Tomás Coutinho de Lucena Barreiro

An Analysis of the Green Bond Regulatory Landscape: Opportunities and Outlook

Dissertation to obtain a Master's Degree in Law,
in the specialty of Law and Management

Supervisor:

Dr. Miguel de Azevedo Moura, Professor of the NOVA School of Law

March 2023

Anti-plagiarism statement

In accordance with Article 20.º-A of the NOVA School of Law's Regulation for the 2nd Cycle of Studies leading to a Master's Degree in Law, I certify that this dissertation is my own work, based on my personal study and/or research and that I have acknowledged all material and sources used in its preparation, whether they be books, articles, reports, lecture notes, and any other kind of document, electronic or personal communication. I also certify that this dissertation has not previously been submitted for assessment in any other unit, and that I have not copied in part or whole or otherwise plagiarised the work of other students and/or persons.

Lisbon, 28th of March 2023

.....

(Tomás Coutinho de Lucena Barreiro)

“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”

– Charles Darwin

“All we have to decide is what to do with the time that is given us.”

– J. R. R. Tolkien

Acknowledgments

This work could not have done if not for my parents Carlos Barreiro and Maria do Rosário Lucena, to whom I thank for providing everything.

Essential was also the support of my family, especially all the advice my godparents Francisco Saruga Martins and Maria Teresa Lucena provided me, not only throughout this work, but all my life.

To Professor Doutor Miguel de Azevedo Moura, who was kind enough to provide guidance when I was lost, without restricting all the meanderings I had to go around in my thoughs to conclude this work.

To all my friends, and especially to the XIX, Bernardo Beirão, Francisco Correia, Gonçalo Mestre, Guilherme Piedade, Henrique Fernandes, João Borda, João Oliveira, Luis Fernandes, Luís Costa, Manuel Baptista, Manuel Carvalho, Tiago Farinha and Tomás Branco for helping me keep my sanity throughout the last months of work.

Quoting and other conventions

I. In the context of this dissertation, other academic works will be quoted in accordance with the APA 7th Edition, in the following fashion: in-text citations of academic works will appear as (Author, Year). The complete reference can then be found in the References section, in the Bibliography chapter. This alteration regarding the quotation mode is justified with the fact that the whole dissertation is written in the English language, while also most of the research was also read in the same language. Thus, for fluidity reasons, and so that the text of the dissertation poses adequately regarding most English-written articles, in-text citation was adopted, and the APA 7th Edition was the chosen rule.

II. Legislative sources will be briefly identified either in-text or in footnotes (e.g. Directive xxxx/2021/EC, Day Month Year). Full reference can be found in the References section, in the Legislation chapter.

III. The body of this dissertation has 164.662 characters, including spaces and footnotes.

IV. Quotes are written in italic, without quotation marks, to provide for increased fluidity and comprehension of the text.

List of Abbreviations and Acronyms

ACE agrupamentos complementares de empresas

AEIE Agrupamento Europeu de Interesse Económico

CAB Climate Awareness Bond

CMVM Comissão do Mercado de Valores Mobiliários

CO Carbon Monoxide

CO2 Carbon Dioxide

CRA credit rating agencies

CSC Código da Sociedades Comerciais

CSR Corporate Social Responsibility

CVM Código dos Valores Mobiliários

EC European Commission

EIB European Investment Bank

ESG Environmental, Social, Governance

ESMA European Securities and Markets Authority

EU European Union

EUA EU Allowances

EuGBR Commission proposal for a Regulation on European Green Bonds (COM(2021) 391 final)

FI Financial Instrument

FSB Financial Stability Board's

GAR Green Asset Ratio

GBP Green Bond Principles

GHG Greenhouse Gases

HLEG High-Level Expert Group on Sustainable Finance

ICMA International Capital Market Association

IPCC Intergovernmental Panel on Climate Change

KPI key performance indicators

NCA National Competent Authorities

NGEU Next Generation European Union

PBoC People's Bank of China

R&D Research & Development

SEBI Exchange Board of India

TEG Technical Expert Group on Sustainable Finance

US United States of America

Abstract

The field of sustainable finance has gone through rapid development over the last decades, due in part to the sense of urgency that has been building up. Legislative tools have been developed, particularly in the European Union, to reduce or mitigate atmospheric emissions of greenhouse gases, which cause climate change and other unfavorable effects.

Yet, in the specific situation of green bonds, private firms have made the bulk of the innovation and development of the essential legal mechanisms. This could be explained by the market's quick response to this innovation as well as the inherent demand of green bonds for some form of certification. There is a requirement to confirm that the funds are truly properly distributed and that the project is in fact "green" because they are distinguished by the funneling of proceeds to specific initiatives instead of being included in a company's balance sheet. As a result, a certifier must play a proactive role in addition to ensuring that the framework is used throughout the duration of the project. As a result, there is not only a need for the framework but also for a certifier to play a proactive role in making sure all monies are used appropriately throughout the course of the project. The Green Bond Principles and the Climate Bond Standards are now the most often utilized general principles and certification programs because there are no consistent standards in place. The necessity to "create an EU green bond standard that promotes sustainable investment in the most convenient way" was highlighted more recently by the European Green Deal. A proposal for a regulation of the European Parliament and of the Council "on European Green Bonds" was released by the European Commission on July 6, 2021, in accordance with that mandate (EuGBR). The proposed Regulation outlines a system for the registration and oversight of external reviewers as well as a framework of guidelines for bonds that achieve ecologically friendly goals in accordance with the Taxonomy Regulation. The "European Green Bond" (or "EuGBR") specifies uniform guidelines that apply to bond issuers and reviewers.

In this work we set out to analyse these main frameworks and their structure and then to analyse the emerging European unifomization effort. We also intended to analyse the advantages, finacial, reputanional or any other, of the use of this financial instrument.

Index

1. Introduction

Society as a whole is going through a decisive moment in its history. The next few decades will prove crucial if we want to change our trajectory and reverse the negative effects we have produced in the environment. One way to do this would be through questionable authoritarian measures that could end up having other negative effects on a scale too large to fix. One example of this is the energy crisis we are living in right now with gas and electricity prices rising to all time highs coming from an imbalance in supply and demand created by the rapid transition to renewable energy production, in large part as a result of centralized decisions that did not consider complex supply chains and then exacerbated by the conflict in eastern Europe. In order to avoid this oversight in the transition, the changes need to be produced by all the players since they are closer to their own issues and are able to assess what works best and is more sustainable in an economical sense. To this end, a crucial tool to incentivize and fuel this change is through sustainable finance practices.

The practice of properly accounting for environmental, social, and governance (ESG) factors when making investment decisions in the financial industry is known as sustainable finance. Theoretically, this results in greater long-term investments in sustainable economic activities.[1] One way to implement these principles and include more than financial factors in investment decision making, is to capitalize these other non-financial factors. In other words, to translate these principles into economical terms. From the government's side, this might be accomplished by imposing a carbon tax with the goal of internalizing the negative externalities associated with emissions or by creating emission permits that are given to the major emitters of those emissions via free or auctioned distribution. Environmental concerns can similarly be economically valued through Green Bonds on the part of both the government and businesses.

---

[1] https://www.worldbank.org/en/topic/financialsector/brief/sustainable-finance.

Green bonds are functionally comparable to traditional non-green fixed income securities, but they also promise to use the proceeds from their sale for environmentally friendly endeavors. Issuers designate cash raised for aiding in the accomplishment of environmental goals. Internalizing environmental externalities and modifying risk perceptions are the goals of green bonds. We want to address a lot of the issues raised by this in this work. The definition of "green" and what goals are environmentally friendly come first.

Since Bonds as a financial instrument have existed for at least five hundred years[2], their legal structure has been extensively developed and researched. The issue on this topic pertains then to the specificities of Green Bonds that, as written above, relate to the definition of their scope but also to their structure. In this light, I will address the issue of this much needed definition. Up until recently, this had been done by private associations that establish criteria and then provide certification and oversight to ensure these are met. Examples include the Green Bond Assessments from CICERO and Moody's, the ICMA Green Bond Guidelines, the Climate Bonds Initiative's Climate Bonds Standard, and the Financial Stability Board's (FSB) Task Force on Climate-Related Financial Disclosures. Green bond indexes, which categorize individual bonds as green using a specified methodology and enable investors to invest in a portfolio of green bonds to diversify risks, belong to a different category in and of themselves. Since index providers can exclude entities from an index as well as include them, it can be argued that they serve as institutions of certification. They also have the ability to do ongoing monitoring. Currently, Bank of America Merrill Lynch, Barclays MSCI, Standard & Poor's, and Solactive are responsible for creating the global green bond indices. Yet, the EU Taxonomy was just recently released by the European Union in an effort to unify a classification scheme for environmentally sustainable economic operations. One of the most crucial last steps is this one, which will help investors feel secure, prevent greenwashing, reduce market fragmentation, and direct investments to where they are most needed.

[2] Online Etimology Dictionary.

2. The genesis of Green Bonds

Looking at green bonds from a legal perspective, we can immediately understand from their nomenclature that they are a qualified type of bond. A bond is a type of security (in portuguese, valor mobiliário). In portuguese law this legal figure is defined in article 1º of Código dos Valores Mobiliários as having the following features: "representability, legal positions, homogeneity and fungibility, and negotiability"[3].

Securities are representative documents. This means that, regardless of being a paper or eletronic document, they can be considered a good or a "coisa" and, as such, able to be subjected to property rights. On the other hand, they are representative in the sense that they require cartular representation (art. 46º to 51 of CVM). Without it, they either do not exist or are not securities.[4]

Securities represent legal positions (art. 1º, g) CVM). This statement means that they can only represent rights and duties, excluding other elements of general Law Theory such as subjects, goods, actions or facts. On the other hand, it means that securities can represent any relevant legal positions. In these are included active and passive legal positions and even others such as onuses, liabilities or expectations. Securities, therefore, are usually complex legal positions simultaneously including active and passive positions, as long as these are patrimonial and private in nature.[5]

Securities are homogenous (art. 1º, g) CVM). The represented legal positions must be equal, they are issued together or in categories. This equality, or these categories, pertain to the identical nature, nominal or issue value, conditions os subscription, representation form, etc. and therefore they can be issued in different series and still be the same security. From this we can extract another characteristic: fungibility. Since Securities are issued en masse and with undistiguishable characteristics, it is not necessary to analyze them individually in regards to their content in each specific transaction. This distinguishes Securities from other

---

[3] Antunes, José Engrácia (2018), pp. 77 onwards.

[4] *Ibid.*

[5] *Ibid.*

instruments such as credit titles that are issued individually or even other financial instruments such as derivatives that are "tailor made".[6]

Finally, Securities are negotiable (art. 1º, g) CVM), they are susceptible to be traded on the market. Since their conception, securities have been conceived to be issued (primary market) and then traded (secondary market) in capital markets. This is specifically a market negotiability: they must be traded on the basis of supply and demand of the security price, not of any other characteristic of the security, and they must be freely circulated, en masse and in a standardized way, without legal or economical hindrances to that circulation. [7]

With this in mind we can have a more enlightened look at a specific security, the bond. This financial instrument represents credit rights. In Portuguese law they are prescribed in Art. 1º, b) of CVM and considerably developed in Arts. 348º onwards in CSC and 40º, 230º, etc. of CVM. This instrument serves as an avenue of financing for companies, next to shares, that presents several advantages. Not only for the issuers, that manage to get less expensive, safe and flexible debt when compared to external capital financing (bank loans), but also when compared to equity financing (share issuing). But also for the investor, who gets more sizeable returns when compared to other banking products such as deposit interest, but also safer than other capital markets applications such as in shares.[8]

Bonds are an alternative to shares, when we are speaking of financing, having many distinctions. The most important one is that, while shares are of a corporative nature, bonds are of a much more general nature and can be issued by a diversity of entities, from private to public. Secondly, in regards to their function, while shares are the main source of capital through equity to the issuing company given by the shareholders for long and indetermined periods of time and without any guarantee of repayment, bonds resource to external capital, usually supplied by third parties, usually by a predetermined time period and depenent on certain remuneration. Thirdly, while shares represent a complex, unitary legal position in regards to the issuing entity, bonds invest the holder as a mere creditor, representing essentially the right to credit of the loaned amounts and eventually to interest or premiums

---

[6] *Ibid.*

[7] *Ibid.*

[8] Antunes, José Engrácia (2018) pp. 114 onwards.

(fixed or variable). These distinctions, however, can become blurry when we are dealing with special modalities of bonds or shares. Examples of these special modalities are convertible bonds (art. 365º and 372º-A CSC), bonds with interest payments indexed to corporate profits (art. 360º b) CSC) and preferential shares without voting rights (art. 341º CSC). Beyond these, there are also the modalities not substantiated in the law such as bonds with share repayments and shares with rights to bond subscription.[9]

2.1. Content

Bonds are securities that represent one or more credit rights. These rights are of two fundamental types: rights to reimbursement, meaning the right to have returned the amoun equivalent to the nominal value of the subscribed bond, and rights to interest, meaning the remuneration of the capital left at the disposal of the issuer, regardless of the fact that this capital is currency or goods. However, even though these two types are fundamental, they are not essential elements. There might be bonds that do not contemplate them. Examples are perpetual bonds that do not confer the right to reimbursement, only to interest. On the other hand, zero coupon bonds do not contemplate periodical interest payments, instead relying on a premium on issuance or reimbursement.[10]

2.2. Modalities

Next to plain vanilla bonds, there is a multitude of special bonds that distiguish themselves in regards to the nature of the issuer, of the rights they contain, of their financing function or even their legal regime. In the Portuguese legal framework, this variety of typologies is a consequence of art. 360º CSC that, beyond enumerating a number of special modalities of bonds, also configures this Security as being of an open type by considering these special modalities as merely examples, not exhausting all the possibilities. We shall now mention some of these.[11]

---

[9] *Ibid.*

[10] *Ibid.*

[11] *Ibid.*

Warranted Bonds, mentioned in art. 360º c) and art. 365º to 372º-B CSC, are characterized for confering, beyond the usual credit rights (reimbursement and interest payment), a unilateral right to participate in the equitiy of the issuer by converting the bond into shares or by acquiring a specific amount of its shares. This modality further branches into permutes by allowing the conversion to be made into shares from other entities that are not the issuer or into different categories of bonds.[12]

Participating bonds, mentioned in art. 360º, a) and b), 361º to 364º CSC, are bonds that present their reimbursement and interest rate plans indexed to specific performance indicators, such as yearly profits, business volumes or others. This type of bond can also branch into slightly more specific modes. The most common are the ones that confer to the holder the right to capital remuneration and/or base interest rates with an added bonus of a premium reimbursement or suplemental interest, fixed or variable in proportion to the corporate profits. Beyond these there are also bonds that offer a completely variable reimbursements and interest whose existence and amount is dependent on economic indicators related to the issuer.[13]

Subordinated notes are bonds in which the holders can only satisfy their credit rights, reimbursement or interest, after other creditors have had their credit rights satisfied in full. In case of bankrupcy then, these creditors would be further down the line of debt payment.[14]

Preferred bonds, are instead the oposite of this previous type, since they are characterized by the privileged position in which its holders are in case of insolvency, being first to be paid. Examples of these are covered bonds and asset-backed bonds, which give the holder a special credit right over the underlying assets to the issuance.[15]

---

[12] *Ibid.*

[13] *Ibid.*

[14] *Ibid.*

[15] *Ibid.*

Covered bonds are the ones issued by credit institutions having as the underlying asset mortgage-backed loans. These bonds give their holders a special credit privilege over the loans when it comes to payment.[16]

Asset-backed bonds are the ones issued by credit securitization companies that have as an underlying asset massively issued loans. These bonds confer to their holders a special credit privilege over a portfolio of loans underlying its issuance. These bonds can be included in diferent categories (regarding guarantees, interest rates, preference degree), and the underlying loan portfolio constitutes an autonomous patrimonial mass (meaning that it does not answer for any debts of the issuer before satisfying the amounts due to the bondholders). As such, diferently than other common bonds, in which holders are exposed to the risk of the issuer itself, in asset-backed bonds, the holders are primarily subjected to the risk associated with the loans themselves.[17]

High yield bonds are characterized by offering a high return on capital, usually under the form of high interest rates and a high risk, associated to the issuer special conditions (v.g. a low rated company) or of the issuance itself (v.g. extended maturity dates). This means that these bonds are highly speculative, sometimes even refered to as “junk bonds”, having an intermediate risk to holders between common bonds and shares.[18]

Structured notes are bonds characterized by their structure which is reliant on derivatives. What this means is that the bond’s return is dependent or indexed to an underlying asset which can be a financial instrument such as shares, indexes, exchange rates or commodities.[19]

Perpetual bonds are the one in which the reimbursement right has no expiration date, but because of that they have a premium interest rate. This provides a very stable and

---

[16] *Ibid.*

[17] *Ibid.*

[18] *Ibid.*

[19] *Ibid.*

profitable source of periodical income, since estimations say that these remuneration rates are 2,5% to 4% higher than common 10 years bonds.[20]

Treasury bonds are the ones issued by a state, with a term between 1 to 50 years, at fixed interest rates and redeemable by their nominal value. This is the main instrument used by the Portuguese state to satisfy its financing needs.[21]

Public covered credit securities are issued by credit institutions guaranteed by loans over central administrations or regional authorities of european member states. Therefore, contrary to what their name migh sugest, they are bonds issued by private entities that benefit from a special credit right over loans that the issuer has over the refered entities of the public sector.[22]

International bonds are ones with a plurilocalized issuance, ussualy guaranteed by a international banking consortium and transacted in international financial centers. An example are euro-bonds.[23]

Zerobonds are the ones that do not have periodical interest payments. The issuer has as his only source of returns a issuance or redeem coupon.[24]

2.3. Issuance

Bond issuance is subject to a number of general conditions. Firstly, in regards to subjective requirements, bonds are necessarily issued by legally abled entities: sociedades anónimas (art. 348º CSC), sociedades em comandita por ações (art. 478º CSC), sociedades por quotas (DL nº 160/87, 3rd of april), cooperativas (art. 95º CCoop), ACE (Base II, nº 4 Lei nº4/73, 4th of June), AEIE (art.7º DL nº148/90, 9th of April), credit institutions and some financial entities (arts. 2º-A, p) and z), 4º, nº 1, a) and 9º, nº 1 RGIC, DL nº100/2015, 2nd of

[20] *Ibid.*

[21] *Ibid.*

[22] *Ibid.*

[23] *Ibid.*

[24] *Ibid.*

June), and Public companies or any entity authorized by the Government (DL nº320/89, 25th of September). Even though this enumeration is extensive, the reality shows that only the largest companies are able to issue bonds since the smaller and even medium companies lack the necessary ratings to be able to resort to this source of financing.[25]

Regarding the objective requirements, the CSC only generaly regulates them in regards to sociedades anónimas in arts. 348º and beyond. Considering the issuer, they can only issue bonds if their statutes foresee that possibility, if their constitutive act is more than one year old and only if the social capital is free. In regards to the issuance itself, it can not exceed an amount equal to double the social capital of the issuer. Furthermore, a new issuance can not occur before the previous issuance has been completely subscribed and liberated (art. 169º CVM). Finally, considering the approval and execution of the issuance, it is commonly a matter of competence of the general meeting, and the board is responsible for the launch of the offering and subscription (arts. 42º, nº 1, 44º, nº3, 61º, 73º, 97º, nº2 CVM).[26]

Beyond these requirements, there are more complementary aspects. Firstly, bonds represent aliquot fractions of the same issuance, confering equal credit rights (art. 348, nº1 CSC), and have an identical nominal value usually expressed in a legally accepted currency. The issuance is subject to registration with the issuing entity (arts. 43º and 44º CVM) and the registration with CMVM in case of a public offering (art.114º CVM). The subscription, which is usually considered as business celebrated between issuer and subscriber, can have different modes: v.g., public or private subscription depending on whether it is destined to indeterminate persons or not (arts. 109º and 110º CVM); complete or incomplete subscriptions, whether it is fully subscribed or not (art. 353 CSC, art. 161º CVM); direct or indirect subscriptions, whether it is conducted by the issuer or by financial intermediaries (arts.113º, 337º CVM); on par, above par or below par, if the issuance is at nominal value, with a premium or a discount; finally, bonds can be quoted or not, depending on the fact that they are traded on the regulated market (art.230º CVM).[27]

---

[25] *Ibid.*

[26] *Ibid.*

[27] *Ibid.*

2.4. The Green Bond

In a report released in 2007, the Intergovernmental Panel on Climate Change made the connection between human activity and global warming. A collection of Swedish pension funds tried to sponsor climate-friendly initiatives in the same year. The European Investment Bank (EIB) decided to offer its first climate awareness bond as a result of this (CAB). The bank owned by an EU Member State was established to advance European goals, and after the IPCC report earlier that year, this subject joined the political and financial agenda for Europe. The offering of €600 million, which was at the time the EIB's second "European Public Offering of Securities," was rated Aaa/AAA/AAA by Moody's, Standard & Poor's, and Fitch (EPOS II). The returns on this 5-year bond were linked to the FTSE4Good Environmental Leaders Europe 40 Index with a minimum of 5% at maturity rather than a fixed coupon (a bond of this type is referred to as "structured" in the bond market). Additionally, investors had the choice to buy and cancel EU Allowances (EUAs) that were awarded and exchanged in accordance with the EU Emission Trading Scheme using additional redemption funds over 25% at maturity. This bond offering, however, was not yet referred to as a green bond. Instead, it was referred to as a Climate Awareness Bond.The EIB's promise to use the money for lending projects in the fields of renewable energy and energy efficiency was the primary differentiator between this sale and earlier bond issuances. [28]

The World Bank, also known as the International Bank for Reconstruction and Development (IBRD), is the founding organization of the World Bank Group and a development cooperative owned by 188 member nations. To help pay for the reconstruction of Europe, the World Bank was established following World War II. Later, the World Bank's focus turned to more general economic development, and it now issues a wide range of debt instruments to raise money for the programs it supports for developing member nations who borrow from it. It issued the first green bond in 2008 for a total of US$440 million. The WB strategy to introduce innovation in climate finance and to raise awareness in the financial community of how third world countries can take action on climate change and be positively affected by it was well aligned with this emission, which was also a response to demand from Scandinavian pension funds for a fixed income product focusing on climate projects. By the

[28]EPOS II - The "Climate Awareness Bond" EIB promotes climate protection via pan-EU public offering.

end of June 2015, the World Bank had supported about 70 climate mitigation and adaptation projects throughout the developing world with US$8.5 billion in over 100 green bond transactions in 18 different currencies. A part of the World Bank Group since 1956, the International Finance Corporation is owned by 184 of its member nations. IFC offers asset management, advisory services, loans, and equity investments on a for-profit basis. It is the biggest organization dedicated solely to the needs of the private sector in emerging nations. Since 1989, it has mostly used bond issuance to finance its investments. The bond program for 2016 aims for US$17 billion, and the funds will be raised through tapping into a variety of markets, including green bonds for the added benefit of investor diversity. Green bonds were first issued in 2010. IFC's first green bonds were issued in relatively small amounts to accommodate the interest of investors at the time. As investors became more engaged in the climate arena, IFC met the growing demand with larger bond sizes, culminating in two US$1 billion three-year green bonds issued in 2013, the largest green bonds in the market at the time.[29] As of June 30th 2021, IFC has issued $10.553 billion across 178 bonds in 20 currencies.[30]

Before the first corporate green bonds were launched in 2012, all green bonds were issued by multilateral development banks. The years that followed saw rapid expansion, going from around $10 billion issued in 2013 to over $40 billion in 2015. One of the most significant advances in the financing of low-carbon, climate-resilient investment opportunities is the advent of green bonds, according to the United Nations.[31] Many different organizations began issuing their own green bonds in the years that followed. In actuality, the issuance has increased annually at an exponential rate, only seeming to level out in the last two years. Despite this, corporations worldwide issued more than $200 billion of such debt in the first half of 2021, bringing the supply of green bonds to a record level. To broaden the market's attractiveness to a larger investor class, lenders including the World Bank, the African Development Bank, and the European Investment Bank have issued more and more green bonds.

---

[29] What are green bonds, World bank.

[30]IFC on green bonds.

[31] Climate Change Support Team of the UN Secretary General, Trends in private sector climate finance.

A green bond is a bond whose proceeds are invested in initiatives that specifically pursue environmental goals. The emphasis on environmentally friendly use of revenues, as well as the thorough reporting of the distribution of proceeds and their environmental impact, both of which are verified by outside reviewers, set green bonds apart from ordinary bonds. Green ties, on the other hand, set themselves apart from sustainability and social bonds. A social project is one that aims to address or lessen a specific social issue, seeks to achieve positive social outcomes, or both. Social projects fall under the category of eligible social projects, and social bonds refer to any type of bond instrument where the proceeds are exclusively used to finance or re-finance new and/or existing eligible social projects in part or in full. Any sort of bond instrument whose proceeds or an equivalent sum are solely utilized to finance or refinance a combination of both Green and Social Projects is referred to as a sustainability bond.[32]

The green bond market has rapidly expanded since it began in 2007. Green bonds are currently regarded as the largest category of sustainable debt and one of the most promising sustainable finance vehicles. From €6.5 billion in 2013 to €72 billion in 2016, €185 billion in 2019, and roughly €250 billion in 2020, annual worldwide issuances have surged.[33] More than half of the global issuance of green bonds in 2020 came from firms and public entities in the EU, making it a dominant player in the market. In addition, with 49% of all green bonds issued worldwide denominated in euros, the euro is the most often used currency for green bonds.[34] Around half of the €1.1 trillion in worldwide ESG issuance to far has come from EU Member States and EU Institutions.[35] The proportion of domestic green markets to the EU total reflects the size of the economies as well as the general progress of domestic debt capital markets. Since 2013, French and German issuers alone have issued half of the market's total amount of green bonds, and both nations have also issued sovereign green bonds.[36]

Financial services and utilities are the two industries that issue the most green bonds on a global scale, making up slightly more than half of all corporate issuers. About 22% of

---

[32] Maragopoulos, Nikos (April 6, 2022).
[33] Strategy for Financing the Transition to a Sustainable Economy, Communication from the Commission to the European Parliament.
[34] Progress report on the Proposal for a Regulation of the European Parliament and of the Council on European green bond.
[35] Strategy for Financing the Transition to a Sustainable Economy, Communication from the Commission to the European Parliament.
[36] Progress report on the Proposal for a Regulation of the European Parliament and of the Council on European green bond.

green bonds are issued by national governments, 10% by asset-backed securities, 9% by supranational issuers, and 5% by US municipal debt.[37] Corporate green bonds are typically issued by businesses in sectors where the environment has a significant financial impact on their operations (e.g. energy). Climate change mitigation is the environmental goal that green bonds primarily pursue, as evidenced by the fact that 75% of the 1,105 corporate green bonds issued globally between 2007 and 2019 (amounting to 80% of the funds raised) were issued for projects that either fully or partially address climate change mitigation (i.e. in combination with projects pursuing also other environmental objectives).[38] Renewable energy and energy-efficient technologies are indicative areas where projects pursue the environmental objective of climate change mitigation.

Issuers are more motivated by reputational benefits than financial ones when choosing to issue green bonds. Businesses issue green bonds to demonstrate their dedication to enhancing their firm's environmental footprint in order to achieve environmental goals. Compared to non-issuers, green bond issuers place more emphasis on lowering emissions. Based on a sample of 1,105 green bonds issued globally between 2007 and 2019, green issuers reduce the carbon intensity of their assets in the post-issuance period compared to conventional bond issuers with comparable financial characteristics and environmental ratings, claim Fatica and Panzica (2020).The reduction in emissions is greater for green bond issuers when refinancing green bonds is excluded, which is consistent with an increase in the volume of ecologically friendly activities brought on by new projects. Also, green bonds with an external examination and those issued after the Paris Agreement show a greater reduction in emissions. Additionally, the ESMA has released an analysis for green bond issuers (i.e., energy companies, utilities, and banks) based in the European Economic Area, which shows that these companies tend to disclose emissions data at a much higher rate than other businesses even though they have reduced their direct and indirect carbon emissions as well as their carbon intensity more significantly between 2009 and 2019 than other companies. These results demonstrate that green bond issuers utilize green bonds as a statement of their commitment to the environment.[39]

A bond may occasionally be issued at a greater price than other debt, which results in a lower yield. The price of the bond will be within its own yield curve. This is referred to as a

[37] Schmittmann, J. and Teng, C.H. (2021).
[38] Fatica, S. and Panzica, R. (2020).
[39] Maragopoulos, Nikos and Maragopoulos, Nikos, (April 6, 2022).

new issue concession; we have called it "greenium" when it appears in a green bond. This is a great result for any issuer because it signifies that the cost of funding their green bond is lower than the cost of funding their traditional debt. Even though a bond trades at its yield curve price, there is still no new issue premium present, which is advantageous for the issuer's cost of funding. Green bonds rank *pari-passu* with bonds of the same payment rank and issuer, hence there is no reason why this should affect a bond's price. Pricing discrepancies cannot be attributed to credit enhancement, and green bond issuers frequently pay for certification and second party opinions, although these expenses are ordinarily insignificant. The same market characteristics, such as supply, rate expectations, geopolitical concerns, and the effects of global pandemics, apply to green bonds and their vanilla equivalents.[40]

Lower borrowing costs appear to be another, though less important, factor in why businesses issue green bonds. The main query is whether green bonds carry a premium (referred to as "greenium") over comparable conventional bonds. The results of this investigation are conflicting, and there is conflicting evidence for a "greenium's" presence and movement.[41] If it exists at all, the price benefit of green bonds (lower yields than conventional bonds) appears to be marginal. The type of issuer, whether or not green bonds undergo an external review, and how frequently green bonds are tapped in the capital markets all have an impact on how much green bonds cost to price. The variation between different issuer types may be the cause of the lack of agreement on the "greenium". Green bonds issued by non-financial corporations and supranational organisations have a greenium.[42] Contrarily, with all other things being equal, green bonds issued by financial institutions do not exhibit any price premium over conventional bonds. Given the inherent challenges of precisely connecting the revenues of green bonds with particular green initiatives, it is feasible that financial institutions express their environmental sentiments less clearly as a

---

[40]Harrison, C., Green Bond Pricing in the Primary Market H1 2021.

[41] According to Ehlers and Packer (2017) and Barclays (2015), at issuance green bonds are priced at a premium (on average) compared to conventional bonds. On the contrary, based on a study of Karpf and Mandel (2017) on green bonds in the US municipal bonds market, there is no pricing difference between green bonds and quasi-identical brown bonds. Although the “returns on brown bonds are on average higher than for green bonds, this spread can to a large extent be explained by properties of the respective issuing entity and of the bond. The “green nature” of the bond rather seems to be penalized by the market, as green bonds are traded at lower prices / higher yield than would be expected by their credit profiles”. The finding of no pricing difference is confirmed also in the study of Larcker and Watts (2019) on the market for green municipal bonds, Flammer (2021) for corporate bonds and Tang and Zhang (2018).

[42] Based on Hinsche (2021), a greenium is observed in the public green bond market, which is affected by issuer sector and credit rating. The greenium increases for supranational issuers with AAA rating, such as the EU.

result of this heterogeneity.[43] Due to this, investors find it challenging to distinguish between issuers who genuinely care about environmental sustainability and those who are only "greenwashing" their projects. Also, the external examination serves as a signal to investors about the green bonds that are truly working toward environmental goals. Investor interest in green bonds that have been verified by an outside reviewer is higher, and they enjoy a greenium.[44] The same advantage is available to issuers who have previously issued green bonds. By repeated issuances, issuers can develop a reputation for dedication to the environment over time, and investors can learn more about the borrowers and, as a result, make a more accurate assessment of them.[45]

The literature also demonstrates that the issuance of green bonds is followed by favorable stock market reactions, which helps to draw in investors who value long-term and environmentally sustainable activities. In 565 corporate green bonds issued by 169 publicly traded firms worldwide between 2013 and 2018, according to an analysis by Flammer (2021), the issuing of green bonds has a beneficial impact on issuers' stock market performance. According to this analysis, the issuers' stock price rises in the period immediately following the announcement of the green bond issuance, with an average cumulative abnormal return (i.e., a stock return more than the "normal" market return) of 0.49%. The stock price boost is roughly twice as large for green bonds that have been approved by outside auditors, and it is higher for businesses engaged in sectors where the environment has a significant financial impact on their operations. Also, as first-time issuers are more likely to give investors fresh information regarding the company's environmental commitment moving forward, their returns are higher than those of seasoned issuers. According to Tang and Zhang's (2018) examination of 1,510 green bonds issued globally between 2007 and 2017, stock prices rise as a result of the issuance of new green bonds, as seen by the 1.4% anomalous return that occurs around the announcement of new green bond issues.[46]

[43] Fatica, S., Panzica, R. and Rancan, M. (2019).
[44] Baker, M., Bergstresser, D., Serafeim, G. and Wurgler, J. (2018).
[45] Maragopoulos, Nikos and Maragopoulos, Nikos,(April 6, 2022).
[46] *Ibid*.

3. Forms of green bond certification

Green bonds are fixed-income securities that raise money for specific climate or environmental sustainability projects or activities. They are both taxable and tax-exempt. These bonds are a crucial part of green finance, which tries to "internalize environmental externalities and modify risk perceptions" in order to boost investments that support the environment.[47]. These bonds have a similar structure to ordinary bonds with the same seniority, rating, execution procedure, and pricing as standard bonds, but the revenues are allocated to climate change or environmental projects. According to economic theory, a combination of taxation and subsidies would be the greatest way to close the gap between the private and social costs of pollution. With market-based strategies, green finance can also assist in reducing these externalities. It accomplishes this through increasing the amount of money going to environmentally friendly projects, cutting their costs, and raising awareness of the financial dangers associated with environmental change.[48]

So, how can investors be certain that the money is being invested in an environmentally responsible manner and not just "green-washed" to appear so? While there isn't a universally accepted definition of what exactly qualifies as a "environmentally beneficial" use of earnings, various standards have received support among industry players. As of late, a number of organizations have begun to offer green label certifications that attest to compliance with certain definitions of green, including "shades" of green. By doing this, they align investors' incentives to buy these bonds and make it simpler for asset managers to accommodate investors' preferences. The financial effects of changes in environmental policy, which are sometimes seen as the biggest risk bond investors face, might theoretically be protected against by green bonds. "While a given physical manifestation of climate change - a flood or storm - may not directly affect a corporate bond's value, policy action to promote the transition towards a low-carbon economy could spark a fundamental reassessment," observes Carney (2015); however, in this case, more details are required about the sensitivity of different bonds to such risks, beyond just the quality of "greenness" itself.[49]

---

[47] Ehlers, Torsten and Packer, Frank(September 17, 2017).

[48] *Ibid.*

[49] *Ibid.*

The stages that are often taken by green bond issuers, using the World Bank procedure as an example, may be divided into four categories:[50]

Define project selection criteria. The type of green initiatives that the issuer wants to fund using green bonds are specified. Such qualified initiatives must aid in the shift to low-carbon development and climate-resilient growth, according to the World Bank. To give investors the confidence that the selection criteria fulfill commonly accepted technical standards, the criteria are frequently reviewed and evaluated by an outside expert party. The original investors helped set the World Bank's green bond standards, which were then independently examined by the Center for International Climate and Environmental Research at the University of Oslo (CICERO). CICERO agreed that the World Bank eligibility criteria offered a reliable basis for choosing climate-friendly projects when integrated with the World Bank's governance framework.[51]

Establish project selection process. All World Bank projects, including those backed by its green bonds, are subject to a stringent assessment and approval procedure that involves early screening, detecting and managing any environmental and/or social implications, and securing the Board of Executive Directors' approval. The projects that fulfill the World Bank's requirements for qualifying for green bonds are then selected after being vetted by environmental experts.[52]

Earmark and allocate proceeds. The issuer specifies how it would segregate the proceeds from green bonds and allocate them to suitable investments on a recurring basis. The revenues from green bonds are credited to a special account at the World Bank, where they are invested cautiously until they are utilized to assist projects that qualify for green bonds. Periodically, funds are distributed in an amount equivalent to the payments made to approved projects.[53]

---

[50]Harrison, C., Green Bond Pricing in the Primary Market H1 2021.

[51] *Ibid.*

[52] *Ibid.*

[53] *Ibid.*

Monitor and report. The issuer keeps an eye on how the green initiatives are being carried out and gives updates on how the profits were used and the predicted effects on environmental sustainability. On the World Bank's Green Bond website, summaries and key impact indicators for projects that qualify for green bonds are provided, along with access to pertinent documentation and more specific project details.[54]

The bonds are frequently arranged in accordance with the issuer's medium term notes plans and have the same rating as the issuer's other obligations. With a few rare exceptions, the bonds are fully recourse to the issuer, which means they are secured by the issuer's whole balance sheet, therefore protecting investors from the risk of the projects that form the basis of the bonds. Many well-known varieties of green bonds include: Use-of-proceeds revenue bonds, where proceeds are assigned to qualified green projects, and use-of-proceeds bonds, where proceeds are designated for green projects but are backed by the issuer's whole balance sheet. Bondholders are not able to sue the issuer, only a specific revenue stream (which may not be connected to the approved green projects); Project bonds, when the money raised is used to fund a specific green project and gives investors a direct stake in it; Securitized bonds, in which a collection of green projects or assets provide the required revenue stream.

It is crucial to remember that a green bond has no official meaning. When these bonds first hit the market, issuers have evaluated their bonds to see if they qualify as green bonds and have marketed them appropriately. Yet, a number of nations, like China and India, have chosen to impose regulations on the green bond market. Green bonds must adhere to the SEBI Issue and Listing of Debt Securities Rules, 2008, according to the final guidelines on the issuing of green bonds that were released by the Securities and Exchange Board of India (SEBI) in January 2016. Although the Board hasn't provided a definitive definition of "green bonds," it will occasionally do so. To aid in the greening of China's financial system, the People's Bank of China (PBoC) and a committee it established called the Green Finance Committee wrote standards in December 2015. The set of guidelines outlined which objects and initiatives are qualified for financing with green bonds. Kenya has also declared that a green bond strategy will be implemented in the first quarter of 2017.

In order for a framework to be built without onerous restrictions, stakeholders in the green bond market largely concur that it should not be subject to unduly restrictive

[54] *Ibid.*

requirements. Reduced entry barriers should draw the broadest range of issuers and investors, bringing green bonds eventually into the mainstream bond market. Low barriers need to be tempered, nevertheless, with a high level of transparency, impartial evaluation, and reporting.

Other tools being developed by third-party market developers to provide more granular information and deeper analysis of green bonds include green indices, including those launched by S&P and Barclays, which provide fundamental performance data,increase transparency, and drive demand, green market segments developed by stock exchanges, including those in London, Luxembourg, and Oslo and green ratings by rating companies—Moody's publishes an assessment methodology for green bonds[55]—and by secondary market ratings.

The Green Bond Principles and the Climate Bond Standards are now the most often utilized general principles and certification programs because there are no consistent standards in place.

3.1. Green Bond Principles

The Green Bond Principles are a collection of voluntary standards created by a group of investors, issuers, and underwriters that encourage integrity in the growth of the Green Bond market by defining the process for issuing a Green Bond. They suggest transparency and disclosure. They are relatively non-prescriptive and intended to promote market expansion without placing too onerous obstacles to entry. The market intends to use the GBP widely: They aid investors by promoting the availability of information necessary to assess the environmental impact of their Green Bond investments; they support issuers by advising them on the essential elements involved in launching a credible Green Bond; and they help underwriters by outlining crucial steps that will facilitate transactions that preserve the market's integrity. There are no restrictions on the kind of projects and activities that can be funded by green bonds under the Principles, nor are there any specified environmental effect objectives. Instead, they aim to strengthen integrity in the growth of the green bond market

[55] Moody's is now also providing a methodology to assess the greenness of the bond. It has published in January 2016 a proposed approach and methodology to the Green Bonds Assessment (GBA). GBAs are not credit ratings, but forward looking opinions of the relative effectiveness of the issuer's approach for managing, administering, allocating proceeds to and reporting on environmental projects financed by green bonds. According to Moody's, GBAs assess the relative likelihood that bond proceeds will be invested to support environmentally beneficial projects as designated by the issuer.

by outlining the strategy for issuing green bonds. International Capital Market Association is in charge of coordinating the Principles (ICMA). The Principles now have over 100 members, all of whom have either issued, sponsored, placed, or invested in a green bond.

The Green Bond Principles were first published in January 2014, and more recently, in June 2021, they underwent revisions. With four major elements and two important suggestions, the GBP highlights the necessary transparency, accuracy, and integrity of the information that would be published and reported by issuers to stakeholders. These are the essential elements:[56]

- **Use of Proceeds**: The Guidelines acknowledge the significance of using bond revenues for qualifying green projects, which should be adequately stated in the security's legal paperwork. All selected qualified Green Projects must offer obvious environmental advantages, which the issuer will evaluate and, where possible, quantify. Additionally, if proceeds can be used for refinancing, issuers should estimate the proportion of financing versus refinancing and, as needed, specify which investments or project portfolios are eligible for refinancing. They should also, if applicable, specify the anticipated look-back period for refinanced eligible Green Projects. The GBP expressly recognizes a number of broad qualifying criteria for Green Projects that support environmental goals. While simply a guide, the list of project categories below includes the most typical sorts of initiatives that the green bond market has funded or is anticipated to support. Assets, investments, and other associated and supporting costs, such R&D, that may relate to more than one category and/or environmental purpose are included in green projects. The list also includes three environmental project categories: biodiversity conservation, climate change adaptation, and pollution prevention and control. As a result, they speak about the initiatives that are more particularly created to achieve these environmental goals. The eligible Green Projects categories include, but are not limited to: *Renewable energy* (including production, transmission, appliances and products);[57] *Energy efficiency* (such as in new and refurbished buildings, energy storage, district heating, smart

[56]ICMA, Green Bond Principles Voluntary Process Guidelines for Issuing Green Bonds (June, 2021).

[57]*Ibid*

grids, appliances and products);[58] *Pollution prevention and control* (including reduction of air emissions, greenhouse gas control, soil remediation, waste prevention, waste reduction, waste recycling and energy/ emission-efficient waste to energy);[59] *Environmentally sustainable management of living natural resources and land use* (including environmentally sustainable agriculture; environmentally sustainable animal husbandry; climate smart farm inputs such as biological crop protection or drip-irrigation; environmentally sustainable fishery and aquaculture; environmentally sustainable forestry, including afforestation or reforestation, and preservation or restoration of natural landscapes);[60] *Terrestrial and aquatic biodiversity conservation* (including the protection of coastal, marine and watershed environments);[61] *Clean transportation* (such as electric, hybrid, public, rail, non-motorised, multi-modal transportation, infrastructure for clean energy vehicles and reduction of harmful emissions);[62] *Sustainable water and wastewater management* (including sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable urban drainage systems and river training and other forms of flooding mitigation);[63] *Climate change adaptation* (including efforts to make infrastructure more resilient to impacts of climate change, as well as information support systems, such as climate observation and early warning systems);[64] *Circular economy adapted products, production technologies and processes* (such as the design and introduction of reusable, recyclable and refurbished materials, components and products; circular tools and services) *and/or certified eco-efficient products*;[65] *Green buildings* that meet regional, national or internationally recognised standards or certifications for

---

[58] *Ibid*

[59] *Ibid*

[60] *Ibid*

[61] *Ibid*

[62] *Ibid*

[63] *Ibid*

[64] *Ibid*

[65] *Ibid*

environmental performance.[66] Although it is not the goal of the GBP to advocate for any particular green technology, standards, claims, or declarations, a number of recent international and national projects are creating taxonomies and nomenclatures in this area. This might provide additional information to Green Bond issuers regarding what might be viewed as green and approved by investors. At the moment, these taxonomies are in varying phases of development. Also, there are several organizations that offer unbiased evaluations, recommendations, and direction about the value of various eco-friendly products and environmental activities. Depending on the industry and location, there may be differences in definitions of green and green projects.[67]

- **Process for Project Evaluation and Selection**: discusses how decisions are made on which projects will receive funding. The project's environmental sustainability goals should be made clear, and the issuer should establish a transparent process to determine how the projects fit within the categories of identified eligible green projects. The issuer should also decide the requirements under which projects will be qualified to use the proceeds from green bonds. The project's environmental sustainability objectives, the process by which the project determines how it fits within the categories of eligible Green Projects, and supplementary information on processes by which the issuer identifies and manages perceived social and environmental risks associated with the relevant project should all be made clear to investors by the issuer of a Green Bond (s). Issuers are also urged to: frame this information in the context of their larger environmental sustainability objectives, strategy, policy, and/or procedures; Describe how projects comply with governmental or market-based taxonomies, the relevant eligibility requirements, including, if necessary, exclusion criteria, and any green standards or certifications that were taken into consideration when choosing projects. Identify mitigants to known material risks of adverse social and/or environmental repercussions from the relevant project using a methodology that is in place (s). A clear and pertinent trade-off analysis may be

[66] *Ibid*

[67] *Ibid*

conducted as one of these mitigants, and monitoring may be necessary in cases where the issuer determines that the possible risks are significant.[68]

- **Management of Proceeds**:discusses how to handle pending investment funds. The Principles encourage the issuer to credit the net proceeds of the Green Bond, or an amount equal to these net proceeds, to a sub-account, transfer it to a sub-portfolio, or track it in another appropriate way, and certify this in a formal internal process connected to the issuer's lending and investment operations for qualified Green Projects. The remainder of the tracked net proceeds shall be regularly updated to reflect allocations to qualified Green Projects undertaken while the Green Bond is outstanding. Investors should be informed of the temporary placements the issuer plans to make for the remaining net funds that have not been allocated. It is possible to handle the proceeds of green bonds individually (a bond-by-bond strategy) or collectively for a number of green bonds (portfolio approach). The GBP promotes high levels of transparency and suggests that an issuer augment its management of proceeds by using an external auditor or other third party to confirm the internal tracking system and the distribution of monies from the proceeds of the Green Bonds.[69]
- **Reporting**: discusses the projected environmental effect, project details, and the regularity of reporting on the usage of funds. Issuers shall provide timely updates on the use of funds that will be renewed yearly until final allocation, as well as make them easily accessible. This also applies in the event of major developments. A list of the projects to which Green Bond revenues have been awarded should be included in the annual report, together with a brief summary of the projects, the amounts allocated, and the predicted effects. The GBP advises that information be disclosed in general terms or on an aggregate portfolio basis where confidentiality agreements, competitive factors, or a large number of underlying projects limit the amount of detail that can be made public (e.g. percentage allocated to certain project categories). When discussing the intended and/or accomplished effect of initiatives, transparency is very valuable. The GBP encourages the use of qualitative performance indicators as well as, when practical, quantitative performance metrics, as well as the disclosure of

---

[68] *Ibid*

[69] *Ibid*

the main underlying assumptions and/or methodology. The advice and impact reporting templates offered in the Harmonized Framework for Impact Reporting should be referred to and used by issuers, when practical. Market participants may benefit from having access to a summary that highlights the primary traits of a Green Bond or a Green Bond program and shows how those traits connect with the GBP's four fundamental elements. [70]

Beyond these four principles, the ICMA adds two important suggestions, as we have already noted. First, Issuers should outline in a Green Bond Framework or in their legal documents how their Green Bond or Green Bond program aligns with the four main GBP components (use of proceeds, process for project evaluation and selection, management of proceeds, and reporting). Investors should have easy access to such legal papers and/or the Green Bond Framework. It is advised that issuers compile pertinent data into their Green Bond Framework in the context of their larger sustainability plan. This might make mention of the GBP's five high-level environmental objectives (climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and control). The disclosure of any taxonomy, green standards, or certifications used in project selection is also encouraged by issuers.[71]

The second important suggestion is that issuers designate an external review provider to evaluate the alignment of their green bond or green bond program and/or framework with the four main elements of the GBP as stated above through a pre-issuance external assessment. It is advised that an issuer augment its management of proceeds after issuance with the help of an external auditor or other third party to confirm the internal monitoring and the distribution of cash from the Green Bond proceeds to qualified Green Projects. Issuers can get independent opinions on their Green Bond process in a variety of methods, and the market can get reviews in a variety of formats. For advice and a description of the various forms of reviews, issuers should refer to the Guidelines for External Reviews. The GBP created these guidelines to encourage excellent behavior. They are a market-based initiative to give issuers, underwriters, investors, other stakeholders, and external reviewers themselves information and transparency on the external review procedures. The GBP encourages

---

[70] *Ibid*

[71] *Ibid*

external review providers to explicitly identify the extent of the review(s) they conducted as well as their credentials and pertinent experience. Issuers should, as appropriate and practical, make external evaluations accessible to the public on their website and/or through any other accessible communication channel.[72]

Another change in this most recent update is the classification of green bonds. Currently, there are four different kinds of green bonds (more varieties may appear as the market matures; they will be included in Subsequent updates):

- Standard Green Use of Proceeds Bond: a typical GBP-aligned recourse-to-the-issuer debt obligation.
- Green Revenue Bond: a GBP-aligned non-recourse financial obligation where the credit exposure is to the pledged cash flows of income streams, fees, taxes, etc., and where the revenues are used to fund connected or unrelated green projects (s).
- Green Project Bond: a project bond that is aligned with the GBP and covers one or more green projects. The investor is directly exposed to the risk of the projects, with or without the possibility of recourse against the issuer..
- Green Securitised Bond: a bond that is aligned with the GBP and is backed by one or more specific green projects, such as covered bonds, ABS, MBS, and other structures. Often, the assets' cash flows serve as the first source of repayment..

3.2. Climate Bond Standard

The Climate Bond Standard, or CBS, was created by the Climate Bond Initiative (CBI), a global investor-focused not-for-profit organization, and is another set of voluntary certification. In order to support massive investments that would result in a low-carbon and climate-resilient global economy, CBI was established in 2010. The Standard outlines industry-specific eligibility requirements for various asset classes and undertakings, such as solar, wind, and low-carbon structures. The CBS's goal is to make it possible for investors to examine a bond's environmental impact before purchasing it. A bond that satisfies CBS may be certified, subject to independent verification. This process depends heavily on the caliber of the specialists certifying the bonds and the standards they use. The Climate Bonds

---

[72] *Ibid*

Standard & Certification Scheme is fully compliant with the Green Bond Principles, the Green Loan Principles, the proposed EU Green Bond Standard, ASEAN Green Bond Standards, Japan's Green Bond Guidelines, and India's Disclosure & Listing Requirements for Green Bonds. It does this by building on the principles contained in the Green Bond Principles to create a robust, flexible, and effective certification system. It lays forth in simple terms the necessary conditions for managing proceeds, choosing projects and assets, using proceeds, and reporting. It specifies industry standards for judging projects' and assets' credentials as low-carbon and climate-resilient. A framework with impartial verifiers and standardized processes that culminates in a certification given by the Climate Bonds Standard Board ensures all of this. After the bond or loan is issued, this certification is verified by required independent verification and yearly reporting for the duration of the investment.

The requirements of the CBS are divided into two categories: pre-issuance requirements, which issuers seeking certification before issuance must satisfy, and post-issuance requirements, which issuers seeking continuing certification must satisfy after the bond has been issued and the proceeds of the sale of the bond have been distributed.

The actual use of proceeds, the ongoing eligibility of the projects and assets, the use of funds that have not yet been allocated, and the effectiveness of and output from the issuer's internal systems are the main pre-issuance conditions. Only if post-issuance certification is verified within a year of the bond's issuance is it possible to keep the Climate Bond certification. The following are the pre-issuance requirements:[73]

- **Use of Proceeds**: The issuer must retain a record of the nominated projects and assets that are proposed to be related to the bond and that have been determined to be potentially eligible, as well as keep that list current throughout the bond's duration. The overall investment exposure of the issuer to the proposed nominated projects, or the appropriate percentage of the total market value of the proposed projects that the issuer owns or finances, cannot exceed the expected net proceeds of the bond. Nominated projects and assets shall not be nominated to other Certified Climate Bonds, Certified Climate Loans, Certified Climate Debt Instruments, green bonds, green loans or other labeled instruments unless it is demonstrated by the Issuer that

[73]Climate Bonds Initiative, Climate Bonds Standard Version 3.0.

distinct portions of the projects are being funded by different labeled instruments or, the existing debt instrument is being refinanced via another debt instrument.[74]

- **Process for Evaluation and Selection of Projects & Assets**: Additionally, the issuer must design, record, and maintain a decision-making procedure that it uses to judge whether the projects and assets that have been nominated are eligible. This procedure must include a statement of the bond's climate-related objectives, how those objectives fit into the issuer's overarching environmental sustainability objectives, strategy, policy, and/or processes, the issuer's justification for the bond, and a procedure to determine whether the project satisfies the eligibility requirements. There are numerous climate-related goals that can be pursued. This can range from having a specific purpose centered on the operational or indirect consequences of the projects and assets, such as emissions reductions, to increasing the installed capacity of low carbon assets, such as solar generating facilities. Additional aspects of the decision-making process should be disclosed by the issuer, such as relevant eligibility requirements, such as exclusion criteria, or any other procedure used to identify and manage potentially significant environmental, social, or governance risks related to the projects, as well as any green standards or certifications mentioned in the project selection process. Last but not least, the issuer must determine whether the proposed projects linked to the bond fit the stated goals and are likely to comply with the pertinent eligibility standards of the Climate Bonds Standard.[75]
- **Management of Proceeds**: The issuer must document and disclose to the verifier the systems, policies, and procedures to be used for managing the net proceeds. These procedures must include arrangements for the following actions: proceeds can be tracked by the issuer by crediting them to a sub-account, moving them to a sub-portfolio, or tracking them in another way that is appropriate and documented; An earmarking process can be used to manage and account for funding to the projects and allows estimation of the share of the net proceeds being used for financing and refinancing. The remaining unallocated net proceeds can be managed by allocating

[74] *Ibid*

[75] *Ibid*

them to temporary investments that are cash or cash equivalent instruments and do not include greenhouse gas intensive activities.[76]

- **Reporting Prior to Issuance**: Prior to or at the time of issuance, the issuer must create a Green Bond Framework and make it available to the public. The Green Bond Framework includes, but is not limited to: [77]
    - confirmation that the Climate Bonds Standard is being complied with by the bonds issued under the Green Bond Framework. Statements of compliance with other relevant standards, such as the EU Green Bond Standard, the ASEAN Green Bond Standard, Chinese national laws, Japanese Green Bond Guidelines, etc., may be included in this;[78]
    - a concise explanation of how funds are anticipated to be used and the anticipated contribution of the relevant sectors or subsectors to the quick transition needed to meet the objectives of the Paris Climate Agreement;[79]
    - a breakdown of the choice-making procedure;[80]
    - Information on the methodology and presumptions to be applied in order to confirm, as required by the applicable Sector Eligibility Criteria, the qualities or performance of Nominated Projects & Assets necessary to comply with the applicable eligibility requirements, as well as any other additional impact metrics that the Issuer will define;[81]
    - An overview of the method used to manage unallocated net proceeds;
    - The method that will be used to deliver periodic updates to confirm compliance with the Climate Bonds Standard while the bond is still issued;[82]
    - a list of the proposed nominated projects, assets, and their respective investment categories that are connected to the bond. Information regarding

---

[76] *Ibid*

[77] *Ibid*

[78] *Ibid*

[79] *Ibid*

[80] *Ibid*

[81] *Ibid*

[82] *Ibid*

the investment categories that certain projects and assets come under must be supplied where there are restrictions on the amount of detail that may be made available about them, and the issuer must explain why;[83]

- An estimate of the portion of net proceeds used for financing and refinancing, as well as the relevant projects, assets, or investment areas that may be refinanced, where a portion of the net proceeds are used for refinancing. Moreover, the anticipated look-back term for refinanced Nominated Projects & Assets may be included;[84]

- In addition to The Green Bond Framework, the issuer must additionally create Disclosure Documentation, which should contain the following information:[85]
  - The sectors of investments that the Nominated Projects & Assets belong to;
  - The types of short-term investment vehicles that will be used to handle unallocated net proceeds;
  - The verifier that the Issuer hired to conduct the required verification engagements;
  - The method that will be used to deliver Updating Reports in order to confirm compliance with the Climate Bonds Standard while the bond is still in effect, as well as the location of the published documents;
  - The Certification Agreement's Climate Bonds Initiative Disclaimer.

The Climate Bonds Standard specifies the conditions that Issuers must meet in order to be eligible for Post-Issuance Certification after the bond is issued, the loan is closed, or another debt instrument is issued. In order to be certified under the Climate Bonds Standard, issuers of bonds, loans, or other financial instruments that have already been issued or closed but weren't certified at the pre-issuance stage can construct a green bond framework and satisfy all of the post-issuance requirements. The following are the post-issuance requirements:[86]

---

[83] *Ibid*

[84] *Ibid*

[85] *Ibid*

[86] Climate Bonds Initiative, Climate Bonds Standard Version 3.0.

- **Use of Proceeds**: Within 24 months, the bond's net revenues must be distributed to the designated Projects & Assets, all of which must achieve the bond's stated goals and be in compliance with the Climate Bonds Standard. While the bond is still outstanding, net proceeds may be transferred at any moment to further Nominated Projects & Assets.[87]
- It is prohibited to nominate Projects & Assets to other Certified Climate Bonds, Certified Climate Loans, Certified Climate Debt Instruments, green bonds, green loans, or other labeled instruments unless the Issuer can show that different parts of the projects are being funded by various labeled instruments, or the existing debt instrument is being refinanced. When some of the bond's net proceeds are utilized for refinancing, the issuer must keep track of the percentages used for financing and refinancing as well as determine which of the nominated projects and assets may be refinanced. Moreover, the anticipated look-back term for refinanced Nominated Projects & Assets may be included.[88]
- The issuer must follow a formal internal process to track the net proceeds of the bond, which cannot exceed the issuer's total investment exposure or debt obligation to the projects or the pertinent portion of the total market value of the Nominated Projects & Assets that the issuer owns or finances.[89]
- As long as they are likewise eligible under the Climate Bonds Standard and are in line with the Bond's goal, further Nominated Project & Assets may be added to, substituted for, or replenished the portfolio. The issuer shall engage a verifier to provide a Verifier's Report covering at least the conformance of the additional Nominated Projects & Assets with the relevant Sector Eligibility Criteria of the Climate Bonds Standard where the Sector Eligibility Criteria apply to Additional Nominated Projects & Assets that were not covered by the scope of either the Pre-Issuance Verification or the Post-Issuance Verification engagements.[90]

---

[87] *Ibid*

[88] *Ibid*

[89] *Ibid*

[90] *Ibid*

- **Process for Evaluation and Selection of Projects & Assets**: The Issuer is required to keep the records of the decision-making process from the preliminary approval stage.[91]
- **Management of Proceeds**: The bond's net proceeds must be allocated by the issuer in a suitable manner, credited to a sub account, transferred to a sub-portfolio, or otherwise identified. To oversee and account for allocation of net funds to the Nominated Projects & Assets, the Issuer shall continue the earmarking procedure. Amounts allotted to Nominated Projects & Assets will be deducted from the monitored net revenues' remaining balance while the Bond is still outstanding. The remaining unallocated net proceeds will be retained in the financial instruments and ways stated in the previous section while such allocations to Nominated Projects & Assets take place.[92]
- **Reporting**: When the bond is still in circulation, the issuer must create an update report at the very least once a year. The Bond Holders, the Climate Bonds Standard Board, and the general public must all have access to the Report. In the event that there are significant developments, the issuer should also promptly send an Update Report to holders. The Certified Climate Bond cannot be listed in the Climate Bonds Initiative's database of green bonds if the Report is not publicly accessible. This database is used by index providers and other market players and has minimum requirements for public disclosure (https://www.climatebonds.net/cbi/pub/data/bonds). The bond would also not be aligned with the proposed EU Green Bond Standard and would not be able to claim such conformance.[93]
- Any Verifier Reports or other relevant documentation that supports the Update Report must be made public by the Issuer. To support the determination of conformance with the Climate Bonds Standard, information regarding the Nominated Projects & Assets and the Management of Proceeds shall be supplied to the Verifier and the Climate Bonds Standard Board.[94]

---

[91] *Ibid*

[92] *Ibid*

[93] *Ibid*

[94] *Ibid*

3.3. European Green Bond

Significant expenditures are needed to meet the Union's environmental sustainability goals and the transition to a climate-neutral economy. In order to meet the challenging objectives of the European Green Deal, funds from both public and private sources should be diverted toward green projects. The EU needs annual expenditures in energy systems (excluding transportation) of over €350 billion and an additional €130 billion for other environmental aims only to satisfy the climate and energy targets set for 2030 and to mitigate climate change. Up to €605 billion will be spent by the EU on projects tackling the climate issue, and €100 billion would go toward projects promoting biodiversity. In order to achieve the net zero emissions objective and finance the shift to a low-carbon economy, green bonds will be of utmost importance. The Commission intends to issue green bonds in an amount at least equivalent to the total amount of green bonds issued in 2020 (€250 billion), or at least 30% of the €750 billion needed to fund NGEU. The Commission approved the NGEU Green Bond Framework, which is in line with the ICMA's GBP, in September 2021. The first NGEU green bond, worth €12 billion and with a 15-year term, was issued by the Commission in October 2021. In January 2022, the Commission raised an additional €2.5 billion by tapping that green bond.[95]

Given the high investor demand and the lower finance costs, it is also anticipated that the issuance from EU sovereigns would rise quickly in the upcoming years (to date, ten sovereigns have issued about €80 billion). Yet, the level of investment required exceeds what the public sector can provide. Private sector investment should account for a sizable portion of the necessary expenditures. Thus, the financial industry must play a crucial role in reorienting flows to support the shift to a more sustainable economy in order to close these investment gaps.[96]

---

[95] Maragopoulos, Nikos and Maragopoulos, Nikos (April 6, 2022).

[96] *Ibid.*

Against this backdrop, the European Green Deal highlighted the need to “develop an EU green bond standard that facilitates sustainable investment in the most convenient way”.[97] The importance of this issue was acknowledged as early as January 2018, when the HLEG advocated, among other things, the creation of accreditation standards for external review providers and the implementation of an official EU Green Bond Standard. The Commission then pledged to develop guidelines and labeling for green financial products as part of the Action Plan on "Financing Sustainable Development," and requested the TEG to produce a report on an EU Green Bond Standard by Q2 2019 based on current best practices. The TEG started working in July 2018 in accordance with the Commission's mandate and based on the recommendations of the HLEG. A few months later, it released its interim report on an EU Green Bond Standard for public comment (March 2019). The TEG released its final report in June 2019 and included recommendations for the creation of the EU Green Bond Standard through a non-binding EU act, such as a Recommendation or a Communication. The TEG's recommendation for an EU Green Bond Standard is based on market practices, as represented by the GBP and the CBS, and it has four components: compliance with the EU Taxonomy, release of a Green Bond Framework, allocation and impact reporting, and implementation of mandatory external reviewer verification. The TEG report advocated switching from the market-based accreditation regime to one that is centralized and overseen by the ESMA. Given that supervised CRAs offer external review services and have incorporated environmental factors into their credit ratings, such a regime would establish a unified approach and be consistent with the ESMA's comparable role over credit rating agencies (CRAs). This would enable the creation of synergies with existing processes and procedures. The European Council requested the Commission to submit a legislative proposal for a green bond standard by the middle of 2021 after highlighting the significance of creating universal, worldwide rules for green finance in December 2020.[98]

A proposal for a regulation of the European Parliament and of the Council "on European Green Bonds" was released by the European Commission on July 6, 2021, in accordance with that mandate (EuGBR). The proposed Regulation outlines a system for the registration and oversight of external reviewers as well as a framework of guidelines for bonds that achieve ecologically friendly goals in accordance with the Taxonomy Regulation.

[97] Strategy for Financing the Transition to a Sustainable Economy, Communication from the Commission to the European Parliament, the European Council.

[98] Maragopoulos, Nikos and Maragopoulos, Nikos (April 6, 2022).

The European Green Bond Review Regulation (EuGBR) lays forth uniform requirements that apply to issuers and reviewers of bonds with the designation "European Green Bond" or "EuGB". The Commission's proposal is consistent with the best market practices and is largely based on the suggestions made by the TEG.[99]

Based on this proposal, the Commission wants to encourage sustainable finance by making it easier for businesses and government entities to get significant funding for initiatives that are environmentally and climate-friendly. In order for the EU to meet its climate and environmental goals, a market for premium green bonds must be developed. The market for green bonds will continue to expand, creating a sizeable green investment that will assist close the European Green Deal investment deficit. The EuGBR also aims to safeguard investors from the risk of "greenwashing" by establishing high standards for the issuance of green bonds, specifically through the establishment of precise definitions for sustainable economic activities and the setup of a thorough framework for registration and oversight of external reviewers. There is doubt over the truly green economic activity because there are no clear definitions for ecologically sustainable economic activities in the present projects for green bonds. Given this context, investors find it difficult to assess bonds whose revenues can be utilized to achieve the Paris Agreement's environmental goals. The EuGBR is anticipated to improve market efficiency by lowering inconsistencies and the expenses associated with evaluating those bonds for investors.[100]

According to the Commission's suggestion, the EuGB is meant to serve as a voluntarily accepted "gold standard" for green bonds. Issuers have the option of adhering to the EuGB or pursuing other market-based strategies. The EuGBR has a wide reach because it does not impose any limitations on green bond issuers. The EuGB is open to all categories of issuers, including corporates, financial institutions, sovereigns, and other public entities, both inside and outside the EU. These issuers are permitted to issue any sort of (green) bond, including covered bonds, asset-backed securities, and project bonds.[101]

---

[99] *Ibid.*

[100] *Ibid.*

[101] *Ibid.*

Three things set the EuGB apart from market-based green bond rules. First, all funds raised by a EuGB should go entirely and solely to projects that adhere to the Taxonomy, i.e., environmentally sound assets and productive business ventures. In order to provide complete openness about the distribution of proceeds and the impact of the EuGB on the environment, issuers should be subject to strict disclosure requirements. The disclosures' compliance with the EuGB's standards, particularly the taxonomy-alignment of the financed projects, should be attested to by outside reviewers. Thirdly, ESMA registration and oversight of external reviewers are required. To safeguard investors and advance market integrity, this requirement aims to ensure the caliber of their offerings and the validity of their evaluations.[102]

3.3.1. The Commission’s proposal

Green bonds can be used to finance climate-reducing projects like low-carbon infrastructure, resource-efficient housing, and the production and distribution of energy. On what is deemed green, there are still a lot of murky places. The GBP simply advocate for the (voluntary) declaration of official and/or market-based Taxonomy-alignment; they do not advise any categories for the assets or projects that will be funded by a green bond. Uncertainty caused by the current lack of precise criteria for green initiatives increases costs and risks for issuers and investors. In light of this, the EuGB aims to offer assurance by coordinating the use of revenues with the EU Taxonomy. According to Article 4 of the Taxonomy Regulation, which states that the Union shall apply the criteria of the EU Taxonomy when establishing any rules for ecologically sustainable corporate bonds, the EuGB is rooted to the EU Taxonomy. To determine if an economic activity is green and whether full compliance with the minimal social safeguards is guaranteed, the Taxonomy Regulation should be used as a standard.[103]

According to Article 6 of the EuGBR, the entire amount of proceeds must be used to finance either environmentally sustainable economic activities that are taxonomically aligned or those that help transform other activities into environmentally sustainable ones within a time frame that is no longer than five years after the bond's issuance. This time frame may, in exceptional cases, be increased by up to 10 years, provided that the additional time is justified

---

[102] *Ibid.*

[103] *Ibid.*

by the unique characteristics of the economic activities and investments in question, as specified in the taxonomy-alignment plan. This plan should outline the steps and costs necessary for an economic activity to comply with taxonomy regulations within the given time frame. With increased flexibility in the use of proceeds for operations that may not at the time meet the technical screening criteria but will almost certainly do so once developed, this proposed allowance aims to aid issuers in transition.[104]

The proceeds from a EuGB may be used to fund such operations directly by financing assets and expenses associated with such activities, or indirectly through financial assets that finance such activities. In particular, issuers may use the proceeds of a EuGB to fund any of the following: I fixed (tangible or intangible) assets (including those of households) that are not financial assets; ii) capital expenditures (CapEx) or operating expenditures (OpEx) with a 3-year lookback limitation; iii) financial assets (such as financial claims and equity instruments); or iv) a combination of the aforementioned categories. As long as the proceeds of the aforementioned financial assets are allocated to fixed assets and/or CapEx/OpEx, they can be used to fund fixed assets, CapEx/OpEx, and other financial assets. In addition to the aforementioned, sovereigns may use programs of tax expenditures or transfers, including subsidies, that have been made more recently than three years prior to the issuance of the EuGB to allocate the proceeds of a EuGB to indirectly finance economic activities that are in line with the taxonomy requirements. In such circumstances, sovereigns are obligated to make sure that the economic activity supported by such programs adhere to their terms and conditions. (e.g. subsidy scheme for home owners to install solar panels).[105]

The fixed assets, expenses, and financial assets financed with EuGB revenues shall adhere to the technical screening standards outlined in the EU Taxonomy. Furthermore, until the maturity of the EuGBs, issuers should allocate the proceeds of the EuGBs to eligible fixed assets and expenditures (including designated sovereign expenditures) using the technical screening criteria in effect at the time of issuance. The underlying economic activities that are funded by financial claims (such as loans) made with the proceeds of EuGBs must meet the technical screening standards in effect at the time the financial claim was made. [106]

---

[104] *Ibid.*

[105] *Ibid.*

[106] *Ibid.*

Nonetheless, it is anticipated that the technical screening standards will evolve over time and be subject to periodic revisions to reflect the development of technology in the field of environmental sustainability. If the pertinent technical screening criteria changed while the bond was outstanding, the EuGB designation would not be kept until the EuGB's maturity. Hence, the price of EuGBs that would have already been issued could be negatively impacted by the change of the technical screening criteria. The proposed Regulation provides a partial grandfathering period in the event that the technical screening standards change following the issue of a bond in an effort to reduce this risk. In this case, the issuer should allocate the proceeds by applying the updated criteria within five years from their entry into application (fiveyear grace period).[107]

The TEG's recommendation for a complete grandfathering of the EuGB designation in cases where the EU Taxonomy criteria change is not included in the proposed Regulation. The EuGBR's partial grandfathering could cause serious issues for investors and issuers alike. Both issuers and investors may be deterred from EuGBs by the prospect that a EuGB designation may be lost in the future if it no longer satisfies the technical screening requirements. From the perspective of the issuers, the partial grandfathering may result in additional expenses and unpredictability because the issuers will need to reallocate proceeds in order to comply with the revised technical screening criteria or modify assets or projects that have already been funded by the proceeds of the EuGB. The liquidity and secondary market pricing of a EuGB at this time may be impacted by the unpredictability of the EuGB designation, particularly if it is believed that the EuGB designation would be lost. Additionally, if changes to the technical screening criteria were anticipated, issuers might decide to delay the issuing of EuGBs or opt for shorter maturities (up to 8 years) in order to avoid the aforementioned drawbacks of an anticipated change in the technical screening criterion. Investors will have the difficult operational duty of continuously ensuring that the EuGB designation is still in effect; if it is not, they may be forced to sell their holdings, which will lower the value of the existing EuGB. Hence, this may create mistrust against the label and reluctance to invest in transitional activities.[108]

---

[107] *Ibid.*

[108] *Ibid.*

Usage of European Green Bond proceeds Green bonds can be used to finance climate-reducing projects like low-carbon infrastructure, resource-efficient housing, and the production and distribution of energy. On what is deemed green, there are still a lot of murky places. The GBP simply advocate for the (voluntary) declaration of official and/or market-based Taxonomy-alignment; they do not advise any categories for the assets or projects that will be funded by a green bond. Uncertainty caused by the current lack of precise criteria for green initiatives increases costs and risks for issuers and investors. In light of this, the EuGB aims to offer assurance by coordinating the use of revenues with the EU Taxonomy. The EuGB is anchored to the EU Taxonomy in line with Art. 4 of Taxonomy Regulation, which provides that the Union should apply the criteria of the EU Taxonomy when setting out any standards for environmentally sustainable corporate bonds.To determine if an economic activity is green and whether full compliance with the minimal social safeguards is guaranteed, the Taxonomy Regulation should be used as a standard. According to Article 6 of the EuGBR, the entire amount of the proceeds from a EuGB must be used to finance either environmentally sustainable economic activities that are taxonomically aligned or activities that help transform other activities into environmentally sustainable ones within a time frame that is specified in a taxonomy-alignment plan and is not more than five years after the bond is issued. In exceptional circumstances, this period may be extended up to ten years provided that it is justified by the specific features of the economic activities and investments concerned, as documented in the taxonomy-alignment plan. This plan should describe the actions and expenditures that are necessary for an economic activity to meet the taxonomy requirements within the specified period. This proposed allowance seeks to support issuers in transition by adding flexibility in the use of proceeds for activities that may not meet the technical screening criteria at that moment but will most likely meet them once developed. The proceeds from an EuGB can be used to finance such activities either directly through the financing of assets and expenditures relating to environmentally sustainable activities or indirectly through financial assets that finance environmentally sustainable activities. In particular, issuers may use the proceeds of an EuGB to finance i) fixed (tangible or intangible) assets (including those of households) that are not financial assets, ii) capital expenditures (CapEx) or operating expenditures (OpEx) with a 3-year lookback limitation, iii) financial assets (i.e. financial claims and equity instruments), or iv) a combination of the aforementioned categories. The proceeds of the financial assets mentioned above can be allocated to i) fixed assets, ii) CapEx/OpEx, and iii) other financial assets provided that the proceeds of those assets are allocated to fixed assets and/or CapEx/OpEx. Sovereigns, in

addition to the above, may allocate the proceeds of an EuGB to indirectly finance economic activities that are aligned with the taxonomy requirements through the use of programs of tax expenditures or transfers, including subsidies, which have been granted more recently than three years prior to the issuance of the EuGB. In such cases, sovereigns are required to ensure that the economic activities funded by such programs comply with the terms and conditions of those programs (e.g. subsidy scheme for home owners to install solar panels). The fixed assets, expenditures and financial assets funded by the proceeds of EuGBs should meet the technical screening criteria established under the EU Taxonomy. Thus, issuers should apply the technical screening criteria applicable at the time of issuance when allocating the proceeds of EuGBs to eligible fixed assets and expenditures (including listed sovereign expenditures) until the EuGBs mature. As regards financial claims (e.g. loans) funded by the proceeds of EuGBs, the underlying economic activities funded by that claim should comply with the technical screening criteria applicable when the financial claim was created.[109]

However, the technical screening criteria are expected to be constantly developing and subject to regular updates over time to reflect the technological progress in the area of environmental sustainability. The EuGB designation would not be preserved until the maturity of the EuGB if the relevant technical screening criteria changed during the life of the bond. Hence, the revision of the technical screening criteria could have a negative impact on the price of EuGBs that would have already been issued. Aiming to mitigate this risk, the proposed Regulation grants a partial grandfathering period if there is a change of the technical screening criteria after a bond issuance.80 In this case, the issuer should allocate the proceeds by applying the updated criteria within five years from their entry into application (fiveyear grace period). The proposed Regulation does not follow the TEG's recommendation for a full grandfathering of the EuGB designation, where the EU Taxonomy criteria change. The partial grandfathering of the EuGBR may give rise to significant problems both for issuers and investors. The possibility that a EuGB might lose its designation at a certain point in time due to no longer meeting the technical screening criteria could discourage both issuers and investors from EuGBs. From an issuers' perspective, the partial grandfathering may bring extra costs and uncertainty, as issuers will have to reallocate proceeds in line with the amended technical screening criteria or to adapt assets/projects already funded by the EuGB proceeds in order to comply with the amended technical screening criteria. The

---

[109] *Ibid.*

unpredictability of the EuGB designation may have an impact on secondary market pricing and liquidity of an EuGB during this period, especially if it is anticipated to lose the EuGB designation. Also, issuers would be inclined to postpone the issuance of EuGBs if changes to the technical screening criteria were expected, or could prefer shorter (up to 8 years) maturities in order to avoid the aforementioned negative consequences of an expected change in the technical screening criteria. As regards investors, they will have the operationally challenging task to constantly monitor that the EuGB designation is still in place, and, if not, they may need to liquidate their positions resulting in a devaluation of the outstanding EuGB. Hence, this may create mistrust against the label and reluctance to invest in transitional activities.[110]

The proposed Regulation seeks to promote transparency and market integrity by providing investors with the necessary information to assess the compliance of issuers with the EuGBR and to evaluate the environmental impact of EuGBs. In this context, the EuGBR establishes standardized disclosure requirements for issuers in order to promote comparability among EuGBs. Issuers should publish i) preissuance EuGB factsheets, ii) post-issuance annual allocation reports, and iii) at least one (1) report on the environmental impact of the EuGB, based on common templates included in the Annexes of the EuGBR. In case of more than one (1) EuGBs, issuers may issue a single report for each of the aforementioned types of reports.82 This allowance is justified by the fact that issuers may not be able to match the proceeds of each EuGB with the distinct financial assets financed by that bond due to a mismatch in terms of maturity and volume of funding between the EuGBs and financial assets.[111]

Issuers are required to publish and maintain on their websites, until the maturity of the bonds, the documents drawn up under the EuGBR, including respective pre-issuance and post-issuance reviews. The requirement to publish external reviewer's reports is no longer a requirement just for issuers, which they would normally do, but also for external reviewers, which should publish and retain the reports on their own website until the maturity of the respective EuGBs.[112]

---

[110] *Ibid.*

[111] *Ibid.*

[112] *Ibid.*

The proposed Regulation provides some flexibility to sovereigns in relation to disclosure requirements and the obligation to obtain pre-issuance and post-issuance reviews from external reviewers. In particular, sovereigns may use state auditors or other public entities instead of ESMA-supervised external reviewers, as will be the case for issuers from the private sector, to review the EuGB factsheet and the allocation report. This allowance leaves room for sovereigns to deviate from the high standards set for issuers from the private sector, which might hamper the credibility of the EuGB, which intends to become the 'gold standard' for green bonds. Also, sovereigns are not obliged to demonstrate project-level EU Taxonomy-alignment for certain public expenditure programs, such as funding or subsidy programs and tax relief schemes. Thus, when providing pre- and post-issuance reviews of EuGBs issued by sovereigns, the proceeds of which are allocated to any of the aforementioned public expenditure programs, external reviewers should not be required to assess the taxonomy-alignment of each economic activity funded by such programs, but the alignment of the terms and conditions of the funding programs concerned with the taxonomy requirements.[113]

Prior to an EuGB issuance, issuers are required to publish an EuGB factsheet under a common template setting out the concrete funding goals and environmental objectives of the EuGB. Under that factsheet, issuers should state that they adhere to the requirements of the EuGBR and provide detailed information on how the EuGB aligns with their environmental strategy. The EuGB factsheet is structurally different and more detailed compared to the respective report published under the GBP, notably as regards the obligation of issuers to disclose information on the EuGB's compliance with EU Taxonomy. The largest part of the factsheet should cover the intended allocation of the EuGB's proceeds. Specifically, the factsheet should provide detailed information on the estimated time until the full allocation of proceeds and the process for selecting green projects, including a description of the technical screening criteria taken into account and the methodology/assumptions used for the calculation of the key impact metrics. Also, the factsheet should contain information at project level, unless this is not feasible for certain reasons. This information should cover, among others, the environmental objectives pursued under each project, as per the Taxonomy Regulation, the type and sector of the project and the amount of the bond's proceeds allocated to that. Lastly, where a prospectus is to be published, it will have to clearly state that the bond

---

[113] *Ibid.*

is issued in line with the EuGBR and include therein the information contained in the EuGB factsheet. Once the issuer has prepared the factsheet, the external reviewer should perform a pre-issuance review to ensure that the EuGB meets the requirements of the EuGBR. The pre-issuance review should be disclosed under a uniform template, which should include a detailed list of information. In specific, the external reviewer should express a positive/negative opinion in relation to the compliance of the bond with the requirements of the EuGBR and the appropriateness to use the EuGB designation. Furthermore, the external reviewer should describe the sources relied upon to prepare the review, including links to measurement data and the methodology applied, as well as an explanation of the assessment methodologies, key assumptions and taxonomy requirements used.[114]

Following the issuance of an EuGB and until the full allocation of its proceeds, issuers should publish, no later than three months following the end of the reference year, annual reports to demonstrate how they are allocating the proceeds of the EuGB. Such an allocation report is envisaged also under the GBP, which most issuers already provide on a voluntary basis. Respective to the EuGB factsheet, the allocation report should be based on a common template providing investors with comparable information. The information included in the annual allocation report is very similar to that required under the pre-issuance factsheet (e.g. type and sector of projects, amount and percentage of proceeds allocated). The information on the allocation of proceeds should be at project level, unless certain conditions require the disclosure of information at aggregated level. Additional areas covered in the allocation report refer to a progress update in the implementation of a Taxonomy-alignment plan for assets falling under such a plan and a confirmation of the issuer's compliance with the minimum social safeguards set out in Art. 3(c) of Taxonomy Regulation. In case of financial entities that allocate proceeds from a portfolio of several EuGBs to a portfolio of financial assets, the allocation report should provide both an overview of the outstanding EuGBs, indicating their individual and combined value, and an overview of the eligible financial assets, indicating their value, environmental objectives, types, sector and countries. Once the EuGB's proceeds have been allocated, the issuer is required to obtain a post-issuance review of the allocation report issued at that time, which marks a difference with the GBP that recommend the post-issuance review of issuers' management of proceeds to take place on an annual basis. Under the EuGBR, a review of each (annual) allocation

---

[114] *Ibid.*

report is mandatory only for financial entities that allocate the proceeds from a portfolio of EuGBs to a portfolio of environmentally sustainable financial assets/economic activities.90 In any case, the post-issuance review should provide a detailed assessment of whether the issuer has allocated the bond's proceeds in line with the EuGBR and the intended use of proceeds, as set out in the EuGB factsheet.91 Issuers are obliged to provide the allocation report to an external reviewer within 30 days following the end of the year to which the allocation report refers. The post-issuance review should be made public within 90 days following the receipt of the allocation report from the external reviewer.[115]

Under the current market-based regime, impact reporting is not mandatory, though recommended as a best practice. Hence, whereas investors and other stakeholders would need detailed information on the environmental impact of the investment projects for which green bond proceeds are earmarked, this information is seldom disclosed on a regular basis. Therefore, the proposed Regulation introduces an additional disclosure requirement for issuers, which pertains to the publication of a report on the overall environmental impact of EuGBs. This report should be published at least once until the maturity of the EuGB and, in any case, after the full allocation of proceeds. The impact report should give insight in both the positive and adverse environmental impact of the EuGB in aggregate and per project, as well as on the metrics, methodologies and assumptions applied in the assessment of that impact. This is a key difference compared to the current practice, where issuers disclose information only on the positive effects of green bonds. Mandatory impact reporting is important in demonstrating the environmental effects of the EuGB, though the collection, aggregation and reporting of the required data/information might be challenging for issuers. In contrast to the EuGB factsheet and the post-issuance allocation reports, issuers are not required to obtain a review from an external reviewer for the impact report.[116]

The proposed Regulation assigns specific supervisory and investigatory powers on National Competent Authorities (NCAs) to ensure that issuers comply with the aforementioned disclosure requirements. As regards the supervisory powers, NCAs may require issuers to publish pre-issuance and post-issuance reports and to include therein the information listed in the relevant Annexes of the EuGBR. If a competent authority considers

---

[115] *Ibid.*

[116] *Ibid.*

there are reasonable grounds that the disclosure requirements have been infringed, it may make public this assessment or even proceed to a suspension of the offer of the EuGB for a maximum of ten working days and/or prohibit/suspend advertisements relating to that issuance. NCAs will also have (investigatory) powers to require auditors and senior management of the issuer to provide information and documents, while they may also carry out on-site inspections and/or investigations at the issuer's premises, where necessary. NCAs may exercise the aforementioned powers i) directly, ii) in collaboration with other authorities, iii) under their responsibility by delegation to such authorities, or iv) by application to the competent judicial authorities.95 In addition to the aforementioned powers, Member States must provide competent authorities with the power to impose administrative sanctions and other administrative measures, where they identify infringements of the disclosure requirements of the EuGBR or a failure of the issuer to cooperate in an investigation/inspection. Indicatively, for the purpose of addressing the risk of 'greenwashing', NCAs may impose sanctions to issuers where they find that the post-issuance disclosures (e.g. allocation report) include invalid/misleading information about the use of the EuGB's proceeds in accordance with the Taxonomy Regulation. In addition, the EuGBR could further shield investors from the risk of 'greenwashing' by requiring the internal audit function of issuers to assess the credibility of the processes and arrangements governing the use of EuGB's proceeds, the evaluation and selection of green projects and the disclosures, and to report any findings to the relevant NCA. NCAs may impose pecuniary and/or non-pecuniary sanctions to natural persons and/or legal entities that are responsible for the relevant infringement(s). The determination of the type and level of the administrative sanctions/measures should be made on the basis of certain elements, including the gravity and duration of the infringement, as well as the degree of responsibility of the person responsible for the infringement.[117]

The current market-based regime lacks an effective framework for the supervision of external reviewers, which fails to provide assurance to issuers and investors on the greenness of their investments. The EuGBR seeks to address this deficiency through the adoption of two measures. Firstly, the establishment of a suite of requirements pertaining to the registration and supervision of external reviewers. Secondly, the conferral upon the ESMA of the sole responsibility to ensure the uniform application of these rules across the EU, which is

---

[117] *Ibid.*

aligned with the TEG's proposal for an ESMA-led centralized accreditation regime for external reviewers. The TEG had also assessed an alternative option for the establishment of a decentralized regime, which would involve NCAs, possibly coordinated by the ESMA in cooperation with other EU institutions. However, this option was finally dismissed as it could result in an inconsistent application of EU rules across Member States giving rise to market distortions and regulatory arbitrage. The proposal to assign the supervision of external reviewers on a supranational authority seeks both to promote a level playing field and reduce compliance costs for supervised entities. External reviewers will benefit from having a single supervisory authority instead of a number of different national authorities, which would create a fragmented regulatory and supervisory landscape. The proposed centralized approach builds on the ESMA's expertise and existing core competences in the areas of regulation (e.g. development of technical standards and guidelines) and supervision of CRAs, which play a critical role in bond markets and some of which are already active in the external review market. Thus, the expansion of the ESMA's tasks and responsibilities is expected to yield economies of scale resulting in reduced supervisory fees, and to ensure high standards of supervision. Alternatively, the supervision of external reviewers could be conferred on a new EU agency. Nonetheless, this option would require a significantly longer period to materialize, since the new agency would need some years to be established, staffed and become fully operational, while in the meantime an interim (market-based) regime would have to be put in place in order to cover this gap. In accordance with the EuGBR, external reviewers should register with the ESMA and, therefore, should submit an application accompanied by specific documentation. Among others, applicants should provide the ESMA with information about the members of their senior management and the number of analysts/employees directly involved in assessment activities, as well as the level of qualification, experience and training of those persons. Furthermore, external reviewers should provide the ESMA with the procedures and methodologies used for the issuance of reviews, and the policies or procedures applied to identify, manage and disclose any conflicts of interests. The ESMA should approve the application of an external reviewer where three conditions are met. Firstly, the senior management of the applicant fulfills criteria relating to reputation, skills, qualifications and experience, which are necessary to perform the required tasks. Secondly, the number of analysts and the level of their experience and training are sufficient to perform the required tasks. Thirdly, the governance arrangements of the applicant are appropriate and effective. The ESMA may refuse to register an external reviewer or decide to withdraw its registration under certain conditions, including in case of

submission of false statements during the registration process or non-compliance with the transparency rules.[118]

Once registered, an external reviewer will be permitted to conduct its activities across the EU provided that it meets the conditions for registration on an ongoing basis. In addition, the EuGBR sets out governance and internal control requirements for external reviewers seeking to promote market transparency and investor protection. Therefore, external reviewers are required to employ the appropriate systems, resources and procedures to monitor and evaluate the adequacy and effectiveness thereof, and, where needed, to take measures to address any deficiencies. Under the EuGBR, external reviewers will have to comply with specific corporate governance requirements to ensure that their reviews are independent, objective and of good quality. These requirements ensure that only external reviewers with adequate qualifications, professional experience, independence, and without any conflict of interest will review EuGBs. In this context, the EuGBR establishes obligations for the senior management, the analysts and other employees that are directly involved in the assessment activities. In particular, the senior management of external reviewers should have sufficient expertise in financial services and environmental issues and should ensure the sound and prudent management of the external reviewer, the independence of assessment activities, as well as the compliance with the requirements of the EuGBR. Also, the reviews should be performed by a sufficient number of employees having the necessary knowledge and experience to perform their duties. External reviewers should avoid situations of conflict of interest, or, if this is not possible, should take measures to identify, manage and disclose any conflicts of interest that relate to analysts, employees or any other person involved in assessment activities, including persons approving pre-issuance and postissuance reviews. External reviewers should ensure the timely disclosure of situations of conflict of interest and keep record of potential threats to their independence along with the measures taken to address these threats. External reviewers should not charge fees based on the result of the pre-issuance or post-issuance review, while the analysts and other employees involved in the assessment activities should not initiate or participate in negotiations regarding fees or payments with any assessed entity or related party thereof. Also, external reviewers that provide other services should ensure that those services do not create conflicts of interest with their assessment activities for EuGBs. External reviewers should also adopt and implement

---

[118] *Ibid.*

internal due diligence policies and procedures to ensure that their business interests do not impair the independence or accuracy of the assessment activities. Also, external reviewers should implement sound administrative and accounting procedures, as well as effective control and safeguard arrangements for information processing systems. Reviews should be based on a thorough analysis of the information that is available to external reviewers and should be of sufficient quality and from reliable sources. Lastly, external reviewers should disclose to investors the methodologies and key assumptions used in the review of EuGBs. Furthermore, based on the EuGBR, external reviewers should establish and maintain a compliance function, equipped with the necessary means to perform its tasks properly and independently, including the necessary resources and expertise, and access to all relevant information. The compliance function should not monitor or assess its own activities and not be compensated based on the business performance of the company. The findings of the compliance function should be made available to a supervisory/administrative organ of the external reviewer. Lastly, based on Art. 25(1) of EuGBR, external reviewers may outsource their assessment activities to third-party servicers provided that the latter have the ability and capacity to perform their tasks in a reliable and professional manner, and the outsourcing does not materially impair the quality of the reviewers' internal control and the ESMA's ability to supervise them. External reviewers remain responsible for any outsourced activity and, therefore, should take organizational measures to ensure that third-party servicers carry out their assessment activities in line with the regulatory requirements and the applicable Union and national laws. External reviewers should monitor on a periodic basis the outsourced activities, identify any risks relating to those activities and adequately address any identified failures. Lastly, external reviewers should take measures to ensure adequate control procedures for outsourced assessment activities and business continuity of those activities.[119]

The market for environmentally sustainable bonds is inherently international and issuers of EuGBs may seek access to the services of third-country external reviewers. It is therefore necessary to lay down rules on the provision of services by third-country external reviewers in the EU on the basis of i) an equivalence assessment, ii) recognition, or iii) endorsement. Under the equivalence assessment regime, the Commission may adopt a decision for a third country stating that the legal and supervisory arrangements applied in that country are equivalent to those applied in the EU (equivalence decision) and establish

---

[119] *Ibid.*

cooperation arrangements with the relevant competent authority of that country. Once such a decision is adopted by the Commission, an external reviewer located in that country may submit an application for registration to the ESMA and apply its services in the EU without being obliged to meet any additional requirements. Until such a decision is adopted, the ESMA may recognize an external reviewer located in a third country provided that certain conditions are met. To that end, an external reviewer should submit an application for prior recognition to the ESMA providing the latter with all the required information to demonstrate compliance with the requirements set out in the EuGBR (i.e. requirements applicable also to EU-based external reviewers). On top of those obligations, third-country external reviewers should have a legal representative located in the EU, which has to meet the requirements of the EuGBR and be accountable to the ESMA for the conduct of the third-country external reviewer in the EU. Lastly, registered external reviewers in the EU can endorse services provided by third-country external reviewers due to certain reasons, namely i) specificities of the underlying markets or investments, ii) proximity of the endorsed reviewer to third-country markets, issuers or investors, or iii) expertise of the third-country reviewer in providing the services of external review or in specific markets or investments. Under this endorsement regime, the EU-based external reviewer is subject to specific conditions. Firstly, the endorsing external reviewer should demonstrate that the provision of the endorsed services by the third-country external reviewer meet requirements that are at least as stringent as those set out in the EuGBR. Secondly, the endorsing external reviewer has the necessary expertise to monitor effectively the provision of endorsed services and manage any risks arising from them. In any case, the EU-based external reviewer remains fully liable for the endorsed services provided by the third-country external reviewer and for ensuring that the provision of those services complies with the requirements set out in the EuGBR.[120]

Under the proposed Regulation, the ESMA will have powers in relation to the supervision and investigation of external reviewers. For the effective execution of its tasks, the ESMA may require the submission of necessary information from all persons who are related or connected to external reviewers, including persons conducting the business of the external reviewer, members of the supervisory/management organ and senior management, persons directly involved in the assessment activities, as well as legal representatives or employees of entities to which an external reviewer has outsourced certain functions. In

---

[120] *Ibid.*

addition, the ESMA may investigate any of the aforementioned persons requiring the submission of relevant material (e.g. records, data, procedures) and oral or written explanations on facts or documents relating to the subject matter and purpose of the inspection. Lastly, the ESMA may carry out on-site inspections at the business premises, land or property of the external reviewer or any other entity related to that.[121]

According to Art. 51 of EuGBR, the ESMA may take supervisory measures where external reviewers or persons related to them commit any of the following infringements. Firstly, non-compliance with the organizational and governance requirements of the EuGBR or submission of false statements in the application of registration. Secondly, failure to provide the requested information or provision of incorrect or misleading information in response to a request for information from the ESMA. Thirdly, obstruction or non-compliance with an investigation or on-site inspection performed by the ESMA. Fourthly, performance of the activities of the external reviewer without having registered as such. Based on the infringement committed, the ESMA may select the appropriate measure from a large list of options. Initiating from milder measures, the ESMA may i) adopt a decision requiring the end of the infringement, ii) issue public notices, or iii) impose fines or periodic penalty payments. More intrusive measures include i) the temporary prohibition of the external reviewer from pursuing assessment activities until the end of the infringement, or ii) the withdrawal of the registration of an external reviewer or the recognition of a third-country external reviewer. For the infringements mentioned above, the ESMA may impose a fine from €20,000 to €200,000, while if a person has directly or indirectly benefited financially from the infringement, the amount of the fine should be at least equal to that financial benefit. As regards the periodic penalty payments, the ESMA may proceed to such a measure in order to compel a person to put an end to an infringement or to comply with an information request, investigation or on-site inspection performed by the ESMA. The periodic penalty payment should be imposed for each day of delay and be equal to 3% of the average daily turnover in the preceding business year (for legal persons) or 2% of the average daily income in the preceding calendar year (for natural persons). Lastly, the ESMA will be able to charge registration and supervisory fees to external reviewers for the costs incurred regarding their registration, recognition and supervision. Supervisory fees should cover all

---

[121] *Ibid.*

administrative costs incurred by the ESMA and be proportionate to the turnover of each external reviewer.[122]

The EuGBR envisages a transitional period for the full implementation of the new rules on the registration and supervision regime of external reviewers. This transitional period takes into account the time needed for the entry into force of the Commission Delegated Regulations, which will specify significant elements of the new requirements. Thus, for a period starting from the starting date of application of the EuGBR until 30 months after that date, external reviewers that intend to provide their services should notify the ESMA of their intention and submit an application for registration with all the required information. Within this 30-month period external reviewers have to comply with the key organizational and governance requirements set out in Art. 16-30 of EuGBR, while after that date they have to meet also the requirements established under Art. 14-15 of EuGBR and the relevant Commission Delegated Regulations.[123]

[122] *Ibid.*

[123] *Ibid.*

3.3.2. EU Taxonomy criteria

The High-Level Expert Group on Sustainable Finance (HLEG) was established by the Commission in December 2016 with the goal of creating an all-encompassing EU strategy on sustainable finance. The HLEG adopted a final report in January 2018 that includes eight core recommendations, several cross-cutting proposals, and measures aimed at certain financial system sectors. The paper outlines strategic recommendations for a financial system that promotes sustainable investments. The Commission then released its Action Plan on "Financing Sustainable Development" in March 2018, which outlines a comprehensive plan to strengthen the link between finance and sustainability. The Action Plan expands on the HLEG's final report and seeks to accomplish three goals. In order to achieve sustainable and equitable growth, it is first necessary to refocus capital flows toward sustainable investment. Second, to control financial risks brought on by societal problems, environmental deterioration, and climate change. Finally, to encourage long-term thinking and openness in financial and economic activity. The Action Plan established the groundwork for a sustainable financial system, including: an EU Taxonomy that defines a common classification of economic activities significantly advancing environmental goals based on scientific standards; a thorough disclosure regime that applies to both financial and non-financial entities seeking to give investors the knowledge they need to make sustainable investment decisions (such as the Sustainable Finance Disclosure Regulation, Corporate Sustainability Reporting Directive, and sustainability preferences); and a wide range of tools for businesses, market participants, and financial intermediaries to develop sustainable investment solutions, such as benchmarks, standards, and guidelines (i.e. EU Climate Benchmarks, European Green Bond Standard).[124]

A Technical Expert Group on Sustainable Financing (TEG) made up of 35 representatives from the public and commercial sectors was established by the Commission in June 2018. The TEG was tasked with helping the Commission create a taxonomy for sustainable economic activities in the EU, a standard for green bonds in the EU, methodologies for benchmarks for environmental, social, and governance (ESG) disclosures in benchmarks, and guidelines to help corporations disclose climate-related data more

[124] *Ibid.*

effectively. The TEG released an interim report on an EU Green Bond Standard in March 2019 for public comment, followed by its final report in June 2019.[125]

A set of criteria known as a taxonomy for sustainable finance serves as the foundation for determining whether and how much a financial asset would support specific sustainability goals. Its goal is to send a clear message to investors and other stakeholders and support their decision-making by outlining the types of data required to evaluate an asset's sustainability benefits and categorize an asset depending on how well it supports specific sustainability goals.[126]

In order to take a more ambitious approach to reducing greenhouse gas emissions, the Commission unveiled the European Green Deal in December 2019. This comprehensive framework and action plan aims to make the European economy sustainable. The European Green Deal offers a plan of action with steps to increase resource efficiency by switching to a clean, circular economy, stop climate change, stop biodiversity loss, and reduce pollution. It describes the financial resources that must be invested in, the financing options available, and how to ensure a fair and equitable transition. According to the European Green Deal, in order to maintain the possibility of keeping global warming between 1.5 and 2 degrees Celsius, as required by the Paris Agreement, the EU aims to become the first climate-neutral continent by 2050 and to cut greenhouse emissions in half by 2030 compared to 1990 levels, which is a significant increase from the previous target of at least 40%. An emissions reduction of 55% by 2030, compared to 1990 levels, is both economically feasible and advantageous for the EU, according to the impact assessment that accompanied the Commission's Communication "Stepping up Europe's 2030 climate ambition: Investing in a climate-neutral future for the benefit of our people" (September 2020).[127]

By June 2021, the Commission must "examine and propose to update, where appropriate, all key climate-related policy instruments," according to the "European Green Deal" Communication, in order to meet this goal. The Commission released a communication titled "Strategy for Funding the Transition to a Sustainable Economy" in this regard on July

---

[125] *Ibid.*

[126] Ehlers, Torsten and Gao, Diwen and Packer, Frank (2021).

[127] Maragopoulos, Nikos and Maragopoulos, Nikos (April 6, 2022).

6, 2021. On July 14, 2021, the communication "Fit for 55: Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality" was released. The latter was accompanied by the passage of a package of laws (the "Fit for 55 package") outlining the concrete steps the EU wants to take to attain climate neutrality by 2050, including the intermediate goal of at least a 55% net reduction in greenhouse gas emissions by 2030. A wide range of policy issues, including climate, energy, transport, and taxation, are covered by the package's proposal to amend many pieces of EU climate legislation.[128]

To promote transparency regarding the investments that support sustainable activities, a single classification system for sustainable activities is required. The Commission adopted a proposal for a Regulation "on the establishment of a framework to encourage sustainable investment" in May 2018 based on the HLEG's recommendations. The Regulation 2020/852 "on the establishment of a framework to facilitate sustainable investment," also known as the "Taxonomy Regulation," was published in the Official Journal of the EU on June 22, 2020, as a result of a political agreement reached in December 2019. It went into effect on July 12, 2020. The Taxonomy Regulation is part of the "regulatory trilogy" of the Commission's 2015 Action Plan "on Building a Capital Markets Union" with regard to sustainable finance, which also includes Regulation 2019/2088 "on sustainability related disclosures in the financial sector" (also known as the "Sustainable Finance Disclosure Regulation" or "SFDR") and Regulation 2019/2089 (also known as the "Low Carbon Benchmarks Regulation").[129]

The Taxonomy Regulation introduces uniform criteria for establishing whether an economic activity qualifies as ecologically sustainable in order to create a categorization system (EU Taxonomy) for sustainable economic activities. The EU Taxonomy intends to achieve two goals: to eliminate the possibility of "greenwashing" and to promote transparency and consistency in the classification of ecologically friendly activities within the internal market. The term "greenwashing" is defined as the "practice of gaining an unfair economic advantage by promoting a financial product as environmentally benign, when in fact basic environmental requirements have not been followed," according to the Taxonomy Regulation. Regarding the first objective, the Taxonomy Regulation aims to avoid a scenario in which Member States use their own classification systems to identify sustainable activities,

---

[128] *Ibid.*

[129] *Ibid.*

which would deter investors from investing internationally due to differences in how different investment opportunities are compared. As a result, the Taxonomy Regulation mandates that the Union and Member States use the criteria for identifying environmentally sustainable activities in any measure outlining requirements for financial market participants or issuers with respect to financial products or corporate bonds that are made available as environmentally sustainable, as is the case with the European Green Bond.[130]

The Taxonomy Regulation also establishes disclosure requirements that go beyond the SFDR's disclosure requirements for sustainability-related information. The Taxonomy Regulation's Articles 5-7, in particular, reinforce the SFDR's regulations on transparency in pre-contractual disclosures and periodic reports by promoting clarity regarding the share of investments that support ecologically friendly economic activities. Additionally, under Article 19a or 29a of Directive 2013/34/EU (also known as the "Non-Financial Reporting Directive"), businesses that are required to report non-financial information must comply with additional requirements that are imposed by the Taxonomy Regulation. According to the Taxonomy Regulation, these businesses must disclose information about how and to what extent their operations relate to economic activities that qualify as ecologically sustainable. The Commission Delegated Regulation 2021/2178, which "specifies the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifies the methodology to comply with that disclosure obligation," was published in the Official Journal of the European Union on December 10, 2021. 14 The most significant Key Performance Indicator (KPI) that this Delegated Regulation mandates that banks publish is the Green Asset Ratio (GAR). 15 The ratio of a bank's Taxonomy-aligned exposures to its overall eligible exposures is measured by this KPI. The GAR covers banks' main lending and investment business, including loans, advances and debt securities, and their equity holdings to reflect the alignment of banks' balance sheets with the EU Taxonomy.[131]In accordance with the Taxonomy Regulation, an economic activity qualifies as environmentally sustainable if that activity meets four conditions. Firstly, that activity substantially contributes to one or more of the environmental objectives. The Taxonomy Regulation establishes six

---

[130]*Ibid.*

[131]*Ibid.*

environmental objectives, namely climate change mitigation[132], climate change adaptation[133], sustainable use and protection of water and marine resources[134], transition to a circular economy[135], pollution prevention and control[136], and protection and restoration of biodiversity and ecosystems[137].[138]

Secondly, none of the other environmental goals are significantly harmed by the activity. The goal of the avoid significant harm to any of the environmental objectives criterion is to prevent investments from meeting the criteria for environmental sustainability if the economic activities that benefit from them harm the environment in a way that outweighs their contribution to an environmental objective. This evaluation needs to properly take into account the environmental effects of both the activity and the goods and services

---

[132] The **climate change mitigation** is the process of holding the increase in the global average temperature to well below 2 degrees Celsius and pursuing efforts to limit it to 1.5 degrees Celsius above pre-industrial levels, as laid down in the Paris Agreement. An economic activity that pursues the environmental objective of climate change mitigation should contribute substantially to the stabilization of greenhouse gas emissions by avoiding or reducing them or by enhancing greenhouse gas removals.

[133] The **climate change adaptation** is the process of adjustment to actual and expected climate change and its impacts. An economic activity that pursues the environmental objective of climate change adaptation should include or provide adaptation solutions that contribute substantially to reducing or preventing the adverse impact of the current or expected future climate, or the risks of such adverse impact, whether on that activity itself or on people, nature or assets.

[134] An economic activity should qualify as substantially contributing to the **sustainable use and protection of water and marine resources** if it substantially contributes either to achieving the good status of bodies of water, including bodies of surface water and groundwater or to preventing the deterioration of bodies of water that already have good status, or contributes substantially to achieving the good environmental status of marine waters or to preventing the deterioration of marine waters that are already in good environmental status.

[135] An economic activity qualifies as substantially contributing to the **transition to a circular economy**, including waste prevention, re-use and recycling, where that activity contributes to any of the objectives mentioned in Art. 10(3) of Taxonomy Regulation. In particular, such an economic activity should contribute to any of the following objectives: i) use natural resources in production more efficiently, ii) increase the durability, reparability, upgradability or reusability of products, iii) increase the recyclability of products, iv) substantially reduce the content of hazardous substances and substitute substances of very high concern in materials and products throughout their life cycle, v) prolong the use of products, vi) increase the use of secondary raw materials and their quality, or vi) prevent or reduce waste generation, including the generation of waste from the extraction of minerals and waste from the construction and demolition of buildings.

[136] An economic activity meets the criterion of substantial contribution to **pollution prevention and control** in any of the following cases. Firstly, if it prevents, or where that it not practicable, reduces pollutant emissions into air, water or land, other than greenhouse gasses. Secondly, if it improves levels of air, water or soil quality in the areas in which the economic activity takes place whilst minimizing any adverse impact on human health and the environment or the risk thereof. Thirdly, if it prevents or minimizes any adverse impact on human health and the environment of the production, use or disposal of chemicals. Fourthly, if it cleans up litter and other pollution.

[137] An economic activity qualifies as substantially contributing to the **protection and restoration of biodiversity and ecosystems** where that activity contributes substantially to protecting, conserving or restoring biodiversity or to achieving the good condition of ecosystems, or to protecting ecosystems that are already in good condition.

[138] *Ibid.*

offered by it over the course of their entire life cycles, paying particular attention to the manufacturing, use, and disposal of those goods and services.[139]

Thirdly, the activity complies with some minimal safeguards, such as the values upheld by the European Pillar of Social Rights in support of sustainable and equitable growth and the global minimum standards for human and labor rights. 24 In accordance with Articles 10(3), 11(3), 12(2), 13(2), 14(2), and 15(2) of the Taxonomy Regulation, Commission Delegated Regulations will create the technical screening criteria, which the activity conforms with as number four. The technical screening criteria should outline the performance standards for every economic activity in order to ascertain the circumstances in which that activity contributes considerably to an environmental aim while not materially undermining the other objectives. In this way, the technical screening criteria ensure that the economic activity makes either a positive impact or reduces negative impact on the environmental objective concerned.[140]

The Taxonomy states that certain economic activities that lack a technologically and economically viable low-carbon alternative qualify as significantly reducing climate change when they support the transition to a climate-neutral economy in accordance with a pathway to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels, including by gradually eliminating greenhouse gas emissions, in particular emissions from solid fossil fuels. This means that these actions must satisfy certain requirements. First of all, they ought to have greenhouse gas emission levels that are consistent with the best results in the industry or sector. Second, they shouldn't obstruct the creation and use of low-carbon substitutes. Thirdly, given the economic lifetime of those assets, they shouldn't result in a lock-in of carbon-intensive investments.[141]

Finally, economic activities (also known as "enabling activities") that directly allow other activities to contribute significantly to any of the aforementioned environmental goals are taken into account to be ecologically sustainable activities themselves if they satisfy two requirements. First of all, taking into account the economic lifetime of those assets, they do

---

[139] *Ibid.*

[140] *Ibid.*

[141] *Ibid.*

not result in the lock-in of assets that jeopardize long-term environmental goals. On the basis of life-cycle considerations, they also significantly improve the environment. According to indications, examples of these activities include the production of low-carbon technologies, information and communications technology for reducing climate change, a few non-life insurance products, and professional, scientific, and technical endeavors for preparing for climate change. [142]

The Commission Delegated Regulations are an addition to the Taxonomy Regulation and provide detailed technical screening criteria for determining when an economic activity qualifies as substantially contributing to one environmental objective while not significantly harming any other environmental objective. The technical screening criteria, which are regarded as the foundation of the EU taxonomy, aim to assist businesses and investors in making ethical investment choices by identifying what qualifies as taxonomy-aligned.[143]

The first of the aforementioned Commission Delegated Rules was released in the Official Journal of the EU on December 9, 2021. This Delegated Regulation, published under Articles 10(3) and 11(3) of the Taxonomy Regulation, is largely based on the work of the TEG and specifies technical screening standards for economic activities that significantly contribute to climate change adaptation and mitigation, all of which are in sectors that account for the vast majority of EU carbon emissions. In sectors that account for over 80% of direct greenhouse gas emissions in the EU, the technical screening criteria developed under this Commission Delegated Regulation encompass the economic operations of about 40% of listed businesses in the EU. [144]

The aforementioned Commission Delegated Regulation also establishes technical screening standards for transitional economic activities that have the greatest potential to produce significant levels of greenhouse gas emissions, where near-zero carbon solutions are either not yet economically feasible or where near-zero carbon activities are already in place but are not yet scaleable. According to the EU Delegated Regulation, technical screening standards for manufacturing and maritime shipping are defined. The technical screening

---

[142] *Ibid.*

[143] *Ibid.*

[144] *Ibid.*

criteria for the latter will be in effect through the end of 2025, while the thresholds for the former are set at a level that can only be reached by the best performers in each area. The Commission will continue to evaluate maritime shipping and, as necessary, adopt technical screening standards that will take effect in 2026.[145]

On February 2, 2022, the Commission approved a supplemental Commission Delegated Regulation covering specific energy sectors not covered by the aforementioned Commission Delegated Regulation (for review by the co-legislators). Certain nuclear and gas energy operations are listed among the transitional economic activities covered by the EU Taxonomy in this supplementary Climate Delegated Act. According to the Commission, the requirements for the particular nuclear and gas activities are consistent with EU environmental and climatic goals and will hasten the transition away from solid or liquid fossil fuels, including coal, and toward a future without global warming. For nuclear energy, the Commission has concluded that, subject to strict safety and environmental conditions (including on waste disposal) that ensure the respect of the 'do no significant harm' principle, it can play a role in the transition towards climate neutrality. This conclusion is based on the technical report of the Joint Research Centre (JRC) on the 'do no significant harm' aspects of nuclear energy, which was reviewed by Member States' experts on radiation protection and waste management appointed by the Scientific and Technical Committee under Article 31 of the Euratom Treaty, as well as by experts from the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER).[146]

Another Commission Delegated Regulation covering primarily the remaining environmental objectives will be adopted in 2022 based on feedback from the (multi-stakeholder) Platform on Sustainable Finance, which was established under Art. 20 of the Taxonomy Regulation and has been operational since October 2020.[147]

For actions that contribute to climate change adaptation and mitigation, the criteria for ecologically sustainable activities began to be applied on 1 January 2022; however, for the other environmental objectives, the criteria will begin to be applied on 1 January 2023. As

---

[145] *Ibid.*

[146] *Ibid.*

[147] *Ibid.*

required by Art. 19(5) of the Taxonomy Regulation, the Commission shall evaluate the technical screening criteria at least every three years with respect to transitional activities and, where necessary, revise the Delegated Rules in light of new scientific and technology advancements. [148]

[148] *Ibid.*

4. Green Bond Market and Usefulness

Green bonds must meet the needs of both issuers and investors in order for the green bond market to contribute a sizable sum of money to environmentally friendly projects. While the proceeds from the issuance of a green bond are designated for environmentally friendly projects, green bonds are serviced from the cash flows of the issuer's entire operations, not just the green project. When looking at the same issuer, the risk characteristics of a green bond are essentially the same as those of a conventional bond.[149]

Flammer (2021)[150] shows that firms issuing certified green bonds largely reduce their CO2 emissions subsequently[151] and argues against the possibility of greenwashing. Yet very little is known about the mechanisms that make green bonds work. These features affect how much green bonds cost and how appealing they are to investors. A premium at issuance over comparable bonds without a green label would show that the label is valued by a sizeable portion of investors, providing issuers with an additional incentive to issue bonds with it. Nonetheless, these investors will still be concerned with how well green bonds perform financially over time. The susceptibility to credit risks associated with environmental change is another factor. The fact that green bonds fund ecologically friendly initiatives does not mean that they are subject to fewer dangers.[152]

Does the green label affect the yield spread that issuers are ready to accept for a bond over risk-free rates? A substantial body of research shows that variables unrelated to credit risks, such as particular demand and supply characteristics or liquidity premia (e.g., Longstaff (2004) and Amihud et al. (2006), can have a considerable impact on bond yield spreads. If a

[149] Ehlers, Torsten and Packer, Frank (2017).
[150] Flammer, C. (2021).
[151] Using a matching technique, Flammer estimates that firms issuing certified green bonds reduce their CO2 emissions by 13% over the course of the next two years; not all of this reduction may be attributed to projects financed through green bonds.

[152] Ehlers, Torsten and Packer, Frank (2017).

sizable segment of investors is willing to pay more for green bonds (accept a smaller spread), this should be reflected in the bond's initial price.[153]

Ehlers, Torsten, and Packer, Frank compared the credit spreads at issuance of a cross-section of 21 green bonds issued between 2014 and 2017 with the credit spreads at issuance of conventional bonds of the same issuers at the closest achievable issue date in order to analyze the price effect of the green label. Since the majority of green bond issuers also frequently release conventional bonds, this comparison can take issuer-specific peculiar characteristics, such as credit risk, into account. Project bonds were not included in the sample because claims on cash flows can be made on several projects with various risk profiles. In order to prevent the impact that debt seniority or the uncertainty of floating rates could have on the pricing at issue, the sample was further restricted to *pari passu* fixed rate bonds. They searched for conventional bonds with roughly the same maturity and only considered green bonds denominated in US dollars and euros because spreads over regional benchmark rates are less reliable for bonds issued in EME currencies.[154]

According to their findings, issuers of green bonds have borrowed money on average at spreads that are smaller than those of conventional bonds. This supports the findings of several recent research, including Zerbib (2017) and Barclays (2015). In their study, the average spread difference is about 18 basis points. Overall, this is in line with a high demand for green bonds relative to supply (CBI (2017), OECD (2016)); in other words, enough investors prefer holding green bonds to have an impact on the issue price. It seems that the green yield differential is bigger for riskier borrowers when they divided the sample up according to rating group. Ehlers, Torsten, and Packer, Frank also note a significant amount of diversity among the various green bond issues in their sample. The premium's standard deviation is 27 basis points. Five of the 21 green bond issues were priced at spreads higher than the matching conventional bonds, indicating that not all issuers were able to benefit from a yield reduction at issuance. However, they were unable to provide yield premia for greener ratings as determined by the main rating agencies' more detailed evaluations.[155]

---

[153] *Ibid.*

[154] *Ibid.*

[155] *Ibid.*

The following simplified facts are established by recent empirical assessments of the surge in green bonds. First, when companies announce the issuance of certified green bonds and financed projects, their stock prices rise. Around the release of certified green bonds, Tang and Zang (2018), Baulkaran (2019), and Flammer (2021) show comparatively substantial abnormal stock gains of 0.5-1.5%. This is unlike traditional relationships and resembles environmental prizes (Klassen and McLaughlin, 1996). (Eckbo, 1986; Mikkelson and Partch, 1986; Antweiler and Frank, 2006). Second, companies cannot get cheaper financing by using certified green bonds. The green bond yield spread is quite minimal, with empirical estimates ranging from 0 to 0.2%. (Tang and Zang, 2018; Zerbib, 2019; Flammer, 2021; Kapraun and Scheins, 2020). This suggests that worried investors do not yet play a substantial role, together with qualitative evidence of industry practice (Chiang, 2017). (Harrison, Partridge, and Tripathy, 2020). 7 No bond defaults either: Since there is no green bond yield spread, green bonds have no impact on a company's ability to make payments. Lastly, it's crucial that green bonds be certified. Bond yield spread, stock market response, or so-called "self-labeled" green bonds are not related to CO2 reduction (e.g., Flammer, 2021).[156]

In particular when investors do not intend to merely keep them until maturity, returns to investors from green bonds will over time reflect their performance. A noteworthy underperformance in secondary market trading due to the average premium at issue is not a given. Investors in the secondary market might value in a different premium than those in the main market. The realised volatility of green bonds will also be of interest to many investors as a measure of financial success.[157]

The secondary market performance of green bonds can be examined from an investor's perspective using green bond indices as a starting point. A more diverse portfolio of bonds is included in green bond indices, which makes it possible to compare their performance to that of other bond indices that are appropriate for a variety of investors. We examine so-called hedged returns, which are yields in US dollars that can be obtained by hedging the underlying index's currency exposures. Currency swings alone can have a disproportionately large influence on relative returns since green bond indices are

[156] Daubanes, Julien Xavier and Mitali, Shema Frédéric and Rochet, Jean-Charles (2021).

[157] Ehlers, Torsten and Packer, Frank (2017).

significantly different from other global bond indices in terms of their currency composition.[158]

According to a number of scholarly research (Hong et al. (2016) and references therein), investors have a propensity to underprice environmental hazards. This is despite the fact that transition risks, such as the risk of a significant change in environmental regulations, as well as physical risks, such as those associated to climate-related occurrences like droughts and floods, have previously been shown to have severe financial repercussions (Caldecott et al. 2014). For instance, when analyzing the credit risks of bond issuers from polluting sectors, rating agencies now intend to take into consideration the financial risks associated with the transition to higher carbon emission standards envisaged by the Paris Agreement (e.g. Moody's Investors Service (2016b))..[159]

Whether green bonds might offer a tool for investors to protect themselves against these environmental-related financial hazards is one concern. Bonds from issuers in polluting industries may experience large revaluations if these concerns come to pass. Green bond issuers may be better protected from significant revaluations, which might make them an effective risk management tool.[160]

In fact, the research implies that green bonds are more sensitive to environmental credit concerns than conventional bonds. At the sectoral level, Moody's offers a classification of credit exposures to environmental hazards (Moody's Investors Service, 2015). 13.2% of the corporate debt in the Moody's rated universe is issued by organizations in sectors with moderate or higher exposure to environmental credit risk, and 2.9% is issued by organizations in sectors with either immediate or emerging elevated risk. Comparatively, when we look at the industry makeup of green bonds alone, we can observe that 22.4% of green bonds are issued in sectors with moderate to high exposure to environmental credit risk, and nearly 14% in high risk businesses (right-hand panel). Thus, the percentage of green bonds in high-risk sectors exceeds that for overall rated debt by a factor of four.[161]

---

[158] *Ibid.*

[159] *Ibid.*

[160] *Ibid.*

[161] *Ibid.*

According to Daubanes et al. (2021), managers of companies should issue certified green bonds since those bonds inform investors about the profitability of green projects and because managers are concerned about their companies' stock prices. First, by outlining a hypothetical scenario in which green bonds serve as a signaling tool, providing investors with encouraging—if imperfect—information about the anticipated financial success of their environmental investments. Comparing the value of green projects to business as usual activities is perhaps more challenging for equity investors. Additionally, only businesses with the most lucrative green projects would agree to take them on. Green bond information explains unusual announcement stock return patterns. Tang and Zang's (2018) discovery that stock markets respond mostly to the initial financing of green projects and much less to subsequent refinancing supports the informative role of green bonds. Second, the model incorporates managers' stake in their company's stock price. Managerial signaling would be pointless if they merely concerned about potential earnings. The phrase "short-termism," which refers to managerial concern for short-term stock returns, has several historical roots. One is that stock components are a part of managers' actual pay plans (Stein, 1989; Georgen and Renneboog, 2011). Gopalan, Milbourn, Song, and Thakor (2014) demonstrate that this is mostly a short- to medium-run sensitivity. For instance, Edmans, Gabaix, and Landier (2009) assess the sensitivity of managers' compensation to their firms' stock price. In addition to their salary, takeover risks (Stein, 1988), short-term investors (Bolton, Scheinkman, and Xiong, 2006), and markets' focus on short-term returns all contribute to managers' short-term incentives (Summers and Summers, 1989). Stock share turnover appears to be a reflection of investors' short-termism and managers' myopia, as suggested by Summers and Summers (1989) and confirmed by Cremers, Pareek, and Sautner (2020). Both managerial remuneration sensitivity to the stock price and share turnover vary significantly among industries.

A cornerstone exploration of the green and non-green bond pricing differential was the study of Preclaw and Bakshi (2015)[162]. The premium that Preclaw and Bakshi's Ordinary least squares (OLS) regression model purportedly revealed had four possible reasons, according to them: First, a mechanical supply and demand mismatch between green issues and their non-green equivalents may be the cause of the price premium. This shows that "greenium" might only be a passing trend that eventually becomes unsustainable as issuers

[162] Preclaw, R. and Bakshi, A., (2015).

gravitate toward less expensive financing. This method acknowledges the inherent financial arbitrage that is green funding.[163] The second explanation would be that, in order to represent its externalities, the green bond market should, in the opinion of certain market players, trade at tighter spreads. The good impact of green bonds on the environment or to the issuer should presumably be enjoyed by holders of green bonds and conventional bonds alike, but this hypothesis is frequently criticized because holders of green bonds are not the residual claimants of the environmental benefits.[164] Thirdly, tighter green bond spreads can be a sign of investor preference in which the benefits outweigh the drawbacks in terms of cash flow. Such advantages, according to the authors, might be as straightforward as "psychological benefits," "brand value," "influence with regulators," and other non-financial perks. The last possibility is that green bonds are fundamentally less risky or volatile than otherwise comparable conventional bonds, resulting in tighter spreads that are commensurate to their risk-adjusted return. Additionally, it has been suggested that because "environmentally focused investors," who are typically investors who "hold to maturity," are the marginal purchasers of green debt, green bonds may be subject to less trading activity and exhibit greater price stability, especially during periods of underlying market stress.[165]

This study supports the first hypothesis that green bonds and bonds connected with the environment create a favorable market response and raise a company's worth by using 95 bonds from 17 issuers as an example. These findings help explain why the issue of the ideal capital structure and the impact of leverage on a company's value is one that financial papers must deal with. It also demonstrates that, contrary to the second hypothesis, this reaction is not dependent on a green label being present in a specific sample. Cumulative abnormal returns are mostly determined by additional factors at the bond and firm levels of the issuing entity.[166]

Investors frequently evaluate risk-adjusted returns to a benchmark or other reference and many have mandatory risk tolerance criteria. Investors use their own due diligence as

---

[163]Meyer, S. and Henide K. (2020).

[164]*Ibid.*

[165]*Ibid.*

[166] Kuchin, Ilia and Baranovsky, Gennadiy and Dranev, Yury and Chulok, Alexander (2019).

well as additional sources, such as credit ratings provided by rating agencies (such as Fitch, Moody's, or Standard & Poor's), when evaluating the risks associated with various investment opportunities, including determining the creditworthiness of bond issuers. Bonds with fixed rates offer fixed returns over a specified length of time in fixed periodic payments. As comparison to other investment options, this generally results in a more predictable, less dangerous investment. Bonds are a suitable complement to riskier, more volatile components in an investing portfolio due to their better predictability of cash flows. In 2021, the number of green bonds issued by businesses worldwide increased to a record high of $200 billion in the first half of the year. The Climate Bonds Initiative (CBI) discovered that the "greenium," also known as the premium on green bonds, is noticeable everywhere and is especially significant for U.S. dollar debt. According to ING, global savings for borrowers range between 1 basis point and 10 bps.[167]

Erik Bennike, head of credit at Danish pension fund PensionDanmark, told S&P Global Market Intelligence that despite sustained high demand for the instrument resulting in investors paying on average more for green bonds in the primary market, the greenium has traditionally grown in secondary trading.

"We justify the greenium and still buying into the green bonds by using a simple economist argument," said Bennike, speaking on the matter at the CBI 2021 conference Sept. 7. "The demand currently vastly outpaces the supply in this area. And if you don't have an expectation for that to change materially, then buying stuff that is expensive, but has the potential to be even more expensive, still makes sense."[168]

[167]Ing (2021).

[168]S&P Global Market Intelligence (2021).

5. Conclusion

Green bond principles and standards are an important step towards promoting green finance. Since the introduction of the Green Bond Principles by the ICMA in January 2014, the issuance of labelled green bonds has increased rapidly, with a growing number of issuers from the private sector. In fact, a number of green bond indices have been developed, enabling a larger pool of investors to own a variety of green bonds. Even though the financial performance of green bonds after issuance is equivalent to that of conventional bonds, the evidence implies that investors place value on the green label at issuance. However, a number of additional advancements are necessary before this still somewhat modest sector may expand more.[169]

The different definitions and labels for green bonds that are now in use present a problem for investors, who would gain from more uniform standards. It is encouraging that efforts are being made to increase the coherence of standards in China and the EU. At the same time, more constant third-party verification through rating services, "second opinion" providers, or other means might be required. Even if asset managers only use the green label to tell final investors that they have complied with green standards, their informational value may decrease over time as technology advances or an issuer's policies change.[170]

The financial risks associated with green bonds' environmental impacts are a second component of information that is not yet covered by green certification programs. Although managing environmental risks goes well beyond green bonds, it's crucial to dispel the myth that these risks aren't present in green bonds. In fact, out of all bonds with ratings, those with a green designation are more likely to be in industries with such risks. The level of financial risk associated with environmental variables might be highlighted in green bond regulations to further motivate investors to adequately manage these risks.[171]

---

[169]Ehlers, Torsten and Packer, Frank (2017).

[170] *Ibid.*

[171] *Ibid.*

To sum up, in my opinion, the development of all these frameworks would ultimately result in a worldwide jurisdiction that is harmonised, not by a centralized body but rather by agreement among all the major economic blocs. As we've hopefully shown, inconsistent and sometimes conflicting criteria are the biggest obstacle to the spread of green bonds, so the best course of action is to follow what the EU is already doing with the Taxonomy. The development of the industries and regions that are currently in danger of experiencing the greatest financial and environmental hardships will be made possible through the establishment of a transparent, universally applicable framework that will foster accountability and foster a sense of trust among all parties involved.

6. References

Bibliography

Antunes, José Engrácia (2018), **Os instrumentos financeiros**, 3.ª ed., revista e atualizada, Coimbra, Almedina.

Climate Change Support Team of the UN Secretary General, **Trends in private sector climate finance**, (October 9, 2015), http://www.un.org/climatechange/wpcontent/uploads/2015/10/SG-TRENDS-PRIVATE-SECTOR-CLIMATE-FINANCE-AWHI-RES-WEB1.pdf

Maragopoulos, Nikos and Maragopoulos, Nikos, **Towards a European Green Bond: A Commission's Proposal to Promote Sustainable Finance** (April 6, 2022). European Banking Institute Working Paper Series 2022 - no. 103, Available at SSRN: https://ssrn.com/abstract=3933766 or http://dx.doi.org/10.2139/ssrn.3933766

Schmittmann, J. and Teng, C.H. (2021): **How Green are Green Debt Issuers?**, IMF Working Paper, WP/20/194, July, available at: https://www.imf.org/en/Publications/WP/Issues/2021/07/23/HowGreen-are-Green-Debt-Issuers-462142

Fatica, S. and Panzica, R. (2020): **Green bonds as a tool against climate change**, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-22105-0, doi:10.2760/24092, JRC121894

Harrison, C., **Green Bond Pricing in the Primary Market H1 2021**, Climate Bonds Initiative, September 2021 available at: https://www.climatebonds.net/files/reports/cbi_pricing_h1_2021_03b.pdf

Hinsche (2021) Hinsche, Isabelle Cathérine, **A Greenium for the Next Generation EU Green Bonds Analysis of a Potential Green Bond Premium and its Drivers** (August 21, 2021). Center for Financial Studies Working Paper No. 663, 20201, Available at SSRN: https://ssrn.com/abstract=3965664 or http://dx.doi.org/10.2139/ssrn.3965664

Fatica, S., Panzica, R. and Rancan, M. (2019): **The pricing of green bonds: are financial institutions special**, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-02042-4, doi:10.2760/496913, JRC116157.

Baker, M., Bergstresser, D., Serafeim, G. and Wurgler, J. (2018): **Financing the response to climate change the pricing and ownership of U.S. green bonds**, National Bureau of Economic Research, Working Paper 25194, October, available at: https://www.nber.org/papers/w25194

Ehlers, Torsten and Packer, Frank, **Green Bond Finance and Certification** (September 17, 2017). BIS Quarterly Review September 2017, Available at SSRN: https://ssrn.com/abstract=3042378

ICMA, **Green Bond Principles Voluntary Process Guidelines for Issuing Green Bonds** (June, 2021), available at: https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf

Climate Bonds Initiative, **Climate Bonds Standard Version 3.0**, available at: https://www.climatebonds.net/files/files/climate-bonds-standard-v3-20191210.pdf

Ehlers, Torsten and Gao, Diwen and Packer, Frank, **A taxonomy of sustainable finance taxonomies** (October 8, 2021). BIS Papers No 118, Available at SSRN: https://ssrn.com/abstract=3945635 or http://dx.doi.org/10.2139/ssrn.3945635

Flammer, C. (2021), "**Corporate Green Bonds**," Journal of Financial Economics, 142: 499-516.

Daubanes, Julien Xavier and Mitali, Shema Frédéric and Rochet, Jean-Charles, **Why Do Firms Issue Green Bonds?** (December 29, 2021). Swiss Finance Institute Research Paper No. 21-97, Available at SSRN: https://ssrn.com/abstract=3996238 or http://dx.doi.org/10.2139/ssrn.3996238

Preclaw, R. and Bakshi, A., 2015. **The Cost of Being Green**. Report, Barclays Credit Research.

Meyer, S. and Henide K., **Searching for 'Greenium'** 2020, available at : https://www.icmagroup.org/assets/documents/Sustainable-finance/Public-research/Greenium-whitepaper-110521.pdf

Kuchin, Ilia and Baranovsky, Gennadiy and Dranev, Yury and Chulok, Alexander, **Does Green Bonds Placement Create Value For Firms?** (October 30, 2019). Higher School of Economics Research Paper No. WP BRP 101/STI/2019, Available at SSRN: https://ssrn.com/abstract=3477918 or http://dx.doi.org/10.2139/ssrn.3477918

Documents

What are green bonds (English). Washington, D.C. : World Bank Group http://documents.worldbank.org/curated/en/400251468187810398/What-are-green-bonds

Progress report on the Proposal for a Regulation of the European Parliament and of the Council on European green bond, December, available at: https://data.consilium.europa.eu/doc/document/ST-15018-2021-INIT/en/pdf

Journalistic and multimedia content

https://www.worldbank.org/en/topic/financialsector/brief/sustainable-finance

Online Etimology Dictionary: https://www.etymonline.com/word/bond

EPOS II - The "Climate Awareness Bond" EIB promotes climate protection via pan-EU public offering:
https://www.eib.org/en/investor-relations/press/all/2007-042-epos-ii-obligation-sensible-au-climat-la-bei-oeuvre-a-la-protection-du-climat-par-le-biais-de-son-emission-a-l-echelle-de-l-ue

IFC on green bonds:
https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/investor+relations/ir-products/grnbond-overvw

Ing (2021) “The corporate premium in green finance”:
https://think.ing.com/articles/greenium-bundle-part-2-the-corporate-premium-in-green-finance

S&P Global Market Intelligence (2021) “Green bond premium justified by strong secondary market performance, flexibility”:
https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/green-bond-premium-justified-by-strong-secondary-market-performance-flexibility-66696509

Legislation

CÓDIGO DOS VALORES MOBILIÁRIOS - DL n.º 486/99, de 13 de Novembro

CÓDIGO DAS SOCIEDADES COMERCIAIS - DL n.º 262/86, de 02 de Setembro

Strategy for Financing the Transition to a Sustainable Economy, Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions, COM/2021/390 final, July

Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a **framework to facilitate sustainable investment**, and amending Regulation (EU) 2019/2088 (Text with EEA relevance)

Proposal for a **REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL** on European green bonds COM/2021/391 final