Financial Instruments for Decarbonization: Likely Pathways in the Romanian Economy

Corina MURAFA[1]
Theodor COJOIANU[2]

Abstract

The article explores which financial instruments have the highest potential to deliver the transition to a low-carbon economy in Romania, given the structure of the national economy. Based on a Scopus comprehensive query resulting in 364 analysed articles on green and sustainable finance in Romania, the paper fills a research gap by looking not only at stakeholders' perception of this emerging field in Romania or by describing different kinds of green financial instruments, but by analysing which instruments are most likely to have the highest leverage and impact to mobilize finance towards decarbonizing the local economy. The banking sector in Romania accounts for 75% of total financial system assets, total net assets in the Romanian banking sector amounting to approx. 140 bio. EUR and dwarfing the Stock Exchange, bonds, European Structural and Investment Funds, etc. While green bonds have seen double digit growths, green loans and other banking instruments (debt denial, etc.) have the highest potential to decarbonize the national economy most effectively.

Keywords: *green finance, sustainable finance, green bonds, green loans, impact investment, ESG*

JEL classification: G18, G21, M14, O13
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1. Introduction

The imperative of transitioning towards a low-carbon economy is increasingly driving transformations in capital allocation in Europe. New financial instruments are being developed and deployed, often bearing green labels, while classical financial instruments are steered towards low-carbon investment targets. The main research question this paper will explore is which financial instruments have the highest potential to deliver the transition to a low-carbon economy in Romania, given the structure of the national economy. We have structured the paper in several sections. Following this introductory section, the second section will explain the methodology used in the assessment. The third section will comprise a comprehensive literature review on green finance, sustainable finance, and ESG

[1] Murafa Corina, Faculty of Business Administration, Bucharest University of Economic Studies, corina.murafa@fabiz.ro, Telephone: +40732130466
[2] Cojoianu Theodor, University of Edinburgh Business School, theodor.cojoianu@ed.ac.uk

criteria in Romania, and a summary literature review of these concepts at European level, identifying different types of financial instruments and how they are being used in the European financial markets now. The fourth section presents an overview of the sources of financing being used in the Romanian economy and analyses which are more likely to drive the low-carbon transition nationally. Finally, the fifth section presents recommendations and ways forward on using finance to decarbonize the Romanian economy.

We approached this current research endeavour due to a gap in existing research on green finance in Romania. Existing research on green finance consists mainly of two streams: perception studies - either on the general degree of awareness of the local business environment on green finance (Siemionek-Ruskań et al, 2022) or on specific perceptions of companies on the benefits they can reap from this emerging field (Doval and Negulescu, 2014), on the role of stakeholders in advancing this field, with a focus on the role of Central Banks (Dikay and Volz, 2021) and descriptive studies of the state of development of different green financial instruments in Romania. For instance, Baicu (2021) makes recommendations on how to expand green banking products, currently in an "emerging stage", through regulatory incentives for both lenders and borrowers, while other authors present the state of play in Romania of different instruments, such as green bonds (Moisescu and Bandrabur, 2022) or government revenues resulting from the auctions of greenhouse gas certificates (Oneț, 2021). More rarely, academic articles apply an econometric model to determine the impact of certain financial instruments on the country's pathway towards decarbonization. Davidescu et. al (2022) decompose the direct, indirect, and induced effects of European Structural and Investment Funds (ESIF) on the reduction of greenhouse gas (GHG) emissions, using a green Leontief Input-Output model and conclude that ESIF 2014 - 2020 has had a minor, but positive impact on greenhouse gas emissions reduction. Green funds under ESIF have contributed to a reduction of 1.14 million tonnes in the GHG emissions, while the cumulative contribution (direct and indirect) of all such funds was 2.04 million tonnes, representing approximately 2.02% of total GHG emissions.

Thus, after examining the existing universe of research, we realized not enough insights are available on the potential impact of different financial instruments on Romania's decarbonization pathway, given the concrete specificities of the local economy. In other words, and from the perspective of policy relevance, there are not enough insights for policy makers to understand which financial instruments bear the highest leverage/ impact potential and, consequently, which financial instruments should be emphasized through regulation in order to speed up the country's transition to a green economy.

2. Methodology

In order to understand the state of sustainable finance in Romania, we conduct a comprehensive literature review in Scopus by searching the titles, abstracts and keywords in for the following terms: "green" OR "sustainable" OR "environmental" OR "social" OR "governance" and their pair permutations with terms that refer to the financial sector in general: "finance" OR "invest" OR "bond" OR "equity" OR "loan" OR "bank" OR "lend". We limit all articles published after 2015 coinciding with the Paris Agreement.

This results in 346 document results which we shortlist based on their abstracts and relevance to sustainable finance in Romania. Out of these studies, only 34 of them broadly touch on the theme of impact and sustainable investing in Romania. We summarize the main findings below. In addition, we conduct a select literature review on the ways in which foreign investors can influence Romanian companies as well as the banking sector itself, by reviewing the key findings on investor actions across asset classes, which include: engagement, divestment, debt denial and proactively investing in green economic activities.

We then corroborate these views with the current structure of the Romanian financial and business sectors and identify the main asset classes through which sustainable finance is likely to play a role in transitioning the Romanian economy to a net-zero economy.

3. A. Literature review on sustainable finance in Romania

The comprehensive academic literature query described methodologically in section 1 of this article led us to understand that sustainable finance is at an extremely early stage in Romania. The phenomenon is encountered in other countries in the region as well. Dumitru et al. (2017) demonstrate that all CEE countries face difficulties when implementing new European ESG disclosure standards, a sine qua non element in sustainable finance. Academic literature related to sustainable finance which analyses Romania looks mostly at corporate governance elements. Achim et al. (2016), Crina S. (2016), Bordean and Borza (2017) investigate the connection between board characteristics and firm performance, without identifying strong correlations, while other authors (Vintilă, 2015) determine positive relations between some governance characteristics and financial performance, such as board size and CEO tenure, transparency and corporate social responsibility (Gherghina Ș.C. et al, 2016) and gender diversity (Mititean, 2021), while important features of corporate governance, such as board independence, are found not to have any relationship with the financial performance of the company (Mititean, 2021). Other authors investigate the quality of disclosures (e.g.: Albu et al., 2015; Deliu, D. 2020 A, and 2020 B), how Romanian companies are applying European corporate governance principles (e.g.: Bușu, C. and Nedelcu, C., 2015) or how local legislation is compliant with the EU framework at large (Tofan and Cigu, 2020). There are almost no studies exploring ESG factors in the financial sector in Romania. Notable exceptions are Nițescu and Cristea (2020), who model the Romanian banking sector and come to a worrisome conclusion: "as the return on assets […] increases, the probability that the bank implements a risk management strategy associated with environmental, social and governance factors decreases". Other others still take a wider, macroeconomic look at the green performance strategies in the Romanian economy and conclude that sustainable economic growth effects are already materializing (Sima and Gheorghe, 2017). Some articles examine the practice of CSR among Romanian banks, but do not explore the transition between CSR and sustainability to investigate how the banking sector is pushing forward sustainable finance (Nițescu and Cristea, 2020). Furthermore, articles which address these topics sectorally (agriculture, energy investments, etc.) conclude the knowledge about sustainable and impact investing in Romania is limited, as well as the pathways through which investors worldwide can affect the Romanian economy.

3. B. Literature review on climate risk and investor climate action across asset classes

In this section we aim to frame investor actions in the light of climate change and broader environmental issues, as a result of a decision-making process which aims to either optimise for risk-adjusted returns alone or it follows a dual objective function seeking to achieve both financial and non-financial returns. Climate change and broader environmental, social and governance (ESG) issues have been increasingly recognised as financially material (across different asset classes and contexts) by investor signatories to the Principles for Responsible Investment initiative, which brings together over 3,500 investors with over $120 trillion assets under management.[3] We define investors who take into consideration ESG issues towards achieving their financial goals as ESG investors, and as Hebb (2013), Cojoianu (2022) and Barber (2019) suggest that impact investors are those that aim "to deliver simultaneously (i) social and environmental benefits and (ii) financial returns for a desired investment risk level" (Cojoianu, 2022, p.2). As far as the integration of climate risks is concerned across asset classes, the literature suggests that this is already happening across equities (Bolton, Halen & Kacperczyk, 2022). Duan, Li and Wen (2023) further show that carbon intensive bonds underperform the wider bond market, while Delis et al. (2023) show that banks are starting to penalize fossil fuel intensive companies through loans, particularly in countries with more stringent climate policies, and for loans with longer maturities. Climate risk is further reflected through pricing of mortgages, particularly in the US driven by sea level rise exposure (Nguyen et al, 2022), as well as in sovereign bonds (Cevik and Jalles, 2020).

As far as actions which have been taken so far by investors to influence company behaviour on climate change and more broadly on ESG issues include: i) divestment from equities and bonds. ii) debt denial (i.e., no new cash or refinancing for fossil fuel intensive companies; iii) engagement; iv) proxy voting, v) investing in green debt financial instruments (e.g. green bonds and sustainability linked bonds). On the equities side, Trinks et al. (2018) and Hunt & Weber (2018) show that fossil fuel free portfolios do not underperform market benchmarks, which suggest that fossil fuel divestment in equities does not penalize investors, however, as Cojoianu

[3] https://www.unpri.org/about-us/about-the-pri

et al. (2020) argues, it is unlikely that it influences companies as they mostly fundraising from bond and loan financial markets. Debt denial has already started to be implemented across asset classes, in particular through the implementation of Paris Aligned Investment Benchmarks across both equity and bond funds (Ekman et al., 2022).

Voting on climate change so far has induced enhanced disclosures on equity markets (Flammer, Toffel and Viswanathan) but it is through engagement that it is also possible that companies who are engaged by equity investors become less risky over time as they implement investor suggestions on sustainability issues (Hoepner et al., 2022). Finally, the evidence on green bond financing suggests that investors respond positively to green bond issuance, particularly for first-time issuers and bonds certified by third parties. Companies who issue green bonds improve their environmental performance post-issuance and experience an increase in ownership by long-term and green investors (Flammer, 2021).

Following this review of climate risk integration across asset classes and investor actions towards decarbonization, we aim to understand through which channels the Romanian economy will be mostly impacted.

4. Analysis on the highest impact sustainable finance instruments in Romania

This section will present the structure of the Romanian financial system and how various types of financial instruments, including green financial instruments are populating it. The purpose is to understand, based on the framework above and on the conclusions deriving from specialised literature, which would be the sustainable finance instruments that warrant the largest regulatory attention to attract sustainable and impact investors to Romania.

The financial sector in Romania is dominated by the banking sector, which accounts for 75% of total financial system assets (end of 2019 data), according to authors (Baicu, 2021). In absolute terms, total net assets in the Romanian banking sector amounted to RON 700 bio at the end of 2022 (equivalent to approximately EUR 140 bio, according to National Bank of Romania regular monitoring). This amounts to cca. 55% of national GDP, according to the Financial Supervisory Authority (ASF). So far, the development of green financial instruments in the Romanian banking sector is very limited. The share of green assets in the portfolio of the Romanian banking sector is about 3%, which is less than half the EU average (7.9%), according to the National Committee for Macroprudential Supervision (2021). In contrast, non-banking financial assets (mutual trust, insurance funds, private pensions) are less than a quarter of banking ones, amounting to 13% of GDP, according to ASF. Over half of these are represented by pension funds. As far as the Bucharest Stock Exchange (BSE) is concerned, with 83 listed companies as of 2022, it reached a market capitalization of EUR 39.8 bio - less than 5% of the total assets of the Romanian banking sector. Even more worrisome, the average daily turnover for shares at BSE was only approx. EUR 10 million in 2022 and approx. EUR 7 million for bonds. In comparison, the Vienna Stock Exchange typically records a daily turnover of approx. EUR 230 million. Even the Budapest Stock Exchange typically enjoys daily turnovers three to four times higher than the Bucharest Stock Exchange. Another source of capital injection in the Romanian economy is Foreign Direct Investment (FDI). In 2021, according to the yearly FDI report published by NBR, FDI flows stood at EUR 8,940 million, approximately three times higher than in 2020 and the the second highest value of FDI flows in Romania in history. Out of these close to EUR 9 billion, about three quarters were represented by foreign direct investors' equity in direct investment enterprises in Romania, and the rest by debt transactions of direct investment enterprises with their foreign direct investors (Source: NBR, 2021). As impressive as these figures might be in comparison to earlier FDI trends, they represent a minuscule fraction of the Romanian banking sector. Another significant source/ instrument of financing in the local economy is represented by European Structural and Investment Funds (ESIF). Romania, through 8 national programmes, benefitted from ESIF funding of EUR 35.2 billion under the 2014-2020, out of which it had spent, at the end of 2022, EUR 30 billion. In 2021-2027 Romania will benefit from significant ESIF and other types of European funds to decarbonize its economy. Some of these ESIF funds have been even currently geared towards Based on public information (e.g.: the Partnership Agreement, the Recovery and Resilience Plan, etc.) Romania will be able to spend approx. EUR 75 billion (including the nationally available Modernization Fund - constituted from the auction revenues the Government obtained based on trading its carbon and other GHG emissions certificates) to pave the pathway for green and sustainable growth. In general, due to European regulation which stipulates how the revenues from the auctioning of GHG emissions certificates be spent, this stream can be considered another green finance instrument in Romania. The revenues are jointly administered now by the Ministry of Energy and the Environmental Fund Administration and are being used to fund decarbonization-related investments. The sums are far from trivial: between 2013 and 2021 Romania obtained revenues from these auctions totalling EUR 3.6 billion and over a quarter were used for other public expenditures and investments that decarbonization-focused one (Ziarul Financiar, 2022). Still, most proceeds can be considered a source of green finance in the local market, usually distributed to the market as grant/ state aid schemes. As literature and case studies point out, in the systemic transformation of the global economy currently in place as a response to the climate emergency, "a bunch of investments would not be possible without a mission-driven role of the state, usually in the form of guarantees and other mixed instruments" (Murafa, 2019).

Recent market and regulatory developments point towards the slow development of green finance in Romania as well, through the general mechanisms and framework that we have seen at play in Europe and globally, summarized in Section 3.B. From a regulatory perspective, a very important aspect is the extent to which green finance is promoted by central banks. Dikau and Volz (2021) examine the mandates of 135 central banks around the world and conclude that a little over half of them have a direct or indirect sustainability mandate (out of which 12% have a direct one). Romania’s central bank is classified as having a potentially implicit sustainability objective in its mandate. Furthermore, in 2020 the National Bank of Romania became part of the Central Banks and Supervisors Network for Greening the Financial System. In 2021 it started to develop and publish a yearly dashboard for monitoring climate risk in the banking sector. According to their 2022 dashboard monitoring, 25% of the gross value added in Romanian economy is generated in sectors exposed to climate risk. The same dashboard monitors the development of the green bonds market in Romania, which have encountered triple digit growth rates in the past three years. Thus, in 2021 green and sustainable bonds issued in Romania totaled EUR 460 mio, and in 2022 (up until October) EUR 340 mio. On the other hand, the green loans market (monitored as such by NBR starting May 2022) is much more promising in terms of growth rates, at a monthly value of approx. EUR 195 mio in September 2022, on a constant growth trajectory since May 2022. Close to half of these green loans are in the sector of green buildings, while a quarter cover green heating and cooling (Source: NBR, Tablou Climatic 2022). While in 2021 green loans in banks' portfolios were totally only EUR 1 bio, the National Committee on Macroprudential Supervision estimates that the potential for such loans is of approximately EUR 5 bio. These recent developments in the green finance sector are most likely going to drive companies' behaviour. Private sector players, at least until recently, did not perceive green finance as a driver in their decarbonization investment pathway. A large-N study conducted among Romanian companies in 2014 (Doval and Negulescu, 2014) demonstrated that green finance was an influence in the investment process towards decarbonization for less than 5% of Romanian companies, superseded greatly by other factors, such as market competition, scarce material resources, government regulation and the availability of smart technologies.

Just as regulation has had an enabling role (e.g.: the National Bank's implicit climate mandate mentioned above, the National Bank's monitoring mechanisms, etc.), it can also have a disabling effect on the development of green finance. Moisescu and Bandrabur (2022) point out that "in Romania, the green bond market is relatively new and generates uncertainties for green bond issuers and investors in this type of securities" and that "the lack of standardization and a widely accepted definition of what "green" means creates a high risk of the phenomenon known as "greenwashing". This lack of definitional clarity has led to ten times less value in green bonds issued locally than in the Czech Republic, Poland and Hungary taken together, despite the size of the local economy. Still, the market pull has counteracted this lack of legislative clarity. Consequently, despite the fact that Romania is the only country in CEE which has not issued a sovereign green bond, the green bonds issued in the past two years by commercial banks have been highly successful. To date, Raiffeisen Bank Romania hass issued three green bonds adn three sustainability bonds, with a total value of close to EUR 600 million, while BCR Erste issued two green bonds worth approx. EUR 240 million. The sustainability frameworks of both issues are aligned to international standards, not local regulations (as there are none at the moment) and between 40 and 60% of the funding goes towards the building sector. Other issuers have been NEPI Rockcastle, through ING Bank, with the overwriting reaching EUR 1.1 bio

The most seminal analysis to date on green finance in Romania - sources and instruments, risks and opportunities, regulatory state of play, etc. - has been authored by the Working Group of the National Committe for Macroprudential Supervision and published in 2021. The group estimates that, by 2030, the public and private sectors will roll out green investment porojects totaling EUR 60 bio, excluding top ups derived from the eventual adoption of the entire Fit for 55 package. This is close to public investments in all sectors in the past eight years or to the budget from both ESFI programming periods. The group warns, nonetheless, that the risks associated to green finance are also high, as carbon intensive sectors (for which most likely finance will gradually dry out) generate over 40% of gross value added at national level and represent over 50% of corporate assets in Romania. It is only with active government policy and diplomacy that the opportunities can outweigh the risks, according to the report. For instance, the report identifies over 100 growing locally-owned enterprises which produce green goods and services, that can improve national competitiveness assuming they get access to internationalization channels. At the same time, the report warns, delaying green finance investment projects in Romania by as little as ten years can reduce by a third the otherwise net positive effect in the national economy of the transition.

A very recent report published by researchers at the Romanian Sustainable Investment and Finance Association is looking at the ESG disclosure performance of the largest companies active in the Romanian market, as there are numerous sustainable finance regulations that are emerging, which indicate that consistent disclosures are a prerequisite for attracting investments. RoSIF (2023) notice that not even half of the BET20 companies (the most liquid and attractive assets in the Romanian capital market) are reporting Scope 1 emissions. Even so, "Scope 1 emissions reported by 9 out of 20 BET listed companies amount to a whopping 5.18 million tonnes CO_2, represint approximately 6.5% of Romania's emissions". Consequently, "attracting green investments requires initial investments in robust data infrastructure for reporting and performance measurement of sustainability credentials, particularly towards demonstrating EU Taxonomy alignment" (RoSIF, 2023, p. 6).

Given the composition and funding structure of the Romanian economy, we emphasize that the most prominent channel that will impact the Romanian economy is the Romanian and foreign banking sector. The banking sector itself can be pressured by bond investors to green their loan book, and this pressure is also applicable to the listed companies on the Bucharest Stock Exchange. Companies on the stock exchange can be further engaged by responsible investors worldwide through their equity holdings towards progress on different ESG indicators. In terms of positive impacts to the environment, we expect green bonds, issued by banks as well as the Sovereign level to play increasingly important roles, yet the highest impact due to its sheer size will probably come from the green loans stream of the banking sector.

6. Conclusions, recommendations and ways forward

The paper has offered a comprehensive literature review on green and sustainable finance, in Romania, as well as at European level. By employing a systematic methodology for database search (described in detail in the Methodology Section) we were able to identify gaps in current scholarship on green finance in Romania and thus to make a policy-relevant contribution. Our research objective has been to determine which financial instruments are most likely to ensure the highest-leverage most impactful development of the green finance field in Romania. We examined international literature to clarify what classes of financial instruments we are talking about, as well as the structure of the national economy, based on different information sources, primarily reports of representative institutions.

The conclusion is that all in all, given the structure of the Romanian economy, as described in Section 4 above, the banking sector will play a crucial role in ensuring the success of the green transition, as well as maintaining the level of competitiveness of the national economy, given the current high levels of carbon exposure. We postulate that, for a rapid catching up from the 3% of net assets in the portfolio of Romanian banks to the European average of close to 8%, a clear regulatory framework related to the banking sector must be in place. More clarity needs to be offered by regulators with regards to what qualifies as a green loan and the revision of the regulatory framework must be accompanied by increased transparency requirements. At the level of commercial banks in Romania, a rapid ramp up of capacity at branch level, i.e. at the level of the credit officers, must occur in order for the green loans market to fulfill its potential. Blended finance (partly European grants, partly financial instrument, such as, but not exclusively limited to green loans) can play a significant role in accelerating Romania's pathway to carbon neutrality by net zero, assuming it is done primarily at the level of commercial banks, which is where the vast majority of Romanian SMEs, the backbone of the local economy, obtain their capital from.

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