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The Eco-Agency Problem and Sustainable Investment

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In times of heightened environmental consciousness and a global call for urgent action, corporations are playing a critical role in addressing pressing environmental challenges. As concerns about climate change, resource depletion, and ecosystem degradation intensify, businesses are under mounting pressure to align their strategies with sustainable practices. Despite that, there is strong evidence of underinvestment in sustainability and environmental efforts by corporations. In this Article, we first define the eco-agency problem – the special conflict of interest between the corporate officers who focus on short-term profitability and the other stakeholders who seek long-term profitability and sustainability – and then discuss existing coping measures, such as green bonds, CoCo bonds, and ESG compensation metrics. To assess the extent of the eco-agency problem, we conducted an experimental study of both professional and nonprofessional investors. According to our findings, both groups exhibit statistically significant preferences for sustainable investments. Revealing the preferences of investors toward sustainability can inspire corporate officers to embrace their role as sustainability advocates, encouraging them to align their decisions with investor preferences and drive positive change both within their organizations and across industries. To mitigate the eco-agency problem, we claim, on the basis of our study, that a unique environmental disclosure is required. By embracing transparency as a strategic advantage, corporations can transcend traditional reporting boundaries, heralding a new era in which

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investors implement their ecological preferences in the capital market pricing mechanism.

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INTRODUCTION

In times of heightened environmental consciousness and a global call for urgent action, corporations play a critical role in addressing pressing environmental challenges.[1] As concerns about climate change, resource depletion, and ecosystem degradation intensify, businesses are under mounting pressure to align their strategies with sustainable practices.[2] Moreover, the imperative for corporations to prioritize environmental investment stems from the recognition that their operations profoundly impact the planet's well-being.[3] By investing in sustainable technologies, renewable energy sources, eco-friendly practices, and efficient resource management, corporations can effectively mitigate their environmental footprint and promote a more resilient future.

Despite mounting evidence demonstrating the pressing need for sustainable business practices, corporate officers continue to prioritize short-term gains over the long-term viability of their organization and society.[4] The most prominent examples of corporations that have been criticized for underinvesting in environmentally friendly practices can be found in a few well-

1. Joan Enric Ricart & Carlos Rey, *Purpose in Corporate Governance: The Path Towards a More Sustainable World*, 14 SUSTAINABILITY 1, 1–2 (2022).

2. Eun-Hee Kim & Thomas P. Lyon, *Greenwash vs. Brownwash: Exaggeration and Undue Modesty in Corporate Sustainability Disclosure*, 26 ORG. SCI. 705, 705–06 (2015); Christopher Marquis, Michael W. Toffel & Yanhua Zhou, *Scrutiny, Norms, and Selective Disclosure: A Global Study of Greenwashing*, 27 ORG. SCI. 483, 484 (2016).

3. Yu-Shan Chen & Ching-Hsun Chang, *Enhance Green Purchase Intentions: The Roles of Green Perceived Value, Green Perceived Risk, and Green Trust*, 50 MGMT. DECISION 502, 504–05 (2012).

4. *See generally* Jesse M. Fried & Charles C.Y. Wang, *Short-Termism and Capital Flows*, 8 REV. CORP. FIN. STUDS. 207 (2019) (Showing that, after accounting for both direct and indirect stock issuances, net shareholder distributions by all public companies over this time amounted to just 41% of net profits. And, throughout this decade, investment expanded significantly as cash stockpiles skyrocketed. Overall, S&P 500 shareholder payment numbers do not give much support for the claim that short-termism has been depriving public corporations of critical capital). *See also* Lital Helman, *Pay For (Privacy) Performance: Holding Social Network Executives Accountable for Breaches in Data Privacy Protection*, 84 BROOK. L. REV. 523, 546 (2019) (explaining how for corporate officers, short- term gains overshadow long-term benefits for both the company and society at large in the context of social media privacy).

known crucial sectors: the oil and gas,[5] fashion,[6] agribusiness,[7] electronics,[8] and mining industries.[9]

The Oil and Gas Industry: Several large oil and gas companies have faced criticism for underinvesting in sustainable practices despite being significant contributors to greenhouse gas emissions.[10] These companies have been accused of insufficiently investing in renewable energy sources, not allocating adequate funds for research and development of clean technologies, and downplaying the environmental impacts of their operations.

5. Alicia Ramírez-Orellana, MCarmen Martínez-Victoria, Antonio García-Amate & Alfonso A. Rojo-Ramírez, *Is the Corporate Financial Strategy in the Oil and Gas Sector Affected by ESG Dimensions?*, 81 RES. POL'Y 1, 2 (2023); Mohammad Hassan Shakil, *Environmental, Social and Governance Performance and Financial Risk: Moderating Role of ESG Controversies and Board Gender Diversity*, 72 RES. POL'Y 1, 1–2 (2021).

6. Anika Kozlowski, Michal Bardecki & Cory Searcy, *Environmental Impacts in the Fashion Industry: A Life-Cycle and Stakeholder Framework*, 45 J. CORP. CITIZENSHIP 17, 18–19 (2012); Rudrajeet Pal & Jonathan Gander, *Modelling Environmental Value: An Examination of Sustainable Business Models Within the Fashion Industry*, 184 J. CLEANER PROD. 251, 252 (2018).

7. Henrike Luhmann & Ludwig Theuvsen, *Corporate Social Responsibility in Agribusiness: Literature Review and Future Research Directions*, 29 J. AGRIC. & ENV'T ETHICS 673, 673–674 (2016); Robert Hinson, Robert Lensink & Annika Mueller, *Transforming Agribusiness in Developing Countries: SDGs and the Role of FinTech*, 41 CURRENT OP. ENV'T SUSTAINABILITY 1, 2 (2019); Morelle Maykon Monteiro Mello, Wesley Ricardo de Souza Freitas, Adriano Alves Teixeira, Jorge Henrique Caldeira-Oliveira & Luis Gustavo Freitas-Silva, *Corporate Social Responsibility in Agribusiness: Evidence in Latin America*, 11 J. AGRIBUSINESS DEVELOPING & EMERGING ECONS. 538, 538–539 (2021); Henrike Luhmann & Ludwig Theuvsen, *Corporate Social Responsibility: Exploring a Framework for the Agribusiness Sector*, 30 J. AGRIC. & ENV'T ETHICS 241, 242 (2017).

8. C. Boks & A. Stevels, *Essential Perspectives for Design for Environment: Experiences from the Electronics Industry*, 45 INT'L J. PROD. RSCH. 4021, 4025–26 (2007); *The Growing Environmental Risks of E-Waste*, GENEVA ENV'T NETWORK (last updated Mar. 25, 2024), https://www.genevaenvironmentnetwork.org/resources/updates/the-growing-environmental-risks-of-e-waste; Zhaohua Wang, Bin Zhang & Dabo Guan, *Take Responsibility for Electronic-Waste Disposal*, 536 NATURE 23, 23–25 (2016).

9. *Mining and Green Growth in the EECCA Region*, OECD (2019), https://www.oecd.org/greengrowth/mining-and-green-growth-in-the-eecca-region-1926a45a-en.htm.

10. *Underinvestment Risks Global Energy Security at ADIPEC*, BLOOMBERG (2022), https://www.bloomberg.com/professional/blog/underinvestment-risks-global-energy-security-at-adipec.

The Fashion Industry: The fast fashion sector[11] has come under scrutiny for underinvesting in sustainability initiatives.[12] Many fashion brands have been accused of prioritizing low-cost production over environmental considerations.[13] Limited investment in sustainable materials, inefficient waste management practices, and insufficient efforts to address the industry's high carbon footprint have been identified as areas of concern.[14]

Agribusiness: Some agribusiness corporations have faced criticism for underinvesting in sustainable agricultural practices and neglecting environmental impacts.[15] This includes insufficient measures to reduce water usage, improper management of chemical inputs, and limited efforts to address deforestation associated with commodity production like palm oil and soybeans.[16]

The Electronics Industry: Certain electronics manufacturers have been accused of underinvesting in the responsible disposal and recycling of electronic waste.[17] The rapid pace of technological advancements leads to a significant amount of e-waste, and companies that fail to prioritize proper recycling infrastructure or invest in sustainable product design contribute to environmental harm.[18]

The Mining Industry: Mining companies have been under scrutiny for inadequate investments in environmental protection and remediation.[19] Concerns have been raised regarding the insufficient measures taken to mitigate habitat destruction, water

11. Fast fashion is a business model within the fashion industry that places emphasis on the rapid production and delivery of fashionable and affordable garments in order to satisfy consumers' demands that evolve at an accelerated rate. *See generally The State of Fashion 2017*, BUS. OF FASHION & MCKINSEY & COMPANY (2016), https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/The%20state%20of%20fashion/The-state-of-fashion-2017-McK-BoF-report.pdf.

12. Pal & Gander, *supra* note 6, at 252.

13. Kozlowski et al., *supra* note 6, at 18.

14. Pal & Gander, *supra* note 6, at 252.

15. *Impact Investing in Agriculture: Alleviating Poverty and Driving Sustainable Change*, MENNONITE ECON. DEV. ASSOCS. (Jun. 26, 2023), https://www.meda.org/news/blog/impact-investing-in-agriculture-alleviating-poverty-and-driving-sustainable-change.

16. Mello et al., *supra* note 7, at 540.

17. Wang et al., *supra* note 8, at 24.

18. *The Growing Environmental Risks of E-Waste*, *supra* note 8.

19. Sammy Witchalls, *The Environmental Problems Caused by Mining*, EARTH.ORG (Apr. 3, 2022), https://earth.org/environmental-problems-caused-by-mining.

pollution, and the long-term impacts on ecosystems caused by mining operations.[20]

While these examples highlight instances of underinvestment in environmentally friendly practices, other corporations outside these industries are also characterized by underinvestment in environmental and sustainability protections. Therefore, the problem is even more pervasive than it might seem.

In this Article we first define the *eco-agency problem,* which denotes the conflict of interest between the corporate officers who focus on short-term profitability and the other stakeholders who seek long-term profitability and sustainability. While some corporate leaders have embraced sustainability as a strategic imperative, a significant number still fall short in adequately allocating resources toward sustainable practices and contribute to the phenomenon of greenwashing.[21] This Article delves into the detrimental effects that arise from corporate officers consistently underinvesting in sustainability by shedding light on its root causes and consequences, as well as the urgent need for a paradigm shift.

With the stakes higher than ever, it is imperative to examine the factors contributing to this persistent underinvestment. The pressure to deliver short-term financial results, limited awareness of long-term environmental risks, and the absence of binding regulations are just a few reasons why sustainability initiatives often take a backseat.[22]

From a financial perspective, underinvestment in sustainability can lead to missed opportunities for cost savings, increased operational inefficiencies, and vulnerability to changing market dynamics.[23] Moreover, failing to address sustainability concerns

20. *Mining and Green Growth in the EECCA Region*, *supra* note 9.

21. *See generally* Sebastião Vieira de Freitas Netto, Marcos Felipe Falcão Sobral, Ana Regina Bezerra Ribeiro & Gleibson Robert da Luz Soares, *Concepts and Forms of Greenwashing: A Systematic Review*, 32 ENV'T SCI. EUR. 1 (2020) (Exploring the phenomena of greenwashing throughout the last decade via a thorough literature assessment to identify its core themes and typologies).

22. Keith Ambachtsheer, *The Case for Long-Termism*, 7 ROTMAN INT'L J. PENSION MGMT. 6, 6–9 (2014); Dominic Barton & Mark Wiseman, *Investing for the Long Term*, 1 MCKINSEY ON INVESTING 61 (2014); Michael J. Mauboussin & Dan Callahan, *A Long Look at Short-Termism: Questioning the Premise*, 27 J. APPLIED CORP. FIN. 70, 78–81 (2015).

23. Godfred Adjapong Afrifa, Ishmael Tingbani, Fred Yamoah & Gloria Appiah, *Innovation Input, Governance and Climate Change: Evidence from Emerging Countries*, 161 TECH.

can result in reputational damage, erosion of customer trust, and strained relationships with stakeholders, all of which can have far-reaching implications for a company's long-term viability.

To effect meaningful change, it is crucial to explore potential remedies to this pervasive underinvestment. Encouraging a shift in corporate culture, fostering transparency and accountability, and integrating sustainability into core business strategies are essential steps toward reversing the current trend. To this end, this Article focuses on investors' preferences for more sustainable investment and seeks to align investors' interests with those of society.

In our controlled lab experiment, both professional and nonprofessional investors were required to choose between sustainable investments and unsustainable investments that entailed the same risk levels and returns. Identifying the investors' preferences for sustainability can inspire corporate officers to embrace their role as sustainability advocates, driving positive change both within their organizations and across industries.

As the world grapples with urgent environmental challenges, the time has come for corporate officers to assume a transformative role in shaping a sustainable future. By recognizing the hidden costs of underinvestment in sustainability and taking decisive action, these leaders can not only safeguard their businesses but also contribute to a more sustainable and resilient global economy.

Our findings indicate a strong and significant preference in both groups—professional and nonprofessional investors—for sustainable investment. Based on these findings, we argue that to implement this preference in the capital market pricing mechanism, a unique environmental disclosure is needed. This Article analyzes the promises and perils of such disclosure, discusses the challenges raised by a voluntary disclosure mechanism, and offers appropriate ways to avoid greenwashing.

FORECASTING & SOC. CHANGE 1 (2020); Syed Ahtsham Ali, Majed Alharthi, Hafezali Iqbal Hussain, Farhat Rasul, Imran Hanif, Jahanzaib Haider, Saad Ullah, Saeed ur Rahman & Qaiser Abbas, *A Clean Technological Innovation and Eco-Efficiency Enhancement: A Multi-Index Assessment of Sustainable Economic and Environmental Management*, 166 TECH. FORECASTING & SOC. CHANGE, 1 (2021); Muhammad Shahbaz, Muhammad Ali Nasir, Erik Hille & Mantu Kumar Mahalik, *UK's Net-Zero Carbon Emissions Target: Investigating the Potential Role of Economic Growth, Financial Development, and R&D Expenditures Based on Historical Data (1870–2017)*, 161 TECH. FORECASTING & SOC. CHANGE 1 (2020).

The rest of the Article continues as follows: Part I discusses the evolution of the debate over the purpose of the corporation and the growing discussion over ESG investments. Part II first defines the *eco-agency problem*, namely that corporate officers underinvest in sustainability, preferring short-term profits over long-term revenues. It then delves into the well-known phenomenon of greenwashing and particular coping mechanisms that corporations have implemented, such as green bonds, CoCo bonds, and ESG compensation metrics.

Part III focuses on the lab experiment we performed to test investor preferences with regard to sustainable investment. In this part, we describe our data set, the methodology chosen, and the differences between the two groups of subjects (professional and nonprofessional investors). We then present a statistical analysis of the results. In Part IV, we discuss the most viable solution for the *eco-agency problem* in light of our findings—a unique mechanism for disclosing environmental impact, taking into account the inherent promises and perils, as well as the current legal status. Finally, we present the implications and contributions of the study.

I. THE PURPOSE OF THE CORPORATION AND ESG INVESTMENTS

For whom does the company work? Whose interests should the company prioritize? Is it appropriate for the organization to prioritize solely economic interests? Should the corporation also advocate social and environmental causes? These questions may be regarded as philosophical and theoretical in nature, yet they have significant implications for the organization's routine operations. Once it has been determined in whose favor the company should act and the interests it should prioritize, the activity of the company's organs can be established.

Consider a hypothetical scenario wherein a corporation can mitigate the environmental impact of its manufacturing process by implementing a cutting-edge mechanism to reduce pollution. From one perspective, this investment category confers advantages upon the broader community, while from another perspective, it may exact a substantial toll upon the organization due to the exorbitant expense of integrating cutting-edge environmental infrastructure.

The controversy between these two schools of thought is ongoing. The shareholder primacy perspective posits that, when it comes to making business decisions, management executives'

primary and predominant responsibility is toward shareholders.[24] The alternative viewpoint posits that prioritizing shareholders above all else is myopic and that corporations have a responsibility to society.[25]

The discussion surrounding the purpose of the corporation has a long history. In the 1930s, there was a significant debate between Adolf Berle and E. Merrick Dodd over the purpose of a corporation. Berle contended that corporations ought to promote the monetary interests of shareholders, whereas Dodd advocated for the consideration of public interest, given that corporations were social establishments.[26] This debate, commonly known as the Berle-Dodd debate, engendered a prolific dialogue that persisted throughout the century and continues today.

The trend toward a pro-social corporate orientation was impeded to a great extent by the followers of Berle, including Milton Friedman, a Nobel Prize winner, who is renowned for his clear assertion that "there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits".[27] Thus, Friedman believed that companies

24. André O. Laplume, Karan Sonpar & Reginald A. Litz, *Stakeholder Theory: Reviewing a Theory That Moves Us*, 34 J. MGMT. 1152, 1153 (2008).

25. On the debate about the purpose of the corporation and the different perspectives, see generally Casius Chuma & Abubaker Qutieshat, *Where Does the Value of A Corporation Lie? A Literature Review*, 14 ECONOMIA AZIENDALE ONLINE 15 (2023); H. Jeff Smith, *The Shareholders vs. Stakeholders Debate*, MIT SLOAN MGMT. REV. Summer 2003, at 85; Jeffrey S. Harrison, Robert A. Phillips & R. Edward Freeman, *On the 2019 Business Roundtable "Statement on the Purpose of a Corporation"*, 46 J. MGMT. 1223 (2020); Amir N. Licht, *Varieties of Shareholderism: Three Views of the Corporate Purpose Cathedral* (Eur. Corp. Governance Inst., Working Paper No. 547, 2020); Beate Sjåfjell & Jukka Mähönen, *Corporate Purpose and the Misleading Shareholder vs Stakeholder Dichotomy*, UNIV. OSLO FAC. L. LEGAL STUDS. RSCH. PAPER SERIES 43 (2022); Paul L. Davies, *Shareholder Voice and Corporate Purpose: The Purposeless of Mandatory Corporate Purpose Statements*, (Eur. Corp. Governance Inst., Working Paper No. 666, 2022), https://ssrn.com/abstract=4285770; Lance Ang, *The Start of History for Corporate Law: Shifting Paradigms of Corporate Purpose in the Common Law*, 38 WIS. INT'L L. J. 427 (2021); David J. Berger, *Reconsidering Stockholder Primacy in an Era of Corporate Purpose*, 74 BUS. LAW. 659 (2019).

26. *See* Adolf A. Berle, Jr., *Corporate Powers as Powers in Trust*, 44 HARV. L. REV. 1049 (1931); Adolf A. Berle, Jr., *For Whom Corporate Managers Are Trustees: A Note*, 45 HARV. L. REV. 1365 (1932); E. Merrick Dodd, Jr., *For Whom Are Corporate Managers Trustees?*, 45 HARV. L. REV. 1145 (1932).

27. Milton Friedman, *The Social Responsibility of Business is to Increase Its Profits*, N.Y. TIMES, Sept. 13, 1970, at 32.

should obey the law, but other than that, they need only to make money for shareholders.[28]

Beginning in 1919, the judiciary was summoned to comment on this matter. In the landmark ruling of *Dodge v. Ford Motor Co*., the Michigan Supreme Court famously declared that the primary objective of a business corporation, in this case Mr. Ford's, was to generate profits for its shareholders, not improve working conditions for employees or reduce car prices for consumers.[29] According to the decision:

> A business corporation is organized and carried on primarily for the profit of the stockholders. The powers of the directors are to be employed for that end. The discretion of directors is to be exercised in the choice of means to attain that end, and does not extend to a change in the end itself, to the reduction of profits or to the non-distribution of profits among stockholders in order to devote them to other purposes.[30]

The legal framework in the United States, particularly in Delaware, upholds a steadfast dedication to maximizing shareholder wealth. Corporate directors are generally limited in their ability to consider the interests of other parties unless such consideration can be rationalized as advantageous to the shareholders.[31] However, in contemporary law-and-management scholarship, there has been a resurgence of interest in Dodd's ideas from several decades ago, calling into question the fiduciary duty of a firm.[32]

28. *Id.*

29. *Dodge v. Ford Motor Co*., 170 N.W. 668, 683 (Mich. 1919).

30. *Id.* at 684.

31. *See* Joan MacLeod Heminway, *Shareholder Wealth Maximization as a Function of Statutes, Decisional Law, and Organic Documents*, 74 WASH. & LEE L. REV. 939, 942–50 (2017); Leo E. Strine, Jr., *The Dangers of Denial: The Need for a Clear-Eyed Understanding of the Power and Accountability Structure Established by the Delaware General Corporation Law*, 50 WAKE FOREST L. REV. 761, 771 (2015).

32. *See generally* LYNN STOUT, THE SHAREHOLDER VALUE MYTH: HOW PUTTING SHAREHOLDERS FIRST HARMS INVESTORS, CORPORATIONS, AND THE PUBLIC (2012) (Claiming that, since shareholders are prosocial, managers should seek a larger goal than profit maximization); COLIN MAYER, PROSPERITY: BETTER BUSINESS MAKES THE GREATER GOOD (2018) (Arguing that not always accomplishing the corporation's goal entails maximizing profit opportunities); ALEX EDMANS, GROW THE PIE: HOW GREAT COMPANIES DELIVER BOTH PURPOSE AND PROFIT (2020) (Defining the pie-growing attitude, which holds that

In August 2019, the Business Roundtable issued the Statement on the Purpose of a Corporation.[33] The group of senior executives had maintained the belief for over twenty years that the primary obligation of managers and directors of companies was to serve shareholders. However, the updated statement now includes additional corporate commitments to customers, employees, and suppliers, as well as a commitment to supporting communities. In other words, this amounts to a fundamental commitment to all stakeholders.[34] The executives were reacting to an increasing demand that companies uphold ethical and sustainable practices while conducting business operations. These include but are not limited to reducing carbon emissions, maintaining clean waterways, and ensuring the well-being of employees.[35]

Similarly, the World Economic Forum has released a manifesto advocating that companies relinquish their focus on shareholder primacy and instead embrace a paradigm that

shareholders and society are not in conflict. Companies enlarge the pie by having a purpose, which is motivated by the desire to produce value for society. This increases shareholder and stakeholder value. It explores how businesses may put their mission into action, as well as how individuals can contribute); Leo E. Strine, Jr., *Restoration: The Role Stakeholder Governance Must Play in Recreating a Fair and Sustainable American Economy*, 76 BUS. LAW. 397 (2021) (Suggesting that the most promising corporate governance reform approaches call for a restoration rather than a revolution. They expand on classic corporation law procedures, restoring the stakeholder balance that typified governance during the peak of the U.S. economy).

33. *Business Roundtable Redefines the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'*, BUSINESS ROUNDTABLE (Aug. 19, 2019), https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans.

34. *Id.*; For research investigating the response of the stock market to this new statement on the purpose of a corporation, see also Mina Glambosky, Surendranath Rakesh Jory & Thanh Ngo, *Stock Market Response to the Statement on the Purpose of a Corporation: A Vindication of Stakeholder Theory*, CORP. GOVERNANCE: INT'L REV. (2023) (containing findings indicating that Investors respond favorably to a firm's promise in the days after the statement release, as evidenced by a study of 163 publicly listed firms that signed the pledge).

35. The recent change in corporate behavior is strongly linked to an increasing inclination among many to invest sustainably. *See, e.g.*, *Sustainability Goes Mainstream: 2020 Global Sustainable Investing Survey*, BLACKROCK (2020), https://img.lalr.co/cms/2021/05/28202727/blackrock-sustainability-survey.pdf; *European SRI Study 2018*, EUROSIF (2018), https://www.eurosif.org/wp-content/uploads/2021/10/European-SRI-2018-Study.pdf.

prioritizes the involvement of all stakeholders in creating shared and enduring value.[36]

The American Law Institute (ALI) is presently developing a Restatement of the Law of Corporate Governance in alignment with this mindset.[37] During the annual meeting of the ALI in May 2022, the members approved several items, including § 2.01, which outlines the social purpose of the corporation.[38] Section 2.01 distinguishes between common law jurisdictions and stakeholder jurisdictions, as identified by the drafters. According to the drafters, in jurisdictions that follow common law, the primary aim of a corporation is to increase its economic value while staying within legal limits, ultimately benefiting the shareholders of the corporation. Accordingly, a corporation is permitted to consider the consequences of its actions on different stakeholders, as long as such actions result in advantages for shareholders. But, in stakeholder jurisdictions, the primary aim of a corporation is to increase its economic value to benefit the shareholders of the corporation and, where permissible under state law, to benefit other stakeholders such as employees, suppliers, customers, and communities. In addition, according to the new section, in both sets of jurisdictions, the corporation has the ability to allocate a reasonable quantity of resources toward public-welfare, humanitarian, educational, and philanthropic objectives, regardless of whether such actions contribute to the economic worth of the corporation.[39]

The concept of *responsible investing* is gaining momentum worldwide. In light of the evolving global landscape, investment

36. Klaus Schwab, *Davos Manifesto 2020: The Universal Purpose of a Company in the Fourth Industrial Revolution*, WORLD ECON. F. (Dec. 2, 2019), https://www.weforum.org/agenda/2019/12/davos-manifesto-2020-the-universal-purpose-of-a-company-in-the-fourth-industrial-revolution.

37. *Restatement of the Law, Corporate Governance*, AM. L. INST. (2023), https://www.ali.org/projects/show/corporate-governance.

38. *Id.*

39. *See* Stephen M. Bainbridge, *A Critique of the American Law Institute's Draft Restatement of the Corporate Objective* (UCLA School of Law, Law & Econ. Rsch. Paper No. 22–07, 2022) (evaluating § 2.01 and arguing that § 2.01 is fundamentally faulty. The business purpose is meaningless, theoretically and practically. Corporations are legal fictions reflecting explicit and implicit commitments. Thus, it is recommended that the guidelines outlined in § 2.01 be integrated into the Restatement's regulations concerning the fiduciary responsibilities of directors and managers.).

practices are transforming to ensure financial, social, and environmental sustainability in various ways. Sustainable investment as an investment procedure has the potential to impact sustainable development by aligning financial considerations with long-term environmental, social, and governance (ESG) criteria.[40]

The surge in interest in ESG investing can be attributed, at least in part, to investors' desire to augment long-term value and contribute to environmental resilience. To achieve this objective, rating providers and investment funds generate environmental (E) pillar scores and indices that aim to incorporate metrics for environmental performance, mitigation of climate risk, and use of approaches to renewable energy.[41]

If we revisit the preceding discourse concerning the corporation's purpose, prioritizing shareholder interests appears

40. *See generally* Timo Busch, Rob Bauer & Marc Orlitzky, *Sustainable Development and Financial Markets: Old Paths and New Avenues*, 55 BUS. & SOC'Y 303 (2016) (Examining the role of financial markets in sustainable development); Eduardo Ortas, Roger L. Burritt & José M. Moneva, *Socially Responsible Investment and Cleaner Production in the Asia Pacific: Does it Pay to be Good?*, 52 J. CLEANER PROD. 272 (2013) (The purpose of the research was to give managers, practitioners, researchers, institutions, and investors useful information regarding the effects of incorporating environmental, social, and governance problems for cleaner production into Asia Pacific investment plans.). *See also OECD Business and Finance Outlook 2020: Sustainable and Resilient Finance*, OECD 17–38 (2020), https://doi-org.ezprimo1.runi.ac.il/10.1787/eb61fd29-en.

41. In recent decades, there has been a proliferation of rating agencies that have devised various metrics to evaluate the ESG performance of corporations. These indices are extensively utilized in academic literature. The primary obstacle associated with these indices pertains to the lack of uniformity in the ratings, which is contingent upon the predilections of the diverse rating agencies, the rating methodologies employed, and the relative significance of the constituent factors that contribute to the rating. For further information regarding rating agencies and indices, and further insights into this challenge and other challenges pertaining to ESG measurement, see Hao Liang & Luc Renneboog, *Corporate Social Responsibility and Sustainable Finance: A Review of the Literature* 9–10 (ECGI, Finance Working Paper 701, 2020). *See also OECD Business and Finance Outlook 2020: Sustainable and Resilient Finance*, *supra* note 40, at 41–63 (evaluating the criteria and measurement landscape in the context of ESG investing's pillar, with the aim of determining its adequacy in its current state); Jan De Spiegeleer & Wim Schoutens, *Sustainable Capital Instruments and Their Role in Prudential Policy: Reverse Green Bonds* 5–6 (July 14, 2019) (unpublished manuscript) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3415184); Florian Berg, Julian F. Kölbel & Roberto Rigobon, *Aggregate Confusion: The Divergence of ESG Ratings*, 26 REV. FIN. 1315 (2022) (investigating the potential divergence of ESG ratings. The authors conduct an analysis of data sourced from six prominent ESG rating agencies: Kinder, Lydenberg, and Domini (KLD), Moody's ESG (Vigeo-Eiris), MSCI, S&P Global (RobecoSAM), Sustainalytics, and Refinitiv (Asset4). Their findings indicate that ESG ratings exhibit a tendency to diverge and display poor correlation).

to present a significant obstacle to achieving sustainability goals. The prioritization of maximizing returns to shareholders often results in adverse environmental and social effects of corporate operations. This approach tends to relegate social and environmental impacts to the periphery of corporate consideration rather than as the primary constraints on corporate activity. However, ESG factors encompass a range of issues that fall outside the purview of traditional financial analysis yet may possess financial significance.

Thus, a substantial body of literature adopts an investor's standpoint and endeavors to comprehend the impact of ESG on financial performance.[42] The ongoing ideological discourse surrounding the primary obligation of corporate executives, whether it is to shareholders or society, has led to a significant emphasis on ESG research, whose purpose is to mitigate this conflict and definitively demonstrate that ESG has a positive impact on financial performance.[43]

The relationship between ESG and Corporate Financial Performance (CFP) is an empirical question that numerous studies across various fields have endeavored to answer. Indeed, Friede et al. reported that more than 2,000 empirical academic studies have been published in various fields, including management, accounting, finance, and economics. Researchers performed a meta-analysis of the aforementioned literature, concluding that approximately 90% of the studies indicate a nonnegative relation between ESG and CFP, and more importantly, the vast majority of research studies indicate affirmative results.[44]

42. *See* Gunnar Friede, Timo Busch & Alexander Bassen, *ESG and Financial Performance: Aggregated Evidence from more than 2000 Empirical Studies*, 5 J. SUSTAINABLE FIN. & INV. 210 (2015); Ulrich Atz, Tracy Van Holt, Zongyuan Zoe Liu & Christopher C. Bruno, *Does Sustainability Generate Better Financial Performance? Review, Meta-analysis, and Propositions*, 13 J. SUSTAINABLE FIN. & INV. 802 (2023).

43. *See* Friede et al., *supra* note 42; Tensie Whelan, Ulrich Atz, Tracy Van Holt & Casey Clark, *ESG and Financial Performance*: *Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published Between 2015–2020*, NYU STERN CTR. FOR SUSTAINABLE BUS. (2021); Sang Kim & Zhichuan (Frank) Li, *Understanding the Impact of ESG Practices in Corporate Finance*, 13 SUSTAINABILITY 3746 (2021); Aslı Aybars, Levent Ataünal & Ali Osman Gürbüz, *ESG and Financial Performance: Impact of Environmental, Social and Governance Issues on Corporate Performance*, HANDBOOK OF RESEARCH ON MANAGERIAL THINKING IN GLOBAL BUSINESS ECONOMICS 520 (2019); Danny Z. X. Huang, *Environmental, Social and Governance (ESG) Activity and Firm Performance: A Review and Consolidation*, 61 ACCT. & FIN. 335 (2021).

44. Friede et al., *supra* note 42.

Additionally, research has been conducted on the deliberate incorporation of ESG information in the banking sector. The study conducted by Amiram et al.,[45] examines the influence of the Equator Principles, a framework for managing environmental and social risks, which has been adopted by several major US banks, on the terms and conditions of loan contracts for their borrowers. The findings of the study indicate a notable rise in the inclusion of environmental protection provisions in loan contracts. Additionally, there is evidence of a decrease in loan spreads, especially among borrowers associated with early adopters of the Equator Principles and those who transition to banks that have embraced this framework.

There is a growing consensus among scholars and environmental advocates that sustainability and profitability can coexist without conflict.[46] An increasing growing body of evidence indicates that engaging in corporate social responsibility, particularly in responsible environmental management, can lead to financial advantages.[47]

For example, Al-Najjar and Anfimiadou revealed that companies in the United Kingdom that adopted environmentally sustainable practices experienced greater market valuation than those that did not.[48] Similarly, according to Gibson and Krueger, investors with greater ESG portfolio footprints, especially with regard to environmental criteria, exhibit superior risk-adjusted returns over extended investment timeframes.[49] Likewise, Boiral et

45. Dan Amiram, Ilanit Gavious, Chao Jin & Xinlei Li, *The Economic Consequences of Firms' Commitment to ESG Policies* (HKUST Bus. Sch., Rsch. Paper No. 2021–29, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3838462.

46. *See* Dominic Barton & Mark Wiseman, *Focusing Capital on the Long Term*, 92 HARV. BUS. REV. 44 (2014); Dominic Barton, *Capitalism for the Long Term*, 89 HARV. BUS. REV. 84 (2011); John R. Bryson & Rachel Lombardi, *Balancing Product and Process Sustainability Against Business Profitability: Sustainability as a Competitive Strategy in the Property Development Process*, 18 BUS. STRATEGY AND ENV'T 97 (2009); Jennifer Martínez-Ferrero & José Valeriano Frías-Aceituno, *Relationship Between Sustainable Development and Financial Performance: International Empirical Research*, 24 BUS. STRATEGY AND ENV'T 20 (2015).

47. *See* Basil Al-Najjar & Aspioni Anfimiadou, *Environmental Policies and Firm Value*, 21 BUS. STRATEGY AND ENV'T 49 (2012); Rajna Gibson Brandon & Philipp Krüger, *The Sustainability Footprint of Institutional Investors* (Swiss Fin. Inst., Rsch. Paper No. 17–05, 2018); Olivier Boiral, Jean-François Henri & David Talbot, *Modeling the Impacts of Corporate Commitment on Climate Change*, 21 BUS. STRATEGY AND ENV'T 495 (2012).

48. Al-Najjar et al., *supra* note 47.

49. Brandon et al., *supra* note 47.

al. discovered that Canadian companies dedicated to mitigating greenhouse gas emissions exhibited superior financial performance compared to those that are not.[50]

Within the scope of this Article, we aim to contribute to the existing body of literature on the environmental aspect by demonstrating that both professional and nonprofessional investors prefer sustainable investment alternatives and that, when making financial decisions, they consider the potential impacts on the environment. As a result, prioritizing the interests of shareholders does not necessarily impede the achievement of sustainability objectives, since investors see sustainable investment as having added value.

Hence, our assumption is that an environmental investment yields a positive net present value. Although there are significant initial expenses involved with environmental investments, the anticipated future benefits and value creation for the company are expected to surpass the initial expenditure, making the environmental investment profitable for the corporation.[51]

Before delving into our experimental methods, it is imperative to address an additional obstacle that could hamper the corporation's implementation of an environmental strategy—the *agency problem* and, more specifically, the *eco-agency problem*, which is the environmental variation of the traditional agency problem, both of which are detailed in the following section.

II. THE ECO-AGENCY PROBLEM

Given the general consensus that there is no inherent conflict between the maximization of shareholder value and sustainable investment, one may wonder why there is a persistent lack of

50. Boiral et al., *supra* note 47.

51. *See* Sharon Hannes, Adi Libson & Gideon Parchomovsky, *The ESG Gap* (U of Penn Inst. for Law & Econ., Research Paper No. 23-22, 2022), https://ssrn.com/abstract=4293914, where the researchers also see a positive value in environmental investments and highlight the significant increase in pressure on businesses to advance ESG values. However, despite this, they contend that these preferences do not invariably manifest into effective organizational actions due to the structural issues expounded upon in the article. For an opposing approach, see Zohar Goshen & Assaf Hamdani, *Will Systematic Stewardship Save the Planet?* (Eur. Corp. Governance Inst., Law Working Paper No. 739/2023, 2023), https://ssrn.com/abstract=4605549 (arguing that the ESG concept spans a diverse range of challenges, which always involve trade-offs; hence, environmental investment does provide significant societal benefit, but for the firm itself, it is only an expenditure).

investment in environmental initiatives. One of the primary factors contributing to this phenomenon is what is known as the *agency problem*.

A. Background

The delegation of control to a selected group of directors and managers to operate the company on behalf of all shareholders carries the potential hazard that these directors and managers may prioritize their interests over those of the entire corporation. This issue was first recognized by Adam Smith in 1776, who noted that:

> [T]he directors of such companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own.[52]

This delegation of control is due to the decision-making structure of modern corporations, which is characterized by the separation between ownership and management. Already a century ago, Louis D. Brandeis, a Supreme Court Justice in the United States, observed the occurrence of a division between property ownership and management, leading to the emergence of a new cohort of managers who operate the property of others.[53]

Two decades later, Berle and Means analyzed the trend of separation between ownership and management and argued that this gap results in managers prioritizing their interests instead of maximizing the return to shareholders.[54]

The agency problem has increased in importance since the start of the twentieth century alongside the growing influence of managers due to the segregation of ownership and control. This has granted managers the liberty to pursue their individual interests, giving rise to agency theory, developed by Jensen and Meckling, among other scholars, during the 1970s.[55] This theory was utilized to analyze and address corporate governance issues.

52. ADAM SMITH, THE WEALTH OF NATIONS 700 (Cannan Edition, 1937).

53. LOUIS D. BRANDEIS, OTHER PEOPLE'S MONEY AND HOW THE BANKERS USE IT (1914).

54. ADOLF A. BERLE, JR. & GARDINER C. MEANS, THE MODERN CORPORATION AND PRIVATE PROPERTY (Macmillan 1933 ed., 1933).

55. Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

Based on the longstanding premise that human behavior is driven by self-interest, which serves as the foundation for individualism and classical and neoclassical economics, proponents of agency theory contend that the issue of agency can arise in any collaborative endeavor that involves principal-agent associations.[56]

The theoretical framework of agency posits that the principal's wealth will not be maximized, owing to the divergent objectives, information asymmetry, and disparate risk preferences between the principal and agent.[57]

Hence, as the number of shareholders grows, their ability to effectively monitor the management of the corporation decreases. The shareholders have the ability to determine the identity of the people who will manage the company's property and investments, but the practical implementation of investment decisions remains under the purview of the appointed managers.[58] Therefore, in fact, the managers are the ones who actually control the management of the corporation.

This separation between ownership and management creates the fear that the managers who make decisions regarding the shareholders' property will prioritize their interests over the interests of the shareholders. The tension between the interests of the shareholders and the interests of the managers in the company's decision-making constitutes one of the significant challenges in corporate law.

B. The Distinctiveness of the Environmental Facet

A potential source of conflict between shareholders and managers pertains to the divergence between short-term and long-

56. The agency problem is not exclusive to the realm of corporate law; however, it is particularly pronounced within this framework due to the separation between the ownership and control of the company. *See id.* at 309.

57. Kathleen M. Eisenhardt, *Agency Theory: An Assessment and Review*, 14 ACAD. MGMT. REV. 57, 58–65 (1989). The management of problems that arise entails a particular type of management cost known as "agency cost". This pertains to the efforts of principals to ensure that agents act in accordance with the interests of the principals. *See* Jensen et al., *supra* note 55, at 308–09.

58. It is noteworthy that the allocation of roles between shareholders and managers confers considerable benefits, as it ensures that each party operates within their designated area of expertise, and that the corporation will operate efficiently. *See* Eugene F. Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288 (1980).

term interests.[59] That is, while managers often make their decisions through the pursuit of short-term profit, this does not always coincide with the long-term interests of the shareholders.[60]

The magnitude of this conflict of interest is most pronounced in environmental investments and managerial decision-making relating to matters concerning the environment. Environmental investments are distinguished by the high initial costs in the short- and immediate-term and potential returns and outcomes in the long term. On occasion, a company may be compelled to sacrifice short-term profits by discontinuing the production of a profitable yet detrimental product because of its adverse societal impact. The allocation of funds toward environmental expenditures and investments is directed toward initiatives that yield favorable environmental outcomes. These initiatives encompass a broad spectrum of activities, including but not limited to safeguarding the environment through the prevention, mitigation, and management of environmental hazards, as well as fostering innovation through research and development of eco-friendly products and services.[61]

So, in some instances, the shareholders' interest is to advance environmental investments to generate long-term profits by

59. *See* Keith Ambachtsheer, *The Case for Long-Termism*, 7 ROTMAN INT'L J. PENSION MGMT. 6, 6–9 (2014); Dominic Barton & Mark Wiseman, *Investing for the Long Term*, 1 MCKINSEY ON INVESTING 61 (2014); Michael J. Mauboussin & Dan Callahan, *A Long Look at Short-Termism: Questioning the Premise*, 27 J. APPLIED CORP. FIN. 70, 78–81 (2015).

60. Jesse M. Fried & Charles C.Y. Wang, *Short-Termism and Capital Flows*, 8 REV. CORP. FIN. STUDS. 207 (2019).

61. Investing in the environment and fostering innovation have emerged as viable means for effective environmental stewardship and the creation and utilization of novel prospects. *See* Godfred Adjapong Afrifa, Ishmael Tingbani, Fred Yamoah & Gloria Appiah, *Innovation Input, Governance and Climate Change: Evidence from Emerging Countries*, 161 TECH. FORECASTING & SOC. CHANGE (2020) (showing that the allocation of resources toward innovative technologies can aid in the alleviation and mitigation of the issues stemming from climate change); Syed Ahtsham Ali, Majed Alharthi, Hafezali Iqbal Hussain, Farhat Rasul, Imran Hanif, Jahanzaib Haider, Saad Ullah, Saeed ur Rahman & Qaiser Abbas, *A Clean Technological Innovation and Eco-Efficiency Enhancement: A Multi-Index Assessment of Sustainable Economic and Environmental Management*, 166 TECH. FORECASTING & SOC. CHANGE (2021) (demonstrating that investing in research and development of clean and renewable energy technologies has the potential to bolster economic growth and improve environmental conditions); Muhammad Shahbaz, Muhammad Ali Nasir, Erik Hille & Mantu Kumar Mahalik, *UK's Net-Zero Carbon Emissions Target: Investigating the Potential Role of Economic Growth, Financial Development, and R&D Expenditures Based on Historical Data (1870–2017)*, 161 TECH. FORECASTING & SOC. CHANGE (2020) (contending that environmental degradation is exacerbated by energy consumption and financial development, but can be mitigated by investments in research and development).

enhancing the company's efficiency and reducing the need for compensatory measures. However, the interests of the actual decision-makers differ from those of the shareholders. Corporate executives may prioritize short-term profits over long-term profitability because of their myopic incentive scheme.[62]

Therefore, when it comes to decisions concerning environmental policy and promoting an environmental strategy, the agency problem appears in all its glory. In fact, the significant gap between shareholders' long-term interests and executives' prioritization of short-term profits when making environmental decisions creates a unique agency problem that we call the *eco-agency problem*. The *eco-agency problem* is the tendency to focus on short-term profitability at the expense of the long-term growth and sustainability that would result from environmental investment.[63]

There may be several reasons why corporate executives and officers prioritize short-term profits over long-term profitability and sustainability. First, principals tend to prioritize short-term outcomes in order to effectively monitor the agents.[64] This common phenomenon can be attributed to the fact that the principal may rely on observable short-term performance to evaluate the effectiveness of a manager-agent's performance.[65] Positive outcomes are often perceived as validation that operations are

62. For a different approach that posits that environmental degradation is not a consequence of stock market short-termism, see Mark J. Roe & Roy Shapira, *The Power of the Narrative in Corporate Lawmaking*, 11 HARV. BUS. L. REV. 233 (2021) (The authors argue that consistently and erroneously, significant phenomena that do not predominantly originate from distorted corporate time horizons are erroneously attributed to corporate short-termism. For instance, environmental deterioration is typically blamed on stock market short-termism, although it really stems from corporations' capacity to offload expenses to third parties, not investors' time horizons. The authors explain that in an effort to conserve money, the company reduces the cost of its operations at the detriment of the environment, thus providing advantages to both immediate and long-term investors. The authors argue that who pays, rather than when they pay, constitutes the fundamental policy concern.).

63. It is worth mentioning in a framed article that the present-day society is prone to exhibiting a short-term bias, which cannot be attributed solely to agency issues. There exist potent short-term influences, including a constant and overwhelming influx of information and human tendencies such as loss aversion, availability and confirmation biases, anchoring, and herding behaviors. *See* Ambachtsheer, *supra* note 22, at 9; Danielle A.M. Melis & André Nijhof, *The Role of Institutional Investors in Enacting Stewardship by Corporate Boards*, 18 CORP. GOVERNANCE 728, 730–31 (2018).

64. Ambachtsheer, *supra* note 22, at 8.

65. Dominic Barton, Jonathan Bailey & Joshua Zoffer, *Rising to the Challenge of Short-Termism*, FOCUSING CAP. ON LONG RUN (FCLT), at 3–4 (2016).

proceeding as planned and the manager is proficient.[66] Unfavorable outcomes can generate skepticism and shift the burden of evidence onto proving the manager's actions are justified.[67]

If managers perceive that their performance is being assessed based on short-term outcomes, they will likely prioritize achieving favorable short-term outcomes. At the beginning of 2013, McKinsey and the Canada Pension Plan Investment Board (CPPIB) conducted a study to evaluate progress in the long-term management of companies.[68] The survey encompassed over 1,000 board members and C-suite executives worldwide.[69] Most respondents (63%) reported an increase in the pressure to produce short-term results.[70] Furthermore, a significant majority of 79% of participants indicated that the duration of performance assessment was two years or less.[71]

Second, the evaluation of managers is closely intertwined with the manner in which they are subsequently remunerated. The inclination to incentivize short-term achievements is frequently cited as a significant obstacle to long-term investment.[72] For instance, it is plausible that management would not pursue a corporate research-and-development initiative, although beneficial for the long-term interests of shareholders, out of concern for next year's earnings and, consequently, their remuneration.

Burgman and Van Clieaf reference a survey conducted by Equilar that revealed that a mere 7% of companies listed on the S&P 1500 utilized compensation plans that employed a four-year or longer timeframe as the foundation for determining long-term performance.[73] Likewise, Keith Ambachtsheer conducted a survey of thirty-seven prominent pension funds and discovered that eight

66. Ambachtsheer, *supra* note 22, at 8–9.

67. *Id.*

68. Barton & Wiseman, *supra* note 46.

69. *Id*.

70. *Id.*

71. *Id.*

72. Ambachtsheer, *supra* note 22, at 8.

73. Roland Burgman & Mark V. Clieaf, *Total Shareholder Return and Management Performance: A Performance Metric Appropriately Used, or Mostly Abused?*, 5 ROTMAN INT'L J. PENSION MGMT. 26, 32–33 (2012).

(a mere 22%) of them used performance-based compensation that was based on metrics spanning four years or more.[74]

Third, individual achievement holds significant sway, mainly since human beings ultimately determine all investment choices. The alignment and incentive to make long-term investments may be compromised when managers are in charge of managing their careers. A strong track record of recent performance can significantly enhance career opportunities, including the potential for promotion or recruitment by other firms. Thus, the adoption of a long-term goal by a manager may be hindered by concerns regarding the potential repercussions of short-term underperformance for their professional reputation, career prospects, and job security.

For instance, Graham, Harvey, and Rajgopal conducted a survey of 400 corporate executives and found that 78% of them would sacrifice long-term value to prioritize meeting short-term disclosure targets.[75]

Moreover, a recent study by Borsuk, Eugster, Klein & Kowalewski that focused on family businesses serves as further indication of the special agency problem with regards to the environment.[76] This study shows that family firms exhibit lower levels of carbon emissions, including both direct and indirect emissions, than non-family firms. This finding implies a greater dedication to environmental preservation by family proprietors. The researchers found that the findings can be partially attributed to variations in governance framework, cultural values pertaining to family, and increased investments in research and development.

Thus, that family firms inflict less environmental harm than do their non-family counterparts is congruent with the theoretical framework put forth. Family-owned companies prioritize long-term interests due to the extended ownership and succession

74. Ambachtsheer, *supra* note 22, at 8.

75. John R. Graham, Campbell R. Harvey & Shiva Rajgopal, *The Economic Implications of Corporate Financial Reporting*, 40 J. ACCT. ECON. 3 (2005).

76. Marcin Borsuk, Nicolas Eugster, Paul-Olivier Klein & Oskar Kowalewski, *Family Ownership and Carbon Emissions* 12 (IESEG Sch. Mgmt., Working Paper No. 2023-ACF-01, 2023) https://www.ieseg.fr/wp-content/uploads/2023/04/2023-ACF-01.pdf.

planning for future generations.[77] Additionally, family shareholders are heavily involved in the management of the company. These factors contribute to the significance placed on long-term considerations within such organizations.

C. The Phenomenon of Greenwashing

In the current era, a considerable number of manufacturers are reevaluating the significance of endorsing their products, or even their own brand, as environmentally sustainable in order to appeal to an expanding demographic that is increasingly conscious of ecological concerns.[78] Companies frequently employ strategies to appeal to environmentally conscious consumers, wherein they make assertions that appear to be eco-friendly but are often imprecise and occasionally deceptive.[79] Consequently, the phenomenon of greenwashing has become pervasive within the market.[80] Greenwashing refers to the deliberate act by an organization disseminating misleading or incomplete information to create a positive public perception of its environmental responsibility.[81]

The contemporary greenwashing phenomenon can be ascribed to the *eco-agency problem* illuminated above. This subsection will address the phenomenon of greenwashing and elucidate how the *eco-agency problem* is one of the factors contributing to its emergence.

1. The Phenomenon's Development

As a result of the escalation of environmental problems and the subsequent rise in public consciousness, numerous stakeholders have become more cognizant of environmental considerations.[82] In recent years, there has been a growing demand from various stakeholders, including investors, consumers, governments,

77. Nikolaos Kavadis & Steen Thomsen, *Sustainable Corporate Governance: A Review of Research on Long-Term Corporate Ownership and Sustainability*, 31 CORP. GOVERNANCE: AN INT'L REV. 198, 202 (2023).

78. de Freitas Netto et al., *supra* note 21.

79. *Id.*

80. Melinda Majláth, *The Effect of Greenwashing Information on Ad Evaluation*, 6 EUR. J. SUSTAINABLE DEV. 92, 92–93 (2017).

81. de Freitas Netto et al., *supra* note 21.

82. Chen & Chang, *supra* note 3, at 504–05.

regulators and other agencies, for companies to provide greater transparency regarding their environmental performance and the availability of environmentally sustainable products.[83] The increasing demand has prompted firms to devise green marketing tactics to demonstrate their positive corporate image and commitment to social responsibility.[84]

The proliferation of green markets is evident, and it has been accompanied by the occurrence of greenwashing.[85] The phenomenon can be characterized as the convergence of two distinct corporate behaviors: subpar environmental performance and favorable representation of environmental performance.[86]

In other words, greenwashing refers to the deceptive marketing strategy employed by companies, portraying products or activities as more environmentally sustainable than they truly are.[87] The phenomenon of greenwashing is increasingly being recognized as a significant legal risk that arises in large corporations and should be addressed by the regulators.[88]

83. Kim & Lyon, *supra* note 2, at 705–06; Marquis et al., *supra* note 2, at 484.

84. Lu Zhang, Dayuan Li, Cuicui Cao & Senhua Huang, *The Influence of Greenwashing Perception on Green Purchasing Intentions: The Mediating Role of Green Word-of-Mouth and Moderating Role of Green Concern*, 187 J. CLEAN PROD. 740, 740–42 (2018); Marquis et al., *supra* note 2, at 484–85.

85. Majláth, *supra* note 80.

86. Magali A. Delmas & Vanessa Cuerel Burbano, *The Drivers of Greenwashing*, 54 CAL. MGMT. REV. 64, 65 (2011). Additionally, it is noteworthy that there exist numerous definitions of greenwashing from diverse perspectives. *See* de Freitas Netto et al., *supra* note 21 (aiming to conduct a comprehensive review of recent literature in order to identify various definitions of greenwashing and its manifestations).

87. For the development of the term 'greenwashing" and the various definitions, *see* Gino Beteta Vejarano & Laurens Swinkels, *Social, Sustainability, and Sustainability-Linked Bonds,* Available at SSRN (2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4420618, at 6.

88. The influx of investor funds into mutual funds prioritizing ESG factors has prompted regulatory bodies to express mounting apprehensions regarding greenwashing. Specifically, there is concern that a mutual fund's nomenclature may inaccurately imply that the fund allocates resources toward companies that adhere to specific ESG criteria. Recently, the Securities and Exchange Commission (SEC) has proposed amendments to the Investment Company Act's "Names Rule" in response to the aforementioned concerns. *See* Investment Company Names, Rel. No. IC-34593, May 25, 2022, https://www.sec.gov/rules/proposed/2022/ic-34593.pdf. The proposed amendments aim to expand the scope of the Names Rule to funds whose names include terms such as ESG, green, or sustainable. If the modifications are adopted, they will require that if a fund's name implies a concentration on companies that adhere to specific ESG criteria, then at least 80% of the fund's investment value must

2. *The Eco-Agency Problem as a Factor Contributing to Greenwashing*

Consider a hypothetical scenario wherein a company articulates ambitious commitments about its climate emission objectives without an effective strategy to achieve them.[89] The efficacy of non-binding aspirational statements in influencing the valuation of a firm's stock by climate-indifferent investors is limited. However, in the short-term, the manager outwardly portrays behavior that aligns with environmental policy.

In a certain sense, this negative phenomenon can be seen as the result of the *eco-agency problem*. As detailed above, the traditional agency problem is further compounded in environmental contexts due to the conflict between the managers' short-term interests and the company's long-term interests. Hence, greenwashing can be attributed, among other things, to the disinterest of managers in making actual environmental investments during their tenure, coupled with their desire to project an image of promoting such investments and of their commitment to sustainability.[90]

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align with that focus. *Id.* at 13–14. For a critical analysis of the SEC's proposal, see Jill E. Fisch & Adriana Z. Robertson, *What's in a Name? ESG Mutual Funds and the SEC's Names Rule*, (ECGI, Working Paper No. 697 2023).

89. It is worth mentioning in a framed article that the commitment of corporations to climate action, frequently manifested through pledges to attain "net-zero" emissions by either 2030 or 2050, constitutes a significant component of the worldwide effort to address climate change. *See, e.g.*, *Nestle's Net Zero Roadmap*, NESTLE, at 3 (2023), https://www.nestle.com/sites/default/files/2020-12/nestle-net-zero-roadmap-en.pdf (pledging to reduce its greenhouse gas (GHG) emissions by 50% by the year 2030 and to attain net zero by 2050); *FY21 NIKE, Inc. Impact Report*, NIKE, at 85 (2022), https://about.nike.com/en/newsroom/reports/fy21-nike-inc-impact-report-2 (Nike has pledged to decrease its corporate emissions, categorized as Scope 1 & 2, by 65%. Additionally, the company has committed to reducing its supply chain emissions, classified as Scope 3, by 20%. Furthermore, Nike aims to achieve net zero by 2050.). As the significance of corporate climate pledges has escalated, critics have cautioned that numerous of these pledges amount to greenwashing, which refers to empty commitments that are challenging to evaluate for their authenticity. *See* Amanda Shanor & Sarah E. Light, *Greenwashing and the First Amendment*, 122 COLUM. L. REV. 2033, 2037 (2022); Soh Young In & Kim Schumacher, *Carbonwashing: ESG Data Greenwashing in a Post-Paris World*, SETTLING CLIMATE ACCTS. 39, 40 (2021); Sebastiao Vieira de Feitas Netto, Marcos Felipe Falcao Sobral, Ana Regina Bezerra Ribiero & Gleibson Robert da Luz Soares, *Concepts and Forms of Greenwashing: A Systemic Review*, 32 ENV'T SCI. EUR. 19, 20 (2020).

90. The decision makers' desire to commit to environmental initiatives could stem from a multitude of factors. *See* Magali A. Delmas & Vanessa Cuerel Burbano, *The Drivers of Greenwashing*, 54 CAL. MGMT. REV. 64, 68–77 (2011).

The managers' lack of interest in environmental investments during their tenure can be due to, inter alia, their proclivity toward short-term gains, as explicated above. Managers tend to prioritize the creation of positive reports during their tenure. However, environmental investments usually require significant costs in the immediate and short-term—with long-term benefits not realized during management's tenure. Therefore, the inclination of managers to optimize short-term profits may dissuade them from undertaking long-term investments, which could ultimately result in the failure to make environmental investments.

The existing literature presents various solutions to mitigate the greenwashing phenomenon.[91] It appears that addressing the *eco-agency problem*, as a root cause for greenwashing, could potentially alleviate the phenomenon.

D. Coping Attempts

The effective management of agency issues constitutes a crucial component in developing an investment entity that can achieve long-term investment objectives in general, and environmental investment, in particular.[92]

Extensive research has been conducted on the issue of the agency problem, including the various mechanisms employed to address or mitigate it.[93] Along with this, diverse mechanisms have

91. *See* John Armour, Luca Enriques & Thom Wetzer, *Green Pills: Making Corporate Climate Commitments Credible*, 65 ARIZ. L. REV. 285 (2023) (suggesting a set of contractual mechanisms, which they term "green pills," that aim to enhance the credibility of climate commitments by internalizing incentives to achieve climate objectives); Oren Perez & Michael P. Vandenbergh, *Making Climate Pledges Stick: A Private Ordering Mechanism for Climate Commitments* 7 (Vanderbilt L. Research Paper, Paper No. 23-10) https://dx.doi.org/10.2139/ssrn.4346020 (The authors developed two new financial instruments, which they term a carbon letter of credit and a climate pledge green bond, that will let corporations establish credible promises via entering into irrevocable forward contracts with third parties. They concentrate on corporate climate pledges, but they propose their tools can also be used to back commitments on a wide range of topics beyond climate change.); *see also* Vejarano & Swinkels, *supra* note 87, at 6–10; Delmas & Burbano, *supra* note 90, at 77–84.

92. *See also* CHEOL S. EUN & BRUCE G. RESNICK, INTERNATIONAL FINANCIAL MANAGEMENT (3rd ed. 2004) (asserting that effective management of the agency problem is crucial for shareholders, as not doing so can result in the inefficient allocation of limited resources, impede the proper functioning of capital markets, and hinder economic growth).

93. For an overview of the various mechanisms developed for the agency problem, *see* Roshan Boodhoo, *Capital Structure and Ownership Structure: A Review of Literature*, J. ONLINE

been established throughout time to encourage investments in the environment. These mechanisms may be regarded as unique in that they address the environmental dimension of the agency' problem. The following discussion focuses on three mechanisms of this nature: green bonds, CoCo bonds, and ESG-biased executive compensation. We then examine how each mechanism endeavors to overcome the disparities between the decision-making manager and the corporation, with the objective of encouraging the manager to prioritize the environmental dimension and as a result to create added long-term value to the corporation and its shareholders.

1. Green Bonds

The first mechanism that seeks to promote environmental investments and reduce the *eco-agency problem* is a *green bond*. A bond is a financial instrument that represents a certificate of indebtedness, which is issued by various entities such as corporations, governments, and non-governmental organizations to raise capital from the market.[94] Issuers acquire long-term capital from investors through the issuance of bonds. These investors transition into the role of bondholders. Bondholders are remunerated for the risk they undertake by receiving periodic interest payments until the bond reaches maturity or is retired, and the issuer reimburses the principal amount. The vast number of bondholders allows the issuer to lend bigger amounts at a lower cost than via a bilateral or syndicated bank loan.[95] This mainly

EDUC., at 3–6 (2009); Barton & Wiseman, *supra* note 46, at 47; Steve Letza, Xiuping Sun & James Kirkbride, *Shareholding Versus Stakeholding: A Critical Review of Corporate Governance*, 12 CORP. GOVERNANCE 242, 247–49 (2004); EUGENE F. BRIGHAM & JOEL F. HOUSTON, FUNDAMENTALS OF FINANCIAL MANAGEMENT 13–18 (11th ed. 2007). See also an attempt at a specific solution to the agency problem in the long-term aspect: David Neal & Geoff Warren, *Long-Term Investing as an Agency Problem*, CIFR PAPER 063 (2015) (recommending that investors with long-term goals establish a conducive atmosphere wherein all principals and agents along the chain are in agreement, actively involved, motivated to pursue long-term objectives, and dedicated to long-term investment).

94. Ryan Jones, Tom Baker, Katherine Huet, Laurence Murphy & Nick Lewis, *Treating Ecological Deficit with Debt: The Practical and Political Concerns with Green Bonds*, 114 GEOFORUM 49, 50 (2020).

95. OECD, *Green Bonds: Mobilising Bond Markets for a Low-Carbon Transition*, CENTRE ON GREEN FIN. & INV. 21 (Oct. 24, 2017).

attracts governments and corporations implementing capital-intensive sustainability initiatives with sluggish financial returns.[96]

Green bonds have the same financial structure as conventional bonds.[97] Hence, the primary distinction between green bonds and traditional bonds pertains to the utilization of the bond proceeds. Green bonds refer to debt securities that public institutions or private corporations issue with the aim of financing projects that are environmentally beneficial. Such projects may include those that promote sustainability, reduce carbon emissions, or enhance energy efficiency.

In other words, green bonds integrate conventional bond features with a pledge to allocate the funds toward financing environmentally sustainable projects and assets. Hence, they hold significant value in facilitating the mobilization of private financial resources toward attaining a sustainable and decarbonized society.[98]

To qualify for this designation, the green bond needs to adhere to the Green Bond Principles. These principles are a set of voluntary guidelines that promote transparency and disclosure, and foster integrity in the growth of the Green Bond market by elucidating the issuance process for a green bond.[99]

During the early stages of their existence, green bonds were issued by public entities or entities that resemble public institutions, like international development banks and agencies.[100] The inaugural issuance of a green bond occurred in 2007, facilitated by the European Investment Bank (EIB), with the purpose of funding initiatives related to renewable energy and

96. *Id* at 20–22.

97. Jones et al., *supra* note 94, at 50.

98. *See, e.g.*, Eftichios S. Sartzetakis, *Green Bonds as an Instrument to Finance Low Carbon Transition*, 54 ECON. CHANGE AND RESTRUCTURING 755 (2021).

99. ICMA, THE GREEN BOND PRINCIPLES 2017 (2017), https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf. Despite the widespread adoption of green bonds and the general agreement on the concept, there is a lack of a universally acknowledged framework for determining the green status of a bond. Green bonds may be designated by the issuer (e.g., as the 2007 EIB bond), by a third party, or by a data provider (e.g., Bloomberg). For a review of the origins of the market and standards for identifying green bonds, see Malcolm Baker, Daniel Bergstresser, George Serafeim & Jeffrey Wurgler, *The Pricing and Ownership of U.S. Green Bonds*, 14 ANN. REV. FIN. ECON. 415 (2022).

100. 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).

energy efficiency.[101] Subsequently, the International Bank for Reconstruction and Development (IBRD), another supranational financial institution, initiated a comparable action by introducing its inaugural green bond the following year.[102] In 2013, the first private corporations commenced the issuance of their green bonds.[103]

Since then, the market for green bonds has experienced a significant surge, culminating in a cumulative value of $2.2 trillion in 2022.[104] The market for green bonds has spread worldwide, as evidenced by the issuance of such bonds by issuers from 51 countries and 33 different currencies during the year 2022.[105] However, it is noteworthy that despite the robust expansion of the green bond market, it remains a small proportion of the overall bond market.[106]

Green bonds provide various advantages. For instance, they are advantageous for issuers as they are aligned with long-term project maturities, leading to a reduction in debt-related expenses.[107] Additionally, green bonds contribute to improving firm-level environmental footprints and financial performance.[108]

Along with its positive aspects, the green bond instrument also presents certain drawbacks that raise doubts regarding its efficacy in advancing genuinely environmentally conscious investments.[109]

101. ORG. FOR ECON. COOP. & DEV., GREEN BONDS: MOBILISING THE DEBT CAPITAL MARKETS FOR A LOW-CARBON TRANSITION 12 (2015), https://www.oecd.org/environment/cc/Green%20bonds%20PP%20[f3]%20[lr].pdf.

102. *Id.*

103. Caroline Flammer, *Corporate Green Bonds*, 142 J. FIN. ECON. 499, 499–500 (2021).

104. CLIMATE BONDS INITIATIVE, SUSTAINABLE DEBT GLOBAL STATE OF THE MARKET 2022 2 (2022), https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/cbi_sotm_2022_03b.pdf.

105. *Id.* at 5.

106. It is noteworthy that some believe that the considerable expansion of the green bond market throughout the years indicates the potential for it to become a sizeable segment of the entire bond market. *See* EUR. COMM'N, EUROPEAN FIN. STABILITY AND INTEGRATION REV. 2021 28–29 (2021), https://finance.ec.europa.eu/system/files/2021-05/european-financial-stability-and-integration-review-2021_en.pdf.

107. Park, *supra* note 100, at 12–13.

108. Caroline Flammer, *Green Bonds Benefit Companies, Investors, and the Planet*, HARV. Bus. REV. (Nov. 22, 2018), https://hbr.org/2018/11/green-bonds-benefit-companies-investors-and-the-planet.

109. *See generally* Jones et al., *supra* note 94, at 52–54 (providing an overview of practical challenges in the green bond market).

A significant problem with the green bond market is that issuers may make deceptive assertions about the environmental sustainability of the bond's underlying project. As an illustration, a bond without any specific project affiliation within a company could be classified as "green" by the issuing entity. Likewise, in some cases, an issuing firm may classify a bond as "green" even if it is associated with a project that has limited or negligible green attributes.[110] Alternatively, issuers may commit to allocating the funds toward an environmentally sustainable project but subsequently engage in actions that deviate from their initial pledge and utilize them for environmentally unsustainable purposes.[111] There exist instances of contentious nature wherein green bonds have been utilized to fund projects that are either environmentally questionable or have caused harm to the ecosystem.[112]

The lack of robust and uniform regulatory measures means that the financing of such projects through green bonds is not impeded for the issuers.[113] Additionally, the absence of consistent and enforceable criteria poses a challenge in evaluating the ecological advantages of a green bond.[114] There are very few legally enforceable regulations pertaining to the disclosure of the utilization of funds and the assessment of ecological consequences associated with green bond initiatives.[115]

In sum, the fundamental purpose of a green bond is to promote environmental investments by funding projects that yield environmental benefits. Nevertheless, the current challenges give rise to doubts regarding the environmental benefits of this mechanism.

110. *See* Caroline Flammer, *Green Bonds: Effectiveness and Implications for Public Policy*, 1 ENV'T AND ENERGY POL'Y & ECON. 95, 96 (2020).

111. Sergio Gilotta, *Green Bonds: A Legal and Economic Analysis*, RSCH. HANDBOOK ON ENV'T, SOCIAL, AND CORP. GOVERNANCE, EDWARD ELGAR 13 (Apr. 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4427927.

112. *See* Jones et al., *supra* note 94, at 52.

113. Kevin M. Talbot, *What Does "Green" Really Mean?: How Increased Transparency and Standardization Can Grow the Green Bond Market*, 28 VILL. ENV'T L. J. 127, 143–45 (2017).

114. Jones et al., *supra* note 94, at 52.

115. *Id.*; Talbot, *supra* note 113, at 143–45.

2. CoCo Bonds

Another mechanism that can potentially promote environmental investments and mitigate the *eco-agency problem* is *contingent convertible bonds* (CoCos). CoCo is a hybrid financial instrument that is initially issued as debt but converted into equity or written off if the financial institution fails to meet a predetermined distress threshold.[116]

The two primary attributes of CoCos are a trigger mechanism and a loss-absorption mechanism.[117] These characteristics set CoCos apart from conventional convertible bonds as the latter allows investors to choose the timing of bond-to-equity conversion.

The trigger holds significance as it establishes the likelihood of conversion and, consequently, the associated level of risk.[118] The trigger may be mechanical, discretionary, or a fusion of both attributes.[119] Mechanical triggers rely on the market or book value of the issuing bank, whereas discretionary triggers are activated by a supervisory entity.[120]

The loss-absorption mechanism involves either the conversion of debt into equity at a predetermined rate or the reduction of the book value of the debt through principal write-down.[121] Investors are offered a high-yield return on investment in exchange for a capacity to absorb losses through these bonds.

116. *See* ANGELOS DELIVORIAS, EUR. PARLIAMENT RSCH. SERV. BRIEFING MAY 2016: CONTINGENT CONVERTIBLE SECURITIES: IS A STORM BREWING? 1 (2016); Mark J. Flannery, *Contingent Capital Instruments for Large Financial Institutions: A Review of the Literature*, 6 ANN. REV. FIN. ECON. 225, 227–228 (2014). In addition, banks issue most CoCos due to capital requirements. The hybrid characteristic of CoCos, which involves the amalgamation of debt and equity, enables banks to incorporate the value of CoCos into their AT1 capital. This facilitates the process of preserving their capital buffers. These bonds can be considered as a form of bailout; however, the source of the bailout is the bondholders rather than the general public. CoCos are often denoted as AT1 bonds when they are issued by banks due to their role in enhancing AT1 capital. *See generally* Zhenyu Wang, *CoCo Bonds: Are They Debt or Equity? Do They Help Financial Stability? – Lessons from Credit Suisse NT1 Bonds*, ECGI BLOG (Apr. 6, 2023), https://www.ecgi.global/blog/coco-bonds-are-they-debt-or-equity-do-they-help-financial-stability-––lessons-credit-suisse-nt1.

117. Delivorias, *supra* note 116, at 4.

118. TIMO KÖFFER, BASEL III—IMPLICATIONS FOR BANKS' CAPITAL STRUCTURE: WHAT HAPPENS WITH HYBRID CAPITAL INSTRUMENTS? 24 (2013).

119. Delivorias, *supra* note 116, at 4.

120. Spiegeleer et al., *supra* note 41, at 7.

121. Delivorias, *supra* note 116, at 4.

Hence, the CoCo bond functions as a conventional debt security until the beginning trigger. The financial institution that issues the funds obtains financing at face value and provides consistent payments at predetermined intervals, similar to the disbursement of interest on a debt instrument. In the scenario of the issuing financial institution's insolvency, the CoCos, resembling a debt instrument, hold a higher priority than equity.[122]

Nonetheless, once triggered, the CoCo bond operates much like equity. The cessation of periodic payments occurs in the absence of a credit event, akin to eliminating dividends. The bond's par value is either written down or transformed into a predetermined quantity of common stock. In sum, CoCos represent a distinctive financial instrument that challenges the conventional differentiation between debt and equity.

A recent development in green finance is to label CoCos as a green, environmentally friendly type of investment.[123] The underlying principle behind green CoCos, in addition to that of CoCos in general, is fundamentally parallel to that of traditional green bonds, which is to direct financial resources toward environmentally sustainable endeavors.

In addition, the conversion of debt to equity when a company reaches a particular level of distress can mitigate the *eco-agency problem*. This is because the aforementioned mechanism offers a substantial advantage compared to other financial instruments by incentivizing shareholders to monitor the actions of the company's decision-makers.

CoCos are touted by researchers and regulatory bodies for their ability to penalize the shareholders of a financial institution for their risk-taking through the dilution of their current shares.[124] Consequently, shareholders are motivated to exercise greater oversight of the board of directors to ensure that CoCos' investors

122. Wang, *supra* note 116.

123. For instance, in 2020, bank BBVA issued green CoCo Bonds worth €1 billion. *See BBVA Raises €1bn in First-ever Green Coco Bond by a Financial Institution*, BBVA COMMC'NS, https://www.bbva.com/en/bbva-is-the-first-financial-institution-in-the-world-to-issue-green-coco-bonds (July 8, 2020).

124. *See* Flannery, *supra* note 116; Mark J. Flannery, *Stabilizing Large Financial Institutions with Contingent Capital Certificates*, 6 Q. J. FIN. 277 (2016); Charles W. Calomiris & Richard J. Herring, *How to Design a Contingent Convertible Debt Requirement that Helps Solve Our Too-Big-to-Fail Problem*, 25 J. APPLIED CORP. FIN. 66 (2013).

receive their principal and interest payments rather than a stake in the company. This, as mentioned, is driven by the shareholder's desire to prevent dilution of their ownership stake in the company.

However, some have called this ability into question. According to Gamba et al.,[125] the write-down or conversion triggered in CoCos is unlikely to result in a significant penalty for shareholders since CoCo investors, who are required to exchange their bonds for equity at a price below the predetermined conversion price, would experience a loss compared to the face value of their bond. Conversely, shareholders would not face dilution and would be better off than if they repaid the CoCo bonds.[126]

Likewise, some have expressed concern that non-dilutive CoCos have the potential to generate greater incentives for risk shifting than subordinated debt.[127] This is attributed to the transfer of wealth from CoCo investors to shareholders upon conversion.

Furthermore, although numerous global financial institutions have released CoCos, there has been no such issuance by any American banks.[128] If American banks reverse their current policy, this tool possesses the potential to mitigate the *eco-agency problem* and foster sustainable investments. However, it appears beset by challenges that impede its actualization.

3. ESG Compensation Metrics

ESG compensation metrics represent another mechanism for incentivizing environmental investments and addressing the agency problem.

125. Andrea Gamba, Yanxiong Gong & Kebin Ma, *Non-dilutive CoCo Bonds: A Necessary Evil?*, Warwick Bus. Sch., Univ. of Warwick (Jan. 14, 2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4387307.

126. *Id.* at 1–3.

127. *See* George Pennacchi, *A Structural Model of Contingent Bank Capital* (Fed. Rsrv. Bank of Cleveland, Working Paper 10-04, 2010), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1595080; Tobias Berg & Christoph Kaserer, *Does Contingent Capital Induce Excessive Risk-taking?*, 24 J. FIN. INTERMEDIATION 356 (2015); STEPHANIE CHAN & SWEDER VAN WIJNBERGEN, TINBERGEN INSTITUTE, COCO DESIGN, RISK SHIFTING INCENTIVES AND CAPITAL REGULATION (2017), https://papers.tinbergen.nl/16007.pdf.

128. Wang, *supra* note 116 (positing that the reason for the lack of adoption of CoCos by U.S. banks may be attributed to the distinct regulatory framework that governs the banking sector in the United States, in contrast to its global counterparts).

Since the inception of corporate social-responsibility initiatives to the present-day, ESG-based endeavors, sustainability has garnered significant attention on the corporate board's agenda, advancing toward assimilation into companies' strategic planning.

Several prominent investors contend that for corporate ESG initiatives to carry significant weight, they must be incorporated into managerial incentive structures.[129] Namely, it is imperative to modify senior executive compensation schemes to incorporate both financial and non-financial metrics to evaluate performance more effectively over an extended period.

Traditionally, incentive plans have primarily been driven by objective financial objectives. Frequently, this entails setting measurable objectives pertaining to quantitative metrics such as revenue, cash flow, total shareholder return, etc. However, a transition is occurring in numerous organizations as nonmonetary objectives gain prevalence.

There is a growing interest in determining appropriate incentives to achieve goals related to ESG factors. Several OECD member countries have strengthened their dedication to achieving sustained corporate expansion and value by guaranteeing that the decision-makers in the company have a vested interest in the company's long-term prosperity, particularly with respect to ESG commitments.[130] In other words, numerous OECD nations within the European Union have linked long-term incentives to ESG objectives. According to a survey conducted by Pay Governance, a significantly higher proportion of U.K. and EU companies, approximately 90%, incorporate ESG metrics in their incentive compensation plans in contrast to only around 20% of U.S. companies.[131] This study also unveiled that a significant proportion (41%) of companies in the U.K. and EU have established long-term

129. Robert G. Eccles, Mary Johnstone-Louis, Colin Mayer & Judith C. Stroehle, *The Board's Role in Sustainability*, HARV. Bus. REV. (2020), https://hbr.org/2020/09/the-boards-role-in-sustainability.

130. Patrick O'Neal, *To Be[nefit] or Not to Be[nefit]: Lessons from Global Corporate Governance and a Principled Path for the Delaware Benefit Corporation*, 25 U. PA. J. BUS. L. 559, 570–74 (2023).

131. John Ellerman, Mike Kesner & Lane Ringlee, *Do UK and EU Companies Lead U.S. Companies in ESG Measurements in Incentive Compensation Plans?*, HARV. L. SCH. F. ON CORP. GOVERNANCE (June 18, 2021), https://corpgov.law.harvard.edu/2021/06/18/do-uk-and-eu-companies-lead-us-companies-in-esg-measurements-in-incentive-compensation-plans.

incentive plans that are linked to ESG metrics.[132] In contrast, only a small fraction (5%) of companies in the United States have implemented such plans.[133]

Correspondingly, a significant number of investors are in favor of these modifications. In recent years, there has been a notable increase in the demand for ESG compensation metrics from institutional investors, social and environmental activists, and stakeholder groups, as evidenced by reports from reputable compensation consultants.[134] Some have even gone a step further. For example, Allianz Global Investors and Cevian Capital have committed to voting against prominent European corporations that fail to integrate ESG goals into their executive remuneration agreements.[135]

In addition, according to the 2021 Global Benchmark Policy Survey released by Institutional Shareholder Services (ISS), a significant majority of investors (86%) and non-investors (73%)

132. *Id.*

133. *Id.*

134. *See, e.g.*, James Chalmers, Emma Cox & Nadja Picard, *The Economic Realities of ESG*, PWC STRATEGY + BUS. MAG. (Oct. 28, 2021), https://www.pwc.com/gx/en/issues/reinventing-the-future/take-on-tomorrow/download/sbpwc-2021-10-28-Economic-realities-ESG.pdf; Tom Gosling & Phillippa O'Connor, *Executive Pay and ESG Performance*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Apr. 12, 2021), https://corpgov.law.harvard.edu/2021/04/12/executive-pay-and-esg-performance; Matthew Behrens & Annie Anderson, *ESG Continues to Find Its Way into Incentive Compensation Plans*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Dec. 2, 2021), https://corpgov.law.harvard.edu/2021/12/02/esg-continues-to-find-its-way-into-incentive-compensation-plans; *see also* Shira Cohen, Igor Kadach, Gaizka Ormazabal & Stefan Reichelstein, *Executive Compensation Tied to ESG Performance: International Evidence* (ECGI, Fin. Working Paper N. 825/2022, 2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4097202 (examining the response of investors to the incorporation of ESG metrics in executive compensation plans, referred to as "ESG Pay" in the article, with findings indicating that investment funds exhibit a preference for companies that utilize ESG Pay, as evidenced by a shift in portfolio allocation towards such firms).

135. Hazel Bradford, *Allianz Global Investors to Push for Executive Pay-ESG Link*, PENSIONS AND INVS. (Feb. 23, 2022, 02:21 PM), https://www.pionline.com/esg/allianz-global-investors-push-executive-pay-esg-link; *Cevian Capital Requires ESG Targets in Management Compensation Plans*, CEVIAN CAPITAL (Mar. 3, 2021), https://www.ceviancapital.com/wp-content/uploads/2021/03/03.03.2021-Cevian-Capital-Requires-ESG-Targets-in-Management-Compensation-Plans.pdf.

consider non-financial ESG metrics to be a suitable criterion for incentivizing executives.[136]

Therefore, linking the remuneration of directors and executives to ESG performance metrics and long-term goals is key to ensuring that their interests are in harmony with the enduring goals of the corporation and its shareholders.

The implementation of ESG compensation directly affects the interests of decision-makers. As mentioned, the main difficulty in our field concerns the discrepancy between the short-term interests of managers, who may not give precedence to environmental investments for the reasons mentioned above, and the company's long-term interests. By incentivizing decision-makers to make decisions that promote environmental aspects and long-term environmental goals, the company can effectively align its interests with the interests of the managers.

Previous studies have established a direct and positive correlation between the incorporation of ESG targets in senior executives' compensation plans and firms' sustainable performance.[137] The aforementioned position is backed by institutional investors who advocate for integrating ESG performance indicators into immediate and future remuneration

136. Kathy Belyeu, Colleen Lloyd, Audrey Ramming & Sarah Riggs, *2021 Global Benchmark Policy Survey*, ISS GOVERNANCE at 9 (Oct. 1, 2021), https://www.issgovernance.com/file/publications/2021-global-policy-survey-summary-of-results.pdf.

137. *See generally* Elisa Baraibar-Diez, María D. Odriozola & José Luis Fernández Sánchez, *Sustainable Compensation Policies and its Effect on Environmental, Social, and Governance Scores*, 26 CORP. SOC. RESP. & ENV'T MGMT. 1457 (2019) (The authors examine whether a sustainable compensation scheme improves ESG and economic ratings. The findings show that sustainable pay practices impact ESG ratings, particularly when organizations have a corporate social responsibility committee to manage and promote such goals, resulting in superior nonfinancial performance.); Robert G. Eccles, Ioannis Ioannou & George Serafeim, *The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance* (Harv. Bus. Sch., Working Paper No. 12-035, 2011) (examining how a sustainable corporate culture affects business behavior and performance); Marco Minciullo, Maria Cristina Zaccone & Matteo Pedrini, *The Antecedents of Corporate Sustainability Performance: A Study on Generic and Sustainability-Related Corporate Governance Mechanisms*, 14 SUSTAINABILITY 9761 (2022) (The authors find that general and sustainability-related governance measures improve corporate sustainability performance in 185 businesses listed in the largest European marketplaces. In particular, independent directors and quantitative sustainability objectives in executive remuneration systems improve business sustainability.).

schemes.[138] Hence, the selection of metrics by companies assumes critical significance in determining their business performance.[139]

Simultaneously, there exist apprehensions regarding the advantages of integrating ESG metrics into remuneration, the potential hazards associated with such a move (such as incentivizing wrong conduct, establishing insufficient objectives, and generating assured bonuses), and difficulties in furnishing investors with what they perceive as satisfactory lucidity and specificity in ESG-based compensation schemes.[140]

In addition, some ESG goals, particularly those relating to the environment, might be so long-term that they are not a good match for traditional executive incentive plans. Despite the enduring nature of numerous ESG goals, it is critical that corporations incorporate them into the annual incentive plan of their executives.[141]

In sum, it seems that ESG-biased compensation also can serve as a means to address the *eco-agency problem* and promote sustainable investment, but it is imperative to acknowledge its constraints.

* * *

As shown above, various mechanisms have been developed to promote environmental investments. Indeed, these mechanisms—each in their own way—possess the capacity to address the *eco-agency problem*.

When it comes to green bonds, the financing is intended only for environmental projects, so managers apparently have no way to prioritize their short-term interests. With respect to green CoCos, apart from the fact that the financing is intended for environmental purposes, there exists a significant incentive for shareholders to

138. *Institutional Investor Survey 2021*, MORROW SODALI (2021), https://morrowsodali.com/insights/institutional-investor-survey-2021.

139. Thomas Singer, *Linking Executive Compensation to Sustainability Performance*, CONF. BD. (May 30, 2012), https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=2221.

140. Merel Spierings, *Linking Executive Compensation to ESG Performance*, HARV. L. SCH. F. ON CORP. GOVERNANCE (Nov. 27, 2022), https://corpgov.law.harvard.edu/2022/11/27/linking-executive-compensation-to-esg-performance/#1.

141. For instance, merely 12% of S&P 500 corporations incorporate ESG metrics into their executives' long-term plan. *See id.* at 6.

closely monitor the managers' work. ESG-biased compensation has the potential to incentivize managers to prioritize environmental considerations. By tying compensation to protection of the environment, managers' short-term interests can align with making environmentally responsible decisions.

However, we saw various challenges inherent in the mechanisms that jeopardize the capacity to advance environmental investments and address the *eco-agency problem*. The emerging market for green bonds is fraught with concerns about accountability, transparency, and legitimacy. The issuance of Green CoCos presents additional concerns, besides those associated with traditional green bonds; specifically, there is some question as to whether penalizing a financial institution's shareholders by reducing their equity stake is feasible. Using ESG-biased compensation considerations carries risks regarding its efficacy in fostering sustainable investment. Therefore, it appears that we have yet to decide how best to deal with the *eco-agency problem* to prevent it from impeding the growth of environmental investments.

The next section expounds our theory that comprehending the inclinations of contemporary investors and assimilating said inclinations into the decision-makers' purview would promote environmental investment. The experiment we ran demonstrates that reinforcing sustainable business strategies can lead to financial gains for corporations in both the short and long term. This is evidenced by the results of our experiment, which indicate that investors exhibit a preference for sustainable investments.

Therefore, although environmental investments are high cost, the benefits will accrue not only in the long run but also in the short run, given the investors' preferences. It is therefore possible for managers to reap the benefits of their environmental investments during their tenure. Thus, this Article contributes to the current body of literature by demonstrating that environmental investment can, in fact, yield immediate, short-term benefits that can incentivize managers and reduce dependence on the aforementioned problematic mechanisms.

III. EXPERIMENTAL ANALYSIS—TESTING THE INFLUENCE OF SUSTAINABLE INVESTMENT ON FINANCIAL DECISION-MAKING

We designed a controlled experiment to test the effects of sustainable investment on investors' decision making. The

experiment compares two groups of subjects: professional and nonprofessional investors. Both groups experienced the exact same experimental manipulation. To avoid inconsistent incentive schemes that could influence decision-making processes, participants from both groups were asked to make their own investment decisions, as opposed to their customers'.

The experiment comprises an investment decision involving a choice between two mutually exclusive investment alternatives. The general instructions described a situation where the participants have a certain amount of money they wish to invest. The participants were instructed to choose only one of the two investment alternatives. The exact initial fund was not specified, to guarantee that the experiment results would be independent of the magnitude of funds.

A. Data

Our sample consists of two groups of subjects. One group includes 573 professional investors, 75% of whom are investment advisors[142] and 25% portfolio managers[143] Among the professional group, 74% of participants were male and 26% female, 5% were board members and 20% were members of investment committees. The average professional investor respondent had a university degree and professional experience of 13.26 years.

Table 1: Descriptive Statistics of Professional Investors

Gender	Male: 74%			Female: 26%	
License	Inv. Adv: 75%			Port. Man: 25%	
Board Membership	No: 95%			Yes: 5%	
Invest. Comm. Mem	No: 80%			Yes: 20%	
Higher Education (In Years)	Min: 0	Max: 10	Mean: 3.7	Median: 4	SD: 1.97
Prof. Experience (In Years)	Min: 0	Max: 55	Mean: 13.26	Median: 11	SD: 9.94

142. An "investment advisor" is a person that engages in advising others in matters pertaining to acquiring, holding, or selling securities and financial assets.

143. A "portfolio manager" is a person engaged in discretionary execution of investment transactions on behalf of others.

The nonprofessional group of subjects consists of 122 investment advisor candidates,[144] 104 executive MBA students, and 42 employees from various industries (other than the financial services industry) for a total of 268 subjects. The subject population reflects households that make investment decisions. Moreover, the sample population represents retail investors, since on the one hand, it does not include professional investors, and on the other hand, it does not include undergraduate students who do not make investment decisions regularly.

B. The Experiment's Design

To test the effect of sustainability and green investment on investment decision making, we had participants choose between two investment alternatives. The first investment alternative was a "green" fund investing in environmental corporations. The second was a fund investing in start-up corporations led by young entrepreneurs. All the conditions of both alternatives were equal, including past returns, risk levels, fees, etc. More specifically, the participants were informed that the funds in each investment alternative had performed equally over the past year.

1. Results

Investment decision preferences are summarized in Tables 2.a and 2.b below. Table 2.a represents the choice that nonprofessional investors made between an investment fund specializing in sustainable corporations and an investment fund specializing in startups. Table 2.b represents the same choice made by professional investors.

Table 2.a: Nonprofessional Investors

Start-up Fund	Environmental Fund
27.61%	72.39%

144. The investment advisor candidates participated in the experiment during their licensing exams.

Table 2.b: Professional Investors

Start-up Fund	Environmental Fund
31.93%	68.07%

As reported in Table 2.a, 72.39% of the subjects preferred the environmental investment over the start-up fund. The results yield a significant chi square statistic ($\chi^2(1)=53.73$, $p<0.001$). As seen in Table 2.b, 68.07% of the participants preferred the sustainable investment over the startup fund, with a highly significant difference ($\chi^2(1)=77.69$, $p<0.001$). Overall, the preferences were very similar for both groups, professional and nonprofessional, suggesting that sophistication does not influence the tendency to prefer sustainable investment.

C. Do Personal Characteristics Affect the Preferences?

The experiment's results demonstrate that both professional and nonprofessional investors attach a higher value to sustainable investment, even though the financial histories of both options were the same. In this section, we try to ascertain whether within the group of professional investors, certain personal characteristics may influence the magnitude of bias. We asked our participants to complete a short survey on personal characteristics. To measure the influence of personal characteristics on the tendency to prefer sustainable investments, we applied three different econometric models.

1. Methodology

In the classical regression model, the dependent variable can take any value on the real line. In our case, the dependent variable is a discrete outcome of a decision made by the participants. In other words, the explained variable is a binary variable that takes only two values: 0 when the participant preferred the start-up fund and 1 when the participant preferred the environmental fund. The linear probability model (LPM) is simple to estimate and use but has some drawbacks regarding the analysis of dependent variables. LPM's limitations can be overcome by using a binary response

model; thus, we use both LPM and two additional binary response models (probit and logit).[145]

The set of independent (explanatory) variables, that is, the participants' personal characteristics, includes gender, years of higher education, years of professional experience, license type, investment committee membership, and board membership. Table 3 represents the results of all three regression models.

Table 3: Regression's Results

Dependent Variable: The Tendency to Prefer Sustainable Investment			
Independent Variables	LPM	Logit	Probit
Gender	0.061 (0.044)	0.061 (0.044)	0.061 (0.044)
Education	-0.024** (0.009)	-0.025** (0.01)	-0.025** (0.01)
Experience	0.0003 (0.001)	0.0003 (0.002)	0.0003 (0.002)
License	0.115** (0.051)	0.111** (0.048)	0.113** (0.049)
Investment Committee Membership	0.085 (0.053)	0.08 (0.049)	0.082 (0.05)
Board Membership	-0.009 (0.101)	-0.01 (0.097)	-0.009 (0.098)
No. of Observations	573	573	573

145. *See* JEFFREY M. WOOLDRIDGE, INTRODUCTORY ECONOMETRICS: A MODERN APPROACH (4th ed. 2009). The binary response model we use is of the form $P(y=1 \mid x)=G(\beta 0+\beta 1x1+\ldots+\beta kxk)=G(\beta 0+\mathbf{x\beta})$, where *y* is the conviction of a specific behavioral bias and *x* is the full set of explanatory variables. *G* is a function taking on values strictly between zero and one: $0<G(z)<1$, for all real numbers *z*. For the function *G*, we use the two nonlinear functions used in the vast majority of applications. *Id.* In the *logit model*, *G* is the logistic function: $G(z)=\exp(z)/[1+\exp(z)]$; *G(z)* is between zero and one for all real numbers *z*. This is the cumulative distribution function for a standard logistic random variable. In the *probit model*, *G* is the standard normal cumulative distribution function, which again ensures that the regression equation is strictly between zero and one for all parameter values and for *xj*. We also report the LPM estimates, using heteroscedasticity-robust standard errors. For the LPM, we report the usual R^2 reported for OLS models, while for the logit and probit models we report the pseudo R^2.

R2/Pseudo R2	0.027	0.021	0.021

Standard errors are in parentheses.

*** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.

The estimates from all three models tell a consistent story. The signs of coefficients are uniform across models, and the same variables are statistically significant throughout. We found two significant explanatory variables in all three models: years of higher education and license type. We found that each year of higher education reduces the tendency to prefer sustainable investment by around 2.5%, and that possession of an investment advisor's license increases that tendency by around 11% relative to portfolio management license. The other explanatory variables do not carry any significant marginal effect on the tendency to prefer sustainable investment in the experiment.

D. The Importance of Professional Investor's Preferences.

It is a convention in financial literature that the behavior of individual investors is less relevant, since it is institutional investors who drive financial markets. These professional investors are assumed to be rational and base their investment decisions on efficient analytical tools. Therefore, it is the marginal professional investor who, by exploiting arbitrage opportunities, sets the prices in the market. For instance, it is argued that any research that ignores the influence of professional traders is less relevant, because nonprofessional individuals are unlikely to have any substantial effect on market prices since they are too far removed from the price discovery process.[146]

There are numerous reasons to believe that the behavior of financial professionals differs from that of nonprofessionals, including their training, market experience, and access to information, as well as the regulations applied to them. For example, Dahr and Zhu[147] "analyze[d] the trading records of a major discount brokerage house[,]" with the objective of

146. Peter R. Locke & Steven C. Mann, *Professional Trader Discipline and Trade Disposition*, 76 J. FIN. ECON. 401, 403 (2005).

147. Ravi Dhar & Ning Zhu, *Up Close and Personal: Investor Sophistication and the Disposition Effect*, 52 MGMT. SCI. 726, 726 (2006).

identifying individual differences in the disposition effect.[148] Using demographic and socioeconomic variables as proxies for investor literacy, they found that wealthier individuals and professionals exhibit a lower disposition effect. Moreover, they found that trading frequency helps reduce the disposition effect, which supports other findings showing that trading frequency can eliminate some market anomalies.[149]

However, in this article we have examined the preferences and the tendencies of both professional and nonprofessional investors toward sustainable investment and have discovered, despite the aforementioned findings, that both groups share the same set of preferences and tendencies dealing with environment and sustainability. These findings are important and bear a substantial potential implication for capital markets. If both groups behave according to their revealed preferences, it will influence market prices and valuations. In the following section we will discuss the effect of a unique environmental disclosure on investment behavior according to these revealed preferences and its potential promise to mitigate the *eco-agency problem*.

IV. THE PROMISES AND PERILS OF UNIQUE ENVIRONMENTAL DISCLOSURE

In recent years, corporate environmental and sustainable investment has emerged as a leading field in the revolution of reporting and access to information. The public's heightened concern for environmental quality is a predictable cause of this, given the growing awareness of global warming, the effects of carbon and greenhouse gas emissions on it, and its potential threats to the survival of humanity.[150]

148. The "disposition effect," which is the tendency of investors to "sell winners too early and ride losers too long[,]" was firstly developed in Shefrin, Hersh & Meir Statman, *The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence*, 40 J. FIN. 777, 778 (1985).

149. John A. List, *Does Market Experience Eliminate Market Anomalies?*, 118 Q. J. ECON. 41, 53–54 (2003).

150. Wullianallur Raghupathi, Sarah Jinhui Wu & Viju Raghupathi, *Understanding Corporate Sustainability Disclosures from the Securities Exchange Commission Filings*, 15 SUSTAINABILITY 4134, 4135 (2023); Moran Ofir & Tal Elmakiess, *Environmental Disclosure and Greenwashing: Can We Separate Signal from Noise?*, *in* LAW AND ECONOMICS OF CORPORATE GOVERNANCE: SHAREHOLDERS, STAKEHOLDERS, AND BEYOND (Mathis Klaus & Tor Avishalom, eds., forthcoming 2025).

The achievement of a sustainable world is contingent on sustainable finance and the contribution of the corporations to the protection of the environment from the damages caused by modern, industrial, and commercial life. This necessitates the involvement of investors willing to acknowledge that sustainable finance and corporate investments in sustainability are the means to yielding enduring returns and fostering prosperity for the planet.[151]

The increasing demand for sustainable finance, lacking primarily in developing and emerging markets, is anticipated to be substantial in the forthcoming years.[152] Estimates vary but according to the International Monetary Fund (IMF), emerging economies must invest a minimum of $1 trillion in energy infrastructure by 2030 and $3 trillion to $6 trillion annually across all sectors by 2050 to effectively address climate change by significantly decreasing greenhouse gas emissions.[153]

The fulfilment of such demand is contingent on providing timely and accurate information to investors, enabling them to allocate their capital toward sustainable development initiatives. Currently, the available data is characterized by fragmentation and a lack of standardization.[154] Assessing the ESG profile of an issuer and the ESG effect of a green bond can pose a challenge for investors in terms of accurate evaluation.[155]

The escalating interest in sustainable investments has led to an increased need for data about corporate social responsibility and

151. Niamh O'Sullivan & Brendan O'Dwyer, *Stakeholder Perspectives on a Financial Sector Legitimation Process: The Case of NGOs and the Equator Principles*, 22 ACCT., AUDITING & ACCOUNTABILITY J. 553, 554 (2009).

152. Hans B. Christensen, Luzi Hail & Christian Leuz, *Mandatory CSR and Sustainability Reporting: Economic Analysis and Literature Review*, 26 REV. ACCT. STUD. 1176, 1177 (2021).

153. Torsten Ehlers, Charlotte Gardes-Landolfini, Fabio Natalucci & Prasad Ananthakrishnan, *How to Scale Up Private Climate Finance in Emerging Economies*, INT'L MONETARY FUND BLOG (Oct. 7, 2022), https://www.imf.org/en/Blogs/Articles/2022/10/07/how-to-scale-up-private-climate-finance-in-emerging-economies.

154. For instance, the mean correlation of ESG ratings offered by six prominent raters is merely 0.54,. *See* Berg et al., *supra* note 41, at 1321.

155. Chitra Sriyani De Silva Lokuwaduge & Kumudini Heenetigala, *Integrating Environmental, Social and Governance (ESG) Disclosure for a Sustainable Development: An Australian Study*, 26 BUS. STRATEGY & ENV'T 438, 439 (2017).

firms' ESG practices and policies.[156] In response to this request, 83% of U.S. SEC-registered companies have chosen to divulge certain details pertaining to sustainability within their respective regulatory filings.[157]

Nonetheless, disclosure of a significant portion of this data is regarded as voluntary.[158] Hence, it is unsurprising that investors express dissatisfaction regarding the absence of comparable and verifiable data.[159] Furthermore, the Sustainability Accounting Standards Board (SASB) has noted that approximately 50% of companies registered with the SEC furnish generic or boilerplate sustainability data in their regulatory submissions.[160]

In light of the need for information and the prevailing condition of corporate disclosure, several organizations provide (voluntary) reporting criteria for ESG endeavors to enhance reporting practices.[161] For example, the SASB develops industry-specific disclosure standards for financially material environmental, social, and governance issues that companies can follow in their SEC filings.[162] Likewise, the Global Reporting Initiative (GRI) aims to assist corporations in communicating their effect on critical sustainability topics by developing worldwide criteria for

156. *See* Jeffrey R. Cohen, Lori Holder-Webb & Valentina L. Zamora, *Nonfinancial Information Preferences of Professional Investors*, 27 BEHAV. RSCH. ACCT. 127, 129 (2015); Amir Amel-Zadeh & George Serafeim, *Why and How Investors Use ESG Information: Evidence from a Global Survey*, 74 FIN. ANALYSTS J. 87, 101 (2018).

157. *The State of Disclosure 2017*, SUSTAINABILITY ACCT. STANDARDS BD. 2 (December 2017), https://www.sasb.org/wp-content/uploads/2017/12/2017State-of-Disclosure-Report-web.pdf [hereinafter SASB].

158. *Structured Disclosure at the SEC: History and Rulemaking*, U.S. SEC. & EXCH. COMM'N (Last Modified Feb. 8, 2024), https://www.sec.gov/page/osdhistoryandrulemaking.

159. Sara Bernow, Jonathan Godsall, Bryce Klempner & Charlotte Merten, *More than Values: The Value-Based Sustainability Reporting that Investors Want*, MCKINSEY SUSTAINABILITY (August 7, 2019), https://www.mckinsey.com/capabilities/sustainability/our-insights/more-than-values-the-value-based-sustainability-reporting-that-investors-want. *See also* Christensen et al., *supra* note 152, at 1229–31 (presenting an extensive analysis of the existing literature on accounting and finance research and finding that there exists a significant degree of heterogeneity in the disclosure of ESG practices among firms, making it hard to compare ESG practices).

160. SASB, *supra* note 157, at 2.

161. Christensen et al., *supra* note 152, at 1177.

162. *SASB Standards Overview*, SUSTAINABILITY ACCT. STANDARDS BD., https://sasb.org/standards/ (last visited Feb. 28, 2024).

sustainability reporting.[163] An additional player is the IFRS Foundation, which proposes an international framework for sustainability reporting to combat the proliferation of standards and standard-setters.[164]

Simultaneously, numerous jurisdictions are contemplating reporting mandates. The Investor Advisory Committee of the SEC has proposed a mandate that would require SEC registrants to furnish pertinent information concerning ESG matters that are deemed significant to investors in their decision-making processes related to investments and voting.[165] The European Union has made progress in another direction. The Non-Financial Reporting Directive mandates that organizations with a workforce exceeding 500 individuals furnish "non-financial and diversity information" in their management report commencing in 2017.[166] The European Union is evaluating this directive and exploring avenues to enhance it, such as the imposition of specific standards or audit prerequisites.[167]

We believe a fundamental need exists to advocate reforms that augment disclosure obligations pertaining to the environmental facet and require companies to disclose information. The findings derived from our experiment indicate a distinct inclination among both professional and household investors toward making environmental investments. Hence, it is imperative that companies prioritize the comprehensive and trustworthy disclosure of environmental factors, thereby enabling investors to articulate their preferences.

163. *The Global Standards for Sustainability Impacts*, GLOB. REPORTING INITIATIVE, https://www.globalreporting.org/standards (last visited Feb. 28, 2024).

164. Teresa Ko, *Hope for a New Paradigm – Sustainability Reporting*, INT'L FIN. REPORTING STANDARDS FOUND. (Oct. 9, 2020), https://www.ifrs.org/news-and-events/news/2020/10/hope-for-a-new-paradigm-sustainability-reporting.

165. *Recommendation from the Investor-as-Owner Subcommittee of the SEC Investor Advisory Committee Relating to ESG Disclosure. U.S. Securities and Exchange Commission Investor Advisory Committee*, INV. ADVISORY COMM., 7 (May 14, 2020), https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-of-the-investor-as-owner-subcommittee-on-esg-disclosure.pdf.

166. Directive 2014/95/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0095.

167. *Summary Report of the Public Consultation on the Review of the Non-Financial Reporting Directive*, EUROPEAN COMM'N (2020), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=PI_COM:Ares(2020)3997889&from=EN.

Comprehensive and trustworthy disclosure of information can result in immediate benefits for companies in terms of environmental investment. This, in turn, can help mitigate the *eco-agency problem* discussed earlier in this Article. By offering a genuine economic incentive, such disclosure encourages managers to invest in environmental protection, despite the associated high immediate costs. If full and reliable disclosure is implemented, it has the potential to address the *eco-agency problem* and bring to light the authentic preferences of the investors.

However, it is appropriate to recognize the obstacles and complexities inherent in solving the disclosure.[168] Voluntary corporate social responsibility disclosures serve as a means for companies to communicate their Corporate Social Responsibility (CSR)initiatives to the general public. Nevertheless, the credibility of these disclosures may be questionable, thereby impeding firms from fully capitalizing on the advantages they offer.[169] In addition, corporations may choose to adopt CSR standards in a primarily symbolic manner, aiming to legitimize their corporate actions, selectively disclosing positive CSR activities without any substantial intention to make significant changes to the underlying activities.[170]

The implementation of a reporting mandate has the potential to establish a reliable commitment, particularly when accompanied by effective enforcement mechanisms, thereby enhancing its credibility.[171] Hence, it is imperative to identify mechanisms that can effectively ensure accountability.[172]

The results of our experiment show that there is a need for mandatory, not voluntary, environmental disclosure. The regulation should require corporations to disclose accurate and comprehensive information regarding their environmental impacts, activities, and strategies. By mandating such disclosures, governments and regulatory bodies can empower stakeholders, investors, and the public to make informed decisions and hold corporations accountable for their environmental practices.

168. *See* Christensen et al., *supra* note 152, at 1187–88; Liang, *supra* note 41, at 12.

169. Christensen et al., *supra* note 152, at 1206.

170. Marquis et al., *supra* note 2, at 483–84.

171. Christensen et al., *supra* note 152, at 1206.

172. Albert C. Lin, *Making Net Zero Matter*, 79 WASH. & LEE L. REV. 679, 702 (2022).

The importance of mandatory environmental disclosure lies in its ability to foster transparency, encourage responsible behavior, and drive the transition toward a sustainable future. If corporations are compelled to disclose their environmental footprints, stakeholders gain insights into a company's carbon emissions, waste management, water consumption, and other critical factors that make an ecological impact. Armed with this information, stakeholders can make informed choices and allocate resources toward supporting companies that prioritize environmental sustainability along with their own revealed preferences.

Despite the clear benefits, implementing mandatory environmental disclosure faces certain challenges. Balancing the need for transparency with the protection of proprietary information, ensuring standardization across industries, and addressing the compliance burden on corporations are among the complexities that need careful consideration. However, these challenges should not discourage the pursuit of mandatory disclosure. Instead, they highlight the importance of collaborative efforts between governments, regulatory bodies, corporations, and other stakeholders to develop robust frameworks that strike a harmonious balance.

Finally, and in support of our findings, Fisch and Robertson[173] have examined empirically investor efforts to obtain environmental and social disclosures through the shareholder proposal rule. They have found that during both the 2021 and 2022 proxy seasons, shareholders submitted hundreds of proposals seeking sustainability disclosures beyond what issuers were already providing.[174] In addition, they have found that a substantial percentage of these proposals were withdrawn, often in connection with settlements in which issuers agreed to provide some or all of the requested disclosures.[175] While each situation is no doubt unique, a significant number of these settlements were likely motivated, at least in part, by the issuer's perception that the proposal was likely to receive substantial voting support. They

173. Jill E. Fisch & Adriana Robertson, *Shareholder Proposals and the Debate Over Sustainability Disclosure*, U. PA. INST. L. & ECON. (forthcoming 2024) (available at SSRN: https://ssrn.com/abstract=4477680).

174. *Id.* at 17.

175. *Id.*

conclude, therefore, that analyses of proposal outcomes that focus exclusively on voted proposals likely understate the true level of shareholder support for sustainability disclosures.

CONCLUSION

In times of growing environmental concerns and heightened awareness of corporate responsibility, transparency has emerged as a pivotal force in shaping public perception and driving meaningful change.[176] As the world grapples with pressing environmental challenges, corporations are being called on to go beyond mere compliance and actively disclose their environmental impacts and sustainability practices.[177]

In a controlled lab experiment we showed that both professional and nonprofessional investors prefer investing in sustainable financial alternatives over non-sustainable alternatives and attach an added value to the first. This finding can solve the *eco-agency problem* by which the corporate officers invest too little in sustainability as a result of myopia—that is, focusing on short-term financial gain for the sake of their career track. Since investors attach an immediate added value to sustainability, it aligns short-term and long-term interests and incentivizes the corporate officers to invest effectively in sustainability today. To make this mechanism reliable, unique environmental disclosure is needed.

This Article has navigated through the realm of unique environmental disclosure, shedding light on its transformative potential and unveiling the motivations driving its adoption. By examining its significance and considering the implications for both corporations and stakeholders, it becomes evident that embracing transparent environmental reporting can be a catalyst for positive change. As businesses increasingly recognize the interconnectedness of their operations with environmental concerns, the adoption of unique disclosure practices can pave the way for a more sustainable and responsible corporate landscape. This transformative journey not only empowers stakeholders with valuable information but also encourages corporations to align

176. Kim & Lyon, *supra* note 2, at 705–06; Marquis et al., *supra* note 2, at 484.

177. Cohen et al., *supra* note 156; Amel-Zadeh & Serafeim, *supra* note 156.

their strategies with environmental stewardship, fostering a future where transparency and sustainability coalesce for the benefit of the planet and its inhabitants. By deviating from standardized reporting and embracing innovative disclosure methods, companies can better demonstrate their commitment to sustainability and inspire others to follow suit.

Unique environmental disclosure empowers companies to present a comprehensive picture of their environmental impact, including intricate details of their sustainability strategies, innovation efforts, and progress toward ambitious targets. This approach enables investors to gain a deeper understanding of a company's environmental journey, fostering trust and promoting informed decision-making.

Moreover, unique environmental disclosure can act as a catalyst for innovation and collaboration.[178] By sharing detailed information about their sustainability practices, corporations can inspire others within their industry and beyond to adopt best practices, explore novel solutions, and contribute to collective efforts in addressing global environmental challenges. This transparent exchange of knowledge and ideas encourages a race to the top,[179] where companies strive to outdo one another in their commitment to sustainability, ultimately benefiting both the planet and their bottom line.

However, unique environmental disclosure is not without its challenges.[180] Companies must carefully navigate potential risks, such as disclosing sensitive proprietary information, avoiding greenwashing,[181] and ensuring the accuracy and reliability of disclosed data.[182] Striking a balance between transparency

178. *See* Isabel María García-Sánchez, Nicola Raimo & Filippo Vitolla, *Are Environmentally Innovative Companies Inclined Towards Integrated Environmental Disclosure Policies?*, 11 ADMIN. SCI. 29 (2021).

179. The competition observed among state corporation laws in the United States can be attributed to a similar underlying rationale. The fundamental case for federalizing corporate law is based on the widely recognized "race to the bottom" theory. There exists a competitive environment among states with regard to the issuance of corporate charters. In fact, the state collects more franchise and other taxes the more charters it grants. Thus, the state's rationale is for the companies to consolidate within its domain. *See* Roberta Romano, *The State Competition Debate in Corporate Law*, 8 CARDOZO L. REV. 709 (1987).

180. Christensen et al., *supra* note 152, at 1187–88; Liang, *supra* note 41, at 12.

181. Netto et al., *supra* note 21.

182. Christensen et al., *supra* note 152, at 1206; Lin, *supra* note 172, at 702.

and protecting competitive advantages requires thoughtful consideration and robust governance frameworks.

Through the exploration of investor preferences for more sustainable investments, this Article aims to shed light on the transformative power of unique environmental disclosure by corporations. By embracing transparency as a strategic advantage, companies can cultivate trust, foster innovation, and pave the way for a more sustainable and accountable business landscape without damaging the short-term profitability. In an age when environmental stewardship is a shared responsibility, corporations have the opportunity to lead by example and inspire a new era of transparency that transcends traditional reporting boundaries and enables investors to implement their preferences into the capital market pricing mechanism.

In conclusion, as environmental concerns take center stage, corporations have a critical role to play in driving the transition to a more sustainable future.[183] By investing in environmentally sound practices and technologies, businesses can create a positive effect on the planet while positioning themselves both for short-term and long-term success. This Article has sought to illuminate the critical significance of environmental investment for corporations, emphasizing the transformative potential inherent in the integration of sustainability into core business strategies. By doing so, corporations can not only fulfill their environmental responsibilities but also unlock new opportunities for growth, innovation, and stakeholder engagement in a world increasingly committed to a greener, more sustainable path and create added value both for investors and for the corporation itself.

183. Ricart & Rey, *supra* note 1, at 4384–85.