

Green Bonds: A Legal and Economic Analysis

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ABSTRACT

Green bonds are bonds issued by public or private institutions to finance projects with a positive impact on the environment. This article focuses on green bonds issued by private, profit-oriented corporations. After a description of green bonds' main features and an account of the main drivers behind the growth of the green bond market, the article discusses green bonds' role in promoting corporate environmental sustainability. It highlights green bonds' capacity to improve the credibility of firms' environmental pledges, their role in enhancing firms' environmental transparency and their ability to increase the number of green projects being financed. The article then investigates whether green bonds should be regulated. It discusses the major concerns that may support regulatory intervention, namely issuer opportunism and uncertainty regarding what can be considered a green project, showing that they do not provide any strong argument in favour of regulation. In light of this outcome, the article provides an account and an assessment of EU policymakers' recent regulatory initiatives in the area.

1. Introduction

Green bonds are bonds—i.e., fixed income securities¹—issued by private corporations or public bodies (such as central banks, governments, and other public institutions) to finance projects that have a positive impact on the environment. In the initial years of their existence, green bonds were issued by public (or public-like) institutions

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¹ A bond is commonly defined as a “fixed-income [financial] instrument that represents a loan made by an investor to a borrower (typically corporate or governmental).” *See* <https://www.investopedia.com/terms/b/bond.aspt>.

such as international development banks and agencies.² The first green bond was issued in 2007 by the European Investment Bank. It was named the “Climate Awareness Bond” and was created to finance “renewable energy and energy efficiency projects.”³ Another supranational financial institution, the World Bank, soon followed suit, launching the year after its first green bond.⁴ Private corporations started issuing their own green bonds in 2013.⁵ Since then, the green bond market skyrocketed, reaching in 2021 the cumulative size of \$1.6 trillion.⁶ The green bond market still represents a niche in the \$100 trillion global bond market.⁷ Yet its impressive growth suggests that it might soon become a sizeable segment of the whole bond market.⁸ The green bond market has a global scope: in 2021, green bonds have been issued by issuers from 58 countries and in 33 different currencies.⁹

In most countries, green bonds are unregulated. Policymakers worldwide refrained so far from establishing legislative definitions or from setting requirements for the use of the “green” label.¹⁰ Market forces have filled this vacuum. Private bodies developed standards and guidelines for the issuance of green bonds. These standards define green bonds’ core features and, importantly, the set of obligations that issuers are required to comply with when issuing such bonds. A widely accepted set of standards is the one elaborated by the International Capital Market Association (ICMA). ICMA’s “Green Bond Principles” (GBPs) provide a definition of green bonds and establish the requirements that must be met by issuers for the issuance of such bonds.¹¹

This chapter argues that green bonds are a valuable tool for the promotion of a more environmentally sustainable behavior at profit-oriented corporations. By enabling firms to

² See Stephen Kim Park, *Investors as Regulators: Green Bonds and the Governance Challenges of the Sustainable Finance Revolution*, 54 STAN. J. INT’L L. 1, 14 (2018).

³ See Caroline Flammer, *Green Bonds: Effectiveness and Implications for Public Policy*, 1 ENV. AND ENERGY POLICY & ECON 95, 95 (2020).

⁴ The World Bank bond was the first environment-related bond named “green bond”. See Park, *supra* note 2, at 14 n.99.

⁵ See Caroline Flammer, *Corporate green bonds*, 142 J. FIN. ECON. 499, 499 (2021) (“Corporate green bonds were essentially inexistent prior to 2013”).

⁶ See CLIMATE BONDS INITIATIVE, SUSTAINABLE DEBT GLOBAL STATE OF THE MARKET 2 (2021), https://www.climatebonds.net/files/reports/cbi_global_sotm_2021_02h_0.pdf.

⁷ See CLIMATE BONDS INITIATIVE, SUSTAINABLE DEBT GLOBAL STATE OF THE MARKET 2 (2020), https://www.climatebonds.net/files/reports/cbi_sd_sotm_2020_04d.pdf.

⁸ This view is shared by EU policymakers. See EUROPEAN COMM’N, EUROPEAN FINANCIAL STABILITY AND INTEGRATION REVIEW 2021 at 28 (2021), https://ec.europa.eu/info/sites/default/files/european-financial-stability-and-integration-review-2021_en.pdf (“The green bond market is developing from a niche market into a more mainstream one”).

⁹ See CLIMATE BONDS INITIATIVE, *supra* note 6, at 6.

¹⁰ Notable exceptions are China and India, which have special regulations in place. See Park, *supra* note 2, at 35-36. The EU is also likely to establish a special regulation of green bonds soon: see *infra* section 5. See also *infra* note 121.

¹¹ See INT’L CAPITAL MKT. ASS’N, GREEN BOND PRINCIPLES. VOLUNTARY PROCESS GUIDELINES FOR ISSUING GREEN BONDS (2021), <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf>. Another important international standard setter is the Climate Bond Initiative (CBI). The CBI established a certification scheme for the issuance of green bonds based on a set of detailed guidelines and best practices. See CLIMATE BONDS INITIATIVE, CLIMATE BONDS STANDARD VERSION 3.0 (2019), <https://www.climatebonds.net/files/files/climate-bonds-standard-v3-20191210.pdf>.

bind themselves to the development of one or more green projects, green bonds may help mitigating the credible commitment problem affecting firms making green pledges to the financial community (and the larger public), curbing greenwashing problems.¹² In addition, green bonds help increasing firms' environmental transparency, allowing investors to better assess firms' efforts in reducing their environmental footprint,¹³ and may increase the number of green projects being financed thanks to the lower interest rates they often come with.¹⁴

This chapter also investigates whether green bonds should be regulated. The current lack of *ad hoc* regulation may harm the green bond market by favoring issuers' opportunistic behavior. Issuers may be tempted to improperly use the "green tag," e.g., by attaching it to projects that yield no (or negligible) environmental benefits, or to make false promises as regards the use of the bond's proceeds.¹⁵ Furthermore, the absence of a legal definition of green bonds may foster uncertainty and discourage the use of the green label also by honest issuers, who might fear greenwashing accusations.¹⁶

This chapter argues that these concerns are largely unwarranted. First, existing laws and regulations put constraints on the risk of an improper use of the green label. Also, a number of contractual solutions exists that may enhance the effectiveness of these remedies. Second, while uncertainly as to what can be considered a green project justifies regulatory initiatives aimed at dissipating that uncertainty (e.g., via the elaboration of lists or taxonomies of environmentally sustainable activities), it is far from clear that public regulation would be superior to "private" regulation—i.e., the set of rules and standards elaborated by private standard-setting organizations such as those recalled above—in this respect. Accordingly, there appears to be no compelling case for the regulation of green bonds.

In light of these results, this chapter provides an account and an assessment of EU policymakers' recent efforts to establish special rules for green bonds.¹⁷ The European Commission recently put forward a proposal for a regulation establishing a voluntary standard for the use of the "European Green Bond" ("EuGB") designation: issuers wishing to use that designation must comply with the rules and requirements established by the regulation. The voluntary nature of the standard made the proposed regulation a valuable piece of legislation, capable of increasing competition among standard setters without restricting issuers' freedom of choice.¹⁸ However, subsequent amendments to the proposal from the European Parliament introduced some mandatory features into the original framework, making the proposed regulation a more intrusive regulatory intervention whose value appears uncertain.

This Chapter is organized as follows. Section 2 provides an overview of the basic structure of a green bond, following the framework provided by the ICMA's GBPs. Section 3 discusses the main drivers behind the growth of the green bond market, highlighting the

¹² See *infra* section 4.A.

¹³ See *infra* section 4.B.

¹⁴ See *infra* section 4.C.

¹⁵ See *infra* section 5.A.

¹⁶ See *infra* section 5.B.

¹⁷ See *infra* section 6.

¹⁸ The proposal also contained additional valuable features—such as the requirement that external reviewers in charge of controlling European green bond issuances be supervised by the European Securities and Markets Authority. See *infra* section 6.

demand- and supply-side factors that likely caused its rapid development. Section 4 investigates green bonds' role in fostering firms' pro-environmental behavior, pointing out their role in helping firms strengthening the credibility of their green pledges, in increasing disclosure about firms' sustainability efforts and in promoting the development of green projects. Section 5 addresses the question whether green bonds should be regulated. It discusses the major concerns associated with the absence of *ad hoc* regulation, arguing that they are largely unwarranted. In light of this conclusion, section 6 provides a description and an assessment of European policymakers' recent proposal for a regulation of green bonds. Section 7 concludes.

2. The Basic Structure of a Green Bond

What exactly is a green bond and how we distinguish it from other types of bonds? A brief account of ICMA's GBPs will help us provide a clearer picture of what green bonds are according to the international financial community: First, the proceeds raised from the bond's emission (or an equivalent amount thereof) must be used to finance or refinance new or existing "eligible green projects" (so called use-of-proceed clause).¹⁹ Eligible green projects are defined through reference to a non-exhaustive list of project categories commonly viewed as beneficial for the environment. Among them are energy efficiency, environmentally sustainable management of living natural resources and land use, climate change adaptation, clean transportation, pollution prevention and control.²⁰ Second, to ensure the correct allocation of the bond's proceeds, they must be kept separated from the issuers' other assets, via separate accounting or allocation in *ad hoc* accounts.²¹ Third, detailed information about the proposed project must be disclosed to investors. Among other things, the issuer should clearly state "the environmental sustainability objectives"²² of the project and provide information about "[t]he process by which the issuer determines how the project . . . fit[s] within the eligible Green Projects categories."²³ Fourth, the issuer must report periodically on the use of proceeds until all proceeds are fully allocated (that is, until the project has been fully financed).²⁴ Finally, the GBPs recommend that the issuer appoints an external reviewer in charge of verifying *ex ante* whether the proposed issuance

¹⁹ This feature distinguishes green bonds from another type of bond with sustainability features, the sustainability-linked bond. Sustainability-linked bonds are "general purpose" bonds (i.e., bonds issued to satisfy the issuer's general financing needs, with no limitations as regards the use of proceeds) whose payoffs are tied to the issuer's environmental performance. Typically, the bond covenants set an environmental goal or target. Failure to reach the target causes an increase in interest rates (so called "step-up clause"). See INT'L CAPITAL MKT. ASS'N, SUSTAINABILITY-LINKED BOND PRINCIPLES VOLUNTARY PROCESS GUIDELINES (2020), <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Sustainability-Linked-Bond-Principles-June-2020-171120.pdf>. Notice that a step-up clause may be introduced also in a green bond to induce the issuer to perform its green obligations: see *infra* note 109 and accompanying text.

²⁰ See INT'L CAPITAL MKT. ASS'N, *supra* note 11, at 4-5.

²¹ See *id.* at 6.

²² See INT'L CAPITAL MKT. ASS'N, *supra* note 11, at 5.

²³ *Id.*

²⁴ See *id.* at 6.

complies with the GBPs and of monitoring *ex post* the issuer's management of proceeds and their allocation.²⁵

Green bonds are frequently structured as standard recourse-to-the-issuer bonds. This means that the buyer of a green bond has full recourse to the issuer's assets (i.e., the issuer guarantees repayment of the loan with all its assets) and thus is not directly exposed to the risks of the project financed through the bond.²⁶ This feature allows the green bond to receive the same rating of the issuer's other outstanding, "plain vanilla" bonds.²⁷ However, there are three prominent variations over this basic theme: Green project bonds, green revenue bonds, and green securitized bonds. *Green project bonds* are bonds whose payoffs are tied to the cash flows generated by the project financed through the bond. Differently from standard recourse-to-the-issuer green bonds, here the investor has direct exposure to the project's risk.²⁸ Investors of *green revenue bonds* do not have full recourse to the issuer and "the credit exposure in the bond is to the pledged cash flows of the revenue streams, fees, taxes etc."²⁹ *Green securitized bonds* are collateralized by one or more green projects and "[t]he first source of repayment is generally the cash flows of the assets."³⁰

3. What drives the market for green bonds?

As pointed out in Section 1, the green bond market is growing exponentially.³¹ This growth is driven by both demand- and supply-side factors.³² On the demand side, investors worldwide show an ever-increasing appetite for green financial assets.³³ They pay more attention to the impact of investee firms' behavior on the environment and act accordingly, choosing investment opportunities with green features and pressing investee companies to make their business more respectful of the environment. This growing demand for green financial assets is in part driven by changes in investors' preferences. Especially younger investors are increasingly concerned by the environmental consequences of their investee firms' activity.³⁴ Many of them appear willing to accept lower returns in exchange for more

²⁵ See *id.* at 7. Thus, according to the GBPs independent third-party verification and monitoring is not a formal requirement for the issuance of green bonds. This marks a difference with the CBI's Climate Bonds Standard, according to which verification by an "Approved Verifier" is mandatory. See CLIMATE BONDS INITIATIVE, *supra* note 11, at 6.

²⁶ See Aaron Maltais & Björn Nykvist, *Understanding the role of green bonds in advancing sustainability*, 10 J. SUSTAINABLE FIN. & INV. 1, 1 (2020).

²⁷ See CLIMATE BONDS INITIATIVE, *Explaining green bonds*, <https://www.climatebonds.net/market/explaining-green-bonds> (last visited Aug. 30, 2022).

²⁸ See INT'L CAPITAL MKT. ASS'N, *supra* note 11, at 8.

²⁹ *Id.*

³⁰ *Id.*

³¹ See *supra* note 5 and accompanying text.

³² For an overview see Maltais & Nykvist, *supra* note 26, at 4-7.

³³ According to the Global Sustainable Investment Alliance, a collaboration of sustainable investment organizations, sustainable ("ESG") investments in Europe, the U.S., Canada, Australasia (Australia & New Zealand), and Japan rose from \$ 22,8 billions in 2016 to \$ 35,3 billions in 2020. See GLOB. SUSTAINABLE INV. ALL., GLOBAL SUSTAINABLE INVESTMENT REVIEW 2020 at 9, <http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf>.

³⁴ See, e.g., Gillian Tett, *Millennial philanthropy may forever change finance*, FIN. TIMES, May 6, 2021.

sustainable firm behavior.³⁵ This means, for instance, that they will select green investment opportunities (like shares of firms with high ESG scores) and discard “dirty” ones (like shares in high-polluting firms) even if that choice implies renouncing to maximizing their risk-adjusted returns.

However, investors’ attention to environmental matters is also driven by financial considerations. Corporate strategies that do not adequately tackle environmental issues are increasingly viewed as problematic, since they expose the firm to significant risks (e.g., regulatory risks or, more broadly, the risk that the firm fails to timely adjust its business model as the economy moves towards more environmentally sustainable models). Furthermore, climate change and other negative environmental consequences of firm behavior are increasingly viewed as a source of systemic risk negatively affecting even broadly diversified portfolios.³⁶ Global warming, for instance, is widely thought to produce large-scale damages to the economy.³⁷ Asset managers owning broadly diversified portfolios put increasing pressure on portfolio firms to reduce these climate externalities that might affect the value of such portfolios.³⁸

The increasing demand for green financial assets is likely among the main drivers of the growth of the green bond market. Green bonds are easily identifiable green financial assets that match investors’ growing preferences towards green investments. They are a valuable asset class also for institutional investors, who by purchasing green bonds may easily and effectively signal to their environmentally conscious customers that they are investing in green assets.³⁹

There are also supply-side factors explaining the growth of the green bond market. First, the pool of eligible projects is growing and is likely bound to increase even more in the next years. This is an obvious consequence of the investors’ pressures toward sustainability I briefly discussed above. However, it is also an effect of policymakers’ efforts to promote the transition toward a more sustainable (e.g., low carbon) economy.⁴⁰ In response to such pressures and trends, firms increasingly invest in projects aimed at

³⁵ See, e.g., Michal Barzuza, Quinn Curtis & David H. Webber, *Shareholder Value(s): Index Fund ESG Activism and the New Millennial Corporate Governance*, 93 S. CAL. L. REV. 1243, 1291-1303 (2020).

³⁶ See, e.g., Madison Condon, *Externalities and the Common Owner*, 95 WASH. L. REV. 1 (2020); Jeffrey N. Gordon, *Systematic Stewardship* 3 (European Corp. Governance Inst., Working Paper N° 566, 2021), <https://ssrn.com/abstract=3782814>.

³⁷ One source of such large-scale damages are the disruptions caused by “extreme” weather events (e.g., prolonged droughts or floods), whose frequency global warming is increasingly thought to affect. See, e.g., Peter Stott, *How Climate Change Affects Extreme Weather Events*, 352 SCIENCE 1517 (2016).

³⁸ See generally Gordon, *supra* note 36.

³⁹ See Maltais & Nykvist, *supra* note 26, at 9; Park, *supra* note 2, at 11 (“by purchasing green bonds, investors signal to other market participants their pledge to sustainability, which may enhance the reputational image of mainstream investors”).

⁴⁰ Transition to a low-carbon economy is the core objective of the 2015 Paris Agreement and, quite intuitively, it requires deep transformations in firm production processes across almost all industry sectors. Massive green investments suitable for green bond financing can thus be expected following signatory countries’ efforts to meet the carbon reduction targets set in the Agreement. See Clarence Tolliver, Alexander Ryota Keeley, Shunsuke Managi, *Drivers of green bond market growth: The importance of Nationally Determined Contributions to the Paris Agreement and implications for sustainability*, 244 J. CLEANER PRODUCTION, Jan. 2020 (finding that national efforts are among the major drivers of the green bond market growth).

reducing the negative environmental impact of their activities. As a consequence, the number of green projects eligible to be financed via green bonds increases.

Second, issuing firms' shareholders have an interest in financing their firms' green projects via green bonds rather than through more customary "plain vanilla" bonds. This might seem counterintuitive, as green bonds entail additional costs (as pointed out in section 2, green bonds require *ad hoc* disclosures⁴¹ and certifications⁴² and restrict the company's freedom as regards the use of the funds).⁴³ In fact, however, shareholders may benefit from the issuance of green bonds. Some recent empirical studies find that green bonds trade at a premium over comparable ordinary bonds.⁴⁴ Thus, resorting to green bonds allows the firm to obtain external finance at a lower cost, to the advantage of its shareholders.

Furthermore, issuing green bonds may be used as a marketing strategy to improve the firm's reputation among environmentally conscious consumers.⁴⁵ This may translate into higher sales (or higher margins) in the product market and thus into higher profits. Recent empirical studies find that stock prices increase upon the announcement of a green bond issuance.⁴⁶ This finding offers direct support to the idea that issuing green bonds benefits shareholders.

4. The role of green bonds in promoting environmental sustainability

Green bonds play a threefold role in the promotion of firms' environmental sustainability. First, they may be used to enhance the credibility of corporate green commitments (A.),⁴⁷ helping "green firms"—namely firms sincerely wishing to improve their environmental footprint—to distinguish themselves from firms engaging in

⁴¹ See *supra* notes 22-23 and accompanying text.

⁴² See *supra* note 25 and accompanying text.

⁴³ See *supra* text preceding note 19. See also Flammer, *supra* note 5, at 500 (similarly stressing how firms' choice on favor of green bonds might appear puzzling).

⁴⁴ See Olivier David Zerbib, *The effect of pro-environmental preferences on bond prices: Evidence from green bonds*, 98 J. Banking & Fin. 39 (2019); Gianfranco Gianfrate and Mattia Peri, *The Green Advantage: Exploring the Convenience of Issuing Green Bonds*, 219 J. CLEANER PRODUCTION 127 (2019); Ran Zhang, Yanru Li, Yingzhu Liu, *Green Bond Issuance and Corporate Cost of Capital*, 69 PACIFIC-BASIN FIN. J., Oct. 2021, at 2; *but see* Dragon Yongjun Tang and Yupu Zhang, *Do Shareholders Benefit from Green Bonds?*, 61 J. CORP. FIN., Apr. 2020, at 101 (finding that "stock prices positively respond to green bond issuance" but finding no "consistently significant premium for green bonds"). See also Park, *supra* note 2, at 15 (observing that the mismatch between demand and supply of green bonds generated a "greenium").

⁴⁵ See, e.g., Park, *supra* note 2, at 11 ("companies can use green bonds to signal to [...] consumers their commitment to sustainability" [fn omitted]).

⁴⁶ See, e.g., Tang and Zhang, *supra* note 44; Flammer, *supra* note 5, at 500. See also Zhang et al., *supra* note 44 (finding that companies issuing green bonds experience a decrease in their cost of capital). *But see* Martin Lebel, Souad Lajili Jarjir and Syrine Sassi, *Corporate Green Bond Issuances: An International Evidence*, 13 J. RISK FIN. MGMT., Feb. 2020 (finding that the stock market reacts negatively when firms announce the issuance of green bonds).

⁴⁷ For an analysis of the credible commitment problem in green finance see generally John Armour, Luca Enriques and Thom Wetzer, *Green Pills* (European Corp. Governance Inst., Working Paper N° 657, 2022), <https://ssrn.com/abstract=4190268>; Oren Perez, Michael P. Vandenbergh, *Making Climate Pledges Stick: A Private Ordering Mechanism for Climate Commitments* (Vanderbilt Law Research Paper N° 23-10, 2023), <https://ssrn.com/abstract=4346020>.

“greenwashing”⁴⁸ (the “greenwashers”—namely firms simply *pretending* to be changing their business in a more environmentally-friendly way), and signal their true quality to investors.⁴⁹ Second, green bonds contribute to increasing the amount of publicly available information about a firm’s efforts toward environmental sustainability (B.), increasing investors’ ability to assess those efforts. Third, green bonds allow a larger number of green projects to be financed (C.), thanks to the lower yields they often carry on.

A. Enhancing the credibility of corporate green commitments

It is common today to see firms (especially large ones) making green commitments, promising that they will change their business model to reduce its negative impact on the environment.⁵⁰ Many times, however, these commitments lack credibility.⁵¹ Consider the typical case in which a company sets some environmental target—say, a 50% reduction in carbon emissions within the next *n* years—as part of its broader “green strategy”. Except perhaps the most egregious cases, reneging on this type of promise entails no legal consequences for the firm. The reason for this is twofold.

First, the legal value of this pledge is uncertain. In most jurisdictions, it cannot be considered a contract (or other form of binding promise) whereby the firm takes on a specific legal obligation toward a counterparty or beneficiary and may be sued for damages (or enjoined to perform by a court) in case of nonperformance. Second, it is usually very difficult to hold the company liable, for securities fraud or other similar behavior, on the ground that it deceived the investors who bought (or sold) its securities under the expectation that the company would have kept the promise, when in fact it did not.⁵² As in the example reported above, green pledges usually take the form of forward-looking statements anticipating a certain future course of action. Securities fraud liability for this type of statements is hard to attain. This is mostly because plaintiffs, to that end, must provide the difficult proof that the company “lied” when making the promise, i.e., that its

⁴⁸ The term “greenwashing” identifies “the practice of falsely promoting an organization’s environmental efforts or spending more resources to promote the organization as green than are spent to actually engage in environmentally sound practices”. See KAREN BECKER-OLSEN & SEAN POTUCEK, *Greenwashing*, in *ENCYCLOPEDIA OF CORPORATE SOCIAL RESPONSIBILITY* 1318 (Samuel O. Idowu, Nicholas Capaldi, Liangrong Zu, Ananda Das Gupta eds., 2013).

⁴⁹ See Flammer, *supra* note 5, at 502 (“[b]y issuing green bonds, companies can signal their commitment toward the environment”). See also Ead at 507-8 (for empirical evidence consistent with the signaling hypothesis).

⁵⁰ See Armour et al, *supra* note 47, at 2 (reporting that “33% of the G20’s largest companies by revenue have set a net zero target in alignment with the goals of the Paris Agreement”).

⁵¹ See *id.* at 3-4.

⁵² Securities fraud is usually intended as the act of deceiving investors by, among other things, disclosing false, inaccurate, or otherwise misleading information. See, e.g., SEC rule 10b-5 (17 C.F.R. § 240.10b-5) (making it “unlawful for any person [...] [t]o make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading [...] in connection with the purchase or sale of any security”).

management knew from the outset that the company would not have kept the promise.⁵³ The difficulty of providing this proof *de facto* limits liability to the most egregious cases.⁵⁴

The lack of credibility of corporate green commitments is a serious problem for green-minded investors, as it prevents them from distinguishing “good” issuers (the green firms) from “bad” issuers (the greenwashers), and act accordingly (e.g., by not buying the securities issued by the latter, applying a discount to them, or offering a premium to the securities offered by the former).⁵⁵ Clearly, those who are harmed by this situation of uncertainty are the green firms, who are offered worse financial conditions than they might have obtained were they able to distinguish themselves from the greenwashers.⁵⁶ This has obvious negative consequences for the financing of green projects, as some of them might not be developed because of an unduly high cost of capital.

Green bonds may help mitigating the credible commitment problem. Through the issuance of a green bond the company may bind itself—in a *legally enforceable manner*—to make an environmentally beneficial investment (the development of the green project for which the bond was issued). The use-of-proceed clause containing the green pledge is a contractual covenant of the larger bond contract setting the terms of the financing operation. As any other bond covenant, the clause has legal value, meaning that—unless the contract explicitly establishes otherwise⁵⁷—failure to develop the project amounts to a breach of contract triggering liability toward the promisees (the bondholders who lent money to the company in the expectation that the funds would be used for the development of the project).⁵⁸ The binding nature of such a promise enhances the credibility of the firm’s

⁵³ See Armour et al, *supra* note 47, at 32. An additional hurdle is the “materiality” test. Securities regulation often requires that the misstatement (in our setting, the broken green promise) be “material”, namely that it amounts to false information that affects (or may affect) investors’ decisions. In many instances, serious doubts can be cast on the materiality of green pledges, especially when the established environmental target is vague or very distant in time. See Armour et al, *supra* note 47, at 33 (citing U.S. case law supporting this view).

⁵⁴ Also notice that companies further reduce the liability risks associated to their forward-looking statements through legal disclaimers stating, e.g., that actual outcomes may differ from what originally indicated, that the stated targets do not bind the company’s management, that the company may change those targets or deviate from them. The presence of such disclaimers makes the prospect of liability even more remote. See Armour et al, *supra* note 47, at 3 (for an account of such disclaimers), 32 (for a discussion of their role in exempting issuers from securities fraud liability).

⁵⁵ This is a classic quality uncertainty problem. Quality uncertainty arises when buyers are unable to discern the quality of the goods offered in the market, and therefore may not distinguish high-quality goods from low-quality goods. In our setting, the high-quality goods are the securities issued by green firms, while the low-quality goods are the securities issued by the greenwashers. See George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q. J. ECON. 488 (1970).

⁵⁶ The adverse selection problem pointed out in the text is a notorious consequence of quality uncertainty (see *supra* note 55). Being unable to distinguish the high-quality goods from the low-quality ones, buyers offer a price reflecting the average observable quality in the market. That price penalizes sellers of high-quality goods, pushing them out of the market, and invites sellers of below-average-quality goods. As a consequence of such sellers entering the market, the average observable quality further decreases, leading buyers to further decrease the offer price with the effect of pushing a further portion of sellers of high-quality goods out of the market, in a spiral of continuously decreasing quality. See Akerlof, *supra* note 55. Adverse selection is a serious problem: if left unconstrained, it might eventually disrupt the entire market.

⁵⁷ According to recent research, this is a far from exceptional circumstance: see *infra* notes 61-62 and accompanying text.

⁵⁸ See also *infra* section 5.A.

green promises,⁵⁹ mitigating quality uncertainty problems. Reduced uncertainty, in turn, promotes the efficient allocation of “green” capital to green projects and, ultimately, the easier financing of those projects.

In addition to allowing firms’ green promises to be given legal value and therefore enhanced credibility, green bonds have another beneficial feature. They permit firms to establish *ex ante* the exact consequences of nonperformance and therefore allow them to set the precise strength of their commitment. Thanks to this feature, firms wishing to send strong green signals to investors are enabled to do so by setting high contractual penalties for nonperformance (e.g., by qualifying failure to develop the green project as a default event triggering acceleration),⁶⁰ with the effect of further increasing the credibility of their commitment.

However, recent research shows that green bond issuers often seek to reduce or exclude liability for green defaults (i.e., for failure to use the funds for the promised green purposes).⁶¹ Most notably, green bond contracts often contain clauses explicitly establishing that bondholders have no rights or claims in the event of a green default.⁶²

Issuers’ willingness to subtract legal value to their green promises does not necessarily imply that their commitment is insincere. Other reasons may justify this choice (e.g., the high costs of tying to the development of a project that a later stage may reveal itself more expensive than expected or obsolete in light of emerging new technologies). Clearly, however, green bonds with the abovementioned features are unable to function as a credible commitment device and thus to enhance the credibility of firms’ green promises.

B. Increased disclosure

Another beneficial feature of green bonds is that they increase the amount of public information on issuing firms’ efforts toward environmental sustainability. As anticipated in section 2, international standards for the issuance of green bonds impose a number of detailed disclosures to issuing firms. They must not only provide a detailed description of the financed project,⁶³ but also report periodically on how the funds are allocated⁶⁴ and therefore, relatedly, on the advancement of the financed project. In turn, the reliability of this information is strengthened by the intervention of independent “certifiers.”⁶⁵

⁵⁹ See Flammer, *supra* note 5, at 500 (“Due to their constraining nature, green bonds may allow companies to credibly signal that they are indeed committed to undertaking investments in green projects and improving their environmental footprint”); Park, *supra* note 2, at 11 (“companies can use green bonds to signal to investors [...] their commitment to sustainability” [fn omitted]).

⁶⁰ See also *infra* section 5.A.

⁶¹ See Quinn Curtis, Mark C. Wiedemaier and Mitu Gulati, *Green Bonds, Empty Promises* 18-30 (Virginia Public Law and Legal Theory Research Paper No. 2023-14, 2023), <https://ssrn.com/abstract=4350209>.

⁶² See Lloyd Freeburn and Ian Ramsay, *Green bonds: legal and policy issues*, 15 CAP. MKT. L. J. 418, 440-1 (2020) (where an account and a discussion of such arrangements); Curtis et al, *supra* note 61, at 24-30 (for a detailed description and empirical evidence).

⁶³ See INT’L CAPITAL MKT. ASS’N, *supra* note 11, at 4 (establishing that the green project “should be appropriately described in the legal documentation of the security” and that the relevant environmental benefits must “be assessed and, where feasible, quantified by the issuer”).

⁶⁴ See INT’L CAPITAL MKT. ASS’N, *supra* note 11, at 6 (establishing, *inter alia*, that “[i]ssuers should make, and keep, readily available up to date information on the use of proceeds to be renewed annually until full allocation, and on a timely basis in case of material developments”).

⁶⁵ See *supra* note 25 and accompanying text.

These disclosures are obviously valuable for bondholders, who may more easily monitor performance on the part of the debtor company. However, these disclosures have also important spillover effects, as they allow financial markets to better assess issuing firms' progresses toward environmental sustainability by providing investors with detailed (project-level) information on such progresses.⁶⁶ Green bond disclosures are especially informative (and thus valuable to investors other than bondholders) as ESG reporting obligations are still nascent and, consequently, a set of coherent and uniform ESG disclosure requirements is still lacking.⁶⁷ From this standpoint, green bond disclosure obligations act as a partial substitute for firm-level ESG reporting. To the extent green bond disclosures allow investors to more precisely assess firms' progresses toward their stated environmental goals, they also allow investors to better check *ex post* whether firms "delivered" on their green promises, putting a further curb on greenwashing.

To be sure, firms wishing to provide investors with more fine-grained information about their ongoing environmental efforts may still do so voluntarily out of any financing operation. However, the advantage of green bonds as a conduit for increased environmental transparency is that through them issuers may more easily bind themselves to provide information also for the time being (at least until completion of the project or full loan repayment). This type of commitment is more difficult to achieve in the context of purely voluntary disclosures. Indeed, in that context firms usually retain the option to reduce or discontinue the flow of information *ex post*, an option that makes their disclosure commitments not credible.⁶⁸

C. More green projects being financed

Finally, green bonds may increase the number of green projects being financed. This feature, sometimes referred to as "additionality,"⁶⁹ is associated to green bonds' lower yields.⁷⁰ The lower cost of capital associated with the issuance of green bonds should allow firms to finance more green projects and thus boost corporate sustainability efforts. The view that green bonds may "increase the pie" by increasing the number of green projects being financed is not undisputed.⁷¹ Besides that, it is important to note that the additionality

⁶⁶ See Tolliver et al, *supra* note 40, at 2 (observing that "post-issuance reporting [...] provides stakeholders throughout international capital [...] markets with information about issuer sustainability").

⁶⁷ See, e.g., Jill Fisch, *Making Sustainability Disclosure Sustainable*, 107 GEO. L.J. 923, 926-7 (2019) (highlighting the many flaws of current sustainability disclosures).

⁶⁸ Indeed, one of the rationales for mandatory corporate disclosure is to allow firms to credibly commit to high transparency standards for an indefinite period in the future. See Edward Rock, *Securities Regulation as Lobster Trap: A Credible Commitment Theory of Mandatory Disclosure*, 23 CARDOZO L. REV. 675 (2002).

⁶⁹ See Sophia Grene, *The dark side of green bonds*, FIN. TIMES (Jun 14, 2015), <https://www.ft.com/content/16bd9a48-0f76-11e5-b968-00144feabdc0>.

⁷⁰ See *supra* note 44.

⁷¹ See IGOR SHISHLOV, ROMAIN MOREL & IAN COCHRAN, INST. FOR CLIMATE ECON., BEYOND TRANSPARENCY: UNLOCKING THE FULL POTENTIAL OF GREEN BONDS 4 (2016), <https://www.cbd.int/financial/greenbonds/i4ce-greenbond2016.pdf> ("the green bond market does not appear to directly stimulate a net increase in green investments [...] through a lower cost of capital").

benefit cannot be expected to be significant, since the premium at which green bonds are issued is usually not a significant one.⁷²

It is also important to note that the financing of green projects is subject to the general “profitability constraint” governing corporate investment policy, namely the condition that the financed project has positive net present value. Green projects with negative net present value (i.e., green projects that are expected to generate a loss and therefore to reduce share value) will in principle be discarded by profit-oriented firms run by managers loyal to shareholder interests.⁷³

5. Should green bonds be regulated?

As noticed in section 1, in many jurisdictions green bonds are unregulated. Their regulation is left to the set of voluntary standards and guidelines elaborated by private standard-setting organizations (“private regulation”)⁷⁴ and to the applicable rules and principles of contract law and securities regulation. Intuitively, regulatory intervention in the area can be justified on the ground that the existing regulatory framework (as just pointed out, private regulation complemented by the applicable rules and principles of contract law and securities regulation) is unable to efficiently regulate the market for green bonds and to effectively address potential market failures. There are two major concerns in this respect: (i) issuer opportunism in the use of green bonds and (ii) uncertainty with respect to what amounts to be a green project. Both may impair the proper functioning of the green bond market.

A. Issuer opportunism

⁷² See, e.g., Zerbib, *supra* note 44, at 40 (finding a small negative premium of -2 basis points). See also Gianfrate-Peri, *supra* note 44, at 128 (finding a higher, but still rather small in absolute terms, negative premium of -18 basis points).

⁷³ Yet two important caveats apply here. First, market-based mechanisms exist through which to finance such loss-generating projects at profit-oriented firms. Specific arrangements may be put in place whereby investors with strong pro-environment preferences subsidize the development of such projects (e.g., through covenants that allow the company to retain part of what it borrowed in the case the project has been successfully developed) (for a proposal along these lines see Dorothy S. Lund, *Corporate Finance for Social Good*, 121 COLUM. L. REV. 1617 (2021)). In addition, subsidization may be provided through public channels, e.g., through a favorable tax treatment of green bonds (see Shishlov et al, *supra* note 71, at 6) or green projects (or both). Second, public firms are increasingly owned by institutional investors owning widely diversified portfolios (most notably index funds: see Lucian Bebchuk, Scott Hirst, *The Specter of the Giant Three*, 99 B.U. L. Rev. 721 (2019)). These shareholders may rationally favor green investments that reduce firm value if these investments, thanks to their positive environmental externalities, are expected to increase overall portfolio value. A well-known (and much debated) case in point is that of carbon emission reductions by fossil fuel companies. Forcing these firms to reduce their emissions also beyond what share value maximization would require may still be in the interest of such widely diversified shareholders because it might increase overall portfolio value by reducing climate-related systemic risk. See *supra* note 36. Obviously, green bonds may be used to finance also these loss-generating, yet portfolio-value-increasing, projects.

⁷⁴ See *supra* section 1.

A major concern regarding the green bond market is issuer opportunism. Issuers may make false claims about the “greenness” of the bond’s underlying project⁷⁵ or—which is largely the same—overstate or otherwise misrepresent its green features (“*ex ante* opportunism”).⁷⁶ Alternatively, they may affirm that they will use the funds for a green project but then act differently and use those funds for different, non-green purposes (“*ex post* opportunism”).

These risks are real,⁷⁷ given the financial⁷⁸ and reputational⁷⁹ benefits associated with the issuance of green bonds, and pose a potentially serious threat to the green bond market.⁸⁰

Two factors exacerbate these risks. First, large buyers of green bonds, such as institutional investors, may suffer from agency problems that lead them not to exert diligent vigilance over the bonds’ green qualities.⁸¹ Second, a project’s “greenness” may not always be univocal or easy to ascertain and measure. One reason is that the project may have “hidden” environmentally detrimental side-effects that might significantly reduce its direct environmental benefits.⁸² Consider the following real-world example:⁸³ a fossil fuel firm decides to improve the energy efficiency of its oil refineries (e.g., through the installation of solar panels) to reduce the carbon emissions associated with the activity of oil refining conducted therein. The project is environmentally beneficial to the extent it reduces the overall emissions of the firm owning the refinery (and from this viewpoint it appears suitable for being financed through a green bond).⁸⁴ However, to the extent it improves the efficiency of the plant (e.g., by cutting production costs), the project has also the environmentally negative side-effect of prolonging the economic lifetime of the plant and

⁷⁵ E.g., the issuing firm may label as “green” an ordinary bond attached to no specific company project or it may call “green” a bond linked to a project that has no or negligible green features. See Flammer, *supra* note 3, at 96. The GBPs appear aware of the risk that firms may use the green label for projects yielding negligible advantages for the environment and address this risk by requiring that the designated project “provide[s] clear environmental benefits”. See INT’L CAPITAL MKT. ASS’N, *supra* note 11, at 4.

⁷⁶ Misrepresentation may also be of an omissive nature, as when the firm fails to disclose negative environmental side-effects associated with the project that may reduce or offset its stated environmental benefits: see *infra* text accompanying notes 83-86.

⁷⁷ See David Robinson, *Worst examples of greenwashing are in green bonds*, EXPERT INVESTOR, September 27, 2019 (reporting empirical evidence of greenwashing in the green bond market).

⁷⁸ We already noticed that green bonds often come with a premium allowing issuers to borrow new funds at a lower cost. See *supra* note 44 and accompanying text.

⁷⁹ See *supra* note 45 and accompanying text.

⁸⁰ See Park, *supra* note 2, at 32 (“Greenwashing poses a threat to the stability of the green bond market by placing into doubt mutual commitments made by market participants [...]”).

⁸¹ See Grene, *supra* note 69 (“If [...] buyers [of green bonds] are fund managers attempting to fill up their sustainable investment quota, they may not be motivated to be hypercritical [when assessing whether the bonds are truly green]”). Similar problems may affect banks and other financial institutions investing in green bonds. The recent scandal involving DWS, a Deutsche Bank subsidiary operating in the asset management industry accused of misrepresenting the ESG features of its investment products, shows that also these risks are real. See Christiaan Hetzner, *Deutsche Bank raided by authorities over ESG ‘greenwashing’ claims: ‘We’ve found evidence that that could support allegations of prospectus fraud’*, FORTUNE (May 31, 2022).

⁸² Private standard setters appear aware of this risk. The GBPs require issuers of green bonds to have processes in place “by which the issuer identifies and manages perceived social and environmental risks associated with the relevant project(s)” and to disclose information about these processes. See INT’L CAPITAL MKT. ASS’N, *supra* note 11, at 5.

⁸³ See Whiley, *supra* note 76 (from whom the example is taken).

⁸⁴ Indeed, the project was actually financed through a green bond. See *id.*

thus, indirectly, the firm's carbon emissions.⁸⁵ Taking into account this side-effect, one may doubt whether the project is a truly green one, eligible as such for being financed via a green bond.⁸⁶ These difficulties in assessing "greenness" may increase issuing firms' opportunistic temptations. In an attempt to reap the benefits associated with the issuance of green bonds, issuers may strategically hide a green project's negative side-effects.

For all these reasons, the risk of an improper use of green bonds may hardly be underestimated. However, these concerns fall short of providing a sound justification for *ad hoc* regulation.

To begin with, it must be noted that the fact that green bonds are unregulated does not mean that issuer misbehavior is left unchecked by the law.⁸⁷ Consider first *ex ante* opportunism. Quite intuitively, this behavior involves almost by design the disclosure of false or inaccurate information to investors. This is not without legal consequences: it exposes the issuing company and its management to damages towards bondholders⁸⁸ (and often also towards shareholders)⁸⁹ and—what is likely worse from the perspective of the issuing company and its management—it might be prosecuted by securities regulators, public attorneys, or the government as securities fraud and (in the case the bond is listed and the misrepresentation affected market prices) market manipulation.⁹⁰ The latter two often entail criminal liability and harsh pecuniary sanctions that should act as an effective deterrent against the temptation to deceive investors with false or inaccurate information about the green qualities of the project.

It is important to notice that this situation is different from that, discussed in section 4.A, in which the firm makes some green pledges and then reneges on them. As we explained, holding the company liable for securities fraud is particularly difficult in that case due to the forward-looking nature of the information disclosed (and other reasons).⁹¹ To the contrary, the case discussed here involves the disclosure of mostly factual information—the one about the project's green properties. It is much easier to support a securities fraud claim when this information turns out to be false, inaccurate or otherwise misleading and the company knew or should have known it (e.g., because it knew the existence of negative side effects associated with the project but failed to disclose them).

Private ordering solutions are also available as a further curb against the risk of misrepresentation of the bond's green features. Independent third parties may be entrusted

⁸⁵ See *id.*

⁸⁶ *Id.*

⁸⁷ But see Flammer, *supra* note 3, at 96 ("there is no public regulation of green bonds, and hence the "greenness" of the bonds is not enforceable").

⁸⁸ See *infra* note 101 for a quantification of such damages.

⁸⁹ Where the applicable corporate law allows it, shareholders might bring a derivative suit against directors for the financial and reputational harms that the company experienced because of such misrepresentations.

⁹⁰ With respect to the EU, see Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, 2014 O.J. (L 173) 1, 29, Art. 12. With respect to the US, see Section 9(a) of the Securities and Exchange Act of 1934, 15 U.S.C. § 78i (1988).

⁹¹ See *supra* text accompanying notes 53-54.

with the task of reviewing the project and assessing its “greenness” (e.g., by determining the amount of carbon emission reduction that the project will bring about or by certifying the quantification provided by the issuing firm), also with respect to any potential negative side effect.⁹² Notice that this is already a well-established practice: private regulation either recommends or requires third-party certification of the bond’s green properties⁹³ and issuers largely conform to such prescriptions.⁹⁴ Also consider that investors, anticipating the risk that the project’s “greenness” might be overstated, will in all likelihood autonomously require third-party certification whenever the issuing firm did not provide it in the first place, “assuming the worst” (i.e., that the proposed project has no green properties at all)⁹⁵ if the issuer refuses to provide it.⁹⁶

Now consider *ex post* opportunism. We already highlighted that—unless the bond contract explicitly establishes otherwise⁹⁷—failure to use the proceeds for the development of the proposed green project entails legal liability. It amounts to a breach of contract entitling bondholders to damages.⁹⁸ It also amounts to securities fraud to the extent the firm, as we have assumed throughout this discussion, had no intention to invest in the green project from the outset.⁹⁹ Indeed, a company that promised to invest the funds raised through the bond in a project it never had the intention to pursue is a company that deceived the bond investors (and perhaps also other investors)¹⁰⁰ by issuing a false statement about the destination of the funds and, more generally, the purpose of the issuance.

Admittedly, detecting these violations may not be easy. Bondholders are unlikely to exert effective monitoring over the firm’s post-issuance behavior, as they notoriously suffer from collective action problems impairing their incentives. What is more, these incentives can be expected to be especially weak so long as the company, as we assume, breaches its green promises (i.e., fails to develop the green project) but regularly performs its financial

⁹² There is empirical evidence suggesting that certification is an effective tool in curbing greenwashing risks. See Flammer, *supra* note 2, at 97-98.

⁹³ See *supra* note 25 and accompanying text.

⁹⁴ See Flammer, *supra* note 2, at 97 (reporting that “[a]bout two-thirds of green bonds are certified by independent third parties”).

⁹⁵ Standard “unraveling” dynamics apply here: for a description see, e.g., ROBERT GERTNER, DISCLOSURE AND UNRAVELLING, in THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 605 (Peter Newman ed., 1998).

⁹⁶ Empirical evidence seems to support this idea. Recent studies found that the positive stock market reaction to the announcement of green bond issuances is stronger if the bond “greenness” is certified by independent third parties. See Gregor Dorfleitner, Sebastian Utz, Rongxin Zhang, *The pricing of green bonds: external reviews and the shades of green*, 16 REV. MGMT. SCI. 797 (2022); Flammer, *supra* note 5, at 500.

⁹⁷ As we already noticed (see *supra* notes 61-62 and accompanying text), this is a far from exceptional scenario. In the context of the analysis conducted in this section, it will receive specific attention below in the text.

⁹⁸ See *supra* notes 58-59 and accompanying text.

⁹⁹ We are indeed dealing with greenwashing cases where firms having no intention to make green investments try to exploit the benefits associated with the issuance of green bonds.

¹⁰⁰ E.g., the green-minded shareholders who decided to buy the company’s stock upon issuance of the bond, viewing it as a credible signal of the firm’s commitment toward the environment. The empirical studies (recalled *supra*, note 46) showing that stock prices increase upon the issuance of green bonds provide indirect evidence that there are investors who indeed buy shares upon the issuance of such bonds.

obligations, since damages may not be expected to be significant in this case.¹⁰¹ All this makes bondholder monitoring especially weak (and thus likely ineffective).¹⁰²

Public regulators, on their part, may not necessarily be in a better position. They may lack adequate resources (and incentives) to exert the type of deep monitoring required to detect such violations. Note also that issuers may often successfully hide them by falsely affirming that failure to develop the project was due to unforeseen difficulties or impediments (e.g., unexpected technical obstacles in the development of the projects). Ascertaining whether failure to implement the project is due to causes external to the issuer's will or whether it is the effect of negligence or deliberate behavior may often be difficult. All these elements, in turn, make it especially difficult for securities regulators and public attorneys to pursue *ex post* contractual opportunism via securities fraud or similar remedies. Notice that in this case, similarly to what happens in the context of the more generic corporate green pledges discussed in section 4.A,¹⁰³ plaintiffs are required to show that the issuer knew from the outset that the funds raised through the bond would not have been used to finance the proposed green project.¹⁰⁴ For the reasons discussed above, this is a very difficult proof to provide.

However, also in this case private ordering offers a number of remedies to these shortcomings. First, issuers willing to signal their trustworthiness with respect to post-issuance behavior may subject themselves to detailed *ex post* reporting obligations as regards the use of proceeds raised through the bond. This would make issuers' post-contractual behavior more easily observable and thus easier to monitor. Also in this case, the accuracy and trustworthiness of the information provided may be strengthened by the intervention of independent third parties entrusted with the task of checking the progresses made in the development of the project. We highlighted that these arrangements are common practice in the green bond market, as international standard setters require their adoption for the issuance of green bonds.¹⁰⁵

Second, issuers may subject themselves to high contractual penalties for nonperformance. We already suggested¹⁰⁶ that failure to allocate the funds to the promised project may be contractually framed as a "default event" that triggers acceleration (namely, bondholders' right to receive immediate payment of all remaining unpaid capital and interest). Alternatively, a "punitive" penalty clause may be included in the bond contract

¹⁰¹ Damages in this case correspond to the premium paid by bondholders to purchase the green bond (see *supra* note 44) instead of more customary bonds, plus any opportunity cost. Especially because of the tiny size of the premium (see *supra* note 72 and accompanying text), this sum cannot be expected to be significant. We are assuming, of course, that courts do not award "punitive damages" (i.e., damages that in order to deter contract breach are set at a level (far) exceeding the pecuniary harm suffered by the plaintiff), in which case bondholder incentives would significantly increase.

¹⁰² To be sure, bondholders' green preferences may ameliorate, at least in part, their incentive problem. At least some green bond purchasers may be individuals or institutions who assign high value to the green aspects of the operation. As such, they may nonetheless have strong incentives in monitoring the firm's post issuance behavior and in reacting against breaches of the green promise.

¹⁰³ See *supra* text accompanying note 99.

¹⁰⁴ Indeed, only under these circumstances the statement that issuer will use the funds for the proposed green project can be considered as being false (a "lie") and thus deceptive.

¹⁰⁵ See *supra* note 25 and accompanying text.

¹⁰⁶ See *supra* section 4.A.

entitling bondholders to receive as damages a predetermined sum set at a far higher level than the actual damages suffered. Both arrangements would significantly increase the costs of nonperformance to the issuing firm, allowing it to enhance the trustworthiness of the green promise accompanying the green bond.¹⁰⁷

Third, the bond contract might contain built-in incentives to induce performance. E.g., a “step-up” clause akin to that characterizing sustainability-linked bonds¹⁰⁸ may be included in the bond covenants, determining an automatic increase in interest rates if the issuer fails to reach predetermined milestones in the development of the project.¹⁰⁹

Finally, private ordering offers an effective solution to *ex post* opportunism also with respect to green bonds that contain provisions aimed at excluding legal liability for green defaults.¹¹⁰ Here, investors are not entitled to damages or other civil law remedies, as these remedies are expressly disclaimed. Accordingly, they may resort only to securities fraud liability (a form of liability that usually may not be contractually disclaimed). As we noted above,¹¹¹ however, winning these lawsuits is extremely difficult, as investors are required to show that the issuer lied about its intention to use the funds for the proposed green project. Yet, also in this case all such limitations and shortcomings may be effectively addressed via private ordering. The obvious solution to the green promise’s lack of enforceability is for investors to ask for a removal of the contractual provisions disclaiming liability and, were that considered not enough, for the introduction strong *ad hoc* contractual penalties for nonperformance, along the lines discussed above. These contractual amendments would confer full legal value to the green promise and grant investors effective remedies against potential breaches, effectively curbing *ex post* opportunism problems also in this case.

To conclude, issuer opportunism in the green bond market is a real risk that can hardly be underestimated. However, legal systems offer a range of tools against it. General contract law and securities regulation feature remedies that put a curb on issuers’ temptation to cheat on green bond investors and a number of private ordering solutions is available to enhance the effectiveness of this basic toolkit. Accordingly, *ad hoc* regulation of green bonds appears unwarranted.

B. Uncertainty as to what is “green”

A second possible rationale for regulation is the need to provide clarity and uniformity with respect to what amounts to be a green project. Green projects are projects

¹⁰⁷ To be sure, these arrangements may not be necessary if the legal system allows punitive damages (*see supra* note 101). Relatedly, it is also worth noting that the validity of clauses establishing high contractual penalties may be more easily challenged in legal systems that do not allow punitive damages because of a conception of civil liability as a remedy having an exclusive indemnification function.

¹⁰⁸ *See supra* note 19.

¹⁰⁹ Note that the ICMA explicitly admits the possibility to combine the features of green bonds with those of sustainability-linked bonds. See INT’L CAPITAL MKT. ASS’N, *supra* note 19, at 2 (“in select cases, issuers may choose to combine the GBP [...] approach with the SLBP [Sustainability-Linked Bond Principles]).

¹¹⁰ *See supra* notes 61-62 and accompanying text.

¹¹¹ *See supra* text accompanying notes 103- 104.

carrying environmental benefits. However, we already highlighted that assessing those benefits can be difficult and uncertain.¹¹² This uncertainty, in addition to encouraging opportunistic behavior, exposes honest issuers to reputational and litigation risks—most notably, the risk of being accused of (and eventually sued and convicted for) greenwashing. These risks may induce green firms to refrain from using green bonds for their green projects, hindering the development of the green bond market.¹¹³

Intuitively, uncertainty as to what is green justifies regulatory initiatives aimed at improving clarity and uniformity, e.g., through the compilation of lists or taxonomies of green activities and the elaboration of detailed technical standards by which to assess (and quantitatively measure) “greenness”. However, it is far from warranted that *public* regulators would do a better job than private regulators in this respect.

Private regulation has the advantage of flexibility and adaptability, i.e., the capacity to timely evolve and adapt to changing market conditions. These features are especially valuable in the green finance area. As a burgeoning new sector still far from having reached a mature stage of development, green finance is inevitably subject to rapid change. To be efficient and effective, regulation must keep pace. Private regulatory initiatives aimed at providing guidance as to what is “green” have the advantage of being capable to quickly adapt to changing market conditions and technological advancements in the field of environmental sustainability. To the contrary, public regulation has much less flexibility: once enacted, it is usually very difficult to change. As such, it is exposed to a significant risk of obsolescence. Once it has become obsolete, it will no longer be able to provide valuable guidance to issuers and investors.

To be sure, private regulation has its own weaknesses. An especially relevant one is fragmentation, namely the eventual proliferation of a host of competing and reciprocally inconsistent private standards.¹¹⁴ Fragmentation would increase, rather than decreasing, uncertainty¹¹⁵ and may easily give rise to regulatory arbitrage¹¹⁶ on the part of issuers, increasing greenwashing risks. Yet the green bond market is an area that, differently from other areas of the sustainable finance landscape,¹¹⁷ displays a remarkably low level of fragmentation.¹¹⁸ The green bond market shows no excessive proliferation of private standards and practices. To the contrary, there exist a few widely accepted standards (the

¹¹² See *supra* text accompanying note 82.

¹¹³ This is one of the rationales advanced by EU policymakers in support of their recent efforts to regulate green bonds. See *infra* text accompanying notes 128 and 129.

¹¹⁴ See Park, *supra* note 2, at 36.

¹¹⁵ *Id.*

¹¹⁶ *Id.* at 31.

¹¹⁷ Such as ESG reporting, characterized by the presence of a multitude of private standards (see Fisch, *supra* note 67, at 927), or ESG ratings, characterized by a significant degree of divergence (see Florian Berg, Julian F. Kölbels and Roberto Rigobon, *Aggregate Confusion: The Divergence of ESG Ratings*, REV. FIN. (May 23, 2022), <https://academic.oup.com/rof/advance-article/doi/10.1093/rof/rfac033/6590670>).

¹¹⁸ This is acknowledged also by EU policymakers. See Commission Proposal for a Regulation of the European Parliament and of the Council on European Green Bonds, at 2, COM (2021) 391 final (July 6, 2021) (affirming that “some [...] [proprietary market] frameworks are commonly accepted as setting a standard”).

ICMA's GBPs and the CBI's Climate Bonds Standard are the two most important)¹¹⁹ that provide market participants with clear and uniform guidance.¹²⁰

Furthermore, public regulation may reduce fragmentation problems but not eliminate them. Due to public regulation's territorial nature, it may happen that different (and reciprocally inconsistent) national (or regional) standards coexist. The risk that these standards differ from one another is high, given that policymakers' choices with respect to what amounts to be "green" are not exclusively driven by technical or scientific considerations, but also by political concerns (including local environmental priorities).¹²¹

From this standpoint, private regulation appears more reliable. Being usually designed as a set of universal standards suitable for issuers and investors located anywhere in the world, it should be less influenced by national or regional environmental priorities (and political considerations more generally) and more strictly adherent to technical and scientific principles.

6. The proposed EU green bond regulation

The EU is close to enacting special rules for green bonds. The European Commission, as part of its 2018 Action Plan on Sustainable Finance,¹²² put forward in 2021 a proposal for a Regulation on European green bonds.¹²³ The proposal has been subsequently amended by the European Parliament¹²⁴ and is currently undergoing the final stage of interinstitutional negotiations. The Commission's Proposal—known as the European Green Bond Standard (EUGBS)—establishes a voluntary standard for the use of the "European Green Bond" ("EuGB") designation: issuers wishing to use that designation must comply with the set of rules and requirements established by the EUGBS.

¹¹⁹ See *supra* note 11 and accompanying text.

¹²⁰ It is worth noting that the ICMA's GBPs and the CBI's Climate Bonds Standard are fully aligned. See CLIMATE BONDS INITIATIVE, *supra* note 11, at 4. It thus seems that private regulators are aware of the value of uniformity and of the need to avoid fragmentation and inconsistency among different standards. But see Torsten Ehlers and Frank Packer, *Green bond finance and certification*, BIS Q. REV. 89, 101 (2017) (arguing that "the various existing definitions and labels for green bonds pose a challenge for investors, who may benefit from more consistent standards").

¹²¹ Consider the different treatment of "clean coal" under European and Chinese sustainability regulations. As reported by a recent study (see David Gilchrist, Jing Yu and Rui Zhong, *The Limits of Green Finance: A Survey of Literature in the Context of Green Bonds and Green Loans*, 13 SUSTAINABILITY, Jan. 6, 2021, at 6), green coal is considered a green investment under Chinese law, as such suitable for being financed through green bonds. Instead, European legislation does not consider green coal a green investment. Accordingly, under EU legislation it likely would not be suitable for green bonds. This inconsistency can be brought back to the fact that Europe and China have different green agendas (*id.*). These agendas are characterized by different priorities, also because the environmental problems affecting the two countries are different: for instance, problems of air pollution are more pressing in China than in Europe (*id.* at 10). These differences inevitably translate into different definitions of "green".

¹²² See Communication from the Commission to the European Parliament, the European Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions Action Plan: Financing Sustainable Growth, COM (2018) 097 final (Mar. 8, 2018).

¹²³ See Commission Proposal, *supra* note 118.

¹²⁴ See *infra* note 134 and accompanying text.

The EUGBS' key elements are the following. First, to obtain the EuGB designation the funds raised through the bond must be fully assigned to green projects. The project's eligibility is determined through reference to the Taxonomy Regulation,¹²⁵ a recently enacted EU regulation containing a catalogue and a classification of environmentally sustainable economic activities. To obtain the EuGB designation, the project must fit into that classification. Second, the issuer must observe reporting requirements as to how the proceeds are allocated. Finally, the issuance must be reviewed by an "External Reviewer" registered with and supervised by the European Securities and Markets Authority (ESMA). The External Reviewer's intervention is established to ensure full compliance with the EUGBS and alignment with the Taxonomy Regulation.

In EU policymakers' view, the EUGBS should promote the development of the green bond market by reducing uncertainty caused by regulatory fragmentation ("the widespread use of proprietary market frameworks"),¹²⁶ and the related costs and risks. More precisely, the proposed regulation should reduce the difficulties and the costs experienced by investors to "determine the positive environmental impact of bond-based investments and compare different green bonds on the market",¹²⁷ and the "uncertainty about which economic activities can be considered to be legitimately green"¹²⁸—an uncertainty that in EU policymakers' view is the source of reputational risks "from potential accusations of greenwashing, especially in transitional sectors".¹²⁹

These concerns appear largely overstated. Indeed, as pointed out in section 5.B, fragmentation-related uncertainty does not appear to be an issue with respect to the green bond market, given the presence of few widely accepted (and largely convergent)¹³⁰ private standards.

However, this is not to say that the EUGBS is useless or harmful. First, its voluntary nature makes it a light-touch, "non-invasive" regulatory intervention that leaves issuers free to adopt the standard they prefer, preserving (and likely enhancing) competition in the market for green standards. Second, the provision that external reviewers be registered with and supervised by the ESMA represents a valuable feature of the proposed new regulation. This requirement may enhance the credibility and trustworthiness of such reviewers and with that the credibility and trustworthiness of the green bond market as a whole.¹³¹ Importantly, differently from the other requirements established by the EUGBS, this one may not be provided by competing private standard setters, as private standards may not affect the scope of public bodies' tasks, powers, and duties.¹³² Regulation of external

¹²⁵ See 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, 2020, O.J. (L198) 13.

¹²⁶ See Commission Proposal, *supra* note 118, at 2.

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ See *supra* note 120.

¹³¹ On the role of external certification in the green bond market see Paul Rose, *Certifying the 'Climate' in climate bonds*, 14 CAP. MKT. L. J. 59 (2019).

¹³² To be sure, a private standard may establish that green bond certifiers be registered with and supervised by a public supervisor. However, private standard setters do not have the authority to assign to a public regulator the relevant tasks and powers. To this end, public regulation is necessary. Note, however, that private regulation established a mechanism similar to that of the EUGBS: under the CBI's framework,

reviewers may be justified on the same basis as the regulation of credit rating agencies and auditing firms: most notably, to address the risks posed by the “issuer pays” business model governing the industry—a model that notoriously creates an incentive to issue favorable ratings and certifications in order to retain (or attract) customers.¹³³

As anticipated, the Commission’s proposal has been modified by the European Parliament. In May 2022, the European Parliament’s Committee on Economic and Monetary Affairs published its Report on the Commission’s proposal.¹³⁴ The Report, which defines the Parliament’s position in the subsequent negotiations with the European Council, makes several amendments to the Commission’s Proposal. The most significant one is the provision of minimum disclosure and certification obligations for all issuers of bonds marketed in the EU as “green”, “environmentally sustainable” or “sustainability-linked”, irrespective of whether the EuGB designation is used.¹³⁵

The choice of imposing *ad hoc* disclosure and certification requirements on anyone marketing in the EU green-labelled bonds marks an abandonment of the Commission’s light-touch approach. In EU policymakers’ view, the new disclosure requirements should decrease investors’ information costs and put a further curb on greenwashing by allowing investors to compare and evaluate more easily the environmental impact of any bond labelled as “green”.¹³⁶ However, private standards establish disclosure and certification requirements that are largely equivalent to those established by the amended Proposal.¹³⁷ Given the financial community’s widespread conformation to those standards, it appears unlikely that green bonds which do not conform to them may be marketed on a large scale in the EU (and elsewhere). Accordingly, it is unlikely that the proposed EU mandatory rules

certifiers must be registered with the CBI, which thus acts as a private supervisor. See CLIMATE BONDS INITIATIVE, *supra* note 11, at 11 (defining the “Approved Verifier” in charge of certifying the issuance as “[a]n independent third-party assurance provider or auditor, which has been approved by the Climate Bonds Standard Board and is listed on the Climate Bonds Initiative website as an Approved Verifier”).

¹³³ See, e.g., Lawrence J. White, *Markets: The Credit Rating Agencies*, 24 J. ECON. PERSP. 211, 215 (2010). See also Cristina M. Banahan, *The Bond Villains of Green Investment: Why an Unregulated Securities Market Needs Government to Lay Down the Law*, 43 VT. L. REV. 841 (2019), at 852-3 (stressing how the conflict of interest generated by the issuer-pays model may affect also green bond verifiers)

¹³⁴ See Report of the Committee on Economic and Monetary Affairs on the proposal for a regulation of the European Parliament and of the Council on European green bonds, COM (2021) 0391 (May 20, 2022).

¹³⁵ These obligations include “a statement on due diligence policies with respect to principal adverse impacts of investment decisions on sustainability factors” and further sustainability disclosures in the precontractual documents and in the issuer’s annual periodic reports, both of which must be reviewed by external reviewers registered with and supervised by public supervisory agencies. See Report of the Committee on Economic and Monetary Affairs, *supra* note 134, art. 7c. The Committee’s position may have been inspired by the policy recommendations contained in a study commissioned by the Committee to the Policy Department for Economic, Scientific and Quality of Life Policies and by those contained in an opinion requested from the European Parliament to the European Central Bank, as both documents suggest making the EuGBS a mandatory standard. See respectively Nikolai Badenhop, *Green Bonds: An assessment of the proposed EU Green Bond Standard and its potential to prevent greenwashing* 11 (Publication for the committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, 2022, [https://www.europarl.europa.eu/RegData/etudes/STUD/2022/703359/IPOL_STU\(2022\)703359_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2022/703359/IPOL_STU(2022)703359_EN.pdf), and Opinion of the European Central Bank on a proposal for a regulation on European green bonds (CON/2021/30) (OJ C 27, 19.1.2022, p. 4–13), para 3.1.2.

¹³⁶ See Report of the Committee on Economic and Monetary Affairs, *supra* note 134, at 11.

¹³⁷ See *supra* notes 22-25 and 63-65, and accompanying text.

will play a significant role in increasing transparency and enhancing comparability in the green bond market.

7. Conclusion

Green bonds are a valuable tool for the promotion of a more environmentally sustainable behavior at profit-oriented firms. They operate—or at least may be structured to operate—as a credible commitment device that helps green firms sincerely committed to improving their environmental footprint to signal their true quality to investors, curbing greenwashing problems in financial markets. Furthermore, green bonds increase the amount of public information on firms’ environmental efforts, enhancing investors’ ability to assess the quality of those efforts and to verify *ex post* whether firms deliver on their green pledges. Finally, green bonds may help funding more green projects thanks to the “greenium”—namely the lower interest rates—they often come with.

In most jurisdictions green bonds are unregulated. Lack of *ad hoc* regulation may harm the green bond market by favoring issuer opportunism. Issuers may be tempted to put the green label to projects that yield no or negligible environmental benefits or to make false promises regarding the use of the bond’s proceeds. Furthermore, the lack of a legal definition of green bonds may be a source of uncertainty that may discourage the use of green bonds by honest issuers, who might fear greenwashing accusations.

While at least some of these concerns appear justified, they do not establish a well-grounded case for *ad hoc* regulation. Contract law principles and securities regulation provide remedies against cheating risks by green bond issuers, and a number of contractual solutions exists that may enhance the effectiveness of these remedies. Furthermore, though uncertainty as to what can be considered a green project justifies regulatory initiatives aimed at dissipating that uncertainty, it can be doubted that public regulation would be superior to private regulation (i.e., the set of rules and principles produced by the private standard-setting organizations currently operating in the green bond market) in performing this task.

EU policymakers are on the verge of adopting special rules for green bonds. The European Commission put forward a proposal for a regulation establishing a voluntary standard for the use of the “European Green Bond” designation. Firms wishing to issue green bonds under that designation would have to comply with the set of rules and requirements established by the proposed regulation. The optional nature of the standard made it a valuable piece of legislation, capable of enhancing competition in the standard setting market without restricting issuers’ freedom of choice. However, the European Parliament amended the Commission’s proposal introducing some mandatory features—most notably, the provision of minimum disclosure and certification requirements for all bonds marketed in the EU as “green”. Given that most issuers of green bonds already conform to the largely equivalent disclosure and reporting requirements set by private standard setters, these amendments appear of dubious value in improving the functioning of the EU green bond market.