

Challenges and Opportunities for Green Finance

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Abstract

The green finance sector is booming, and the development of this finance side brings changes in the dynamics of financial markets, investor behaviour, and regulatory and supervisory activity. The green sector and climate change are expected to be significant issues for the financial industry in the future. These motivate research into green finance subject, taking into account that changes are happening very quickly and the impact on markets and the population is significant. The main objective is to highlight and summarise the main risks, challenges, and opportunities for green financing.

Key words: green finance, climate change, risk categories, opportunities

J.E.L. classification: G32, O16, Q5

1. Introduction

Climate change and environmental constraints are the biggest challenges facing the economy and society. It has become increasingly accepted that we must act, and time has been to our detriment in recent years. That is why concrete measures are needed to prevent these risks from turning into essential ones.

Definitions of various aspects of the green economy generally differ significantly from country to country. Emerging markets usually work differently than developed ones. There is disagreement about the role of nuclear resources or the acceptability of clean coal obtained by capturing and storing carbon. However, if the financial products that facilitate the transition to a carbon-neutral economy are transparent and certified, they will be appropriately valued on the financial market. Under such conditions, investors can choose the assets that best suit them, depending on ethical and economic issues.

Finance can help support green areas in several ways, from green bond financing and long-term lending to green projects, by providing financial facilities for projects that have benefited from energy improvements. Another way is to involve venture capital funds to finance innovative projects that support the environment or provide mitigation solutions.

Sometimes, however, funded projects can have controversial effects on society or even the environment. A simple example would be the investment in new energy storage technologies that will help production from renewable sources but require the production of particular elements and the exploration of rare mineral reserves that will influence the environment and society again.

While climate change can harm investment, damaging or blocking assets often, new opportunities appear for new products and services or investments. The financial sector, through investment decisions, can negatively influence the environment by financing activities that directly or indirectly affect the environment.

The amounts estimated to be necessary to meet the green targets differ from one institution to another. However, the common denominator is that they are substantial, and private funds must supplement public funds. For this reason, the involvement of financial markets in supporting the transition to a low-carbon economy has become crucial, especially in the context where it is estimated that around 80% of funding needs to be provided from private funds.

It is becoming increasingly clear that green funding is a fast-growing sector attracting more and more players. At the same time, regulatory and measurement systems are being developed to avoid adverse effects.

Concerns about green financing in financial institutions had begun to gain momentum in the early 2000s. However, the emergence of the global financial crisis of 2007-2008 and then the sovereign debt crisis of 2010 led to a shift in priorities. Green products have been proposed for decades, and polluting emissions trading systems have been considered for over 50 years.

The financial sector is one in which changes and disruptions can occur more frequently and with a significant impact. For example, digital technologies and the availability of data and information have changed the banking, investment, or insurance business quite a bit in the last decade.

Green financing aims to target the financial system towards environmentally-friendly investments that will limit the effects of climate change wherever and whenever possible. The term often appears in line with other concepts, such as sustainable financing or climate finance. In addition to the environmental and economic issues that are often addressed in this context, we notice an intertwining of social and governance elements.

2. Theoretical background

There is increasing international use of the term green financing, sometimes in an inclusive sense and sometimes using very technical terms. From the formulation of standards (usually imposed by the market) to regulatory measures for the development of financing principles (public or private), we encounter different ways of defining and classifying, but also common elements, depending on the context (economic policies and taxes, regulations and regulations, market standards, statistical objectives) and parties involved (national or international financial systems, financial institutions, investors, companies).

Although there is no single definition for green funding, definitions and sets of criteria are used globally, nationally, or institutionally. These definitions can be used to evaluate and classify financing and financial instruments in this category for regulation, establishing economic policies, and statistical purposes. These may refer to green products or services offered by financial institutions, climate and environmental risk management, investments in specific sectors or industries, and regulatory instruments.

In the beginning, it is necessary to clarify the differences between terms with similar coverage or meaning. Such examples are sustainable financing or financing strictly related to climate goals. Sustainable financing, in general, refers to a broader context that includes both economic, social, and environmental elements.

Proponents of sustainable financing believe that the environment and society are inseparable elements that influence each other. Climate finance is related to environmental issues and is used to reduce pollutant emissions and support adaptation to the effects of climate change. Green funding, in principle, lies between the other two terms (sustainable financing and financing of environmental objectives).

Some definitions of green finance are linked with related activities, while others are technical and refer more to financial terms. Although these definitions differ in how they emphasize one element or another, they include references to the role finance played in allocating capital for broader environmental protection and climate change mitigation purposes. It draws attention to risk management or mentions products and services supported by green funding.

Therefore, we can consider green finance those products, services, processes, or financial initiatives that are built to offer protection to the environment and enable the transition to a low carbon economy, to support the management of environmental risks and climate change.

Increasing global action to mitigate the effects of climate change has also led to an increase in interest in green finance, both in the economic literature and in practice. The concept is not very clearly defined, but its development and attention to the subject are growing very fast. According to a recent study (Zhang, Zhang, and Managi, 2019), the number of scientific papers published in this field had increased considerably since 2015, when the Paris Agreement was signed.

3. Research methodology

The first stage of the research was dedicated to clarifying the associated terms in the theoretical background section. The next step involved identifying risks and challenges, as well as opportunities for green finance.

The methodology used in the article is based on descriptive and comparative analysis, interpretation of realities, identification of the main trends in the field, and enriched with examples. The bibliographic exploration is the first method used to anchor the results.

4. Findings

4.1 Risks and challenges for green finance

Green finance faces many risks and challenges due to issues related to environmental elements and features specific to the financial system. A preliminary assessment of Romania's ability to green its financial system is conducted by the World Bank (World Bank, 2021).

When it comes to risks to the financial sector in climate change, reference is made to the three categories.

Physical risks arise from the impact of climate risks on humans and the natural system (e.g. floods, droughts, storms). It generally refers to extreme events that occur more frequently (hurricanes, floods) and to global warming and sea-level rise in the longer term. The first category represents acute risks, and the second chronic risks (Task Force on Climate-related Financial Disclosures, 2017). The first category produces unforeseen shocks on both the supply and demand side, with short- and long-term economic effects; the second category impacts potential G.D.P. and growth in the medium and long term (Batten, 2018).

Transition risks arise due to the crossover to a low-carbon economy (materialized in the loss of economic value due to asset foreclosure, new regulations, the emergence of disruptive technologies, changing investor sentiment and consumer behaviour, reputational risks or image). They produce shocks in the economy on the demand and supply side or economic growth, with short- and medium-term effects (Batten, 2018). The least affected sectors are health, media, I.T., services, medium impact in the banking sector, insurance, aerospace and defence, and high risks associated with the chemical industry, utilities, energy, and automobiles. Although they are high emission sectors, there are large emitters in every sector. Some companies' emissions are associated with high temperatures, even in industries for which low emissions are identified, such as health (MSCI, 2021). According to the MSCI report, 57% of listed companies are not yet aligned to keep global warming well below 2°C, preferably up to 1.5°C, above pre-industrial levels, as set out by the Paris Agreement. Another important observation is that companies' carbon emissions are starting to rise as the global economy begins to recover from the pandemic.

The risks of litigation arise from parties who have suffered losses due to the effects of climate change.

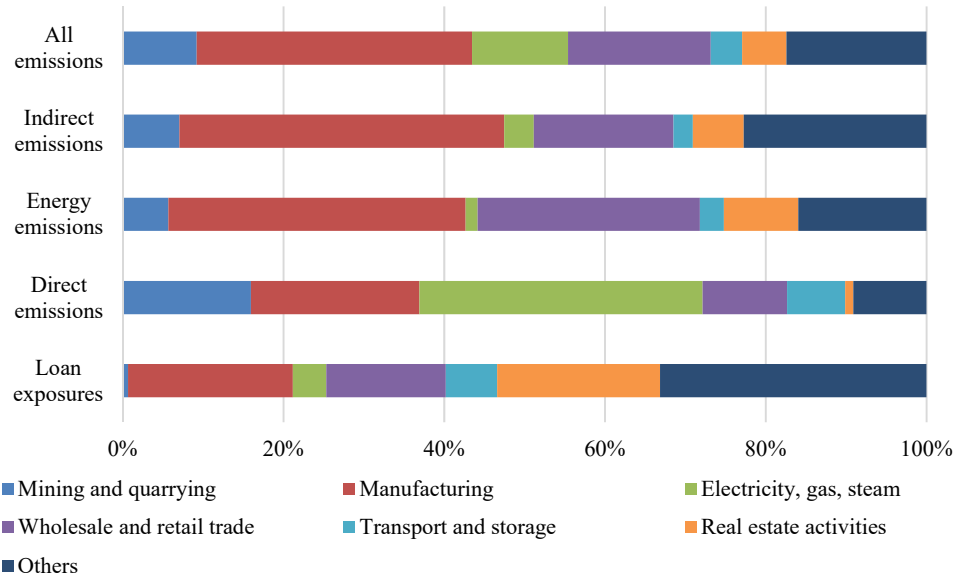
When they occur, physical risks can affect the value of collateral and assets and significantly impact insurance. According to the European Central Bank's estimates, globally, the catastrophes caused by the weather have an increasing share, and the losses represented over 80% of the total losses caused by the catastrophes reported in insurance for 2018. This year was also a peak in the frequency of occurrence of events leading to weather-related losses.

Regarding the transition risks, the results from the literature are mixed and highlight their complex character (Friede, Busch, and Bassen, 2015 - an article summarising the results of over 2,000 empirical studies.). The market assessment of the transition risk is complex, a stage that will extend over a more extended period. At the same time, their analysis is hampered by a lack of information; when they exist, they often cannot be compared due to the lack of globally accepted standards.

Financial institutions' exposure to this risk category is measured for specific business sectors based on indicators such as, for example, carbon emissions for a particular sector. The sector analysis allows for an overview of the sector and can be helpful for the first round of approximation of financial institutions' exposures. On the other hand, the differences between companies registered in that sector are omitted.

Such an aggregate analysis of euro area banks' exposures to climate-sensitive assets was carried out by the European Central Bank and is illustrated in Figure no. 1. The European Central Bank's valuation is calculated for more than 4 trillion euro exposures, which represents approximately 80% of total euro area loans to non-financial corporations. The highest exposures of bank loan portfolios are in the industry (20.49%) and real estate (20.25%).

Figure no. 1. Exposure of euro area bank lending by business sector, by share of companies' emissions in each sector (The exposures correspond to December 2020, and the emissions are calculated at the level of 2018.)



Source: Authors' adaptation based on European Central Bank (2021)

Another classification of climate change risks is made by the United Nations (United Nations Environment Program Finance Initiative, 2016). These are divided into five categories: financial and credit risks (loss of value of assets, inability to pay loans, difficulties in accessing capital, liquidity), market risks (reduced competitiveness, loss of market share), operational risks (higher costs, inefficient processes), reputational or image risks (damage to funded clients, recruitment difficulties), compliance or legal risks (regulatory actions, creditor liability, civil actions).

Although few attempts have been initiated to classify and assess these risks and it is considered that some of them can be anticipated, the risks mentioned are complex, dynamic, and interconnected. Their impact is often unexpected and affects the stability of the whole financial system finally. However, this impact is conditioned by several variables that are characterized by different degrees of uncertainty regarding the period of occurrence or the degree of intensity. Even if the risk of a sudden and significant global alignment is not necessarily immediate, the financial risks arise from the transition to a low-carbon economy. It may increase in the next period if financial decisions are not made in line with global and national climate goals.

Regarding the specific features of the financial system, we can point out, for example, that decisions are taken by financial institutions often take into account a much shorter period compared to the time horizon in which the effects on the environment or climate change become visible.

The short-term focus is on the need to deliver good results to shareholders or on liquidity requirements, leading to reluctance for green investment. An investment that can be profitable in the short term can be disadvantageous in the long run because of the adverse effects on the environment. This mismatch in the timeline has implications for the fight against climate change: while the effects of climate change are long-term, financial decisions must be made now.

In such a context, where priorities are facing current issues and climate change issues are beyond business and political cycles, the mandate of some technocratic institutions they are considered the “tragedy of the horizon” (Carney, 2015).

Returning to the focus on providing good results to shareholders, if this is the primary concern of companies, there may be potential damage to the environment due to decisions taken if these issues are not taken into account. This leads to investments in projects that generate pollution and carbon emissions or affect a particular area. Maximizing profits and orienting decisions in the short term can have cumulative effects on the environment or are not immediately visible. Another relevant aspect is that this impact is not necessarily felt by shareholders most of the time.

Developing green or sustainable financing in developing countries, where climate change adaptation or mitigation activities are needed, is another type of challenge. This is often hampered by underdeveloped markets, high capital costs, poor regulation, or political instability. Statistical data are not always available for these countries compared to developed countries. Even in developed countries, statistical data and other information may be difficult to access; there may be a reluctance to report or apply different standards for similar concepts.

In recent years, however, the orientation of companies towards stakeholders has been promoted more and more, aiming for businesses to generate value for all stakeholders: employees, shareholders, customers, suppliers, creditors, and the community as a whole. Such an approach, to which we can add concern for future generations, could help protect the environment and reduce the long-term effects of climate change.

However, the financial system as a whole cannot be considered green. Sufficient activities that adversely affect the environment are still being funded, including burning fossil fuels. Moreover, financial markets face the greenwashing process, namely attempts to make false or unproven claims about the positive impact on the environment.

4.2 Opportunities for green finance

Financing the transition to a climate-neutral economy involves attracting a considerable amount of funds, far more than those offered by public institutions, which requires the participation of private investors for whom new opportunities are opening up. Moreover, the demand for green financial products is expected to increase. The transition to a low-carbon economy is a promising long-term business opportunity, with financial institutions able to sustain green finance. Therefore, exploring opportunities and new taxonomies and standards is becoming a central concern.

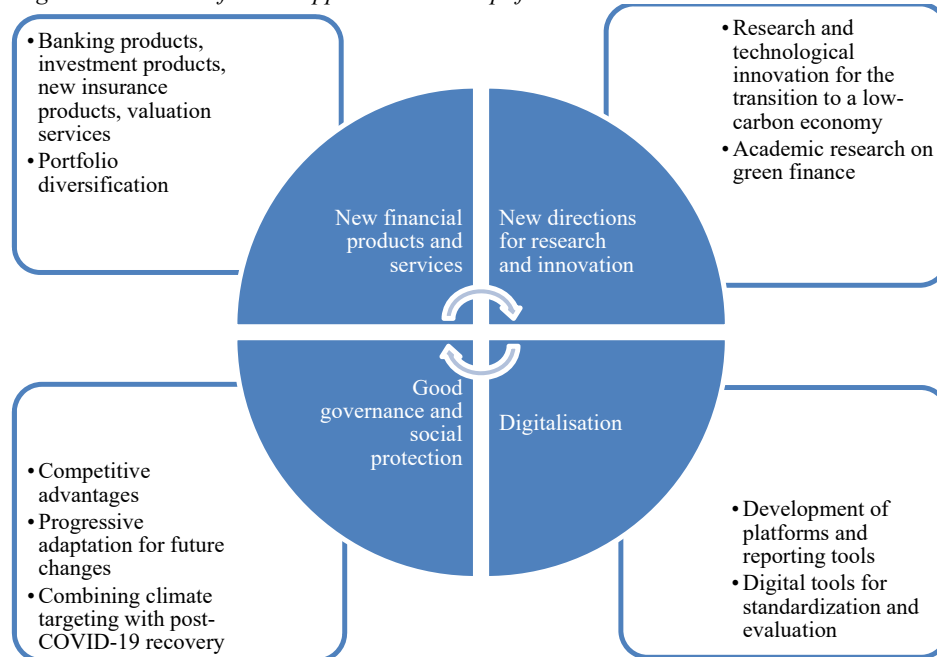
Institutions that include green funding in their strategy can enjoy multiple benefits. Firstly, in the face of increasing pressures in recent years to focus activities on environmental protection and climate change reduction, they can have a better image that contributes to improving reputation and credibility and improving the relationship with government or regulatory institutions, partners, customers, and investors. This improvement is due to the understanding and proper management of environmental risks. It can facilitate access to new markets, provide a competitive advantage or improve resilience to changes in the market due to feeling the effects of climate change. Adapting to new customer preferences opens up new opportunities, laying the groundwork for suitable medium- and long-term collaboration.

Another opportunity may be to diversify portfolio risks by reducing the share of assets associated with environmental risks. Such a weighting may prepare companies and institutions for the new regulations (capital requirements based on "green" and "brown" assets held, special reporting requirements, stress testing).

Last but not least, green funding is an opportunity for new research and analysis. The main trends and research opportunities in this field are identified and analyzed by Wang, Li, and Wang (2021), Akomea-Frimpong et al. (2021), Gilchrist, Yu, and Zhong (2021), and Zhang, Zhang, and Managi (2019).

A simplified scheme of the main opportunities for green financing is shown in Figure no. 2. They are divided into four categories (new financial products and services, new directions for research and innovation, good governance and social protections, and digitalization). In this way, green finance promotes financial innovation, and even if it brings uncertainty, it also contributes to the development of the positive side of innovation (Lupu and Criste, 2021).

Figure no. 2. Green finance opportunities - simplified scheme



Source: The authors' conception based on literature

It is becoming increasingly clear that the financial sector is playing an essential role in the fight against climate change. For example, a recent Global Risk Report states that climate change poses a pivotal risk to business, finance, and society (World Economic Forum, 2021). Institutional investors, hedging instruments, and financial instruments (such as green stock indices, and green bonds) can help rebalance and redistribute climate risks, allocate investment to green sectors and maintain financial stability.

5. Conclusions

The role can play in combating the effects of environmental change gives the importance of green financing without adding significant additional risks and benefits for the economy and society. Given the possible effects of climate change and environmental challenges, the economic system is constrained to consider these issues. Financial institutions are thus driven to identify, manage and report the risks to which they are exposed, increasing the institution's resilience and the financial system as a whole.

Both natural causes and human activities have led to the emergence and intensification of climate change, but the latter certainly has the most significant impact. Green finance plays an essential role in the fight against climate change, supporting activities that contribute to reducing carbon emissions (mitigation activities) and activities that adapt to changes that have already taken place or are about to occur. The financial sector's involvement is both direct, through specific financial products and services, and indirect, through the modelling of investment decisions. Moreover, the reshaping of the financial system is carried out by several actors, such as national and international organizations, central banks, regulators, banks and non-bank financial institutions, and individual and corporate actions. How they are involved and cooperate determines the speed with which green financing develops and is included in economic and institutional development.

Globally, many risks have been identified related to climate change and the environment affecting consumers, financial institutions, and the economy. However, at the same time, opportunities spring for investors, asset managers, or lending institutions. Many of the identified risks are still not fully or correctly assessed, which causes their impact to take unpredictable forms, creating new opportunities for the launch of fair assessment and mitigation services.

However, the emergence or identification of new risks also triggers new opportunities for the financial system. The transition to a low-carbon economy is very capital-intensive, requiring the support of private entities, thus generating opportunities for financial services firms. Opportunities are created for portfolio investment, the application of FinTech services for green financial products and services, and artificial intelligence for data analysis and interpretation. Institutional and societal pressure may accelerate awareness of other possible disasters, which should facilitate the implementation of measures to combat climate change and awareness and acceptance of the green finance principles needed to encourage the transition to a low carbon emission economy.

6. References

- Akomea-Frimpong, I., Adeabah, D., Ofori, D., Tenakwah, E. Jr., 2021. A review of studies on green finance of banks, research gaps and future directions. *Journal of Sustainable Finance and Investment*, pp. 1-24.
- Batten, S., 2018. *Climate change and the macro-economy: a critical review*. Working paper no. 706, [online] Available at: <<https://www.bankofengland.co.uk/working-paper/2018/climate-change-and-the-macro-economy-a-critical-review>> [Accessed: 30 November 2021].
- European Central Bank, 2021. Financial Stability Review, May, [online] Available at: <<https://www.ecb.europa.eu/pub/financial-stability/fsr/html/ecb.fsr202105~757f727fe4.en.html>> [Accessed: 3 May 2022].
- Gilchrist, D., Yu, J., Zhong, R., 2021. The limits of green finance: A survey of literature in the context of green bonds and green loans. *Sustainability*, 13(2), pp. 1–12.
- Lupu, I., Criste, A., 2021. Motivations and Determinants of Innovation in Financial Markets. *Annals of Constantin Brancusi University of Targu-Jiu. Economy Series*, (1), pp. 32-38.
- MSCI, 2021. *The MSCI Net-Zero Tracker. A quarterly gauge of progress by the world's listed companies toward curbing climate risk*, [online] Available at: <<https://www.msci.com>> [Accessed: 21 November 2021].
- Task Force on Climate-related Financial Disclosures, 2021. *Task Force on Climate-related Financial Disclosures. 2021 Status Report*. Basel, Switzerland, [online] Available at: <https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Status_Report.pdf> [Accessed: 3 May 2022].
- United Nations Environment Programme Finance Initiative, 2016. *Guide to Banking and Sustainability. Edition 2*, [online] Available at: <<https://www.unepfi.org/wordpress/wp-content/uploads/2017/06/consolidated-banking-guide-may-17-web.pdf>> [Accessed: 16 November 2021].
- Wang, M., Li, X., Wang, S., 2021. Discovering research trends and opportunities of green finance and energy policy: A data-driven scientometric analysis'. *Energy Policy*, 154.
- World Bank, 2021. *Greening the Financial Sector in Romania. Policy Note*, Pillar 2 – Activity 2.3, – WPc 0.3 D., [online] Available at: <<https://documents1.worldbank.org/curated/en/249901625836983747/pdf/Pillar-2-Greening-the-Financial-Sector-in-Romania-Policy-Note.pdf>> [Accessed: 2 May 2022].
- World Economic Forum, 2021. *The Global Risks Report 2021*. 16th Edition, [online] Available at: <<http://wef.ch/risks2021>> [Accessed: 2 May 2022].
- Zhang, D., Zhang, Z., Managi, S., 2019. A bibliometric analysis on green finance: Current status, development, and future directions. *Finance Research Letters*, 29, pp. 425–430.