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ABSTRACT

At the 2021 United Nations Climate Change Conference ("COP26") in Glasgow, nations around the world reaffirmed their international commitment to limit average global temperature increases by the end of the century to 1.5 degrees Celsius. This international effort will require a significant amount of funding, one that will demand a substantial restructuring of the U.S. financial market towards a carbon neutral economy. In recent years, green bonds have emerged as the leading financial instrument to finance environmental projects and initiatives. Although the market has seen unprecedented growth, it is nevertheless inhibited by its lack of regulatory structure, with all disclosures occurring on a voluntary basis. The United States Securities and Exchange Commission has recently announced its intent to reform environmental, social, and governance ("ESG") disclosure, suggesting the replacement of the current voluntary framework with mandatory disclosure requirements. This paper posits that mandatory disclosure requirements are necessary to eliminate instances of "greenwashing" and increase investor confidence in the green bond market. This is supported by empirical research demonstrating the financial and environmental benefits of certified green bonds compared against uncertified green bonds. Additionally, the rapid development of technology and artificial intelligence poses to reshape the way ESG is understood and calculated. This paper concludes that an increased regulatory framework is necessary to foster the growth of the green bond market, which is critical to supplying the funding required to meet the international goals for limiting temperature increases to 1.5 degrees Celsius.

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INTRODUCTION

In 2015, world leaders from 195 nations joined to sign the Paris Agreement on climate change, committing to substantially reduce global greenhouse gas emissions to limit the global temperature increase by the end of this century to 1.5 degrees Celsius.[1] In November 2021, *2021 United Nations Climate Change Conference ("COP26")* occurred in Glasgow, where countries updated their climate commitments, acknowledging that the commitments laid out in Paris were insufficient to meet the 1.5 degrees Celsius target.[2] These ambitious targets for decarbonization of the global economy by the end of the twenty-first century will require a restructuring of the present investment market and a significant increase in capital in order to transform our current industry to a low carbon economy.[3] Adequately addressing climate change will require a substantial amount of funding—the Organisation for Economic Co-operation and Development estimates $6.9 trillion a year will be required up to 2030.[4] This steep demand for funding presents an opportunity for private and public financing through sustainable investments, which can be obtained through the issuance of green bonds.

Green bonds are bonds used to finance environmental projects or initiatives. When issuing a green bond, the issuer, typically a corporation or government, makes a nonbinding voluntary commitment to use the proceeds for environmentally sustainable projects. The first green bond was issued in 2007, but since then, the market has experienced a "green bond boom," and demand has skyrocketed in recent years.[5] This rapid growth in the market has brought with it many challenges. Because the green bond market is substantially unregulated, there is no guarantee that the profits from green bonds will be used for projects that serve a positive environmental benefit. Some issuers may use the money raised by green bonds for projects that have a neutral environmental impact, and in some cases a negative impact, with no legal repercussions.

The market for green bonds falls under the umbrella of ESG finance. ESG refers to the three factors used to measure the sustainability and ethical

1. Melissa Denchak, *Paris Climate Agreement: Everything You Need To Know*, *What Is the Paris Agreement?*, NAT. RES. DEF. COUNCIL (Feb. 19, 2021), https://perma.cc/M9JU-327R.

2. *What Is a COP?*, U.N. CLIMATE CHANGE CONF. U.K. 2021, https://perma.cc/Q8HZ-B2EK.

3. IGOR SHISHLOV ET AL., BEYOND TRANSPARENCY: UNLOCKING THE FULL POTENTIAL OF GREEN BONDS (2016).

4. OECD, WORLD BANK, U.N. ENV'T PROGRAMME, FINANCING CLIMATE FUTURES: RETHINKING INFRASTRUCTURE 15 (2018), https://perma.cc/3KVJ-F6QX.

5. Shitiz Chaudhary, *Look for the Green Bond Label? The State of Green Bond Certification*, CONSERVATION FIN. NETWORK (Mar. 16, 2020), https://perma.cc/A7PH-W5C2.

impact of an investment in a company or business: environmental, social, and governance.[6] ESG is a recent and rapidly developing sector of corporate governance, particularly motivated by an increase in investor interest and concern about the long-term sustainability of their investments.[7] The only green bond certification methods available to investors and issuers is certification by third parties.[8] Several external review processes have developed to address the lack of regulatory framework for green bonds. For example, the International Capital Market Association created the Green Bond Principles in 2014.[9] The Green Bond Principles are voluntary guidelines that outline four principles that must be met for a bond to be considered "green."[10] These international guidelines are nonbinding, but they offer a valuable framework for qualifying green investments.

Because of the widely unregulated nature of the ESG market, there is a growing debate as to whether and how this market should be regulated, especially in light of the "green bond boom."[11] The lack of universal standards for ESG and green bonds threatens to curtail the potential growth of the green bonds market. The lack of explicit and shared objectives for green bonds is a source of misunderstanding that could eventually harm the market through accusations of "greenwashing" and potentially higher transaction costs.[12] Rapid developments in technology and artificial intelligence ("AI") pose to reshape the ESG landscape and offer a promising remedy to these ESG concerns.[13] Research suggests that AI-generated ESG rating systems, which source public corporate data, will promote consistency and standardization by removing human bias and subjectivity from the rating process.[14] Additionally, new AI technologies that have the ability to detect and quantify corporate greenwashing are in development.[15] Although these technologies sound promising in the long

6. Christopher Johnson, *The Measurement of Environmental, Social, and Governance (ESG) and Sustainable Investment: Developing a Sustainable New World for Financial Services*, 12 J. SEC., OPERATIONS & CUSTODY 336, 336 (2020).

7. Johnson, *supra* note 6.

8. Chaudhary, *supra* note 5.

9. *Id*.

10. *Id*.

11. Libby Toudouze, *What the Growth of Green Bonds Means for the ESG Landscape*, FIN. ADVISOR (Sept. 23, 2021), https://perma.cc/8TXV-ZG9X.

12. SHISHLOV ET AL., *supra* note 3, at 4–5 ("… green bonds need to ensure environmental integrity in order to mitigate reputational—or 'green-washing'—and legal risks that threaten the very survival of the market.").

13. Arthur Hughes et al., *Alternative ESG Ratings: How Technological Innovation Is Reshaping Sustainable Investment*, 13 SUSTAINABILITY, Mar. 2021, at 3551, 3553.

14. *Id*.

15. Saijel Kishan, *Artificial Intelligence Used To Find Greenwashers: Green Insight*, BLOOMBERG L. (Aug. 11, 2021).

term, an elevated standard of ESG regulation offers a more immediate solution to promote market growth and mitigate greenwashing concerns.

The U.S. Securities and Exchange Commission ("SEC") has recently announced its intent to scrutinize this sector more closely and is considering imposing mandatory ESG disclosure and reporting requirements as early as next year.[16] The advancement of ESG reform is essential for the effective utilization of green bonds as an effective tool for addressing climate change. This paper seeks to analyze whether and how the SEC can enact disclosure requirements to foster the growth of this market by eliminating concerns of "greenwashing" and increasing investor confidence. The paper proceeds as follows: first, the paper will provide a framework for the regulatory constraints of the market for green bonds, specifically with ESG and its voluntary regulatory system. Second, the paper will present a brief history and look at the current state of the market for green bonds and will consider the market's potential as it relates to having an impact on climate change mitigation efforts. This section will specifically trace the factors motivating the "green bond boom," detail the few certification methods available for green bonds, and provide some of the leading concerns and obstacles preventing green bonds from reaching their full potential. Third, the paper will consider the future of ESG rating and reporting, as advancements of technology pose to reshape ESG metrics. Fourth, the paper will offer an international perspective and analyze international efforts of green bond regulation. Finally, the paper will explore the SEC's statement of regulatory intent, comparing its stated points of consideration to those presented here. This paper concludes by summarizing key policy implications and recommendations for ESG regulatory reform, specifically the expansion of regulation to better fit the needs of the market by addressing concerns of greenwashing, increasing investor confidence, and promoting market growth.

I. ESG—ENVIRONMENTAL, SOCIAL, GOVERNANCE

Green bonds fall within the realm of ESG finance.[17] ESG refers to the three factors that can be used to measure the sustainability and ethical impact of an investment in a company or business: environmental, social, and governance.[18] Financial services and investment firms use the ESG to help determine the prospective financial performance of companies.[19] ESG finance covers a variety of bond types, including green bonds (focused on

16. Gary Gensler, SEC Chair, Prepared Remarks Before the Principles for Responsible Investment "Climate and Global Financial Markets" Webinar (July 28, 2021), https://perma.cc/EN3Y-8Q7N.

17. Toudouze, *supra* note 11.

18. Johnson, *supra* note 6.

19. *Id.*

sustainability and environmental concerns), social bonds (geared toward social interests), and sustainability bonds (for both environmental and social purposes).[20] ESG is a recent and rapidly developing sector of corporate governance, particularly resulting from an increase in investor interest and concerns about the long-term sustainability of their investments.[21]

There have been clear signs that interest in ESG investment is increasing, especially due to the growing public concern surrounding climate change.[22] Because interest in ESG is growing, companies are increasingly incentivized to issue green bonds. This increase in interest, coupled with the widely unregulated nature of ESG disclosure, presents many concerns regarding the future of this market, prompting active debates as to whether and how this market should be regulated.[23] An elevated standard of ESG reporting and a uniform green bond standard that promotes transparency can be solutions to potential greenwashing and ensure that the increase of ESG serves its stated purpose of fostering a sustainable future.

ESG is based in matters affecting the public good, rather than matters affecting a corporation. From a corporate governance lens, it is insufficient for corporations to sacrifice the financial interests of shareholders to accommodate societal interests, or even stakeholder interests. However, ESG is motivated by societal demands and market dynamics; corporations have a strong financial incentive to advance and disclose ESG goals intrinsically tied to financial returns "because more accountability create[s] advantages for firms".[24]

While corporate matters typically fall under the jurisdiction of state corporate law or federal regulatory bodies, there are no specific binding regulations in place for ESG.[25] All ESG reporting and disclosure is conducted on a voluntary basis, and the criteria of ESG metrics are based on the subjective understanding and acceptance of the actors involved.[26] Despite this voluntary framework, companies may nevertheless face legal

20. Toudouze, *supra* note 11.

21. Johnson, *supra* note 6, at 339.

22. *Id.* at 338.

23. Elad L. Roisman, SEC Comm'r, Speech on Can the SEC Make ESG Rules that Are Sustainable? (June 22, 2021), https://perma.cc/8VJU-WA26 (SEC Commissioner stating: "It is tempting to think that the Commission could provide *one* list of ESG disclosures for companies that would satisfy *all* demands for information. But I am not sure that is a role we can play at this time.").

24. Valentina Lagasio & Nicola Cucari, *Corporate Governance and Environmental Social Governance Disclosure: A Meta-Analytical Review*, 26 CORP. SOC. RESP. & ENV'T MGMT. 701, 701 (2019).

25. David Silk & Carmen Lu, *Environmental, Social and Governance Law—USA*, INT'L. COMPAR. LEGAL GUIDES (Dec. 13, 2021), at no. 1.1, 1.2, 1.4 https://perma.cc/8HCY-HLQW.

26. Hughes et al., *supra* note 13, at 3553-54.

consequences under federal securities law if the companies' voluntary disclosures are materially misleading or false.[27] However, most ESG disclosure claims brought under federal securities law have been unsuccessful.[28] Consequently, most legal enforcement of ESG disclosures lies beyond the reach of stakeholders and concerned members of the public.

ESG is heavily influenced by societal standards because it is at odds with the traditional corporate governance framework which is rooted in shareholder primacy; the sole objective of corporate decision-making is maximizing shareholder value.[29] In addition to the concern of shareholder interests, a corporation may also be influenced by the interests of their *stakeholders*. Stakeholders are defined as a party or group of individuals that "has an interest in a company and can either affect or be affected by the business."[30] Stakeholders may include employees, customers, creditors, suppliers, and in some cases society at large.[31] Regarding stakeholder interests, Delaware courts have consistently upheld the notion of shareholder primacy, holding that boards must evaluate stakeholder needs in the context of shareholder interests.[32] Nevertheless, market forces influenced by societal interests in environmental and social progress are increasingly affecting corporations.[33] To avoid reputational risks, it is becoming increasingly material for companies to consider stakeholder interests into company decision-making in order to fulfill the companies' fiduciary duties to shareholders.

In addition to stakeholder interests, corporations are increasingly finding it necessary to consider the interests of the general public, which is now able to greatly influence corporate decisions through public pressure. The public voice has been amplified by new forms of communication, such as social media, allowing ordinary individuals, regardless of stakeholder status, to have a considerable impact on corporate decisions that have a societal impact.[34] There has been a dramatic increase in public interest regarding corporations' climate change mitigation efforts, and corporations

27. Connor Kuratek et al., *Legal Liability for ESG Disclosures*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Aug. 3, 2020), https://perma.cc/RD8R-GLJ2.

28. Kuratek et al., *supra* note 27.

29. Lenore Palladino & Kristina Karlsson, *Towards Accountable Capitalism: Remaking Corporate Law Through Stakeholder Governance*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Feb. 11, 2019), https://perma.cc/VE8M-6XSP.

30. Jason Fernando, *Stakeholder*, INVESTOPEDIA (Aug. 19, 2021), https://perma.cc/2CL6-N9UR.

31. *Id*.

32. Dorothy S. Lund & Elizabeth Pollman, *The Corporate Governance Machine* 121 COLUM. L. REV. 2563, 2579-81 (2021), https://perma.cc/NLM3-TV9S.

33. Witold Henisz et al., *Five Ways That ESG Creates Value*, MCKINSEY Q. 2, 10-12, Nov. 2019, https://perma.cc/ATR7-4M2Q.

34. Evan Epstein & David Curran, *ESG Is a Moving Target Even for the Best Companies*, BOARDROOM GOVERNANCE PODCAST (Apr. 7, 2021), https://perma.cc/A2ER-MEY7.

will typically act in accordance with a forceful public stance to prevent financial consequences and avoid reputational harm.[35] Corporations' newfound incentive to prioritize both stakeholder and public interests has transformed the way in which corporate governance considers whether corporate decisions are deemed "material."

The lack of mandatory regulation or a uniformly adopted verification system threatens to limit the potential progress of ESG and sustainable investments.[36] Further, climate change poses a significant threat to the long-term financial interests of corporations; if these concerns are not immediately addressed, it may have devastating impacts on the U.S. economy overall and unforeseen impacts on supply chains and financial markets.[37] Although ESG and the related green bond market may technically fall outside of a shareholder's financially material interests, many argue that investments which may incur immediate costs to shareholders may nonetheless be necessary to provide long-term financial benefits. The current voluntary ESG framework falls short in providing consistent and reliable metrics to measure ESG effectiveness and the long-term impact on performance, which is necessary to contextualize stakeholder needs with shareholder interests.

II. GREEN BONDS

A. The "Green Bond Boom"

Green bonds are a type of debt instrument used to finance specific environmental projects or initiatives.[38] When issuing a green bond, the issuer, typically a corporation or government, makes a nonbinding voluntary commitment to use the proceeds for environmentally sustainable projects. The first green bond was issued in 2007, but since then, the market has experienced what many refer to as the "green bond boom," and demand has grown significantly in recent years.[39]

This increased demand for green bonds can largely be attributed to the significant mitigation efforts necessary to limit global temperature increases and prevent devastating impacts on society. The signing of the Paris Agreement, as well as the subsequent COP26, helped set a calculable standard that would be required to substantially mitigate greenhouse gas

35. *Id.*
36. Toudouze, *supra* note 11.
37. Christopher Flavelle, *Climate Change Could Cut World Economy by $23 Trillion in 2050, Insurance Giant Warns*, N.Y. TIMES (Nov. 4, 2021), https://perma.cc/4LML-4HGE (estimating that the effects of climate change may be expected to limit global economic output by eleven to fourteen percent by 2050).
38. Toudouze, *supra* note 11.
39. Chaudhary, *supra* note 5.

emissions in order to meet its goals.[40] This global commitment presents a significant opportunity for the growth of climate finance and the market for sustainable investments. A target for decarbonization of the global economy by the end of the twenty-first century will require a restructuring of the present investment market and a substantial increase in capital in order to transform our current industry to a low carbon economy.[41] Adequately addressing climate change will require a considerable amount of funding—the Organisation for Economic Co-operation and Development estimates $6.9 trillion a year will be required up to 2030.[42] This steep demand for funding presents an opportunity for private and public financing, which can be achieved through sustainable investments like green bonds.

The market for green bonds has seen considerable growth following the increased demand for sustainable investments. Due to the growth in demand, research indicates that green bonds may be more financially appealing than other security types.[43] Increased demand drives up the prices of bonds and pushes down yields making borrowing cheaper.[44] Further, substantial increases in the demand for environmentally sustainable investments is now considered large enough to potentially influence the behavior of corporations and governments.[45] Bond analysts frequently refer to a "greenium," which is a quantified measurement of how much more investors will pay for green bonds compared to conventional bonds.[46]

B. ESG's Voluntary Regulatory Framework Restricts Green Bond Market Potential

Institutional investors may be deterred from participating in the market due to the inconsistency in labeling, which can prevent them from adequately predicting the risks and returns of their investments because of the unregulated nature of ESG and green bonds.[47] This deterrence can manifest at the time of issuance, caused by a lack of a clear and enforceable definition, and after issuance, caused by the inability to enforce and monitor actual contributions to mitigation efforts.[48]

First, the green bond market offers no official or universally accepted definition of what constitutes a "green" bond. Although there are numerous

40. Denchak, *supra* note 1.
41. Shishlov et al., *supra* note 3.
42. OECD, World Bank, U.N. Env't Programme, *supra* note 4, at 15.
43. Matt Wirz, *Why Going Green Saves Bond Borrowers Money*, Wall St. J. (Dec. 17, 2020, 5:30 AM), https://perma.cc/9GSU-F6T9.
44. *Id*.
45. *Id*.
46. *Id*.
47. Echo Kaixi Wang, *Financing Green: Reforming Green Bond Regulation in the United States*, 12 Brook. J. Corp. Fin. & Com. L. 468, 482 (2018).
48. *Id.* at 481.

classes of investments that would clearly qualify, mitigation efforts are multifaceted, and there are a wide range of environmental impacts that could result from investments.[49] A lack of a universal definition for green bonds leads to a complex market with concerned investors, driving potential investors away from the market.

Second, a substantial lack of regulation means there is no guarantee that profits from green bonds will be used for projects or fund initiatives that serve a positive environmental benefit. The growing investor interest in ESG has generated higher incentives for companies to issue green bonds.[50] Because of this increased demand, many fear that the lack of green bond regulation may lead to "greenwashing."[51] The green bond market operates largely on a market-driven approach, whereby issuers can label their bonds as "green," investors decide the veracity of the labeling, and accurately labeled and impactful green bonds can thrive in the market.[52] With no regulatory framework in place, there is no way to guarantee that the profits from green bonds will be used for projects that serve a positive environmental benefit. Some issuers may use the money raised by green bonds for projects that have a neutral environmental impact, and in some cases a negative impact, with no legal framework in place to enforce accountability.[53]

One straightforward example of greenwashing is when an issuer issues a bond tied to a green initiative but nevertheless operates in a way that damages the environment.[54] Another more common instance of greenwashing is when issuers assert environmental claims but provide no supporting evidence to substantiate such claims.[55] These concerns have led many institutional investors to completely exclude financing green bonds

49. Mike Cherney, *'Green Bonds' for a Parking Garage?*, WALL ST. J. (Mar. 12, 2015, 12:04 PM), https://perma.cc/2VEU-YXKZ (detailing the debate of the environmental impact surrounding the issuance of a green bond by a Massachusetts university used to finance a parking garage. Although the university contended that a parking garage would reduce pollution by limiting the amount of driving done by students looking for parking, concerns arose over whether the addition of a parking garage would encourage increased driving and subsequently, increased pollution.).

50. Toudouze, *supra* note 11.

51. Matt Wirz, *Bond Investors Challenge Wall Street Greenwashing*, WALL ST. J. (Nov. 2, 2021, 7:00 AM), https://perma.cc/NYT9-4L2Y.

52. Wang, *supra* note 47, at 474.

53. Caroline Flammer, *Corporate Green Bonds* (Bos. Univ. Glob. Dev. Pol. Center, Working Paper No. 23, 2018), https://perma.cc/F94E-HAQC.

54. Claire Milhench, *Emerging Climate Bonds Boom, but Are They Really Green?*, REUTERS (Aug. 18, 2017), https://perma.cc/3772-ELJQ (providing an instance where an investor refrained from investing in Poland's sovereign green bond that was promoted to have clear positive environmental impacts, but Poland actively sought to protect its coal industry through repeated actions of vetoing climate policies and obstructing negotiations through its subsidies).

55. Phillip Ludvigsen, *Advanced Topics in Green Bonds: Risks*, ENV'T FIN. (Nov. 24, 2015), https://perma.cc/4DY7-LDY9.

issued by companies without a clear positive environmental track record and to heavily scrutinize bonds for potential loopholes that risk environmental impact.[56] Greenwashing threatens not only to hinder the market's promised environmental impact but also to cause adverse effects on the legitimacy of the market.

C. Certification Methods for Green Bonds—International Guidelines

The only green bond certification method available to investors and issuers is certification by third parties.[57] Several external review processes have developed to attempt to define what constitutes a "green" bond. There are two international certification mechanisms available to issuers, the Green Bond Principles ("GBP") and the Climate Bonds Standards ("CBS").[58] The GBP, created by the International Capital Market Association in 2014, are voluntary guidelines that outline four principles green bonds must meet to be considered "green, including use of proceeds for eligible Green Projects, process for project evaluation and selection, management of proceeds, and reporting."[59] The GBP serve to promote the integrity of the market by offering greater clarity to the approach of green bond issuance. The GBP are the most widely accepted method of certification and encourage increased transparency of the market through greater disclosure. The CBS are a certification scheme very similar to the GBP but are directed at green bonds that are focused on low carbon-emission projects.[60] The CBS incorporated key components of the GBP; therefore, green bonds that comply with the CBS automatically qualify under the GBP.[61]

These international standards provide a framework for regulatory bodies considering mandatory ESG policy. Currently, the lack of universal standards for green bond certification impedes the promising future of the green bond market. The lack of explicit and shared objectives for the green bond market is a source of misunderstanding that could eventually harm the market through accusations of greenwashing and potentially higher transaction costs.[62] An elevated standard of ESG reporting together with a uniform green bond standard promoting transparency can be a potential

56. Wirz, *supra* note 51.

57. INT'L CAP. MKT. ASS'N, GREEN BOND PRINCIPLES: VOLUNTARY PROCESS GUIDELINES FOR ISSUING GREEN BONDS 7 (2021), https://perma.cc/ZV4Z-PDMH.

58. *An Investor's Guide to Evaluating Green Bond: GBP vs CBS*, ARTESIAN (Aug. 12, 2019), https://perma.cc/AYR5-UKFW.

59. INT'L CAP. MKT. ASS'N, *supra* note 57, at 4.

60. ARTESIAN, *supra* note 58.

61. Wang, *supra* note 47, at 477.

62. SHISHLOV ET AL., *supra* note 3, at 5.

solution to greenwashing for investors motivated by ESG and climate concerns.

There is a large body of research concerning the financial and environmental effects of green bonds and green bond certifications.[63] Specifically, research conducted by Caroline Flammer of Boston University measures companies' financial and environmental performance following the issuance of green bonds, providing empirical evidence in favor of the conclusion that green bond certification serves both a financial and environmental benefit to green bonds.[64] Flammer analyzes the effect of a green bond on the stock of a public company immediately after the announcement of green bond issuance, finding that the stock market responds positively to the issuance announcement.[65] This finding indicates that the stock market perceives green bonds as enhancing company value. Additionally, the study measures the effect of certification on the financial return of a green bond. The study differentiates the measured effectiveness of certified green bonds against uncertified green bonds, finding that although the average immediate returns are positive for both types of bonds, it is only statistically significant for certified green bonds.[66]

In addition to financial effects, the study also finds a significant increase in environmental performance, concluding that certified green bonds effectively improve companies' environmental footprints.[67] This finding is especially promising not only for corporations seeking to lower their environmental footprints, but also for investors hoping to make an actual environmental impact with their funding. This article provides a positive outlook for the green bond market, demonstrating that green bonds have a positive financial and environmental impact on issuers. It also reinforces certification as an important governance tool in the green bond market. Consequently, increased regulation aimed at emulating the effects of certification could be necessary to maximize the effectiveness of green bonds, both financially and environmentally.

Flammer's findings that certified green bonds are both more financially and environmentally effective, support the assertion that increased regulation will not only limit instances of greenwashing but will also serve the financial interests of issuers. Increased regulation will provide the market with greater clarity and confidence, thus stimulating returns in addition to environmental efforts. Increased regulation of ESG and green bond markets may replicate some of the positive effects of

63. Caroline Flammer, *Green Bonds: Effectiveness and Implications for Public Policy*, 1 ENV'T & ENERGY POL'Y & ECON. 95 (2020).

64. Flammer, *supra* note 63, at 98.

65. *Id.* at 122.

66. *Id.*

67. *Id.* at 98.

certification frameworks and thus favor the implementation of mandatory regulation of ESG and green bonds.

III. INTERNATIONAL APPROACHES TO GREEN BOND REGULATION

A. CHINA

Green bonds account for two percent of all bonds issued through China's domestic institutions and corporations, with eighty percent of China's green bond issuance (in 2016) issued by financial institutions.[68] One of the issues with the green bond market is that there are many different definitions of "green" across various markets, especially internationally. In the international market for green bonds, there is a desire to harmonize definitions and standards across different markets, as issuers must meet the common preference of international investors. Additionally, harmonizing standards could help avoid multiple verifications and certifications, thus reducing green bond issuance costs even further.

China serves as an important guide to green bond regulation, because the country is one of the leaders in the global efforts to regulate and harmonize green standards,[69] mostly because the Chinese green bond structure is one of the most rigorous in the world. China requires that all bonds be approved by regulatory authorities, which removes uncertainty around self-regulation present in the international market. Before labeling bonds as green, issuers must comply with rules set by the People's Bank of China ("PBOC").[70] PBOC rules require issuers to submit bond applications with detailed information and disclosures, including information about nominated project categories, project selection criteria, decision making procedures, management of proceeds, and environmental benefits of the underlying assets or projects.[71]

The PBOC is considering rules to check the post-issuance use of proceeds in order to ensure that proceeds have been allocated to green projects or assets.[72] Chinese banks are required by the PBOC to report quarterly on the use of proceeds of green bonds, and corporate issuers are required to report annually or semi-annually.[73] This requirement is a

68. Wang, *supra* note 47, at 478.

69. *Id.*

70. Sean Kidney, *Myth buster: Why China's Green Bond Market Is More Orderly Than You Might Think*, CLIMATE BONDS INITIATIVE (June 21, 2017), https://perma.cc/ZG8A-YMKA.

71. *Id.*

72. Kidney, *supra* note 70.

73. *Id.*

significantly more frequent reporting standard compared to that at the international level, which typically only requires annual reporting.[74]

In addition to meeting reporting requirements of the PBOC, issuers must also comply with rules set by other regulators of the green bond market, such as the China Securities Regulatory Commission ("CSRC") and the National Development and Reform Commission ("NDRC").[75] These mandatory and rigorous reporting requirements are a steep contrast to U.S. regulations, which leave the market largely unregulated.

B. INDIA

In 2016, the Securities and Exchange Board of India ("SEBI") finalized its official green bond requirements.[76] These requirements largely resemble the GBP guidelines, aiming to harmonize domestic and international guidelines by requiring issuers to disclose reasons for the eligibility of projects and the benefits and impacts raised by funds.[77] Although the SEBI regulations greatly resemble the GBP (they provide a categorical list of eligible green bond project types), it differs slightly by including an additional provision that gives discretion to the SEBI board to approve other categories on a case-by-case basis.[78] Allowing categories to be approved on a case-by-case basis affords flexibility in determining which projects qualify as green. Due to the complex nature and immense scope of climate-focused projects and initiatives, it is almost impossible to quantify all green project types on one enumerated list. Rather, this list can start as a foundation for qualifying types and a regulatory board. SEBI can act to approve projects that fall short of making the list but would still have a desired environmental impact.

Additionally, SEBI imposes additional disclosure requirements for issuers to provide a statement regarding the environmental objective of the green bond, how the proceeds will be used, the system that issuers will employ to track the deployment of the proceeds, and projects on which the proceeds will be used.[79] These SEBI regulations are likely to open up new opportunities for financial companies and banks to raise funds through green bonds. A report published by the Central Bureau of Investigation in 2016 states that India has $15.7 billion of unlabeled climate bonds used toward low carbon transport assets and renewable hydro energy, all of which can now be validated and labeled under the SEBI requirements.[80]

74. Wang, *supra* note 47, at 479.
75. *Id.*
76. Wang, *supra* note 47, at 479.
77. *Id.*
78. *Id.* at 480.
79. *Id.* at 479.
80. *Id.* at 480.

IV. THE FUTURE OF ESG—ARTIFICIAL INTELLIGENCE

Artificial intelligence ("AI") and other newly developed technologies are expected to redefine the way ESG ratings are calculated.[81] Current AI-generated ESG rating mechanisms exist, which function by sourcing public data from the internet and using this data to gain valuable ESG insight.[82] Because AI is still a developing field, there is limited comprehensive research regarding its potential for ESG reporting and ratings.[83] Nevertheless, existing research posits that AI-generated ratings might remedy much of the frequent criticism surrounding current systems by fostering an ESG landscape that shifts from primarily profit-driven to value-driven, increasing consistency and standardization among ratings and promoting transparency.[84]

The ESG landscape is inherently profit-driven due to the nature of securities law, which is primarily concerned with "material" information that is financially important to investors, potentially causing a decreased interest in sustainability in favor of maintaining a company's financial interests. Because AI rating systems source financial information from internet data, companies have an opportunity to consider stakeholder interests by incorporating generalized public input into a company's ESG rating. Although the interests of the general public fall outside the scope of the traditional corporate governance framework, many argue that shareholders' financial interests may be inherently tied to and depend upon the interests of stakeholders and the general public regarding climate risk.[85] This shift away from a profit-driven landscape that disregards sustainability in favor of financial interests towards one that is value-driven and considers external climate concerns will increase sustainability efforts and serve the interests of shareholders by contributing to the financial success of a company.

Presently, there is a strong desire for ESG ratings and disclosures to be as standardized and transparent as possible.[86] Traditional ESG rating systems lack standardization due to the subjective nature of the rating

81. THOMAS KUH, ESG RESEARCH IN THE INFORMATION AGE 8–10 (2019), https://perma.cc/NBK3-XGXV.

82. KUH, *supra* note 81, at 9 (describing the application of artificial intelligence to "harness growing volumes of unstructured data from external stakeholders to uncover risks and opportunities not otherwise readily apparent.").

83. Hughes et al., *supra* note 13, at 3570 ("This is the first paper, to the best of our knowledge, that directly compares Alternative AI-led ESG ratings with Traditional ratings.").

84. *Id.* at 3558.

85. Wirz, *supra* note 51, at 2.

86. Allison Herren Lee, SEC Acting Chair, Speech on A Climate for Change: Meeting Investor Demand for Climate and ESG Information at the SEC (Mar. 15, 2021), https://perma.cc/7FLQ-LF78.

process.[87] These systems also lack transparency due to the unregulated and voluntary nature of ESG reporting. Advocates for AI-generated rating systems propose that alternative ESG rating methods address the potential risks of bias that are more likely to arise in traditional ESG rating methods.[88] Rating agencies are frequently acquired by financial corporations, wherein both parties are customarily close in proximity, both geographically (in International Finance Centers) and by shared professional networks.[89] The concentration of control of sustainability information is therefore confined within closed networks of rated corporations and rating agencies, the two key players of ESG ratings.[90] Scholars warn of the risk of information becoming corporatized and proprietary in order to advance the parties' financial interests.[91] However, risks of bias can be mitigated in AI rating systems by removing or limiting human subjectivity from the rating formulation process.[92]

Research indicates that AI provides a promising outlook for remedying regulatory concerns shared by companies, investors, and regulatory bodies.[93] The integration of AI into the ESG rating landscape will mitigate bias concerns and provide a more objective approach to analyzing a company's sustainability performance, leading to the overall improvement of informed investment decisions. Reporting would have a significant impact on the market forces that motivate corporate behavior and accountability.[94] Although AI might address some of the concerns asserted by the SEC, mandatory regulation is still essential. The development and implementation of AI can serve to close informational gaps and be utilized as a tool in light of mandatory SEC regulations. Mandatory regulation can work in conjunction with these developing technologies to improve consistency of reporting.

In addition to reshaping ESG rating mechanics, developing AI technology can also detect and quantify instances of greenwashing.[95] This process involves using AI to examine sustainability claims made by

87. Hughes et al., *supra* note 13, at 3553.

88. *Id.* at 3556

89. Hughes et al., *supra* note 13, at 3555.

90. *Id.*

91. *Id.* at 3556 ("For example, higher scores have been found to have been assigned to larger companies who have more resources to fill out the questionnaires that ratings providers send them.").

92. *Id.* at 3561 (describing that AI-generated ratings may differ from human-based analysis due to the data sources being used as well as the depth and sophistication of the analysis being done. The author states, "[t]he contrast between human-based analysis based partly on company disclosure versus AI that scrapes unstructured data from the Internet can result in incomparably different standards of analytic.").

93. *Id.* at 3570

94. Min Yan & Daoning Zhang, *From Corporate Responsibility to Corporate Accountability*, 16 HASTINGS BUS. L.J. 43, 56 (2020).

95. Kishan, *supra* note 15.

corporations in media statements, websites, and other corporate communications.[96] That data is then compared to statements containing a company's carbon footprint to make a greenwashing determination.[97] Other researchers use AI technology to directly analyze corporate climate risk disclosures and then determine if the reported information has been cherry-picked.[98]

AI is still a developing technology, and it is nearly impossible to predict with certainty what exact implications AI may have on corporate governance and ESG. AI's relevance cannot be understated, as many businesses and organizations are quickly implementing this technology to enhance business practices and productivity.[99] It is important to note that AI, primarily based on image recognition, is inherently flawed and requires significant human intervention.[100] Research suggests that implementation of AI is unlikely to lead to a complete overhaul of traditional systems; rather, a hybrid model is likely to arise, wherein humans use AI as a tool to advance corporate practices through increased productivity and improved accuracy.[101] Additionally, a hybrid model of AI implementation is necessary to avoid ethical and accountability concerns.[102] Nevertheless, the advent of AI and technological development is one factor to keep in consideration when enacting viable long-term ESG regulation.

V. POLICY IMPLICATIONS

The SEC has recently indicated that ESG disclosure regulation will be a central focus of upcoming reform.[103] This reform provides a significant opportunity to consider how to best improve the existing regulatory structure to promote the growth of the market for green bonds. The voluntary nature of the ESG landscape is burdened by the subjectivity of its reporting metrics. A mandatory policy framework is urgently needed to foster the development of ESG to create meaningful change within

96. *Id.*
97. *Id.*
98. *Id.*
99. Anat Alon-Beck, *Artificial Intelligence in the Corporate Boardroom*, FORBES (Feb. 8, 2021, 8:35 PM), https://perma.cc/5U89-WXMV.
100. Brishen Rogers, *The Law & Political Economy of Workplace Technological Change*, 55 HARV. CIV. RTS.-CIV. LIB. L. REV. 531, 558–60 (2020).
101. Hughes et al., *supra* note 13, at 3560 ("[I]t is unlikely that Alternative ESG ratings will supplant Traditional models in the near future; instead, they will complement them.").
102. Alon-Beck, *supra* note 99 ("With respect to accountability – human directors' decision-making should not be replaced or influenced by unaccountable artificial intelligence's decision-making. I warn that using artificial intelligence to make decisions in boardrooms could lead to a void of accountability.").
103. David A. Katz & Laura A. McIntosh, *SEC Regulation of ESG Disclosures*, HARV. L. SCH. F. ON CORP. GOVERNANCE, https://perma.cc/WXW9-3HPA.

sustainability and social good, while still serving the financial interests of corporations, stakeholders, and, most importantly, shareholders. This framework can be achieved by enacting mandatory regulation that provides a precise definition of the qualifying components of ESG as well as detailed reporting requirements that offer clear guidance on how to track, measure, and monitor ESG reporting metrics.

A. PROVIDE A PRECISE DEFINITION FOR WHAT QUALIFIES AS A "GREEN" BOND

Enacting a mandatory regulation that provides a precise definition of the qualifying components of ESG and what qualifies as a "green" bond would facilitate a better understanding of ESG investment markets and lead to increased investor confidence in green bonds. Because ESG is a relatively new concept in corporate governance, understanding its reporting mechanics is limited and uncertainty clouds whether green bonds provide the environmental impact necessary to limit global temperature increase to 1.5 degrees Celsius. This uncertainty could lead to a decrease in investor confidence and market participation. Further, the subjective nature of ESG often leaves investors compelled to conduct independent research to identify and secure investments that serve the environmental impact or hold sustainable values they desire. A unified understanding of ESG must be implemented to attract more investors into this market and promote corporations' increased commitment and contribution to environmental efforts.

There are a couple of ways the U.S. can promote a precise definition of the qualifying components of ESG and green bonds. First, the GBP could be used as a guiding framework to create a list of criteria for projects or initiatives that want to use green bonds; a project satisfies the criteria, and the bond is certified as "green." This approach is likely a feasible option, considering that the GBP is already internationally accepted. However, challenges may arise due to its all-or-nothing approach. The market for green investments is very complex and covers a wide range of project types, while an enumerated list of qualifying projects covers only projects receiving benefits afforded to green bonds, regardless of environmental impact.[104] Additionally, the list may overlook some projects.

To reconcile the GBP framework and pitfalls from its all-or-nothing approach, some scholars have suggested creating a tiered, or grading, system for qualifying projects.[105] If a project or initiative reduces GHG emissions significantly, the bond is entitled to greater benefits, such as tax benefits typically granted in the green bond market.[106] To create a

104. INT'L CAP. MKT. ASS'N, *supra* note 57.
105. Wang, *supra* note 47, at 486–88.
106. *Id.*

comprehensive list that avoids overlooking potential sustainable projects, the US may look to India for guidance. The SEBI creates a list of qualifying projects, but also has discretion to approve projects on a case-by-case basis.[107]

B. PROMOTE CONSISTENCY, STANDARDIZATION, AND TRANSPARENCY TO MITIGATE GREENWASHING CONCERNS

A mandatory regulatory framework for ESG reporting and disclosure will also promote consistency, standardization, and transparency. Promoting these aspects of ESG regulation will allow investors and stakeholders to effectively access and compare a company's ESG performance.[108] Currently, the due diligence of green investors often extends beyond reviewing self-reported statistics from companies, which presents many obstacles and can be costly.[109] Limiting greenwashing currently relies on investors, regulators, and issuers themselves to identify and call out alleged instances of greenwashing.[110] Providing consistency and comparability will allow investors to make important investment decisions that align their financial and ESG-related interests. In the realm of sustainable finance, this transparency would effectively mitigate the rising concerns of greenwashing that are ever-present in the green bond market. Even if greenwashing may not arise in each instance, the mere existence of greenwashing concerns may be sufficient to instill fear and skepticism in the market. Fears surrounding greenwashing must be adequately addressed to prevent deterring investors from the market and to facilitate the growth of the green bond market.

SEC Chairman Gary Gensler shed light on the SEC's consideration of ESG reporting requirements, placing emphasis on the need for consistency and comparability.[111] Gensler recommends significant research must be conducted to ensure the consistency and comparability of ESG disclosures.[112] For example, the SEC intends to consider both qualitative and quantitative information about climate risk that investors currently rely on or believe would help them make investment decisions moving forward.[113] This consideration may include whether companies and investors are interested in disclosures only for direct emissions, or whether

107. *Id.* at 479.

108. Allison Herren Lee, SEC Acting Chair, Speech on A Climate for Change: Meeting Investor Demand for Climate and ESG Information at the SEC (Mar. 15, 2021), https://perma.cc/7FLQ-LF78.

109. Toudouze, *supra* note 11.

110. *Id.*

111. Gensler, *supra* note 16 ("The consistency with which issuers report information leads to comparability between companies, today and over time.").

112. *Id.*

113. *Id.*

they want to include indirect emissions, or even include emissions occurring in the company's value chain.[114] The SEC may also consider whether there should be certain metrics for specific industries.[115] In the long term, the SEC is considering whether companies might provide scenario analyses on how a business might adapt to the range of possible physical, legal, market, and economic changes related to climate change that the business might face in the future, including net-zero requirements for companies that operate in a jurisdiction committed to the Paris Agreement.[116]

A clear and consistent reporting framework is necessary to create a market fueled by informed investment decisions to promote its growth and environmental impact. The SEC's statement seeks to address these concerns by emphasizing the need for consistent and comparable reporting standards.[117] However, further insight into the correlation between ESG and a company's financial output is necessary to fully understand the exact financial implications of ESG. Nevertheless, a mandatory framework is necessary for the further development of this understanding due to the limitations imposed by the voluntary disclosure framework. The long-term implications of addressing ESG-related concerns, specifically climate change, present a substantial risk to the financial interests of investors and shareholders. Therefore, prioritizing societal and stakeholder interests is justified in this context to advance the financial interests of shareholders and the economic stability of the corporation.

CONCLUSION

Protecting the environmental integrity of green bonds is an important step in addressing climate change and reaching the goals set forth by the Paris Climate Agreement and COP26. The lack of an official definition for green bonds leads to a complex market of concerned investors, driving potential investors away from the market. Further, the substantial lack of regulation leaves markets vulnerable to greenwashing, which not only threatens the actual environmental impact of green bonds but can also adversely affect the confidence in and legitimacy of the market.

The SEC is currently grappling with ESG regulation, and there is great potential for an updated regulatory structure and increased reporting requirements for the relatively new sustainable asset class space.[118] While

114. *Id*.

115. https://www.sec.gov/news/speech/gensler-pri-2021-07-28*Id.*

116. Gensler, *supra* note 16

117. *Id.*

118. Toudouze, *supra* note 11.

emerging AI technologies offer a promising outlook for green bonds and ESG, mandatory regulation presents a more immediate solution. Additionally, regulators can use this technological outlook to help shape potential reform and consider its long-term viability. An elevated standard of ESG regulation can ease greenwashing concerns and increase investor confidence in the market. This heightened standard can be achieved by enacting mandatory regulation that provides a precise definition of the qualifying components of ESG, as well as detailed reporting requirements that offer clear guidance on how to track, measure, and monitor ESG reporting metrics.

There is an urgent need for a mandatory policy framework to foster the development of ESG to create meaningful change within sustainability and social good, while still serving the financial interests of corporations, shareholders, and stakeholders. Due to the nature of securities law, regulation must balance the financial interests of investors to ensure consistent participation in the market, while also protecting the environmental integrity of such bonds.[119] No matter what level of stringency is decided, regulators must consider both the interests of the financial actors involved as well as the environmental implications. However, the lack of rigorous, consistent, and reliable metrics makes it difficult to precisely measure ESG effectiveness and its impact on performance. Mandatory ESG regulations that promote standardization and comparability are thus necessary to reconcile and compare potentially conflicting short- and long-term shareholder interests. These regulations are essential for the further utilization of green bonds as an effective tool for addressing climate change and achieving global climate targets.

119. Wang, *supra* note 47, at 481 (In the context of green bonds, author states: "many U.S.-based investors do not understand enough about green bonds to commit to such investments. For example, some U.S. firms that do not take on green bonds believe that green bonds will result in a lower yield, even though going green does not necessarily mean losing yield.").

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