

Chapter 6

Environmental Disclosure and Greenwashing Can We Separate Signal from Noise?



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Abstract The increase in social debate on environmental issues has led to an increase in the number of companies presenting environmental declarations that are not backed up by actions. The declarations are made for marketing purposes only and they lead to extensive damage even to companies that back up their statements with actions, since it is difficult for investors and customers to identify when it is a reliable commitment. As greenwash activities arise, combined with the difficulty of identifying whether the declaration is backed by actions or not, investors' trust in these statements is damaged, as are investments in companies that are truly committed to the declarations, creating a situation in which it is very difficult to produce a reliable signal. Diverse mechanisms have been established throughout time to encourage investment in the environment and to address the environmental dimension of the agency problem, but all mechanism did not succeed in solving it. This chapter examines coping mechanisms such as green bonds, CoCo bonds, and ESG-biased executive compensation, which incentivize environmental responsibility and aim to create credible signals and explain the reasons for these mechanisms not fulfilling their goals. In addition, it explores the intricate relationship between environmental disclosure and greenwashing, delving into motivations, tactics, and impacts on stakeholders. Furthermore, the chapter addresses the complexities of environmental disclosure and proposes strategies to foster genuine sustainability practices while combating greenwashing. It discusses the ongoing debate around mandatory environmental disclosure and provides guidelines for distinguishing between genuine signals and deceptive noise in environmental communication.

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97

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6.1 Introduction

The late 1980s witnessed a surge in environmental reporting. Companies began publishing annual sustainability reports, detailing their environmental practices, emissions, and conservation efforts. These reports aimed to inform stakeholders, build trust, and align with emerging global environmental frameworks.

However, as environmental disclosure became mainstream, so did the temptation to manipulate it. Enter greenwashing: a term coined in the 1980s to describe deceptive practices where organisations exaggerated their environmental achievements.¹ Consumers, investors, and NGOs grew sceptical, demanding authenticity behind the glossy reports.²

Greenwashing, the deceptive practice of portraying an organisation as more environmentally responsible than it truly is, has far-reaching implications. From misleading consumers to undermining genuine efforts toward sustainability, greenwashing poses a significant challenge for both businesses and policymakers.

In this chapter, we delve into the intricate dance between environmental disclosure and greenwashing. We explore the motivations behind greenwashing, the tactics employed by organisations, and the impact on stakeholders. In addition, we delve into coping mechanisms that are being used to create a credible signal and aim to shed light on the delicate balance organisations must strike when navigating the transparency landscape.

Extensive research has been conducted on the issue of greenwashing, including the various mechanisms employed to address or mitigate it.³ These mechanisms may be regarded as unique in that they address the greenwashing phenomenon by creating financial incentives. We focus on three mechanisms of this nature: green bonds, CoCo bonds, and ESG-biased executive compensation. This chapter will examine how each mechanism endeavours to overcome the disparities between signal and noise, with the objective of encouraging the corporations' officers to prioritise the environmental dimension and as a result to create a credible signal.

Lastly, we unravel the complexities of environmental disclosure, expose the veils of greenwashing, and propose strategies to foster genuine sustainability practices. As part of it, we critically examine the current initiatives to impose mandatory environmental disclosure in a world with blurred boundaries between transparency and deception.

Today, environmental disclosure is a critical aspect of corporate communication. Organisations balance transparency with the risk of greenwashing. Stakeholders scrutinise reports, seeking evidence of genuine commitment. As we navigate the complexities of sustainability, the delicate dance between disclosure and deception continues. Therefore, we conclude by drawing guidelines for separating between signal and noise using environmental disclosure.

¹ Majláth (2017), pp 92–93.

² Kim and Lyon (2015), pp 705–706, Marquis et al. (2016), p 484.

³ De Freitas Netto et al. (2020), Majláth (2017).

6.2 The Greenwashing Phenomenon

In the contemporary period, a substantial proportion of manufacturers are reassessing the importance of promoting their goods, or even their own brand, as ecologically friendly, with the aim of attracting a growing audience that is progressively mindful of ecological issues.⁴ Companies often use tactics to attract environmentally aware customers, where they make claims that seem to be environmentally good but are typically vague and sometimes misleading.⁵ As a result, the phenomenon of greenwashing has grown widespread in the market.⁶

Greenwashing is a strategic practice used by organisations to intentionally disseminate inaccurate or insufficient information to cultivate a favorable public image about their commitment to environmental stewardship.⁷

Due to the exacerbation of environmental issues and the concomitant increase in public awareness, a multitude of stakeholders have developed a heightened awareness of environmental factors.⁸ In recent times, there has been an increasing call from diverse stakeholders, encompassing investors, consumers, governments, regulators, and other agencies, for corporations to enhance their level of transparency about their environmental performance and the accessibility of environmentally sustainable products.⁹ Firms have developed green marketing strategies to showcase their good business image and dedication to social responsibility in response to the growing demand.¹⁰

There is a clear increase in the number of green markets which has been followed by the manifestation of greenwashing.¹¹ The phenomenon can be described as the convergence of two separate corporate conducts: subpar environmental performance and positive portrayal of environmental performance.¹²

In other words, greenwashing pertains to the deceitful marketing tactic implemented by corporations, wherein they falsely represent the environmental friendliness of their products or operations.¹³ The phenomenon of greenwashing is gaining recognition as a substantial legal hazard that manifests within major corporations and necessitates regulatory intervention.

⁴ De Freitas Netto et al. (2020).

⁵ De Freitas Netto et al. (2020).

⁶ Majláth (2017), pp 92–93.

⁷ De Freitas Netto et al. (2020).

⁸ Chen and Chang (2012), pp 504–505.

⁹ Kim and Lyon (2015), pp 705–706, Marquis et al. (2016), p 484.

¹⁰ Zhang et al. (2018), pp 740–742, Marquis et al. (2016), pp 484–485.

¹¹ Majláth (2017), pp 92–93.

¹² Delmas and Cuerel Burbano (2011), p 65.

¹³ For the numerous definitions and the evolution of the term ‘greenwashing’, see Beteta Vejarano and Swinkels (2023), p 6.

The extant body of literature offers a range of strategies aimed at addressing the issue of greenwashing.¹⁴ For example, Armour et al. propose a collection of contractual mechanisms, which they refer to as “green pills,” to bolster the credibility of climate commitments through the internalisation of incentives to attain climate objectives.¹⁵

Similarly, Perez and Vandenberg have devised two novel financial instruments—a carbon letter of credit and a climate pledge green bond—that enable organisations to establish trustworthy commitments through the execution of irrevocable forward contracts with external entities.¹⁶ The authors focus their attention on corporate climate promises, while also suggesting that their tools have the potential to support commitments on several subjects outside the realm of climate change.¹⁷

In addition, a variety of measures have been established over time to promote investments in the environment. The following section will discuss three methods related to this subject matter: green bonds, CoCo bonds, and ESG-biased executive compensation. Then, we will investigate how each mechanism attempts to combat the greenwashing problem.

6.3 Coping Mechanisms

6.3.1 *Green Bonds*

Green bonds are the first mechanism designed to encourage environmental investments and combat the greenwashing phenomenon. To solicit capital from the market, a variety of entities, including governments, corporations, and non-governmental organisations, issue bonds, which are financial instruments representing certificates of indebtedness.¹⁸

Bonds are issued by issuers to obtain long-term money from investors. These investors assume the position of bondholders. In exchange for the risk they assume, bondholders are paid periodic interest payments until the bond reaches maturity or is retired, and the issuer reimburses the principal amount.

The issuer’s extensive bondholder base enables them to provide larger loans at a reduced cost compared to a bilateral or syndicated bank loan.¹⁹ This mostly appeals to governments and organisations who are adopting sustainability programs that require a significant amount of resources and provide slow financial returns.²⁰

¹⁴ See Armour et al. (2023), Perez and Vandenberg (2023), Beteta Vejarano and Swinkels (2023), pp 6–10, Delmas and Cuere Burbano (2011), pp 77–84.

¹⁵ Armour et al. (2023).

¹⁶ Perez and Vandenberg (2023).

¹⁷ Perez and Vandenberg (2023).

¹⁸ Jones et al. (2020), p 50.

¹⁹ Green Bonds: Mobilising Bond Markets for a Low-Carbon Transition (2017), p 21.

²⁰ Green Bonds: Mobilising Bond Markets for a Low-Carbon Transition (2017), pp 20–22.

Green bonds possess an identical financial framework to that of conventional bonds.²¹ The main difference between green bonds and traditional bonds is in how the bond revenues are used. Green bonds are a kind of debt instrument that is issued by governmental organisations or private corporations with the purpose of funding environmentally advantageous initiatives. Potential projects may include initiatives aimed at fostering sustainability, mitigating carbon emissions, or improving energy efficiency.

In other words, green bonds combine traditional bond characteristics with a commitment to use the proceeds to finance assets and initiatives that are environmentally sustainable. Therefore, they possess considerable worth in enabling the collection of private financial capital in support of achieving a decarbonised and sustainable society.²²

For the green bond to be eligible for this classification, it must conform to the Green Bond Principles. The aforementioned principles include a collection of voluntary recommendations that aim to enhance openness and transparency, as well as cultivate integrity within the expansion of the Green Bond market.²³ They do this by providing clarity on the process of issuing a green bond.²⁴

Despite the pervasive adoption of green bonds and the general accord on the concept, there is a lack of a universally acknowledged framework for determining the green status of a bond. The designation of green bonds can be bestowed by the issuer, a data provider, or a third party.²⁵

Green bonds were first issued by public organisations or entities that have a resemblance to public institutions, such as international development banks and agencies, during their initial phases of existence.²⁶ The European Investment Bank (EIB) enabled the first issue of a green bond in 2007, with the aim of financing projects connected to renewable energy and energy efficiency.²⁷ In the following year, the International Bank for Reconstruction and Development (IBRD), a supranational financial organisation, took a similar step by launching its first green bond.²⁸ The issue of green bonds by private firms was initiated in 2013.²⁹

Subsequently, the green bond market has had a substantial upswing, reaching a total worth of \$2.2 trillion in 2022.³⁰ The global expansion of the green bond market is apparent in the issuance of these bonds by issuers hailing from 51 countries and

²¹ Jones et al. (2020), p 50.

²² See, e.g., Sartzetakis (2021).

²³ The Green Bond Principles 2017 (2017).

²⁴ The Green Bond Principles 2017 (2017).

²⁵ For a review of the standards for identifying green bonds and the origins of the market, see Baker et al. (2022).

²⁶ Park (2018), p 14.

²⁷ Green Bonds: Mobilising the Debt Capital Markets for a Low-carbon Transition (2015), p 12.

²⁸ Green Bonds: Mobilising the Debt Capital Markets for a Low-carbon Transition (2015), p 12.

²⁹ Flammer (2021), pp 499–500.

³⁰ Climate Bonds Initiative, Sustainable Debt Global State of the Market 2022 2 (2022).

representing 33 distinct currencies throughout the year 2022.³¹ Nevertheless, it is important to highlight that despite the substantial growth of the green bond market, it continues to constitute a very little segment within the broader bond market.³²

Green bonds provide a multitude of benefits. For example, these instruments provide benefits to issuers by being in line with the long-term durations of projects, resulting in a decrease in expenditures associated with financing.³³ Furthermore, green bonds play a significant role in enhancing the environmental footprints and financial performance of firms at the business level.³⁴

Although the green bond instrument has its advantages, it also has several disadvantages that cast doubt on its effectiveness in promoting truly environmentally sensitive investments.³⁵

One notable concern pertaining to the green bond market is the potential for issuers to engage in deceptive practices by making misleading claims about the environmental sustainability of the underlying project associated with the bond. To provide an example, the issuing body may categorise a bond without any explicit project association inside a corporation as “green.” Similarly, in some instances, a company that issues bonds may categorise them as “green” even if they are linked to a project that has little or insignificant environmentally friendly characteristics.³⁶

Alternatively, issuers may make an initial commitment to allocate the funds towards an environmentally sustainable project, but then take actions that contradict their initial commitment and use the funds for purposes that are not environmentally friendly.³⁷ There have been contentious instances in which green bonds were employed to finance projects that raised environmental concerns or caused damage to the ecosystem.³⁸

The absence of comprehensive and uniform regulations means that the financing of such projects through green bonds is not impeded for the issuers.³⁹ Furthermore, assessing the environmental benefits of a green bond is complicated by the lack of consistent and enforceable criteria.⁴⁰ The evaluation of ecological impacts linked to green bond initiatives and the disclosure of fund utilisation are subject to an extremely limited number of legally binding regulations.⁴¹

³¹ Climate Bonds Initiative, Sustainable Debt Global State of the Market 2022 2 (2022), p 5.

³² It is important to note that there is a belief among some that the significant growth of the green bond market over time suggests its potential to become a substantial portion of the overall bond market, *see* European Finance Stability and Integration Review 2021 (2021), pp 28–29.

³³ Park (2018), pp 12–13.

³⁴ Flammer (2018).

³⁵ *See generally* Jones et al. (2020), pp 52–54.

³⁶ *See* Flammer (2020), p 96.

³⁷ Gilotta (2023), p 13.

³⁸ Jones et al. (2020), p 52.

³⁹ Talbot (2017), pp 143–145.

⁴⁰ Jones et al. (2020), p 50.

⁴¹ Jones et al. (2020), p 50, Talbot (2017), pp 143–145.

In conclusion, green bonds are issued to finance initiatives that generate environmental benefits to encourage environmental investment. However, the present difficulties raise uncertainties concerning the environmental advantages of this mechanism.

6.3.2 *CoCo Bonds*

Contingent convertible bonds (CoCos) can encourage environmental investments and reduce the occurrence of greenwashing. CoCo is a hybrid financial instrument that is first issued as debt but, if the financial institution fails to satisfy a predefined distress level, it is transformed into equity or written off.⁴²

Banks primarily issue CoCos as a result of their capital needs. The incorporation of the value of CoCos into banks' AT1 capital is facilitated by the hybrid nature of CoCos, which entails the combination of debt and equity. This aids in the preservation of their capital buffers. The bonds in question may be seen as a kind of bailout, but with the distinction that the bailout originates from the bondholders rather than the broader public. When banks issue CoCos, they are often referred to as AT1 bonds since they play a significant role in augmenting AT1 capital.⁴³

The two main characteristics of CoCos are a trigger mechanism and a loss-absorption mechanism.⁴⁴ CoCos possess distinct attributes that differentiate them from traditional convertible bonds since the latter gives investors the ability to independently choose the date of bond-to-equity conversion.

The trigger is important because it determines the probability of conversion and, thus, the corresponding degree of risk.⁴⁵ The trigger might be either mechanical, discretionary or a combination of both characteristics.⁴⁶ Mechanical triggers are dependent on the market or book value of the bank that issued the instrument, whereas discretionary triggers are triggered by a supervisory authority.⁴⁷

The method of loss absorption encompasses two primary approaches: the conversion of debt into equity at a specified rate or the decrease of the book value of the loan via principal write-down.⁴⁸ Investors are provided with a substantial return on investment in return for the ability to absorb any losses via the issuance of these bonds.

Consequently, the CoCo bond operates like a traditional debt instrument until the first trigger. The issuance of money by the financial institution involves obtaining finance at its nominal value and making regular payments at preset periods, akin

⁴² See Delivorias (2016), p 1, Flannery (2014), pp 227–228.

⁴³ See generally Wang (2023).

⁴⁴ Delivorias (2016), p 4.

⁴⁵ Köffer (2013), p 24.

⁴⁶ Delivorias (2016), p 1.

⁴⁷ De Spiegeleer and Schoutens (2019).

⁴⁸ Delivorias (2016), p 4.

to the distribution of interest on a debt instrument. If the financial organisation that issued the loan becomes insolvent, the CoCos, which are similar to a debt instrument, have a higher priority than equity.⁴⁹

However, once activated, the CoCo bond functions similarly to equity. In the absence of a credit event, the discontinuation of monthly payments is analogous to the elimination of dividends. The par value of the bond is either devalued or converted into a set amount of common stock. To summarise, CoCos are a unique financial product that does not conform to the traditional distinction between debt and equity.

Recent progress in green finance involves the classification of CoCos as an eco-friendly, green investment.⁵⁰ The fundamental concept guiding 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 endeavours.

Furthermore, the process of converting debt into equity in response to a company's attainment of a certain degree of hardship has the potential to alleviate the occurrence of greenwashing. The reason for this is that the mechanism indicated above provides a significant benefit in comparison to other financial instruments, as it motivates shareholders to closely observe the activities of the company's decision-makers.

Researchers and regulatory organisations highly praise CoCos for their capacity to punish financial institution shareholders for their risk-taking by diluting their existing shares.⁵¹ Hence, shareholders are incentivised to exert more supervision over the board of directors to guarantee that CoCos' investors get their principal and interest payments instead of a share in the firm. As previously stated, this phenomenon is motivated by the shareholder's inclination to mitigate the potential reduction in their ownership interest in the firm.

Nevertheless, there have been doubts raised over this capability. In accordance with the findings of Gamba et al.,⁵² it is improbable that the write-down or conversion initiated in CoCos would impose a substantial penalty on shareholders. This is because CoCo investors, who are obligated to convert their bonds into equity at a price lower than the predetermined conversion price, would incur a loss relative to the nominal value of their bond. In contrast, stockholders would not experience dilution and would experience more benefits compared to the scenario where they repay the CoCo bonds.⁵³

Similarly, there are concerns that non-dilutive CoCos may provide stronger motivations for risk shifting compared to subordinated debt.⁵⁴ The transfer of wealth from CoCo investors to shareholders is ascribed to the conversion process.

⁴⁹ Wang (2023).

⁵⁰ For example, the bank BBVA issued €1 billion worth of green CoCo Bonds in 2020. See BBVA Raises €1bn in First-ever Green Coco Bond by a Financial Institution (2020).

⁵¹ See Flannery (2014), pp 227–228, Flannery (2016), Calomiris and Herring (2013).

⁵² Gamba et al. (2024).

⁵³ Gamba et al. (2024).

⁵⁴ See Pennacchi (2010), Berg and Kaserer (2015), Chan and Wijnbergen (2017).

In addition, although several international financial institutions have issued CoCos, no American banks have done so.⁵⁵ The possibility for mitigating the greenwashing phenomena and promoting sustainable investments exists if American banks were to alter their present approach. Nevertheless, it is plagued by obstacles that hinder its realisation.

6.3.3 *ESG Compensation Metrics*

The use of ESG compensation criteria serves as an additional means of motivating investments in environmental initiatives and mitigating the greenwashing phenomenon.

From the establishment of corporate social responsibility initiatives until the current era of ESG-based endeavours, sustainability has received considerable emphasis on the agenda of corporate boards, progressing towards integration into the strategic planning of businesses.

A number of influential investors argue that for corporate ESG activities to have substantial importance, they need to be integrated into the incentive systems of managers.⁵⁶ It is crucial to make adjustments to senior executive remuneration schemes to integrate both financial and non-financial measures, hence enhancing the effectiveness of performance evaluation over a prolonged duration.

Incentive schemes have always been mostly motivated by objective financial objectives. Often, this involves establishing quantifiable goals related to numerical indicators like as sales, cash flow, total shareholder return, and so on. Nevertheless, a notable shift is taking place in many organisations as nonmonetary goals become more prominent.

There is an increasing interest in identifying suitable incentives to accomplish objectives associated with ESG issues. Several OECD member nations have shown a heightened commitment to attaining continuous corporate growth and value by ensuring that the individuals responsible for making decisions inside the firm have a vested interest in the company's long-term success, especially in relation to ESG obligations.⁵⁷

In other words, several OECD countries in the European Union have connected long-term rewards to ESG goals. Based on a survey done by Pay Governance, it is evident that a much greater percentage of firms in the United Kingdom and the European Union, roughly 90%, integrate ESG criteria into their incentive pay schemes, in contrast to a mere 20% of corporations in the United States.⁵⁸ Additionally, this

⁵⁵ Wang (2023) (suggesting that the dearth of CoCo adoption among U.S. banks could potentially be ascribed to the unique regulatory framework that governs the financial industry in the United States, as opposed to that of other countries).

⁵⁶ Eccles et al. (2020).

⁵⁷ O'Neal (2023), pp 570–574.

⁵⁸ Ellerman et al. (2021).

survey revealed that a substantial percentage (41%) of corporations in the United Kingdom and European Union have implemented enduring incentive schemes that are connected to ESG indicators.⁵⁹ Conversely, a mere 5% of corporations in the United States have executed such strategies.⁶⁰

Similarly, a substantial proportion of investors support similar alterations. Reports from recognised pay consultants indicate a significant rise in the demand for ESG compensation indicators from institutional investors, social and environmental activists, and stakeholder organisations in recent years.⁶¹

Others have even gone a step further. For instance, Allianz Global Investors and Cevian Capital have committed to use their voting rights against important European firms that do not include ESG objectives into their CEO compensation provisions.⁶²

Furthermore, as shown by the 2021 Global Benchmark Policy Survey published by Institutional Shareholder Services (ISS), a substantial majority of investors (86%) and non-investors (73%) see non-financial ESG measures as a viable criterion for motivating executives.⁶³

Hence, it is crucial to establish a connection between the compensation of directors and executives and the ESG performance indicators and long-term objectives. This will guarantee that their interests align with the long-term goals of the organisation and its shareholders.

Prior research has shown a clear and positive association between the integration of ESG objectives into the remuneration packages of top-level executives and the firms' sustainable performance.⁶⁴ The stance described above is supported by institutional investors who urge the incorporation of ESG performance indicators into both current and future methods of compensation.⁶⁵ Therefore, in assessing their business performance, the metrics chosen by organisations assume a critical role.⁶⁶

Concurrently, concerns arise concerning the benefits of incorporating ESG metrics into compensation, the possible risks that may accompany this action (e.g., incentivizing unethical behaviour, setting inadequate goals, and generating guaranteed bonuses), and challenges in furnishing investors with what they perceive as satisfactory lucidity and specificity in ESG-based compensation schemes.⁶⁷

Some argue that the implementation of ESG-based compensation offers substantial risks.⁶⁸ For example, Bebchuk and Tallarita discern two structural issues, utilizing

⁵⁹ Ellerman et al. (2021).

⁶⁰ Ellerman et al. (2021).

⁶¹ See, e.g., Chalmers et al. (2021), Gosling and O'Connor (2021), Behrens and Anderson (2021), Cohen et al. (2023).

⁶² Bradford (2022); Cevian Capital Requires ESG Targets in Management Compensation Plans (2021).

⁶³ Belyeu (2021).

⁶⁴ Baraibar-Diez et al. (2019), Eccles et al. (2011), Minciullo et al. (2022).

⁶⁵ Institutional Investor Survey 2021 (2021).

⁶⁶ Singer (2012).

⁶⁷ Spierings (2022).

⁶⁸ Bebchuk and Tallarita (2022).

an empirical examination of the implementation of ESG compensation metrics among S&P 100 firms.⁶⁹ Firstly, it is common for ESG metrics to attempt to link CEO compensation to a restricted subset of stakeholders' welfare. Therefore, notwithstanding the potential for these compensation structures to serve as a significant motivator to enhance the specified aspects, the economics of multitasking suggest that their implementation may ultimately be detrimental to the welfare of all stakeholders rather than beneficial.⁷⁰ Secondly, the emphasis on ESG metrics fails to address and worsens the agency problem of executive compensation. External scrutiny is necessary to ensure that compensation arrangements are driven by the interests of executives and not merely to provide effective incentives.⁷¹

However, the empirical analysis conducted by Bebchuk and Tallarita in their study demonstrates that external observers find it challenging, if not impossible, to determine whether the use of ESG metrics by S&P 100 companies results in beneficial incentives or merely performance-insensitive compensation for CEOs.⁷²

Additionally, certain ESG objectives, particularly those relating to the environment, may be too far in the future to be compatible with conventional executive incentive plans. Despite the enduring character of numerous ESG objectives, corporations must include them in their executives' annual incentive plans.

In sum, it seems that ESG-biased remuneration might potentially function as a strategy to mitigate the greenwashing phenomena; nonetheless, it is crucial to recognise its limitations.

As shown above, numerous mechanisms have been created to encourage environmental investments. Indeed, each of these mechanisms possesses the potential to counteract the greenwashing phenomenon in its own unique manner.

Green bonds are specifically designed to provide financial support only for initiatives related to the environment. Regarding green CoCos, in addition to their environmental funding, shareholders have a strong motivation to carefully oversee the managers' activities. The implementation of ESG-biased remuneration can motivate managers to give precedence to environmental factors. By establishing a correlation between remuneration and environmental preservation, managers may effectively match their short-term interests with the objective of making ecologically responsible choices.

Nevertheless, we have seen some inherent limitations within the systems that pose a threat to the ability to promote environmental investments and effectively combat the greenwashing phenomena.

The nascent *green bond* market is accompanied by apprehensions over the aspects of responsibility, transparency, and validity. The funds generated are not susceptible to alteration and are incorporated into the overall financing reserves of the issuing

⁶⁹ Bebchuk and Tallarita (2022).

⁷⁰ Bebchuk and Tallarita (2022).

⁷¹ Bebchuk and Tallarita (2022).

⁷² Bebchuk and Tallarita (2022).

entity or government. The greenwashing problem is not resolved because there is no oversight of the funds' uses and verification that they are being utilised as intended or that they increase environmental investment beyond what the organisation or government had originally intended to do. Green bonds serve as a means of raising capital at prices that are superior to those of the market, thereby conserving environmental investment rather than augmenting it.

Green CoCos raises more difficulties, in addition to those related to conventional green bonds. Specifically, there is uncertainty over the feasibility of punishing a financial institution's shareholders by decreasing their ownership interest. Additionally, the economic viability of such a supervision incentive is uncertain. A thorough examination of management by shareholders is not desirable because the expense of governance surpasses its advantage. Even without issuing coco bonds, dominant shareholders are motivated to exercise oversight.

The utilisation of *ESG Compensation Metrics* poses risks regarding its efficacy in promoting sustainable investing and addressing the phenomenon of greenwashing. The managers have a multitude of ambiguous objectives that they are uncertain about how to progress. Furthermore, the S&P 100 cases often lack the necessary external inspection and enforcement mechanisms. In addition, the promotion of environmental investments encompasses a diverse array of factors and purposes. It is important to note that the mechanism does not provide a guarantee that environmental investments would alone provide positive net present value. Their purpose is to align managers' interests with long-term concerns. However, in reality, these considerations are limited to a few years, while the benefits of environmental expenditures are seen over a much longer period of time.

Hence, it seems that we have not yet determined the most effective approach to address the greenwashing phenomena. In the following part, we will examine the potential impact of environmental disclosure on mitigating the occurrence of greenwashing.

As will be shown in the following section, a multitude of reforms have been suggested, including reforms pertaining to environmental disclosure. In the next part, we will examine the primary proposals in this field.

6.4 Comparing Environmental Disclosure Proposals

Following persistent calls from investors and other stakeholders for more transparency about ESG issues, regulators and standard setters in several countries have released concrete plans to overhaul ESG reporting. These plans also include addressing the topic of environmental disclosure.

The European Union (EU) has released proposed ESG disclosures as part of the Corporate Sustainability Reporting Directive (CSRD).⁷³ The Federal Acquisition

⁷³ Directive (EU) 2022/2464 of The European Parliament and of The Council (14 December 2022), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464>.

Regulatory (FAR) Council has also proposed a disclosure requirement for greenhouse gas emissions and climate-related financial risk.⁷⁴ In March 2022, the Securities and Exchange Commission (SEC) proposed enhancements and standardisation of climate risk disclosure.⁷⁵

The same can be seen in the state laws in the USA. California has enacted the Climate Corporate Data Accountability Act,⁷⁶ the Climate-Related Financial Risk statute,⁷⁷ and the Voluntary Carbon Markets Disclosures Bill.⁷⁸ New York State has introduced twin bills for a Climate Corporate Accountability Act⁷⁹ and a statute on climate-related financial risk and required disclosures,⁸⁰ which may be approved in the near future. Each of these plans requires comprehensive sustainability disclosures, but with differing suggested scopes and other particulars.

The European Union and United States authorities take into account the size of a corporation when deciding which entities are affected by the regulations, when these regulations come into effect, and what information these organisations must reveal, with bigger entities expected to provide more information.

The CSRD establishes very low criteria in general. According to the CSRD, the entities that will be affected by the regulations are determined on a consolidated approach, where the combined revenues, assets, and employees. Furthermore, non-European Union entities will be required to submit reports based on the hierarchy of their parent firm for the purpose of CSRD reporting. Conversely, California has established a somewhat larger threshold than the EU, such as \$1 billion to report emissions, however, it does not specify the method of calculation. New York follows the revenue criteria set by California, although it specifically includes the income of subsidiaries in the calculation. The proposed SEC regulations would exclusively pertain to publicly traded companies, in contrast to the other three measures. The regulations will be implemented progressively, taking into account the size of the issuer, which is defined by the value of its public float.

In addition, there is a difference in the determination regarding disclosure at the group level. According to the SEC's proposal, companies that issue securities would be required to provide a comprehensive report on climate-related matters. This report would include both the company itself and any subsidiaries it controls, similar to how they already disclose their financial information. It seems probable that the same approach will be applicable in California and New York. After a corporation is

⁷⁴ Federal Acquisition Regulation: Disclosure of Greenhouse Gas Emissions and Climate-Related Financial Risk (2022).

⁷⁵ Securities and Exchange Commission (2022).

⁷⁶ SB-253 Climate Corporate Data Accountability Act, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB253.

⁷⁷ SB-261 Greenhouse gases: climate-related financial risk, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB261&search_keywords=climate+accountability.

⁷⁸ AB-1305 Voluntary carbon market disclosures, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202320240AB1305.

⁷⁹ NY SB S897A, <https://www.nysenate.gov/legislation/bills/2023/S897/amendment/A#:~:text=This%20legislation%20would%20require%20US,reports%20will%20be%20made%20public>.

⁸⁰ NY SB S5437, <https://www.nysenate.gov/legislation/bills/2023/S5437>.

included, it must provide the combined climate risks and emissions for both it and its subsidiaries. The EU will adhere to the same premise in the first stage. Nevertheless, the CSRD has a distinct provision that mandates groups to report at the level of their ultimate holding company, irrespective of its headquarters or listing location, as long as the group earns a substantial combined income inside the European Union.⁸¹ This provision has a very wide scope.⁸²

Likewise, there is a difference in the disclosure obligations of the corporations' greenhouse gas emissions. The GHG Protocol classifies corporate greenhouse gas emissions into three main scopes, which serve as the predominant reference framework for carbon emissions accounting.⁸³ Scope 1 refers to the direct greenhouse gas emissions that are produced by a company's own operations.⁸⁴ Scope 2 includes the indirect greenhouse gas emissions that result from the consumption of bought energy, heat, or steam.⁸⁵ Scope 3 covers indirect emissions in the reporting company's value chain, including materials and fuel acquisition, manufacturing, transportation, electricity consumption, outsourced activities, product use, and waste disposal, including emissions from sold products and waste disposal activities.⁸⁶

If so, California and New York, if the legislation is approved, will mandate the disclosure of Scope 1, 2, and 3 emissions. The FAR would also mandate data on public emissions, but only from significant contractors for Scope 3. The SEC will mandate the disclosure of scope 1 and 2 emissions for all registrants. However, disclosure of scope 3 emissions will only be necessary if the emissions are "material". The CSRD mandates the disclosure of Scope 1, 2, and 3 emissions, but only if a corporation considers them significant based on a dual materiality approach, which takes into account both financial and climate impact factors.

In addition, given the extensive range of reporting obligations that cover many participants in the value chain, it is quite probable that the majority of corporations will be affected by at least one of the suggested disclosure systems. For instance, a company registered with the SEC that has a subsidiary listed in the EU may potentially be obligated to comply with the regulations outlined in both of these proposals.

To sum up, each suggestion acknowledges the positive impact of improved sustainability reporting on the financial markets. The enhanced openness and accountability resulting from the new disclosures have the potential to impact behaviour, which in turn might have positive implications for the environment. Therefore, the numerous environmental disclosure initiatives proposed represent a significant stride in the direction of information disclosure in the environmental field.

⁸¹ Article 40a to Directive (EU) 2022/2464 of The European Parliament and of The Council (14 December 2022), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464>.

⁸² However, it will take time until the implementing standards for Article 40a are published, to clarify the specific requirements for non-EU groups in the ultimate parent reports.

⁸³ The Greenhouse Gas Protocol (2004).

⁸⁴ The Greenhouse Gas Protocol (2004), p 25.

⁸⁵ The Greenhouse Gas Protocol (2004), p 25.

⁸⁶ The Greenhouse Gas Protocol (2004), p 25.

However, the various environmental disclosure proposals can be seen as a mixed blessing. On the one hand, these are significant reforms that may increase environmental disclosure obligations and, consequently, compel companies to divulge information. On the other hand, the multitude of disclosure offers means that there is no standard of uniform environmental disclosure in the market. Thus, we will state below the main principles that we believe should be the basis of an environmental disclosure model.

6.5 Guidelines for an Environmental Disclosure Model

It is necessary to create a reliable signalling model between the corporations and the investors. If we establish an environmental disclosure model where corporations can consistently communicate and signal to the investors about their environmental commitments, we can influence the market to mirror the green preferences of investors. Therefore, the development of a dependable environmental disclosure mechanism is imperative.

Several principles, in our opinion, must be adhered to for the environmental disclosure mechanism to be effective. The primary principle is that the environmental disclosure standard should be consistent and global. To ensure the creation of an effective disclosure, it is imperative to maintain uniformity. A global reporting standard for sustainability is necessary to furnish investors with high-quality and comparable information. For investors to make comparisons between companies, the companies must release identical data. In other words, by means of the standardisation of the information disclosed by corporations, investors will possess the ability to efficiently evaluate and select investments across various companies.

Hence, it is imperative to establish consistent regulations regarding environmental disclosure. As previously shown, the different legislative proposals for environmental disclosure apply different disclosure standards. This scenario will result in substantial challenges for investors effectively communicating their preferences to the market.

It is important to highlight that promoting environmental investments is a global necessity. The focus is not on the interests of specific groups, but rather on the worldwide imperative for firms to proactively mitigate environmental harm in their operations. Hence, it is imperative to establish a consistent global benchmark.

Moreover, it is imperative to avert a scenario in which certain countries become havens for firms seeking to evade environmental disclosures. Similar to countries with lower tax rates that serve as tax havens by allowing individuals to avoid significant tax payments through income registration,⁸⁷ there may also be countries with lower or nonexistent standards for environmental disclosure, effectively becoming environmental shelters. If so, a global reporting standard for sustainability is required for coordination between the countries and for the information to be comparable.

⁸⁷ See generally Palan et al. (2010).

An additional principle that ought to be incorporated into an environmental disclosure mechanism is that the data revealed to investors should be predominately derived from objective indicators, particularly those that are quantitative in nature and industry-specific in scope.

As previously stated, in this chapter, we adhere to the overarching principles that must be considered while determining the environmental disclosure requirement. Hence, the determination of the indicators that require measurement extends beyond the scope of this chapter and should be left for comprehensive deliberation by subject matter experts. These experts will ascertain the specific objective indicators that are crucial for the company to disclose as part of its environmental reporting, with the aim of teaching investors about its environmental practices.

In any case, it is imperative to establish an environmental disclosure framework that effectively shows investors about a company's environmental practices. Hence, the information contained therein must facilitate investors' ability to articulate their preferences. By applying this principle, investors will have the ability to obtain information that is both objective and comparable.

Another principle that should be evident in environmental disclosure is that corporations are obligated to provide the information. Currently, the majority of disclosure is made through voluntary reporting by firms.⁸⁸ However, disclosure must become obligatory.

Voluntary corporate social responsibility disclosures serve as a means for companies to communicate their 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.⁸⁹ In addition, corporations may choose to adopt CSR standards in a primarily symbolic manner, aiming to legitimise their corporate actions, selectively disclosing positive CSR activities without any substantial intention to make significant changes to the underlying activities.⁹⁰

Hence, voluntary disclosure alone is inadequate, and it is imperative to integrate reporting obligations with robust systems for audits and sanctions. When disclosure is voluntary, it becomes challenging to differentiate between companies that genuinely invest in the environment and those that engage in greenwashing.

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.⁹¹

The importance of mandatory environmental disclosure lies in its ability to foster transparency, encourage responsible behaviour, and drive the transition towards 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

⁸⁸ Ofir and Elmakiess (2023), pp 32–34.

⁸⁹ Christensen et al. (2021), p 1206.

⁹⁰ Marquis et al. (2016), p 483.

⁹¹ Christensen et al. (2021), p 1206.

resources towards supporting companies that prioritize environmental sustainability along with their own revealed preferences.

If so, 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.

In support of our opinion, Fisch and Robertson⁹² 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.⁹³ 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.⁹⁴ 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 conclude, therefore, that analyses of proposal outcomes that focus exclusively on voted proposals likely understate the true level of shareholder support for sustainability disclosures.

In addition, Dai et al. demonstrate that the implementation of the EU Sustainable Finance Disclosure Regulation (SFDR), which is the first comprehensive requirement for investment funds to disclose their sustainability practices, led to a reduction in carbon emissions within the investment portfolios of EU funds that prioritise sustainability criteria.⁹⁵ Furthermore, Dai et al. demonstrate that the decrease in emissions may be attributed to alterations in investment choices made by funds, as well as changes in emissions at the company level.⁹⁶ The findings of Dai et al. provide valuable insights into the ongoing discussion over the impact of compulsory disclosure requirements on institutional investors' contribution to the decarbonisation of the economy.⁹⁷

The notion of mandatory environmental disclosure is also endorsed by Gary Gensler

, the Chair of the U.S. Securities and Exchange Commission. Recently, in a statement titled "Final Rules Regarding Mandatory Climate Risk Disclosures," Gensler

expressed his endorsement for the implementation of regulations that would require public companies and offerings to disclose climate-related risks.⁹⁸ Adopting

⁹² Fisch and Robertson (2023).

⁹³ Fisch and Robertson (2023), p 17.

⁹⁴ Fisch and Robertson (2023), p 17.

⁹⁵ Dai et al. (2023).

⁹⁶ Dai et al. (2023).

⁹⁷ Dai et al. (2023).

⁹⁸ Gensler (2024).

these regulations, in his opinion, would yield advantages for both investors and issuers.⁹⁹ This is due to the provision of consistent, comparable, and decision-relevant information to investors, as well as the establishment of unambiguous reporting obligations for issuers.¹⁰⁰

Despite the clear benefits, implementing mandatory environmental disclosure faces certain challenges. Balancing the need for transparency with the protection of proprietary information, ensuring standardisation 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.

6.6 Conclusion

As we navigate the complex landscape of environmental responsibility, the interplay between disclosure and greenwashing emerges as a critical focal point. In this chapter, we've dissected the delicate dance between corporate transparency and deceptive marketing, shedding light on both the challenges and opportunities.

Environmental disclosure, on the other hand, wields immense power. When companies willingly share their environmental practices, impacts, and goals, they invite scrutiny. Transparency becomes a beacon, guiding investors toward informed choices. It fosters trust, accountability, and a shared commitment to safeguarding our planet.

However, companies may disclose selectively, emphasizing their green initiatives while conveniently omitting fewer flattering aspects and the main challenge is to pierce the veil of greenwashing.

Regulation plays a pivotal role but comparing different regulatory regimes shows significant differences and a lack of global standards and harmonisation. Global standards for environmental disclosure play a crucial role in fostering transparency, accountability, and sustainable practices across industries. Consistent and comparable standards create investor confidence, mitigate risks of greenwashing and contribute to the separation between signal and noise.

To conclude, globally comparable and objective standards for environmental disclosure transcend borders, empowering organisations to navigate the complexities of environmental stewardship. By embracing these standards, we pave the way for a greener and more accountable future.

⁹⁹ Gensler (2024).

¹⁰⁰ Gensler (2024).

References

- Armour J, Enriques L, Wetzter T (2023) Green pills: making corporate climate commitments credible. *Ariz Law Rev* 65:285–336
- Baker M, Bergstresser D, Serafeim G, Wurgler J (2022) The pricing and ownership of U.S. green bonds. *Ann Rev Financ Econ* 14:415–437
- Baraibar-Diez E, Odriozola MD, Fernández Sánchez JL (2019) Sustainable compensation policies and its effect on environmental, social, and governance scores. *Corp Soc Resp & Environ Manag* 26:1457–1472
- BBVA (2020) 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>
- Bebchuk LA, Tallarita R (2022) The perils and questionable promise of ESG-based compensation. *J Corp Law* 48:37–75
- Behrens M, Anderson A (2021) ESG continues to find its way into incentive compensation plans. Harvard Law School Forum on Corporate Governance. <https://corpgov.law.harvard.edu/2021/12/02/esg-continues-to-find-its-way-into-incentive-compensation-plans>
- Belyeu K (2021) Colleen Lloyd, Audrey Ramming & Sarah Riggs, 2021 global benchmark policy survey. ISS governance. <https://www.issgovernance.com/file/publications/2021-global-policy-survey-summary-of-results.pdf>
- Berg T, Kaserer C (2015) Does contingent capital induce excessive risk-taking? *J Financ Intermed* 24(3):356–385
- Beteta Vejarano G & Swinkels L (2023) Social, Sustainability, and Sustainability-Linked Bonds. Available at SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4420618
- Bradford H (2022) Allianz global investors to push for executive Pay-ESG link. Pensions and Invs. <https://www.pionline.com/esg/allianz-global-investors-push-executive-pay-esg-link>
- Calomiris CW, Herring RJ (2013) How to design a contingent convertible debt requirement that helps solve our too-big-to-fail problem. *J Appl Corp Financ* 25(2):39–62
- Cevian Capital (2021) Cevian Capital Requires ESG Targets in Management Compensation Plans. Cevian Capital <https://www.ceviancapital.com/wp-content/uploads/2021/03/03.03.2021-Cevian-Capital-Requires-ESG-Targets-in-Management-Compensation-Plans.pdf>
- Chalmers J, Cox E, Picard N (2021) The economic realities of ESG. PWC Strateg & Bus Mag. <https://www.pwc.com/gx/en/issues/reinventing-the-future/take-on-tomorrow/download/sbpwc-2021-10-28-Economic-realities-ESG.pdf>
- Chan S, van Wijnbergen S (2017) Tinbergen Institute, CoCo design. Risk shifting incentives and capital regulation. <https://papers.tinbergen.nl/16007.pdf>
- Chen YS, Chang CH (2012) Enhance green purchase intentions: the roles of green perceived value, green perceived risk, and green trust. *Manag Decis* 50(3):502–520
- Christensen HB, Hail L, Leuz C (2021) Mandatory CSR and sustainability reporting: economic analysis and literature review. *Rev Account Stud* 26(3):1176–1248
- Climate Bonds Initiative (2022) Sustainable Debt Global State of the Market 2022 2, https://www.greenfinanceplatform.org/sites/default/files/downloads/resource/cbi_sotm_2022_03b.pdf
- Cohen S, Kadach I, Ormazabal G, Reichelstein S (2023) Executive compensation tied to ESG performance: international evidence. ECGI, Finance Working Paper N. 825/2022 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4097202
- Dai J, Ormazabal G, Penalva F, Raney RA (2023) Imposing sustainability disclosure on investors: does it lead to portfolio decarbonization? ECGI finance working paper N. 945/2023
- De Freitas Netto SV, Falcão MF, Bezerra Ribeiro AR, da Luz GR (2020) Concepts and forms of greenwashing: a systematic review. *Environ Sci Eur* 32:19–32
- De Spiegeleer J, Schoutens W (2019) Sustainable capital instruments and their role in prudential policy: reverse green bonds. https://papers-ssrn-com.ezprimo1.runi.ac.il/sol3/papers.cfm?abstract_id=3415184

- Delivorias A (2016) European Parliament Research Service. Briefing May 2016: contingent convertible securities: is a storm brewing? [https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/582011/EPRS_BRI\(2016\)582011_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2016/582011/EPRS_BRI(2016)582011_EN.pdf)
- Delmas MA, Cuere Burbano V (2011) The drivers of greenwashing. *Calif Manag Rev* 54(1):64–87
- Eccles RG, Ioannou I, Serafeim G (2011) The impact of a corporate culture of sustainability on corporate behavior and performance. Harvard Business School, Working Paper No. 12-035
- Eccles RG, Johnstone-Louis M, Mayer C, Strohle JC (2020) The board's role in sustainability. *Harv. Bus. Rev.* <https://hbr.org/2020/09/the-boards-role-in-sustainability>
- Ellerman J, Kesner M, Ringlee L (2021) Do UK and EU companies lead U.S. companies in ESG measurements in incentive compensation plans? Harvard Law School Forum on Corporate Governance. <https://corpgov.law.harvard.edu/2021/06/18/do-uk-and-eu-companies-lead-us-companies-in-esg-measurements-in-incentive-compensation-plans>
- European Commission (2021) European finance stability and integration review 2021. https://finance.ec.europa.eu/system/files/2021-05/european-financial-stability-and-integration-review-2021_en.pdf
- Federal Acquisition Regulation: Disclosure of Greenhouse Gas Emissions and Climate-Related Financial Risk (2022). <https://www.federalregister.gov/documents/2022/11/14/2022-24569/federal-acquisition-regulation-disclosure-of-greenhouse-gas-emissions-and-climate-related-financial>
- Fisch JE, Robertson A (2023) Shareholder proposals and the debate over sustainability disclosure. In: Board-Shareholder Dialogue: Policy Debate, Legal Constraints and Best Practices. U of Penn, Inst for Law & Econ Research Paper No. 23–29, Cambridge Univ. Press, forthcoming. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4477680
- Flammer C (2018) Green bonds benefit companies, investors, and the planet. *Harv Bus Rev.* <https://hbr.org/2018/11/green-bonds-benefit-companies-investors-and-the-planet>
- Flammer C (2020) Green bonds: effectiveness and implications for public policy. In: Kotchen MJ, Deryugina T, Wolfram CD (eds) *Environmental and energy policy and the economy*, vol 1, pp 95–128
- Flammer C (2021) Corporate green bonds. *J Financ Econ* 142:499–516
- Flannery MJ (2014) Contingent capital instruments for large financial institutions: a review of the literature. *Ann Rev Financ Econ* 6(1):225–240
- Flannery MJ (2016) Stabilizing large financial institutions with contingent capital certificates. *Q J Financ* 6(02):1–26
- Gamba A, Gong Y, Ma K (2024) Non-dilutive CoCo bonds: a necessary evil? Warwick Business School, University of Warwick. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4387307
- Gensler G (2024) Statement by chair Gensler on final rules regarding mandatory climate risk disclosures. Harvard Law School Forum on Corporate Governance, <https://corpgov.law.harvard.edu/2024/03/07/statement-by-chair-gensler-on-final-rules-regarding-mandatory-climate-risk-disclosures/#more-163655>
- Gilotta S (2023) Green bonds: a legal and economic analysis. In: Kuntz T (ed) *Research handbook on environmental, social, and corporate governance*, Cheltenham, pp 217–238
- Gosling T, O'Connor P (2021) Executive pay and ESG performance. Harvard Law School Forum on Corporate Governance. <https://corpgov.law.harvard.edu/2021/04/12/executive-pay-and-esg-performance>
- ICMA (2017) The green bond principles 2017. <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GreenBondsBrochure-JUNE2017.pdf>
- Institutional Investor Survey 2021 (2021) Morrow Sodali. <https://morrowssodali.com/insights/institutional-investor-survey-2021>
- Jones R, Baker T, Huet K, Murphy L, Lewis N (2020) Treating ecological deficit with debt: the practical and political concerns with green bonds. *Geoforum* 114:49–58
- Kim E-H, Lyon TP (2015) Greenwash vs. brownwash: exaggeration and undue modesty in corporate sustainability disclosure. *Organ Sci* 26(3):705–723

- Köffler T (2013) Basel III - implications for banks' capital structure: what happens with hybrid capital instruments? Anchor Academic Publishing, Hamburg
- Majláth M (2017) The effect of greenwashing information on AD evaluation. *Eur J Sustain Dev* 6(3):92–104
- Minciullo M, Zaccone MC, Pedrini M (2022) The antecedents of corporate sustainability performance: a study on generic and sustainability-related corporate governance mechanisms. *Sustainability* 14:9761
- Marquis C, Toffel MW, Zhou Y (2016) Scrutiny, norms, and selective disclosure: a global study of greenwashing. *Organ Sci* 27:483–504
- O'Neal P (2023) To be[nefit] or not to be[nefit]: lessons from global corporate governance and a principled path for the delaware benefit corporation. *Univ Pa J Bus Law* 25(2):559–593
- OECD (2017) Green bonds: mobilising bond markets for a low-carbon transition. Centre on Green Finance and Investment, Paris
- Ofir M, Elmakiess T (2023) The eco-agency problem and sustainable investment. LSE legal studies working paper no. 26/2023. Available at SSRN: <https://ssrn.com/abstract=4652981>
- Organization for Economic Cooperation & Development (2015) Green bonds: mobilising the debt capital markets for a low-carbon transition. <https://web-archiv.oecd.org/2016-03-03/389765-Green%20bonds%20PP%20%5Bf3%5D%20%5B1r%5D.pdf>
- Palan R, Murphy R, Chavagneux C (2010) Tax havens: how globalization really works. Cornell University Press, Ithaca
- Park SK (2018) Investors as regulators: green bonds and the governance challenges of the sustainable finance revolution. *Stanf J Int* 54:1
- Pennacchi G (2010) A structural model of contingent bank capital. Fed. Reserve Bank of Cleveland, Working paper 10-04. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1595080
- Perez O, Vandenberg MP (2023) Making climate pledges stick: a private ordering mechanism for climate commitments (Vanderbilt L. Research Paper, Paper No. 23-10). <https://doi.org/10.2139/ssrn.4346020>
- Sartzetakis ES (2021) Green bonds as an instrument to finance low carbon transition. *Econ Chang Restruct* 54(3):755–779
- Securities and Exchange Commission (2022) 17 CFR 210, 229, 232, 239, and 249 [Release Nos. 33-11042; 34-94478; File No. S7-10-22] RIN 3235-AM87. <https://www.sec.gov/files/rules/proposed/2022/33-11042.pdf>
- Singer T (2012) Linking executive compensation to sustainability performance. The Conference Board. <https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=2221>
- Spierings M (2022) Linking executive compensation to ESG performance. Harv Law School Forum on Corporate Governance. <https://corpgov.law.harvard.edu/2022/11/27/linking-executive-compensation-to-esg-performance/#1>
- Talbot KM (2017) What does “green” really mean?: How increased transparency and standardization can grow the green bond market. *Vill Environ J* 28(1):127–145
- The Greenhouse Gas Protocol (2004) A corporate accounting and reporting standard, World Resources Institute and World Business Council for Sustainable Development. <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>
- Wang Z (2023) CoCo bonds: are they debt or equity? Do they help financial stability?—Lessons from credit Suisse NT1 bonds. ECGI Blog. <https://www.ecgi.global/blog/coco-bonds-are-they-debt-or-equity-do-they-help-financial-stability-lessons-credit-suisse-ntl>
- Zhang L, Li D, Cao D, Huang S (2018) The influence of greenwashing perception on green purchasing intentions: the mediating role of green word-of-mouth and moderating role of green concern. *J Clean Prod* 187:740–750