
GREEN FINANCE – INTERNATIONAL INITIATIVES AND RELEVANT PRACTICES IN SUPPORTING GLOBAL SUSTAINABLE GOALS¹

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Abstract:

Currently, under the imperative of sustainable development, green finance could play an important role. Starting from this premise, the objective of this paper is to present a selection of some representative initiatives in the field of green financing, on which several successful international experiences are based. To this end, the first part of the paper reveals some global initiatives fostering sustainable financial system including the Net-Zero Banking Alliance, the Sustainable Banking and Finance Network, the Net-Zero Insurance Alliance. Of great importance for promoting green finance are Principles for Responsible Investment, Principles for Responsible Banking and Principles for Sustainable Insurance as well as creation of green funds and green banks, new financial institutions from which we have selected some relevant case studies. Green bonds were chosen to be presented in the last part of the paper, due to their evolution, progress and growing use in financing environmental projects. Thus, examples of successful green bond issues in both emerging and developed markets are highlighted. Given the urgency for environmental action, the promotion of best practices implemented in different countries could help authorities, financial institutions and economic agents in countries in the early stages of their sustainability journey.

Keywords: green finance, international initiatives, financial institutions, green bounds, best practice

JEL classification: G21, G22, G23, G28, Q56

1. Introduction

In order to achieve the ambitious sustainable goals established on the global agenda, huge amount of funds and specialized capabilities are required. As a result, the imperative of sustainable development has generated some transformational actions in financial system, both at national and international levels. In this context, international practice already offers us a variety of financial instruments with sustainable objectives, among which the green instruments stand out. Nowadays, green finance is “*a 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., 2012).

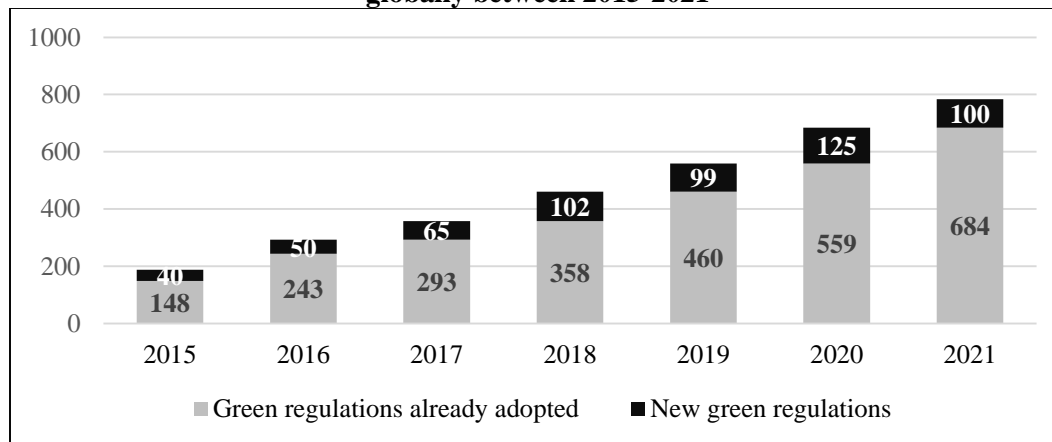
Through its objectives, instruments and results, green financing aligns with the “UN’s Sustainable Development Goals” (SDGs), in its scope being included mainly financial products and services from the field of investments, banking

¹ This paper is based on a part of the authors' contribution to the study “*Green finance in Romania in the context of European initiatives and programs. Analysis of the current state and measures for improvement*” coordinated by Dr. Claudia Gabriela Baicu, the Romanian Academy, the National Institute of Economic Research "Costin C. Kiritescu", the Institute for World Economy, Bucharest 2023.

and insurance services. In addition to these types of financial instruments, new green financial institutions (green banks, green funds, etc.) have also emerged (Green Finance Platform, 2023a).

Following the *Paris Agreement* on climate change adopted in December 2015 at the UN Climate Change Conference (COP21), by a considerable number of countries (respectively, 196) the pace of measures adopted for environmental objectives has accelerated. The number of green financial measures increased more than three times (from 188 in 2015 to 784 in 2021), revealing the commitment of the countries to achieve these objectives. The evolution of policy and regulatory measures issued by public authorities, such as governments, central banks, financial regulators, public financial institutions are illustrated in Figure 1.

Figure 1. The evolution of green financial measures issued by public authorities, globally between 2015-2021



Source: Green Finance Platform (2023b).

Over the last decade, the total funds allocated to the climate segment have grown steadily, with a slowdown in the last few years, due to changes in priorities at the level of the objectives to be financed at the global level (e.g. pandemic crisis). The relevant studies show that a 590% growth rate of annual climate financing could ensure the fulfilment of internationally agreed climate objectives for the time horizon of 2030. Climate finance flows are estimated at USD 4.5 - 5 trillion annually (CPI, 2021; GFP, 2023a). According to the United Nations Environment Programme, climate actions expenditures are crucial to increase to USD 300 billion per year by 2030 and USD 500 billion by 2050 (UN, 2023b).

Understanding the *urgency* and the *long journey* to achieve environment objectives, it is imperative to *promote and support the financing models in the climate field already successfully implemented by various other countries* around the world and to identify good practices of countries and companies that have already recorded notable results in this field. From this perspective, a very appreciated initiative was performed by the European Union (UE) that established a taxonomy for sustainable activities. The EU Taxonomy Regulation, into force since 12 July 2020, sets out the fundamental conditions that an economic activity has to meet in order to qualify as environmentally sustainable (EC, 2023; UNEP, 2023c). The EU taxonomy establishes six environmental objectives: "climate change mitigation, climate change adaptation, the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention and control, the protection and restoration of biodiversity and ecosystems" (EUR-Lex, 2020). In the same line, it is included the *EU Taxonomy for environmentally sustainable finance*, which is already an inspiring model for authorities in many emerging and developing economies in developing their own taxonomies in this field, including: Colombia, Chile, Mexico, South Africa and Malaysia (Amundi Asset Management, IFC, 2022).

Promoting successful models and good practices in green finance can be good inspiration models for countries in the early stages of their sustainability journey.

2. Green finance - key international initiatives

Green finance international initiatives are seen as one of the best ways to facilitate the exchange of public information, and to support investors in their environmental, social, and governance (ESG) strategies. As already mentioned, green finance initiatives are developed into three main areas: investment, banking and insurance (Green Finance Platform, 2023a).

(i) For *green investment*, the *six Principles for Responsible Investment* (PRI), created in 2005, under the UN auspices, were developed "by investors, for investors" (UN, 2023a). They offer a framework for incorporating ESG issues into their investment decisions. In 2023, the PRI are applied by 5370 Signatories, 727 asset owners, 4095 investment managers, and 548 service providers (UN, 2023a). The *Climate Action 100+ Initiative* provides also a collaboration environment for the investors eager to promote decarbonization actions of the high-carbon industries, involving over 700 investors that manage USD 68 trillion in assets and 171 companies (Climate Action 100+, 2023).

(ii) For *green banking*, UN also created another *six Principles for Responsible Banking* (PRB). These principles were adopted by over 300 signatory banks covering almost half of the global banking industry (UNEP, 2023a). Under the PRB, the *Net-Zero Banking Alliance* (NZBA) has been developed as a climate-focused initiative of this global framework. NZBA brings together 133 banks from 43 countries, representing more than 40% of global banking assets, which are committed to aligning their lending and investment portfolios with net-zero emissions by 2050 (UNEP, 2023b).

The initiatives in the green banking area are very well developed, other representative examples being: the *Sustainable Banking and Finance Network* (SBFN) - a platform bringing together 63 member countries, 80 member institutions, USD 43 trillion banking assets supervised (SBFN, 2023); and the *Green Bank Network* (GBN) - a membership organization created at the Paris COP21 conference in December 2015 in order to stimulate the collaboration and support the knowledge sharing among green banks. GBN allows its members to share "best practices and lessons learned", offering also a source of inspiration for the new authorities interested in promoting green banks (GBN, 2023a).

(iii) For *green insurance*, the UN has created the *Principles for Sustainable Insurance* (PSI) (four principles) that also approach climate change and natural disasters (GFP, 2023c). The main objectives of PSI are to provide the best understanding of the environmental, social and governance risks (UNEP, 2023d). *Net-Zero Insurance Alliance* is a group consisting of 29 leading insurers; together they represent 15% of the world premium volume globally (UNEP, 2023f). Its members have committed to transition their insurance and reinsurance underwriting portfolios to net-zero greenhouse gas emissions by 2050, in order to contribute to the implementation of the Paris Agreement on Climate Change (UNEP, 2023e).

To *summarize*, the UN network and all other initiatives developed under its auspices are collaborative structures bringing together investors, banks and insurers around the world whose goals are to accelerate the funding of environment friendly projects. International green finance initiatives are also important platform for the exchange of good practices among the main actors called to take action to achieve environmentally sustainable goals.

3. International success stories of green financial institutions

In this section, a series of investment funds and banks are selected and highlighted as being able to serve as models in the field of green finance. Their support in achieving environmental goals is considerable, and, therefore, their presentation can be a model of inspiration for other interested entities or, at least, a way to identify collaborative benefits.

(i) *Green investment funds* (GIF) are considered those funds that target environmentally-friendly companies (Graw, 2023).

In 2023, in the top of most important green investment funds there are placed: iShares Global Clean Energy ETF, Invesco Solar ETF and Global X Lithium & Battery Tech ETF. (a) *iShares Global Clean Energy ETF* is an established clean energy ETF characterised by low management fees, launched in 2008. This is one of the largest green funds, with

USD 5.6 billion in assets under management in April 2023. Its investments include companies developing solar and wind power or battery and semiconductor companies. (b) *Invesco Solar ETF* (a solar-focused green fund) includes companies like Enphase Energy, SolarEdge Technologies, and First Solar. While more than 50% of the fund's investments are based in the US, approximately one fifth focus solar panel manufacturing facilities in China. (c) *Global X Lithium & Battery Tech ETF* (a green fund targeting battery technology) invests in companies that are creating the technologies required for electric vehicles or off-grid energy storage. Top holdings in this ETF contain the most important companies in the world (such as Albemarle Corporation, Quimica Y-SP, or LG Chemical). Important to note that 21% of stock holdings are based in the US, and almost 40% in China. The top of green investment funds includes an impressive list of funds covering a variety of environment areas (such as wind energy, sustainable food, clean energy tech, water, carbon removal tech), which means that international business structures are seriously committed to supporting the achievement of environmental goals (Graw, 2023).

At the same time, it is important to mention that green funds are varied, covering diverse functional structures. A representative model of good practice can be identified in the case of *Japan's Green Fund* (JGF), operational since July 2013. JGF was created by the Minister of the Environment in order to mobilise private capital to tackle global warming. This fund, which invests in projects for reducing greenhouse gas, benefits from a part of the revenue of *Tax for climate change mitigation*, established in 2012 (GBN, 2023b).

(ii) According to the Coalition for Green Capital, *green banks* are defined as: "*mission-driven institutions that use innovative financing to accelerate the transition to clean energy and fight climate change*" (CGC, 2023). OECD specifies that green banks can be public, quasi-public, private or even non-profit entities (GBN, 2023d). At the international level, there are many good examples in this field, among which we have selected three of them - from Australia, Brazil and India - to highlight both the great variety and large international coverage.

Clean Energy Finance Corporation (CEFC) is a government statutory authority from Australia in charge of mobilizing funds for clean energy technologies (OECD, 2023; CEFC, 2023a). So far, CEFC has achieved the following performances: USD 48.8 billion transaction value, USD 12.7 billion commitments, more than 300 large-scale transactions (CEFC, 2023c). Among many recent representative examples are the projects on small scale generators (of US 150 million) (CEFC, 2023b).

For the second example, we chose a development bank with state capital, with an important tradition, namely *Banco de Desenvolvimento de Minas Gerais* (BDMG), whose history begins in 1962. The general object of this bank "is to support economic, financial, and social development within the state" (GBN, 2023c). Since 2012, BDMG has raised about USD 460 million for supporting green projects in a wide range of sectors, including agrobusiness, energy efficiency, renewable energy and sanitation. A main part of these funds, more precisely USD 182 million, represents international contributions from Agence Française de Développement and the European Investment Bank. It is important to note, that the bank was the first financial institution from Brazil to issue a green bond on the US market, in 2020 (NRDC, 2021; BDMG, 2023).

The third example is *Tata Cleantech Capital Limited* (TCCL), the first private sector institution in the green banking network in India. TCCL is a joint venture between Tata Capital Limited (TCL) and International Finance Corporation, established in September 2011. Its main results can be summarized in 330 projects financed, 19.6 MT carbon emissions averted, 12.6 GW renewable capacity financed (TCCL, 2023).

4. Green bonds – prominent tool of green finance

4.1. Green bonds – history, overview

Green bonds are one of the most prominent tools used within green finance. There is no unique definition of green bond. Nevertheless, green bonds are considered bonds that finance green projects: (i) "*A green bond is a debt security that is issued to raise capital specifically to support climate-related or environmental projects*" (World Bank, 2015); (ii) "*Green Bonds are any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance*

or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles" (ICMA, 2021a).

Among others, the development of green bond market was favoured by the Green Bond Principles (GBPs) developed by the International Capital Market Association (ICMA) that have the following dimensions: (i) "Use of Proceeds"; (ii) "Process for Project Evaluation and Selection"; (iii) "Management of Proceeds"; (iv) "Reporting" (ICMA, 2021a).

Historically, the World Bank was the first entity in the world to issue a green-labelled bond. This issuance took place in 2008 (World Bank, 2022). But, the European Investment Bank (EIB) issued a Climate Awareness Bond in 2007 (EIB, 2007). Since then, "**green bonds have been moving from niche to mainstream**" (EIB, 2022). However, the thematic bonds market emerged a year before, in 2006 (Hussain, 2022). Then, the International Finance Facility for Immunisation (IFFIm) launched bonds to finance children immunisation programme in the poorest countries of the world (Gavi, 2006).

As sustainability considerations have gained prominence, the "Environmental, Social, and Governance" (ESG) bond market has diversified. Thus, currently, besides (i) green bonds, ESG bonds also include: (ii) social bonds; (iii) sustainability bonds; (iv) sustainability-linked bonds (SLBs); and (v) transition bonds (Lindner, Chung, 2023).

The funds raised through social bonds issuance are used to finance social projects:

"Social Bonds are any type of bond instrument where the proceeds, or an equivalent amount, will be exclusively applied to finance or re-finance in part or in full new and/or existing eligible Social Projects and which are aligned with the four core components of the Social Bond Principles" (ICMA, 2021b). The category of social projects includes projects aimed at promoting job creation or ensuring food security. Therefore, different vulnerable groups and people living below the poverty are among the beneficiaries of these projects (ICMA, 2021b). Instead, bonds that finance both social and green projects are labelled sustainability bonds (ICMA, 2021c).

Unlike green, social and sustainability bonds, SLBs are more flexible, as they do not require firms to spend the funds raised through bonds issuance only for specific projects. But the coupon paid to investors will depend on issuer's sustainability performance (Berrada et al., 2022). Italian group Enel issued the first sustainability-linked bond in 2019 (Lindner, Chung, 2023). However, despite their flexibility, SLBs face several challenges including the complexity of the process of labelling a bond as an SLB. On the other hand, many investors are not willing to accept the potential step down in the coupon. Similarly, some issuers cannot accept coupon step up (World Bank, 2022).

Beside these thematic bonds, the transition to green economy gave also birth to another type of financial instrument, namely, transition bond. In this case, the funds obtained through bond issuance are not used to finance green projects, but, on the contrary, are used to finance "a company's transition towards reduced environmental impact or lower carbon emissions" (Oxford Business Group, 2021).

Amid the growing awareness of the need for a green economy, the green bond market has developed more and more. Therefore, cumulative green bonds, social bonds, sustainability bonds, SLBs and transition bonds has reached significant sizes. To illustrate, by 30 September 2022, these cumulative issuances have reached USD 3.5tn. Within them, cumulative green bond issuances account for the most part of the total (57,2%); the smallest shares came from SLBs (5,5%) and transition (0,4%) (Harrison (lead author), MacGeoch, 2022). While green bond issuance was promoted especially by socially responsible investors, advantages of green bonds may also include tax incentives (CFI, 2023).

Rising interest rates affected green bond market in 2022. Consequently, green bond issuance declined by 16% compared to 2021 volumes, representing the first year-over-year contraction. Nevertheless, green bond market maintained 3% of the total bond issuance volume (Michetti et al., 2023). Therefore, despite some successes achieved in a relatively short period of time, the size of the green bond market still remains small.

4.2. Relevant examples of green bonds issuance

The following examples focused on the first-time issuer of green bonds within each category of issuers: multilateral development banks, sub nationals, corporates, sovereign issuers. However, other green bonds examples were also presented

in order to emphasize the diversity of green bonds issuers both in geographical and institutional terms. The chronological order of issuance of the first green bond by category of issuers was considered too.

Multilateral development banks. As already mentioned, multilateral development banks stand out by being the first category of issuers on the green bond market. Over the time, the World Bank and the European Investment Bank have been joined by other issuers including the European Bank for Reconstruction and Development (EBRD). The EBRD issued its inaugural green bond in 2010 (Williams, 2013). Moreover, in 2019, the EBRD issued its inaugural Green Transition Bond, amount EUR 500 million. Banks (59%) and asset managers (26%) were the most important investor categories (EBRD, 2019).

Subnationals. In the early 2010s, local governments and public enterprises, including Kommunalbanken Norway (2010) and Government of the Île-de-France region (2012), started to issuing bonds to fund environmentally friendly projects (Cheng, Ehlers, Packer, 2022). The year 2013 was an important year in terms of green bond issuances as, in June, Massachusetts launched the inaugural green muni bond, and, later, in October, was the turn of Gothenburg to issue the first Green City bond (Climate Bonds Initiative, 2023). Examples in this category include also emerging markets. In this regard, four years later (2017), City of Cape Town issued its debut green bond that was very successfully (World Bank, 2022).

Corporates. Chronologically, corporations are the third category of issuers on the green bond market. The first green bond of its kind was issued in November 2013 by the Swedish property company Vasakronan (Climate Bonds Initiative, 2023). Relevant examples in this field are bonds issued by auto industry and utility companies. Thus, in 2014 Toyota Financial Services (TFS) launched the auto industry first Green Bond to fund consumer loans and leases for green vehicles (Toyota, 2014). In the same year, the Austrian electricity provider and utility company Verbund AG issued a EUR 500mn 10Y bond for clean energy, the underlying projects including wind power projects in Germany (Cech, 2020).

Banks are also included within the green bonds' issuers category. Thus, the largest financial corporate green bond (USD4.7bn) in 2022 was issued by Bank of China with the goal to finance, among other, projects on renewable energy, waste recycling and low-carbon transport (Michetti, et al., 2023). Banks are active issuers in other regions too. To illustrate, on 7 May 2021, Raiffeisen Bank Romania placed the first green bond issuance of a local bank that targeted institutional investors. The issuance, worth over 400 million lei, was oversubscribed almost 1.6 times (Raiffeisen Bank, 2021).

Moreover, capital market instruments have diversified with the green sukuk debut. This new instrument, which combines green finance and Islamic finance, was launched on July 27, 2017 by Tadau Energy Sdn. Bhd. (Tadau Energy) to finance a solar photovoltaic power plant (World Bank, 2020).

Sovereign issuers. Sovereign issuers represent the most recent category of green bond issuers. Poland and France issued the first sovereign green bonds in late 2016, and early 2017 (Giuliani (lead author), Sonerud, 2018). However, sovereign green bond market has expanded after the beginning of the pandemic and other European Union (EU) member states, such as Germany, Spain, and Italy, have issued their inaugural sovereign green bonds (Cheng, Ehlers, Packer, 2022). Recently, in Q3 2022, Italy issued its second green bond (a EUR6bn (USD6.1bn), 2035 maturity) and Germany, its fifth green bond (a EUR5bn (USD4.9bn) 5-year) (Harrison, (lead author), MacGeoch, 2022), reflecting the high EU green agenda. It is important to note that the issuance of green bonds in the EU gained momentum following the COVID-19 pandemic. As a result, in the first part of October 2021, The European Commission has launched the first NextGenerationEU green bond to support the sustainable recovery across the EU after the pandemic. The amount of issuance was of €12 billion. The green bond was more than 11 times oversubscribed (European Commission, 2021).

The issuance of green sovereign bonds has also gained importance in other regions of the world. Thus, in 2017 Fiji, vulnerable to cyclones, floods and climate change, became the first developing country to issue a sovereign green bond, raising equivalent of US\$50 million (World Bank, 2017).

In addition, the initiatives in this field were enriched with sovereign green sukuk. The first sovereign green sukuk was issued by the Government of Indonesia in March 2018, reaching an amount of \$1.25 billion (UNDP, 2018).

A summary of the most relevant moments in the history of the green bond market is illustrated in the Table 1.

Table 1: Pioneering instruments on the international green bond market

<i>Instrument</i>	<i>Issuer</i>	<i>Year of issuance</i>	<i>Source</i>
The first Climate Awareness Bond	The European Investment Bank	2007	EIB (2007)
The first labelled green bond	The World Bank	2008	World Bank (2022)
The first corporate green bond	The Swedish property company Vasakronan	2013	Climate Bonds Initiative (2023)
The first green muni bond	Massachusetts	2013	Climate Bonds Initiative (2023)
The first sovereign green bond	Poland	2016	Giuliani (lead author), Sonerud (2018)
The first green sukuk	Tadau Energy Sdn. Bhd. (Tadau Energy)	2017	World Bank (2020)
The first sovereign green sukuk	The Government of Indonesia	2018	(UNDP, 2018)

Source: authors' elaboration based on cited references.

All these examples reveal the great diversity of bonds in terms of typology, issuers and geographic coverage.

5. Conclusions

The ambitious international green agenda requires important investments and the financial system is called to support the achievement of sustainability performance. In this context, a new area of finance has been developing - green finance -, covering investments, banking and insurance products and services. Green investment funds or green banks has been established to facilitate investments in environmentally sustainable economic activities. Sustainability taxonomies plaid an important role in promoting green finance and best practice. Global initiatives for greening financial system include Net-Zero Banking Alliance, Sustainable Banking and Finance Network, Net-Zero Insurance Alliance.

One of the most prominent green financial instruments is green bond aimed to finance projects with environmental positive impact. The international interest towards green bonds issuance is growing, reflected both in the issuance volume, and diversifying the issuers categories including multilateral development banks, sub-nationals, non-financial corporates, banks and, recently, sovereign issuers. However, the size of green bond market is still small and efforts to disseminate, improve and innovate green finance products and services should accelerate.

To conclude, the great variety of initiatives and models internationally implemented, from which we have selected a few of the most representative, reveals the commitment of financial community to achieving the sustainable goals, an imperative for a better future for next generation.

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