comply with minimum GAR thresholds, which will then be increased based on a schedule. The complexity of the GAR methodology (Brühl 2023) and the fact that the EU Taxonomy has fully developed only two of the six objectives (climate mitigation and adaptation) as of March 2023 lead to the conclusion that GAR will be further refined.

3.THE COMMON DENOMINATORS: GREEN AND SUSTAINABLE FINANCIAL PRODUCTS

3.1. "Green" looks good on every financial product!

In the first chapter of this article, I highlighted what represents relevant elements for understanding green finance. I define key elements of green and sustainable financial products in this second chapter. As mentioned, academic literature is developing. This field of research could be considered less than 10 years old as adopting climate/green/sustainable finance, although not new solutions for the financial markets, accelerated after the 2015 Paris Agreement. I am reviewing relevant green financial products and concepts to create a common denominator for the research and the findings.

3.1.1. Financial Intermediaries (FIs)

European Central Bank (ECB) defines financial intermediaries[1] (FIs) as credit institutions and non-credit institutions (mainly money market funds) whose business is to receive deposits from entities other than Monetary Financial Intermediaries (ECB and National Central Banks) and to grant credit and/or invest in securities. European Investment Bank (EIB) determines financial intermediaries to be "including, but not limited to, commercial banks, national/regional promotional banks, leasing companies and other financial institutions, funds and microfinance institutions". These are the market participants providing green finance for the economy.

A special kind of FI is the Supranational, regional and multilateral financial institutions. These institutions are "created on the basis of interstate (international) agreements in international finance". Some important financial institutions to mention here would be the World Bank and its financing arm, the International Finance Corporation (IFC), the European Bank for Reconstruction

[1] Full definition of financial intermediaries according to European Central Bank: (1) Monetary Financial Intermediaries: MFIs, include the Eurosystem (ECB and the NCBs of those countries that have adopted the euro), credit institutions and non-credit institutions (mainly money market funds) whose business is to receive deposits from entities other than MFIs and to grant credit and/or invest in securities and (2) Other Financial Intermediaries: OFIs, a corporation or quasi-corporation other than an insurance corporation and pension fund that is engaged mainly in financial intermediation by incurring liabilities in forms other than currency, deposits and/or close substitutes for deposits from institutional entities other than MFIs, in particular those engaged primarily in long-term financing, such as corporations engaged in financial leasing, financial vehicle corporations created to be holders of securitised assets, financial holding corporations, dealers in securities and derivatives (when dealing for their own account), venture capital corporations and development capital companies. https://www.ecb.europa.eu/mopo/eaec/intermediaries/html/index.en.html.

and Development (EBRD), the International Bank for Reconstruction and Development (IBRD), the Asian Development Bank and EIB.

3.1.2. ESG ratings/scoring

In the equities section of the financial market, the equity instruments are assessed in terms of the issuer's (company) performance rather than the equities themselves, so technically, there are no "green stocks" but "highly performing companies on non-financial metrics". For equities markets, the labeling reflects three, four, or five dimensions of sustainable performance, not just the "green" dimension. This is either the "classical" ESG scoring or ranking of companies, the extended ESG composed scoring or ranking including Controversies[1] or the further extended ESG&C with the long-term perspective of the companies[2]. Romanian and global companies can opt for contracting an ESG rating provider or ESG rater to determine their ESG rating/scoring (Sustainalytics, MSCI, S&P, etc.). There are also ESG raters not contracted by the company (Refinitiv). Some Romanian companies have ESG ratings with Sustainalytics and Refinitiv; among these, two publicly listed banks are available in Table 3.

ESG scoring/rating is subject to critical scrutiny and its role in informing investment decisions is mixed. Studies found that disparities between ESG ratings assigned by different rating providers are high (Prall 2021; Berg, Kölbel, and Rigobon 2019), limiting their capacity to inform which company has lower

[1] According to Sustainalytics' definition, Controversies consolidate information on whether companies are "involved in ESG-related incidents. These incidents are assessed through a framework that considers the severity of incidents, the corporation's accountability and whether they form part of a pattern of corporate misconduct."

[2] Besides E, S and G, agency raters consider a company's long-term approach to conducting business. One of the commonly used methodologies is McKinsey's Corporate Horizon Index. McKinsey showed that there is "hard evidence that short-termism genuinely detracts from company performance and economic growth has remained scarce". https://www.mckinsey.com/~/media/mckinsey/featured%20insights/long%20term%20capitalism/where%20companies%20with%20a%20long%20term%20view%20outperform%20their%20peers/mgi-measuring-the-economic-impact-of-short-termism.pdf.

ESG risks. Company CEOs are not better off either receiving mixed messages from different ESG raters and not knowing what to do (Stackpole 2023). There is also confusion regarding what these ratings are informing about. Most ratings are not looking to inform about good or poor companies in terms of ESG practices but rather to inform investors on which company has higher ESG risks than the industry average[1]. ESG ratings are not regulated and represent nonbinding opinions and the fact that they can be "bought" by the subject companies raises important conflict of interest concerns. Most raters do not publish full details on how they decided on a certain ESG rating for a company, making this kind of data fee-liable and unavailable to the public.

3.1.3. Green loans and green mortgages

At the European Union level, green loans (from green credit cards to home equity loans, auto loans, loans for energy efficiency investments, etc.) and green mortgages still need to be defined. In November 2022, EBA received a Call for Action from the European Commission to work on defining green loans and mortgages and align this sustainable finance section with the EU Taxonomy. Until the 7th of April 2023, EBA conducted an industry survey "to receive input from credit institutions on their green loans and mortgages as well as market practices related to these loans". This effort to clarify what constitutes green loans and mortgages, together with the EU Green Bonds Standard[2] proposal, ties together with the EU Taxonomy to create a uniform sustainable finance sector of the financial market.

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[1] Sustainalytics: "The ESG Risk Ratings can help investors to identify, understand and manage ESG risks at the security and portfolio level with the aim of improving the long-term performance of their equity and fixed income securities." https://www.sustainalytics.com/esg-ratings

[2] The EU Green Bond Standard (EU GBS) would require issuers of bonds labeled green "to ensure that at least 85% of the funds raised by the bond are allocated to economic activities that align with the Taxonomy Regulation." https://ec.europa.eu/commission/presscorner/detail/en/mex_23_1301

The absence of the definitions did not impede the financial sector from designating and marketing various financial products such as green loans and mortgages. This is a good sign showing that the sector is ready to act for sustainability, but it also raises important greenwashing[1] concerns. In the funds industry, SFDR regulation implementation led to many funds that claimed to have a "green" or "sustainable" mandate having to retire their labels. Hopefully, history will not repeat itself and clarifying what is a green loan or mortgage will not generate the removal of the label from already manufactured and sold banking products.

3.1.4. Green bonds

The EC is trying to clarify what is a green project eligible for funding with green bond proceeds with the help of the EU Taxonomy. The EC worked on putting together an EU Green Bonds Standard, which still needs to be adopted. Based on the definition provided by the International Capital Market Association (ICMA) in The Green Bonds Principles (GBP) in 2014, the principles largely followed by issuers (not in China and India where the issuers follow local regulation), green bonds are "bond instrument[s] where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects". The first green bonds were issued in Romania by two banks in 2021. Since then, one of the banks has also issued sustainability bonds (meeting both green and social criteria). The proceeds were used for projects targeting access to

[1] The definition of greenwashing is still developing and one highly accepted is the one provided by the EU Taxonomy, https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en. One of the first broad definitions of greenwashing was proposed by TerraChoice "the act of misleading consumers regarding the environmental practices of a company or the environmental performance and positive communication about environmental performance." https://www.ul.com/insights/sins-greenwashing

essential services, clean transport, eligible green projects and higher education. All issued bonds are still outstanding, and it is early to assess their impact.

3.1.5. Green mutual funds/ pension funds/ private equity funds

The European Union established through SFDR the level of adherence to sustainable investing objectives for the funds industry. Funds are deemed to fall under three categories, notoriously called Articles 6, 8 and 9 (SFDR 2019, 317:10–13). Funds falling under Article 6 do not claim to have an explicit mandate of investing sustainably, funds falling under Article 8 look to promote sustainable investing, while funds claiming to be aligned with Article 9 invest in products explicitly designated sustainable. In Romania, the pension funds claim to fall under Article 8 due to negative screening[1] investment style; this represents the most basic and limited in scope form of sustainable action as pension funds are not allowed to invest in "sin stocks" such as gambling, adult services, tobacco, alcohol, weapons.

In 2022, OTP Asset Management in Romania launched the OTP Innovation Fund[2], which is aligned, according to the funds' administrator, to Article 9. Raiffeisen Asset Management in Romania manages two funds aligned with Article 8, Raiffeisen Sustainable Equity and Raiffeisen Sustainable Mix[3]. Goldman Sachs BV Haga – Sucursala Bucureşti distributes various funds with

[1] Negative screening is broadly the process of finding and excluding stocks of companies whose operations are seen as "unsustainable" from an environmental, social or governance (ESG) standpoint (https://corpgov.law.harvard.edu/2022/08/08/does-esg-negative-screening-work/).

[2] More on the OTP Innovation fund: https://www.otpbank.ro/en/about-otp-bank/news-and-events/OTP-Asset-Management-Romania-has-launched-OTP-Innovation.

[3] More on the Raiffeisen Asset Management funds: https://www.raiffeisenfonduri.ro/investitii/solutii-sustenabile/.

"Sustainable" or "Climate"[1] labels mentioned in their name and investment mandate, and the list of funds offering can continue. How sustainable the funds industry is will be determined in the coming years. Due to significant regulatory pressure to tighten the criteria for what qualifies as ESG-compliant funds and due to increased suspicions of greenwashing in the funds' industry, MSCI, one of the largest indexes manufacturers and ESG ratings provider, announced in March 2023 an enhancement to their ESG funds rating methodology (MSCI 2023) that is estimated to lead to the downgrade of over 30,000 funds labeled ESG funds (Financial Times, Johnson 2023).
Although not a direct research topic in this paper, understanding the readiness of the Romanian funds industry to align with ESG requirements is critical. The funds industry is a shareholder in Romanian companies and can act as a steward in bringing companies in alignment with ESG practices. The funds industry is one of the main green, sustainable, ESG, etc. bonds buyers.

4. RESEARCH METHODOLOGY & FINDINGS

After going through the definition of green finance, understanding the EU's efforts and initiatives targeting the financial system and creating the common denominators for what are the green or sustainable (meeting green and social criteria) financial products, I will elaborate in the following regarding the financial products developed in the Romanian market.
The methodology used in this article consists of a systematic qualitative review and comparison of all financial products designated green, social or sustainable in the Romanian financial market to understand how spread the practices among the Romanian financial intermediaries are and if there are differences in pricing between sustainable and conventional financial products. I considered a sample of 27 commercial banks; the list is available in Table 2. BCR Banca pentru

[1] More on the Goldman Sachs BV Haga funds: https://www.gsam.com/responsible-investing/ro-RO/non-professional/funds.

Locuințe and Aedificium Banca pentru Locuințe were removed from the sample due to having a particular business of housing-and-savings contracts (familiarly known as Bauspar-loans from the German "Bausparvertrag"). Also, their activity is currently at a standstill due to the need for regulatory clarification. I also removed CREDITCOOP, a group of cooperative banks, again with a very specific business model.

4.1. Romanian financial system – engaging in the global effort of greening the economy

To set the ground for the research, I first screened the banking sector to evaluate the adherence to global best practices and alliances. Due to its role in the economy, the financial system is under the spotlight. Finance companies stood ready from early 2000 to manufacture financial products aiming initially at reducing GHG emissions and then expanding to other objectives. The United Nations Environmental Program Finance Initiative (UNEP FI) created the Net Zero Banking Alliance (NZBA)[1]. The signatories of NZBA follow six principles[2] aligned with sustainable finance. These principles cover impact assessment of financial products, setting sustainability-related targets and improving reporting. NZBA gathers over 40% of all global banking assets[3].

Out of 24 banks established as Romanian legal entities[4], only one Romanian bank is a direct signatory to NZBA – Banca Transilvania as of January 2022 (UNEP FI 2023). This situation is similar in neighboring countries; Poland, Bulgaria, Czech Republic and Hungary have only 1 or 2 signatory banks.

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[1] More on the Net Zero Banking Alliance: https://www.unepfi.org/net-zero-banking/

[2] More about the NZBA principles: https://www.unepfi.org/banking/more-about-the-principles./

[3] Based on their reporting available here: UNEP FI, accessed April 2023: https://www.unepfi.org/net-zero-banking./

[4] Source: Fondul de Garantare a Depozitelor Bancare, accessed April 2023: https://www.fgdb.ro/pagini/unde-asiguram.

However, among the international signatories of NZBA, we also find banking groups with subsidiaries in Romania (ING, Citi, BNP Paribas) or the mother banks of Romanian entities (Société Générale, Erste Group Bank SA, BBVA Group, Unicredit, Raiffeisen Bank International AG, Alpha Bank, OTP Bank, Intesa Sanpaolo, ProCredit Holding). The quality of transmitting the NZBA principles from banking groups to their subsidiaries or local entities is beyond the objective of this research. However, it is relevant to highlight that besides Banca Transilvania (the largest Romanian bank by assets size), which became a direct signatory, the other Romanian banks by source of capital have not adhered to global standards and manufactured one or no green financial products: CEC Bank, EXIM Bank, Patria Bank, Banca Română de Credite şi Investiții, Techventures Bank.

Another adherence worth mentioning is that to The Central Banks and Supervisors Network for Greening the Financial System (NGFS)[1], an initiative bringing together the financial markets regulators from various countries. Both the National Bank of Romania (NBR) and the Financial Supervisory Authority (FSA) have been signatories since 2020, respectively, 2021 (NGFS 2023).

3.2. Systematic review of all financial products designated green, social or sustainable in the Romanian financial market as of March 2023

3.2.1. Green financial products available in the Romanian financial market

To identify the financial products designed green, social, and sustainable by each bank in Romania, I screened public information on each bank’s website, sustainability reports (where available), press releases and a financial products consolidation website (www.conso.ro).

The green products identified were:

- green and sustainable bonds issued during 2021-2023 by two Romanian banks and a small tranche of an issuance of a car renting

[1] More on NGFS: https://www.ngfs.net/en.

company (green financial products manufacturing for "green" borrowing, the green and sustainable bonds represent liabilities for banks)

- green mortgage loans granted by banks to clients, private individuals and companies for the purchase/building of green homes or commercial centers (green financial products manufacturing for "green" lending, green mortgages represent assets for banks)
- various forms of green loans to fund renewable energy projects, clean transport projects, sustainable agriculture practices or purchases of energy-efficient electronics and appliances (green financial products manufacturing for "green" lending, green loans represent assets for banks)
- social loans granted to support individuals with health or other temporary difficulties (social financial products manufacturing for "social" lending, social loans represent assets for banks). Here, the manufacturer of these loans is mainly a non-banking financial institution, BCR Social Finance[1], a special vehicle of the ERSTE group.

As revealed in the research, green and social financial products made their way to both sides of the banks' balance sheet as assets with green loans and mortgages and social loans and as liabilities with the issuance of green and sustainable bonds. Table 2 shows that banks were more active on the assets side, while only two banks impacted their liabilities. Many factors could be the subject of research meant to explain this asymmetry in acting for sustainability. I am advancing some hypotheses:

- potentially, the fact that GAR comes into force in 2024 created some sense of urgency for the banks to develop explicitly labeled "green" assets. However, GAR holds no contingency to the explicit labeling and conventional loans could qualify as green assets as long as these loans

[1] More on BCR Social Finance: https://www.bcr-socialfinance.ro/ro/cine-suntem.

fund eligible activities according to EU Taxonomy, for example, renewable energy projects

- very few banks in Romania have experience with bond issuances and, due to favorable market conditions (low interest rates), very few had to develop the expertise needed in issuing bonds. However, some banks issue conventional bonds and have not issued green, social or sustainable bonds
- Green and sustainable bonds are a novelty for the Romanian market, not just for the banking industry (only three issuers). At this point, assessing the costs of issuing non-conventional bonds and the investors' appetite for holding these bonds is difficult
- Romania does not have a sovereign green bond or sustainable bond issuance, so whoever issues these products does it "blindly" without a sovereign benchmark
- Loans generation was bolstered by developments in real-estate regulation, EU funding supporting the renewable energy sector, funding going into bio farms, funding that came as a response to the COVID-19 crisis, etc., so significant development in green and social financing was a spillover effect of developing regulation and practices across the economy and society

Table 2 – Green financial products available in the Romanian financial market, March 2023 (market share by assets as of 2022)

Commercial Bank (Romanian legal entity or foreign branch)	Market share by assets	Green bond issued	Green mortgage loan	Green energy loan	EV and hybrid cars loan	Green credit card	Bio agriculture	Social loans	Number of products offered
Banca Transilvania	20%		YES	YES	YES	YES			4
Banca Comercială Română (BCR)	14%	YES	YES	YES	YES			YES	5
BRD - Groupe Société Générale	10%		YES	YES	YES	YES			4
ING Bank N.V., Amsterdam - Sucursala Bucureşti	9%				YES				1
Raiffeisen Bank SA	9%	YES	YES	YES			YES		4
CEC Bank	8%		YES						1
UniCredit Bank	8%		YES	YES					2
Banca de Export-Import a României EXIMBANK	3%								0
Alpha Bank România	3%		YES						1
OTP Bank România	3%								0
BNP Paribas Fortis SA/NV - Sucursala Bucureşti -	<1%			YES		YES			2
Garanti Bank	<1%		YES	YES					2
Libra Internet Bank	<1%		YES	YES					2
First Bank	<1%		YES	YES					2
Vista Bank	<1%		YES						1
Procredit Bank	<1%			YES	YES				2
Patria Bank; Banca Comercială Intesa Sanpaolo România; Credit Europe Bank (România); Citibank Europe plc, Dublin - Sucursala România; Banque Banorient France - Sucursala România Alior Bank SA Varşovia - Sucursala Bucureşti Banca Română de Credite şi Investiţii Idea Bank; Porsche Bank România; TBI Bank EAD Sofia - Sucursala Bucureşti; Techventures Bank	<1%								0

Source: Own findings based on public data review

Romanian banks show mixed performance in adopting green products. Empirical findings suggest a relationship between a bank's capacity to borrow (via green or sustainable bonds) or lend (via green and social mortgages and loans) and the size of the bank (market share by assets). Larger banks were among the first to manufacture green products or issue green/sustainable bonds; smaller banks with less than 1% market share are least likely to have developed at least one green financial product. Banks that are only subsidiaries in Romania (not Romanian legal entities) are not leading the way in sustainable product manufacturing and adoption. However, their foreign headquarters have developed portfolios of sustainable products (ING Bank NV, Citibank, BNP Paribas). All banks in Romania fund activities aligned with the EU Taxonomy (such as a loan to finance a photovoltaic park or purchase a newly built house). However, not all banks explicitly promoted these loans as green or sustainable.

This opens the opportunity for researching the causes of why some banks decided not to manufacture green, social or sustainable loans even when they fund activities that could be eligible.

To further findings and given the high concentration of the banking sector, I reviewed the top 5 banks in Romania. I considered selected information on ESG performance and sustainability reporting practice; I reviewed the sustainability reports and the ESG scoring/rating.

Table 3 - Selected information on ESG performance and sustainability reporting practices, top 5 banks in Romania by assets market share 2022

Bank*	Selected information on ESG performance and sustainability reporting practices
BT	Banca Transilvania (BT) – the largest bank in Romania and a public company, started using Climate Assessment for Financial Institutions (CAFI), a framework developed by the International Finance Corporation (IFC) to verify the alignment of projects the bank finances with internationally agreed-upon criteria for climate finance. In the 2021 Sustainability Report, the bank mentioned interest in funding projects in ”energy efficiency projects, smart agriculture and adaptation, efficient transport, and water efficiency” and “66 potentially eligible projects were registered in 2021, of which 56 projects were classified as "green funding” (Banca Transilvania 2022, 75). The bank also reports a very balanced ratio between exposure to eligible and non-eligible assets linked to activities aligned with the EU Taxonomy (based on assumptions). The bank is a signatory of the Principles of Responsible Banking (UNEP Finance Initiative), including NZBA. Sustainability report – Yes, the latest 2021 ESG Scoring/Rating (April 2023) - Refinitiv[1] A- ESG Combined

*by market share 2022

	Score or 83/100 or 39 out of 857 banks; Sustainalytics[2] 17.0 (low risk); 134 out of 1002 banks
BCR	Banca Comercială Română (BCR), the second largest bank in Romania and part of the Erste Group, is one of the two banks in Romania to issue green bonds. BCR grants green mortgages and funds various renewable energy, agriculture projects, etc. The bank did not prepare an independent sustainability report until 2023, but it was mentioned in the Group's one. In the consolidated sustainability report of the Erste Group, BCR/Banca Comercială Română is mentioned five times in relation to the Money School initiative (financial education), the fact that the bank employees form a union, the bank's response to the Ukrainian war and microfinance funding provided to small companies in Romania (Erste Group 2022). Via BCR Social Finance and BCR Leasing, Erste Group also provides social loans helping with the restructuring of loans for individuals or families in health or financial distress and finances EV and hybrid cars leases. Sustainability report – No, briefly mentioned in Erste Group sustainability reporting ESG Scoring/Rating –
BRD	BRD is the Groupe Société Générale banking entity in Romania. The bank is a listed company that does not prepare sustainability reports but integrates sustainability elements in the annual reports

[1] Refinitiv scoring methodology assigns a scoring scale from A to D, where A shows the best performance and D shows a defaulting (highest risk) entity, on a scale from 0 to 100 and a relative scale compared to peers from the same industry.
[2] Sustainalytics rating methodology assigns companies a risk score on a scale from 0-10 (negligible ESG risks) to 40+ (severe ESG risks). The rater also provides for a relative scoring by comparing the company's performance against peers from the same industry.

	while making different policies and practices available on the website. Since sustainability-relevant information is scattered, their performance is more difficult to assess, and the bank relies on the group for alignment with international best practices and innovation in sustainability products. Although the majority shareholder of BRD (Société Générale SA) has issued $4 billion in sustainability bonds and BRD intermediates issuances of bonds, the bank has not issued a green/ESG bond itself. Sustainability report – Yes, within the annual report and various policies disclosures ESG Scoring/Rating (April 2023) **-** Refinitiv B- ESG Combined Score or 77/100 or 85 of 857 banks
ING Bank N.V.	ING Bank N.V., Amsterdam - Sucursala Bucureşti has only subsidiary status in Romania and is not a legal entity. ING Groep NV, the mother bank of the Romanian subsidiary, has over 8 billion in issued sustainability bonds. However, the loans portfolio does not focus locally on green or socially designated products; only some loans for EVs and hybrid cars were manufactured. The 2022 Climate Report mentions plans for eco-renovation products in Romania. Sustainability report - No, briefly mentioned in ING Group sustainability reporting ESG Scoring/Rating-
Raiffeisen Bank SA	They are owned by Raiffeisen Bank International; Raiffeisen Bank issues green and sustainability bonds from 2021 under the Sustainability Bond Framework of the group. The bank offers green loans, and according to their 2021 Sustainability Report, "40% of the mortgage loans granted by the bank in 2021 financed class A energy performance buildings". The bank applies sustainability features to

	corporate credit products, loans and sustainability-related KPIs (Raiffeisen Bank SA 2022, 67). The sectors the bank targets are clean transport, energy efficiency, renewable energy and green buildings. Sustainability report – Yes, the latest 2021 ESG Scoring/Rating -

Source: Own findings after reviewing publicly available data

A survey conducted in 2020 on commercial banks in Romania (14 banks out of 27 responded to the survey, representing 90% of the bank assets as of November 2020) indicates that the main reason for adopting or planning to adopt practices related to green finance was reputation and branding, followed by industry trends and corporate social responsibility and as a fourth factor by the need to diversify the portfolio of products. Risk management (the reason behind greening finance regulations) and profitability gathered very few responses (Comitetul Național pentru Supravegherea Macroprudențială 2020, 62–64). Based on my previous work of interviewing representatives from the banking, asset management and advisory industries in Romania regarding the drivers of green bond issuances and investments, the survey misses the most important factor of all – the enforcement of regulation. In September 2022, according to a survey by the National Bank of Romania, 31% of all loans granted by banks were reported to be "green" loans, mainly for renewable energy projects and green housing (NBR 2022b, 59). NBR estimates the potential for sustainable indebtedness of the companies at RON 15 billion as of the end of 2022, while banks had in their portfolio approximately RON 5 billion in green loans and more than 50% of these loans were granted by just two banks[1]. An additional RON 4 billion of banks' assets were green loans granted to private individuals. As of the end of 2022, banks in Romania had total net assets of RON 701.4 billion (NBR 2022a). NBR started collecting information about green loans and

[1] Interview from February 2023, Florian Neagu, deputy director at the Financial Stability Directorate of the National Bank of Romania (NBR) https://greencommunity.ro/florian-neagu-bnr-credite-verzi-locuinte-sustenabile-masini-electrice/.

mortgages starting in May 2022, and the stock of green funding is approximated at RON 10 billion or less than 1.5% of total assets.

Local banks rely on their mother and sister financial groups to develop sustainability frameworks, reports, policies and products. For Romanian banks without an international financial group, the outcome is mixed. While some banks only manufactured green products for their clients (green mortgages and green loans), others also considered funding their operations with issuances of green bonds. Also, many banks remain largely absent in green products manufacturing or picked the low-hanging fruits of Nearly Zero Energy Buildings (NZEB)[1] standards coming into law in 2019, which allowed for green mortgage granting to any newly built house/apartment.

In Romania, financial products have been designated green starting in 2017 when EBRD partnered with some local banks to provide the first green loans to private individuals to purchase energy-efficient residential properties and personal loans to purchase energy-efficient goods (household appliances of a higher energy class). Greening the housing sector is crucial. The EC estimated that EU buildings are responsible for 40% of energy consumption and 36% of GHG emissions (EC 2020).

The development of green mortgages was enabled in Romania and across the EU by the NZEB standard, which became mandatory for new buildings and renovations as of 2021, although established in 2010. Since this standard became mandatory, all new buildings qualified for green mortgages theoretically, so regulation moved funding in a sustainable direction in this sector. Many Romanian banks manufactured green mortgage loans in 2020, 2021, and 2022. The methodology required by NZEB standards was enforced on the 17th of January 2023 when published in the Official Monitor (RA Monitorul Oficial 2023). The entire Romanian green mortgage market was developed before the

[1] Nearly zero-emission building (NZEB) means a building with very high energy performance, while the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/nearly-zero-energy-buildings_en.

local implementation norms. Literature is absent at this point, and the way the local developers adopted NZEB standards needs further research. I found only a few academic papers covering Eastern European countries. Still, one study covering 2019-2021 (before NZEB became mandatory) puts Romania in the "struggling countries" category together with the Czech Republic, but still better than Bulgaria, Latvia, Hungary, and Lithuania, which were assessed to be behind, while Estonia, Poland, Slovakia, Croatia were fairly aligned with NZEB requirements (Attia et al. 2022, 6).

Most Romanian banks opted to join the Romania Green Building Council[1] (RoGBC). Banks rely on RoGBC, a non-profit association, to provide an independent opinion on the energy efficiency of the houses. Some banks consider the energy efficiency certificate provided by the energy auditor and grant green mortgage loans based solely on this certificate. The board of directors and the advisors of RoGBC are representatives of various industries and academia. The existence of RoGBC unlocked the potential for green mortgages; at the same time, some of the directors and advisors are directly involved in the construction industry, banking industry, or other relevant industries for the residential and commercial real estate sector[2]. This raises risks of conflicts of interest. I could not assess how these risks are mitigated since the association's code of conduct is unavailable online or on its website. Also, although RoGBC is an independent party that certifies whether a house can be financed with a green mortgage, additional conflict of interest risks arise from the association's funding model based on members' contributions. Some members are involved in building residential and commercial real estate or granting loans for real estate purchases.

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[1] Romania Green Building Council (RoGBC) is a non-profit, apolitical association. They promote environmental responsibility and energy efficiency during the life cycle of a building (from the design phase and construction to operation and deconstruction) http://rogbc.org/ro/membri/membri.

[2] The list of directors and advisors is available here http://m.rogbc.org/ro/despre/consi liul-director.

The costs of manufacturing and distributing green or social or sustainable assets and liabilities are worth a separate research paper. For example, membership to RoGBC might cost a bank somewhere between some hundred euros annually and EUR 7,500 for a platinum membership. 8 out of 11 banks distributing green mortgages are members of RoGBC and thus incur this cost. An important cost is training and attracting qualified staff able to assess the greenness of various projects and the financial viability of projects. Preparing the sustainable finance framework and the documentation for this type of products designated green or social or sustainable is also expensive, especially when it involves external consultants like Big4 or other advisory firms. The costs of promoting the products are also to be considered, but here, the risk is more that the products are over-promoted, which might lead to greenwashing risks. Of course, issuing green or sustainable bonds is a costly process that might or might not be compensated for with a "greenium"[1].

Banks have funded renewable energy projects aligned with the EU Taxonomy and these green loans are helping them with their GAR ratio reporting. Also, all banks provide funding to individuals for energy-efficient appliances. However, these loans would require research on their impact on "additionality"[2] since it would be relatively uneconomic and unreasonable for a consumer to purchase non-energy-efficient refrigerators[3].

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[1] According to the United Nations Development Programme, "[t]he 'greenium', or green premium, refers to pricing benefits based on the logic that investors are willing to pay extra or accept lower yields in exchange for sustainable impact." https://www.undp.org /blog/identifying-greenium.

[2] Adopting the definition of OECD, "additionality" refers to "providing additional financial or non-financial input resulting in additional [green] development outcomes that would not have materialized without the intervention, thereby contribut[ing] to amplified [green] development impact."

[3] EU recognized the shortcomings of the energy labels and, as of March 2021, reset the scale for appliances' ratings to a simple A, B, C, etc. This was because too many products were labeled A+, A++, and A+++, which misled the consumer regarding their energy performance https://ec.europa.eu/commission/presscorner/detail/en/ip_21_818.

Similarly to having a positive spillover effect in the financial markets due to the NZEB standards in the housing market, Tolliver, Keeley and Managi (2020) found that Nationally Determined Contributions (NDC) exerted "the largest positive and statistically significant impacts" on the development of green bonds market growth. As a member of the EU, Romania has ambitions NDCs. Romania acknowledged the EU's net-zero emissions objective by 2050 and, according to its NDC, set a 31% renewables target (Guvernul Romaniei 2020, 48) by 2030 (24% renewables as of 2020). The sector is strongly subsidized by EU funds, especially by RePowerEU, and, for the banking system, there is significant room for funding wind, solar, and biomass producers. However, the oversupply of green certificates in 2008-2009 left some marks on the banking system and generated non-performing loans, given that many projects were encouraged by the very generous scheme and the government had to establish installment payments for producers, which washed off the producers which were financially weak and not prepared to support the projects themselves not from subsidies.

The five main dimensions considered in Romania's National Integrated Plan in the field of Energy and of Climate Change 2021-2030[1] (PNIESC), energy security, decarbonization, energy efficiency, internal energy market and research, innovation and competitiveness, support both the intermediate milestones set in Fit for 55[2] package and Romania's pursuit for reaching net-zero GHG emissions[3] by 2050. PNIESC considers the role of the banking sector, underlining that measures must be set in place to grow the share of sustainable lending via mortgages and loans supporting energy efficiency (Guvernul Romaniei, PNIESC 2020, 103).

[1] More on Romania's National Integrated Plan in the field of Energy and of Climate Change 2021-2030: https://energy.ec.europa.eu/system/files/2020-04/ro_final_necp_main_ro_0.pdf

[2] More on Fit for 55 EU laws package https://www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets/

[3] The Energy and Climate Intelligence Unit, a non-profit organization, keeps track of the progress of countries in reaching their net zero targets: https://eciu.net/netzerotracker

3.1.2. Price incentives embedded in banks' offer of green financial products and "greenium" in the issuance of green bonds

After a systematic review of all green, social or sustainable financial products provided by banks in Romania, I did not find a significant pricing incentive embedded in the green financial products compared to conventional products. The product to offer a discount on the effective annual interest rate is the green mortgage, which might have a discount of 10-20 basis points (0.2%) compared to a conventional loan. However, the same discount or even higher is granted to clients if they buy life insurance from an insurer recommended by the bank or a subsidiary within the bank's group. Discounts become even larger for clients who collect their salary via their account with the lending bank.

The existence of a "greenium" embedded in the issuance of green bonds is still a research topic open for discussion. One study found that the issuer's credibility might lead to a statistically significant greenium. Also, green bonds that have an external review tend to have greenium. The most significant greenium was for bonds issued by green firms and UNEP FI signatory banks (Pietsch and Salakhova 2022, 3–4). Another study also highlights the greenium for UNEP FI signatories and that "after issuing green bonds, banks shift lending away from carbon-intensive sectors" (Fatica and Panzica 2021). At the same time, research on a worldwide corporate green bond sample showed that the issuance of green bonds acted more like a signal than a cost reducer for the issuer (Flammer 2021).

Whether there is or not a "greenium"[1] in the pricing of green and sustainable bonds issued in Romania cannot be determined as of March 2023 because of the following:

- the sample size limitations: a limited number of green/sustainable bonds issuances, nine bonds issued by two banks and another

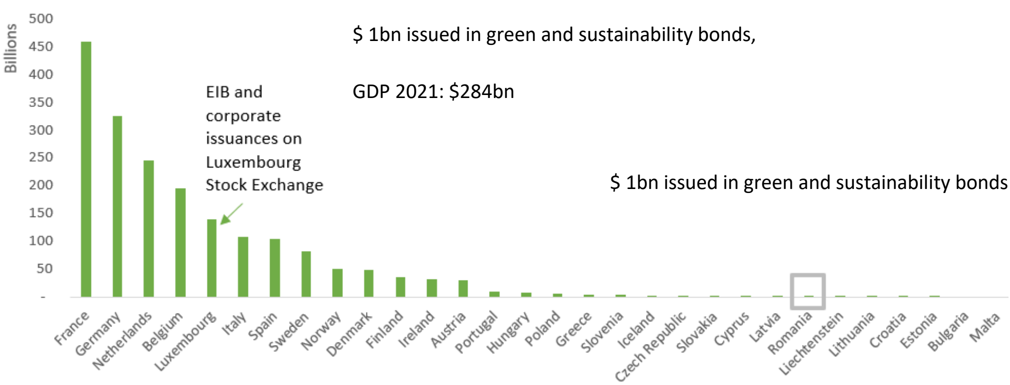
[1] According to the United Nations Development Programme, "[t]he 'greenium', or green premium, refers to pricing benefits based on the logic that investors are willing to pay extra or accept lower yields in exchange for sustainable impact."

small amount issued by a car renting services company for financing an electric vehicle (EV) fleet

- benchmark limitation: the Romanian government has not issued green/sustainable bonds, which makes price discovery for a corporate bond more difficult (pricing of corporate bonds is usually done by comparison to sovereign bonds yield curve)
- conventional corporate bonds market size: only 13 issuers with outstanding issuances on the Bucharest Stock Exchange, so the price comparison between conventional and green/sustainable bonds is difficult. Besides BCR and Raiffeisen Bank, other Romanian banks, such as Unicredit Bank, CEC Bank, Patria Bank, or Banca Transilvania, use the stock market to raise funds. However, these banks decided for now to issue conventional bonds.

Romania is a laggard both in terms of volume issuances in green and sustainable bonds and in terms of the number of bonds issued. Due to private effort, Romania is on the sustainable and green bonds issuers map. Still, the amounts are small considering that Romania is approaching a GDP of $300 billion and the current issuances amount to $1 billion.

Chart 1 – Issued Amounts in Sustainable Bonds ($) EU and EEA countries, March 2023



Source: Refinitiv Green and sustainable bonds database, own calculations

Other countries in CEE, Poland, Hungary and Czech Republic are ahead of Romania in terms of amounts raised in green and sustainable bonds. Raiffeisen Bank is an issuer in Romania, Hungary and the only issuer in the Czech Republic. Erste Group is similarly active in Romania and Hungary. Although they have been issuing in Hungary and Poland, OTP Bank and ING Bank have yet to issue sustainable bonds in Romania. The stance of the government, the issuer of benchmark green or sustainable bonds, differs in each country. While the government is the main issuer of green and sustainable bonds in Hungary and Poland, in Romania[1] and the Czech Republic, the government has not issued such bonds. The use of proceeds varies significantly in different countries, but in all countries, "clean transport" is on the list of use of proceeds.

The research gap regarding what green finance is and the impact of green finance is significant worldwide and in Romania. Romania might have some particularities to be considered in the research. The relation between the level of financial intermediation, financial literacy and environmental and social activism and the development of green/social/sustainable financial products should be the scope of future research. The fact that the overall financial intermediation in Romania is low (lowest among EU countries) (Comitetul Național pentru Supravegherea Macroprudențială 2022, 17) might be one of the reasons behind the slow pickup of green financial products. Another factor to consider is the level of financial literacy. A low level of financial literacy might impede banking customers from understanding the features of financial products. Unfortunately, the level of financial literacy in Romania is one of the lowest in Europe (Kiril 2020; Nițoi et al. 2022). The civic society in Romania is starting to put pressure on various actors, but based on my previous work of understanding the incentives behind green bond issuances, the scope of civic environmental activism is limited and the main incentive for issuing green

[1] In Romania, the issuance of sovereign green bonds was announced for 2021-2023: https://www.bursa.ro/attila-gyorgy-mfp-ministerul-finantelor-va-emite-obligatiuni-verzi-61965348. No green bond has been issued as of April 2023, but the Romanian Ministry of Finance is working on the launch of the first issuance.

bonds was the development of regulation which asks financial market participants to show the sustainability of investment portfolios and to prepare for reporting GAR.

4.CONCLUSION

Green finance became a trending topic in the European Union after the 2015 adoption of the Paris Agreement. Starting in 2017, the Romanian banking system registered the first local initiatives aligning with the objective of directing financial flows to "low greenhouse gas emissions and climate-resilient development". After reviewing the innovation in green products manufacturing and distribution, I found that banks in Romania are limping toward a sustainable future because (1) only half of the banks manufactured and distributed at least one green financial product, (2) many banks ticked the green products manufacturing checkbox with the low-hanging fruit of providing loans for newly built houses which, at least theoretically, are energy efficient due to existing EU-level regulation and (3) only two banks engaged in issuing green/sustainable bonds to fund their operations.

The stock of assets from green loans and mortgages reaches only 1.5%[1] of total bank loans as of 2022, around RON 10 billion, while banks have over RON 700 billion on their balance sheets. In 2021, the EBA conducted an EU-wide pilot exercise on climate risk with the participation of 29 volunteer banks from 10 EU countries (holding 50% of the banking sector assets in the EU). The exercise revealed an "aggregate EU GAR of 7.9%"[2]. This level is 5x higher than registered in Romania and might have increased further during 2022. The overall funding

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[1]'Raport asupra stabilităţii financiare decembrie 2022'. National Bank of Romania. https://www.bnro.ro/DocumentInformation.aspx?idDocument=41912&idInfoClass=19966.

[2] The source is the European Banking Authority Report 2021: https://www.eba.europa.eu/sites/default/documents/files/document_library/About%20Us/Annual%20Reports/2021/1035237/EBA%202021%20Annual%20Report.pdf.

provided by banks to finance activities aligned with the EU Taxonomy is higher as some banks funded the "green" eligible activities with conventional financial products (i.e., funded a renewable energy project with a conventional loan). Still, according to the findings of the working group of Comitetul Național pentru Supravegherea Macroprudențială, the level of financial flows going to support a climate-resilient development is below potential and EU average.

Additionally, banks in Romania have a small aggregated green assets book, so Romania is barely visible on the EU sustainable bonds issuance map, but so are the other countries in the region, showing that although seen as the ideal vehicle for funding the green economy, this type of bond has yet to become a reliable source for banks and companies.

This research revealed that in the last 6 years (2017-2023), some of the banks in Romania started manufacturing and distributing green and social loans, green mortgages and issuing green and sustainability bonds participating in the financial markets' green, climate and sustainable finance sectors. With checks and balances in place, these specially labeled products could play a role in directing financial flows toward companies and projects aligned with the Paris Agreement climate objectives. Further research is needed to understand how much GHG emissions are truly avoided by banks' efforts and how the financial sector is mitigating the greenwashing and conflicts of interest risks. The answer to the question in the title of this article, "Is green finance a "thing" in Romania as of March 2023?" could be summarized as "Yes, but…". Banks in Romania are slowly adopting green, social, and sustainability-labeled financial products and "greening" their balance sheets. In the following years, we will be able to assess how this contributes to the decarbonization of Romania's economy.

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