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Green Bonds in EU Countries: Towards Sustainable Finance

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Abstract

Green bonds have become a key tool in driving sustainable investment within the European Union (EU). The concept of green bonds has been growing over the last two decades, with an extraordinary emphasis in between 2010 and 2019, when its utilization took off among the financial institutions, governments and companies seeking capital for sustainable ventures. This study investigates the role and relevance of green bonds in the financial architecture of the European Union, focusing on the analysis of key actors and the regulatory framework influencing the evolution of this financial instrument. It discusses, from both a theoretical and empirical approach, the motivations and strategies of financial institutions, governments, and non-governmental organizations in promoting and developing the green bonds market.

Keywords: green bonds, sustainable financing, environmental policies, EU countries.

JEL Classification: G18, Q56.

1. Introduction

Innovative financial instruments are more topical than ever in a period when environmental and sustainability issues attract high attention in the process of fighting climate change and protecting the environment. One such instrument that has come to the forefront in the European Union is the green bond, which has taken the place of an important financing pillar to achieve sustainable development.

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Green bonds in particular are financial instruments that raise funds to aid projects with the least negative environmental impact, connected with renewable energy, enhancing energy efficiency, or supporting sustainable transportation (Zhao et al., 2022). They offer investors the opportunity to participate in projects that enable the transition to a low-carbon economy and the conservation of natural resources. Interest in green bonds in the EU has grown, fuelled by factors such as the EU's increased commitment to combat climate change and promote sustainability, together with growing investor awareness of the associated risks and opportunities. In order to understand the dynamics of the green bond market in the EU, it is necessary to analyze the role played by different stakeholders in promoting and advancing green bonds in the region, including financial institutions, governments, companies and NGOs (Harangozo and Zilahy, 2015).

Financial institutions, such as banks and investment funds, have been promoters in issuing and investing in green bonds, contributing to the flow of funds into sustainable projects (Ilic et al., 2019). Governments, those implementing initiatives such as the European Green Deal, are creating favorable environments for the expansion of the green bond market and also encouraging investments in green infrastructure. The public and private corporate sectors are giving greater priority to sustainability, integrating environmental, social and governance (ESG) factors into their strategies and may issue green bonds. NGOs, an important stakeholder in the journey to decarbonize the planet, are again seminal for monitoring and promoting the sustainable practices of issuers and investors. n light of growing interest in green bonds, the EU has developed regulatory mechanisms, such as the EU Taxonomy for Sustainable Activities and the Non-Financial Reporting Standards (NFRS), to combat ambiguity and provide transparency on the standards and criteria for issuing these green bonds.

The paper aims to present the detailed landscape of green bonds in the EU, analyzing the drivers of their recent interest and highlighting their key role in promoting sustainable financing. In the first part, we present a detailed description of what the concept of green bonds is and underline which factors contributed to its popularization in the European region. Then, we analyze the implications and contributions of most relevant players in the development and promotion of such bonds. Finally, it gives a presentation of the regulatory framework influencing green bonds in the EU and underlines its importance for transparency and compliance. The purpose of the paper is to provide a comprehensive informative perspective on the impact and direction taken by green bonds toward financial sustainability in the EU.

2. Problem Statement

Researcher Sartzetakis (2021) is of the opinion that green bonds are an innovative financial instrument designed to support projects and initiatives with a positive impact on the environment and at the same time to promote the transition towards low-carbon economies. They first appeared among investors in the 2000s, but their popularity has grown significantly in recent years, especially in the European Union.

The scriptural history of green bonds can be traced back to 2007, when the European Investment Bank (EIB) issued the first green bond, channeling its funds to projects dedicated to the transition to renewable energy and energy efficiency (Nikolaou, 2018). Over time, other financial institutions, governments and companies have adopted this practice, contributing significantly to the development of the green bond market.

From the literature in the field, green bonds are likewise described as financial instruments designed to support projects and initiatives with a positive environmental impact (Agliardi and Agliardi, 2019; Sartzetakis, 2021; Fatica and Panzica, 2021; Alamgir and Cheng, 2023, Mecu et al., 2021). They are issued by specialized institutions such as governments, financial institutions or companies and aim to finance projects that promote the transition to a low-carbon economy and the efficient use of natural resources (Versal and Sholoiko, 2022).

Green bonds are described as essential for channeling capital towards sustainable initiatives, including smart and green infrastructure, renewable energy and energy efficiency (Monk and Perkins, 2020; Muhammad et al., 2022; Muhammad et al., 2022; Ning et al., 2023; Almagir and Cheng, 2023; Mecu et al., 2021). They are seen as catalysts for efficiently transitioning to a low-carbon economy and encouraging sustainability innovation.

The green bond market has experienced rapid growth, attracting more issuers and investors of such financial instruments (Gianfrate and Peri, 2019; Tang and Zhang, 2020; Caramichael and Rapp, 2024). Investor attraction is not only due to financial returns, but also for their alignment with European and global sustainability goals (Broadstock et al., 2022; Ahmed and Isahque, 2023).

Studies in the literature highlight the need for a clear and concise regulatory framework to ensure transparency and trust in green bonds (Ramstad, 2019; Bhutta et al., 2022). Concrete standards and certifications are required to facilitate comparability and assess environmental impacts. These standards are requested by issuers in response to challenges identified by issuers and include the need to develop and implement more rigorous ESG standards as well as to increase investor awareness and education on green bonds.

However, the literature in the field emphasizes that there are significant opportunities for the continued growth of the green bond market, particularly in the context of the increasingly emphasized global climate change commitments and initiatives (Tolliver el al., 2020; Deschryver and de Mariz, 2020; Tolliver et al., 2019).

3. Research Methods

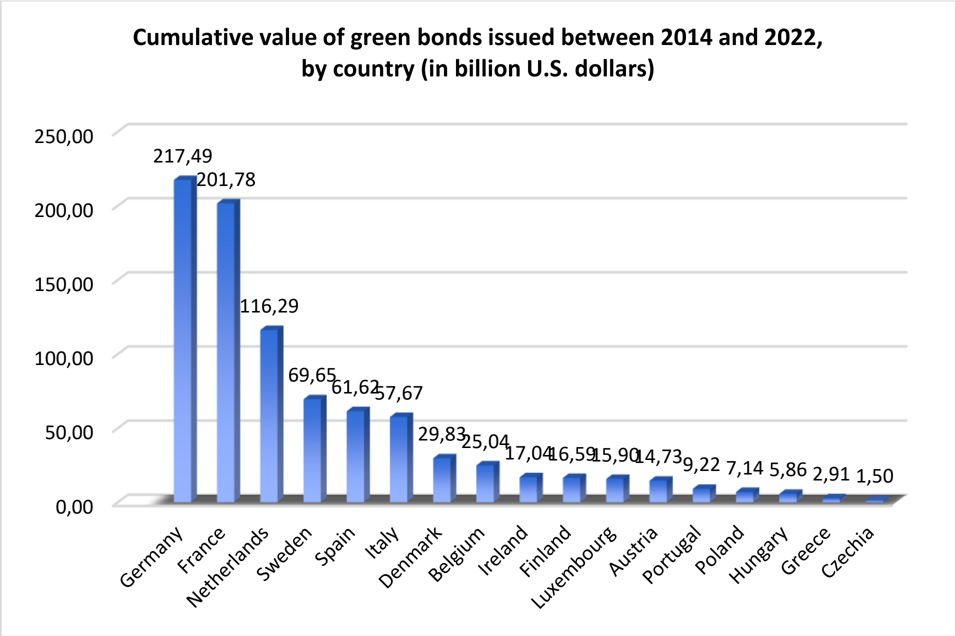
The research aims to analyze the impact and evolution of green bonds in the European Union, looking at the most relevant players participating in this market: financial institutions, governments, companies, and non-governmental organizations. It describes the role of these entities in promoting and developing such financial instruments and evaluates how the regulatory framework has influenced their evolution over time. It contributes to the literature by pointing out new novelties and challenges not addressed by the literature review in an attempt to increase current understanding of the role that green bonds could play in promoting financial sustainability and a low-carbon economy in the EU. The research is undertaken with the objective of providing useful insights for investors, financial institutions, and government authorities to understand the dynamics and direction of the EU green bond market.

4. Findings

4.1 Growing interest in green bonds in the European Union

The focus of the European Union on sustainability and environmental protection further quickens the pace of the impending surge of interest in green bonds. This was a trend underpinning Europe's low-carbon economies, evidenced by the targets specified in both the Paris Agreement and the European Green Deal. National government initiatives, such as tax incentives and regulatory standards, have further boosted the green bond market (European Parliament, 2023; European Commission, 2021; Chygryn et al., 2018; Baldacci and Possamai, 2022; MacRae and Tozer, 2024; Fisch, 2019). Investors are aware of climate risks and are acting as atae by diversifying portfolios that incorporate environmental, social and governance (ESG) criteria into their decision-making (Agliardi and Agliardi, 2019). As a result, demand for green bonds in the EU has skyrocketed, with an annual growth rate of over 50% in recent years (Alamgir and Cheng, 2023).

Figure 1. Value of green bonds issued in European Union 2014-2022, by country



Source: Climate Bonds Initiative (2023).

Figure 1 presents the accumulative flow of the green bond issuance in the EU member states for the period under analysis, 2014-2022. It can be noted that Germany and France are leading forces in their commitment to financing green projects, with huge amounts over 200 billion dollars each. The Netherlands, Sweden, and Spain have a pretty reasonable green bond issuance as against the rest of the European countries, defining their ambition to finance projects with positive environmental impacts. Such countries may be taken as examples of best practice that other EU nations would consider as a benchmark in their commitment to sustainability and promotion of green investment. Their substantial issuance of green bonds will encourage other countries to do the same, invest more in projects with a positive environmental impact, and prioritize them.

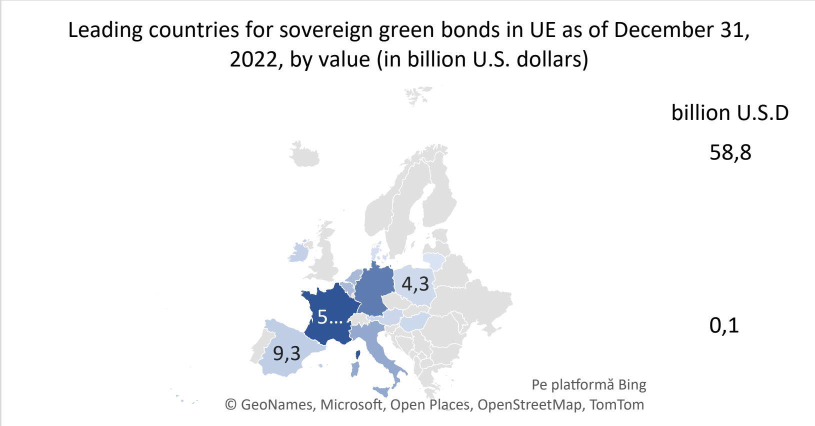
From 2014 to 2022, EU green bond issuance grew from 0.6% to 8.9% of total bond issuance, European legislative initiatives along the lines of the European Green Deal emphasize the EEA in 2023. International companies grew very fast, coming to rest at 11.0% in the year 2022 (EEA, 2023). The supranational bodies increased emissions to 8.6% in the same period. On the other hand, municipalities/agencies had considerable growth, but the issuance of sovereign government green bonds only showed a modest rise before it declined (EEA, 2023).

Looking forward into the future, however – with high demand and the targets forced by the EU Green Deal – green bonds will likely form a larger share of total issuance. In that line, the European Commission intends to issue more green bonds in order to finance its NextGenerationEU plan (European Commission, 2023). It is initiatives like the EU Action Plan for Financing Sustainable Growth and EU Taxonomy for Sustainable Activities that are timely, providing more incentives for sustainable investment and issuance of green bonds (European Commission, 2018; European Commission, 2021).

4.2 The Main Actors Involved in the Green Bond Market in the European Union

At the heart of the promotion of green bonds with respect to the creation of a legal and regulatory environment are national governments of EU member states. This may be achieved by way of tax exemption, state guarantees, or even standard setting in ESG reporting. Furthermore, the governments can even issue green bonds to finance national green projects. Demand for green bonds could be stimulated, and consequently low-carbon economies made easier to attain, by incorporating sustainable investments into fiscal policies and government programs. According to Figure 2, on 31 December 2022, France is the biggest sovereign issuer of green bonds, with an aggregate amount issued of approximately US$58.8 billion.

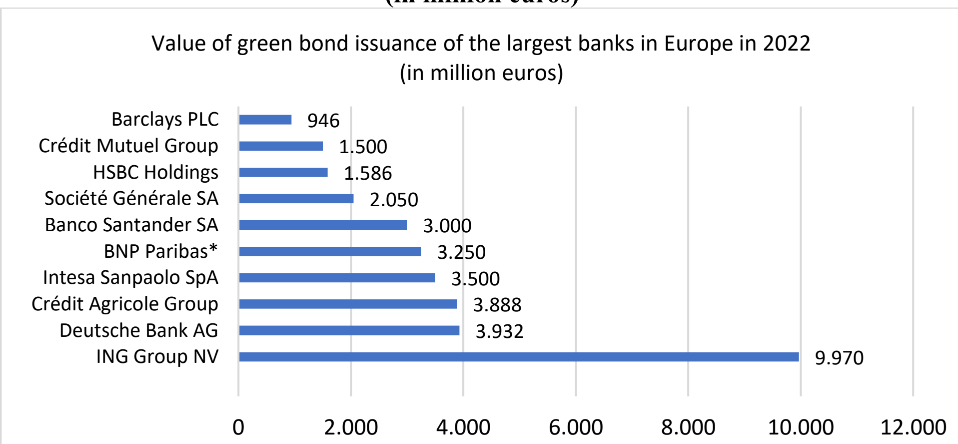
Figure 2. Leading countries for sovereign green bonds in UE as of December 31, 2022, by value (in billion U.S. dollars)



Source: Climate Bonds Initiative (2023).

Banks and investment funds are the two most influential financial institutions in the green bond market. They issue, underwrite and buy these bonds because of their operational expertise in identifying and financing green projects. They offer responsible investment by integrating ESG criteria, stimulating demand for green bonds and raising sustainability standards. They also create incentives for financial innovation in the development of new products, such as bonds with variable yield mechanisms linked to sustainable projects or securitization instruments covering green assets. As it is shown in Figure 3, in 2022, the Dutch ING Group led among the main European banks as the largest issuer of green bonds, with issuance totaling approximately €9.97 billion out of the 12 green bonds issued since 2018. Deutsche Bank takes the second position, having 11 green bonds totaling €3.93 bln in nominal face value.

Figure 3. Value of green bond issuance of the largest banks in Europe in 2022 (in million euros)



Source: Statista (2023).

Multinationals and corporates are increasingly tapping the green bond market for financing projects in sustainable initiatives such as energy efficiency and renewable energy initiatives. In this, they see the possibility of proclaiming to the world that they take serious regard for corporate social responsibility and protection of the environment, hence attracting investor and customer confidence and improving brand image. Such funds are aimed at stimulating innovation and sustainable development that would facilitate low-carbon economic shifts while meeting sustainable development goals.

The non-governmental and environmental organizations have a very key role in the green bond market through activities such as advocating, educating, and monitoring. They further influence policy and the law, promote standards of sustainability, and increase awareness through outreach. It, by overseeing the issuers and investors to ensure transparency and accountability, minimizes the possibility of green washing and promotes better ESG performance.

4.3 The Regulatory Framework for Green Bonds in the European Union

The European Union has stipulated strict rules to maximize efforts for growing green bonds and other sustainable financial instruments. The European rules do ensure transparency, compliance, and credibility in the issuance and investment of Green Bonds in EU Member States. Of importance in this case are transparency and compliance in the use of bond funds to ensure that they are used for projects that are of benefit to the environment. This should be ensured by the legislative framework that funds would clearly be reported and verified for use in supporting sustainable initiatives that have certain criteria.

Many of the Member States in the EU give tax incentives and subsidies to stimulate green bond issuance and investment. These range from exempting tax on interest or other income from such bonds, to offering subsidies for sustainable projects that make up the underlying assets of the green bonds, thereby lowering the cost and creating an enabling environment for investment in green projects within the EU.

EU Regulation 852/2020, the taxonomy of the EU, is a transparency tool to both companies and investors, underpinned by real scientific evidence. In addition, it shall also be used to set an EU Green Bond Standard and an EU Ecolabel for financial products.

According to the European Union's Green Bonds Regulation, applicable as of December 21, 2024, EU bond issuers will have to apply voluntary standards for the labelling of their bonds as either a "European Green Bond" or an "EuGB". The regulation defines strict criteria for investments in environmentally sustainable projects, requires pre- and post-issuance reporting and introduces external evaluation frameworks. The Regulation encourages transparency, comparability and investment in sustainable activities aligned with the EU Taxonomy Regulation (European Commission, 2024).

NextGenerationEU Green Bonds are expected to ensure Europe's commitment to sustainable finance at the EU and, accordingly, capital markets levels. These bonds seem to be quite a strong signal about the commitment of the European Commission to sustainability and open up the possibility for a highly valuable and liquid green asset. They mobilize investment into sustainability through the ability to access a broader investor base and diversified portfolios, therefore supporting the green bond market. Such bonds provide for a robust framework, aligned with international standards, that ensure transparency in the use of funds, rigorous reporting, and increased credibility of the instruments, further strengthening the leadership of the EU in sustainable finance (European Commission, 2023). Under the NextGenerationEU, a big chunk of the funding from the Member States' recovery and resilience plans is dedicated to sustainable investments and reforms in green infrastructure and renewable energy. This includes at least 37% for green investment and reforms under NextGenerationEU (European Commission, 2023).

6. Conclusions

Interest in green bonds is building up within the EU as the feeling of financial sustainability and protection of the environment increases. The very strong position of the European Union and government policies to support such a green bond market's development have contributed immensely to such interest. These statistics show that there has been a significant increase in the issuance of green bonds in the EU, from 0.6% to 8.9% of the total bond issuance between 2014 and 2022, pointing out an escalating trend in the issuance of the bonds.

Governments, through their national and local levels, financial institutions, corporates, and NGOs, as well as other relevant agents, help promote green bonds in the EU, create friendly regulations, expertise and financing for sustainable projects that will spur development of a solid green bond market, and in turn spur sustainable investments towards realization of regional development goals.

The European Union is also a proponent for sound regulation in the development of green bonds and other sustainable financial instruments. The regulatory framework should define clear criteria and standards that will support the transition toward a low-carbon, resource-efficient, and sustainable economy in the EU.

In this section, it is also relevant to mention some of the critics, which regard both green bond issuance and those addressed to the study. Among such criticisms are the green washing issues, effective and consistent standards, and eligibility criteria for green bonds, which can or cannot totally matter in terms of assisting the environment.

Research gaps toward the full comprehension of the impacts of green bonds and how they can really make a contribution to long-term sustainable development need to be accepted. Further empirical analysis research, therefore, needs to be conducted in order to appropriately assess the outcomes and impacts of these financial instruments.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used Grammarly and Writefull in order to assist with language translation and to enhance the grammatical accuracy and overall quality of the manuscript. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

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