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Corporate sustainability and biodiversity reporting: A proactive business strategy to mitigate litigation and reputational risks

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Abstract

Biodiversity is important to human's future survival and global sustainability. One way to achieve corporate sustainability is for firms to report its impacts on biodiversity. However, fear of litigation arising from reporting potentially deters corporations to disclose such information. Motivated by the importance of biodiversity and mixed evidence of shareholder litigation rights as a corporate governance tool, we explore whether the universal demand laws (UDLs) have any effect on corporate biodiversity reporting in the United States. Supporting our *short-termism, risk aversion and agency hypotheses*, we find that an exogenous decline in the threat of derivative litigation, reducing a chance for shareholders to file a lawsuit against top management and intensifying agency costs, economically and significantly decreases a corporate's biodiversity reporting by 87%. When the disciplining effect of shareholder litigation drops, the self-interest manager may want to live a *quiet life* and disclose less information of biodiversity impact. A proactive business strategy to mitigate litigation and reputational risks is to voluntarily disclose more biodiversity-related information. Regulators around the world should also promote rigorous reporting requirements to reverse biodiversity loss and save our humanity.

KEYWORDS
agency cost, corporate biodiversity reporting, shareholder litigation rights

1 | INTRODUCTION

Climate emergency, first declared in December 2016[1] acknowledges that climate changes are real and require serious actions and commitments to save the world from climate changes. In September 2019, the United Nation (UN) Secretary-General, António Guterres, giving remarks at the 2019 Climate Action Summit rightly stated that '*My generation has failed in its responsibility to protect our planet. That must change. The climate emergency is a race we are losing, but it is a race we can win. The climate crisis is caused by us – and the solutions must come from us.*[2]' According to the United Nation, '*Biodiversity* (the diversity of life on Earth), defined as the variability among living

Abbreviations: BES, biodiversity and ecosystem services; CBD, Convention on Biological Diversity; COP15, Conference of the Parties; DiD, difference-in-differences; DL, derivative lawsuit; EBIT, earnings before interest and taxes; EU, European Union; GBF, Global Biodiversity Framework; GDP, Gross Domestic Product; GRI, Global Reporting Initiative; NGO, non-governmental organization; R&D, Research and Development; SDGs, Sustainable Development Goals; SG&A, selling, general, and administrative; UDL, universal demand law; UN, the United Nation; WEF, World Economic Forum.

[1]'History of Climate Emergency Action by Councils'. Council Action in the Climate Emergency. https://www.caceonline.org/history.html

[2]https://www.un.org/sg/en/content/sg/speeches/2019-09-23/remarks-2019-climate-action-summit

organisms from all sources, including diversity within species, between species and of ecosystems[3] is our strongest natural defence against climate change.' As such, biodiversity is indispensable for a healthy and well-functioning planet and its future survival. Biodiversity losses can profoundly affect ecosystems, human societies and the global environment (Duffy et al., 2017; Venter et al., 2016). Recognizing the importance of biodiversity for the benefit of current and future generations, international bodies gathered at the 2022 United Nations Biodiversity Conference of the Parties (COP15) to the UN Convention on Biological Diversity (CBD) held in Montreal, Canada, and agreed to adopt the Kunming-Montreal Global Biodiversity Framework, including four goals and 23 targets by 2030.[4]

Public awareness of the importance of biodiversity pressures companies to increasingly prioritize conservation efforts and sustainability. In today's corporate world, the traditional goal of maximizing shareholders' wealth is insufficient to attract environmental and societal-conscious investors. To align with societal and investors' expectations, corporations target a triple bottom line (e.g., environment and social and economic) and make strategic business decisions to adopt sustainable practices for long-term success. In line with sustainable practices, companies start to disclose information on its impact on biodiversity and ecosystems (Addison et al., 2019). However, the decision to disclose such information relies on boards and executive officers. As such, ethical leadership is important to encourage corporate biodiversity reporting. Corporate biodiversity reporting is a multifaceted tool, strategically aligning business practices with environmental sustainability, promoting transparency and supporting the broader global conservation agenda. Recently, existing literature on corporate biodiversity reporting has increasingly emerged (Addison et al., 2019; Hassan et al., 2022; Rimmel & Jonäll, 2013; Skouloudis et al., 2019; Smith et al., 2019). Although there is an increasing trend for companies to report their biodiversity impacts, the genuine efforts by companies to limit biodiversity losses are in doubt (Boiral & Heras-Saizarbitoria, 2017; Jones & Solomon, 2013; Smith et al., 2019). Stakeholder theory implies that commitments to reduce biodiversity can enhance firm value and reputation and attract more environmental- and societal-conscious investors. Additionally, agency theory suggests that managers may make decisions to support the reduction of biodiversity for their own benefits at the expense of shareholder value. For these instances, firms may disclose more information on their impacts on biodiversity. However, increased biodiversity disclosure could potentially attract more future lawsuits (litigation risk) such that self-interest managers making decisions not to report on firms' biodiversity impacts.

Fear of litigation and reputation damage discourage the firm from disclosing information on its ESG (Environmental, Social and Governance) impacts. Walsh et al. (2009), Aurand et al. (2018), Nirino et al. (2021) and Gao et al. (2022) note that ESG scandals adversely affect firms' reputation and financial performance. Lawsuits on biodiversity impacts are also on the rise. For instance, in April 2010, BP's share price dropped by 50% or tens of billions of dollars due to its Deepwater Horizon oil spill, the biggest impact on our oceans.[5] This is followed by animal mistreatment by the coat manufacturer Moncler, resulting in a 6% drop in firm's market value in 2014.[6] A year later in 2015, a catastrophic Mariana dam collapse at a Brazilian mine operated by Vale and BHP Billiton, currently facing a $3.8 billion lawsuit.[7] Similar incident by Vale and BHP Billiton happened again in early 2019 at the BrumaDinho dam in Brazil, killing more than 270 people and ruining the ecosystem of the Paraopeba River downstream of the mine.[8] Recently, Jiang et al. (2021)[9] also reported 10 landmark cases for biodiversity in an attempt to instigate leaders around to realize the power of litigation.

Business operates under various uncertainties and shareholder litigation risk is one of the significant uncertainties faced by them. Agency theory stipulates misalignment of interests between managers (agents) and shareholders (owners), arising from the separation of ownership and control, also known as an agency problem (Jensen & Meckling, 1976). La Porta et al. (1997, 1998) note that legal protection of shareholders or shareholder litigation right lessens the agency problem as it can act as a governance mechanism promoting an effective monitoring role by deterring self-interest managers to act for their own benefits and alleviating moral hazard problems (Donelson & Yust, 2014; Ferris et al., 2007; Kinney, 1994). Litigation against companies by shareholders commonly occurs through securities class action lawsuits or derivative lawsuits. A derivative lawsuit, filed by shareholders on behalf of the firm, plays a crucial role in holding corporate officers and directors accountable for their actions and ensuring that firm's and its shareholders' interests are protected. As such, the derivative lawsuit can be an effective mechanism for enhancing corporate governance and integrity (Ferris et al., 2007). However, derivative lawsuits could be too costly to the firm, prompting self-interest managers faced with litigation risk to pursue risk-averse strategies that adversely affect shareholders' wealth and interests (Kinney, 1994). Many existing studies document the effect of litigation risk on corporate outcomes and policies such as the accumulation of firm welfare in view of firm operations and investment decision (e.g., Arena & Julio, 2015; Chu & Zhao, 2021; Ni & Yin, 2018), corporate innovation (Lin et al., 2021), ESG controversies (Treepongkaruna et al., 2022), CSR (Freund et al., 2023) and corporate disclosure (Bourveau et al., 2018).

Two contrasting views on shareholder litigation rights as a corporate governance tool exist. One viewpoint maintains the disciplining effect such that shareholder litigation rights serve as an effective monitoring and oversight tool to reduce agency problems and ensure that managers make appropriate decisions for the shareholders' interests rather than their own interests. For example, Appel (2019)

[3]https://sustainabledevelopment.un.org/index.php?page=view&type=30022&nr=1357&menu=3170

[4]https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222

[5]https://www.britannica.com/event/Deepwater-Horizon-oil-spill

[6]https://www.reuters.com/article/idUSL6N0ST3PX/

[7]https://www.bloomberg.com/news/articles/2024-03-19/vale-facing-3-8-billion-dutch-lawsuit-over-brazil-dam-collapse. See also https://multinationales.org/IMG/pdf/encofactsheet06_bhp_def.pdf.

[8]https://www.wsj.com/video/the-moment-the-vale-sa-dam-burst/BF4F43B3-F146-4D2A-A64E-15EFB7DB3714

[9]https://regional.chinadaily.com.cn/pdf/10LandmarkCasesforBiodiversity.pdf

advocates the managerial disciplinary effect of derivative lawsuits such that a decline in the derivative litigation risk can weaken firms' corporate governance quality. Alternative viewpoint supports the pressuring effect such as shareholder litigation rights pressuring risk-averse managers to pursue short-term goals, adversely affecting shareholders' interests. For instance, Deng et al. (2014) find that shareholder litigation adversely affects firms' reputation and leads to rising cost of external financing.

Over the period of 1989 to 2005, 23 states in the United States staggeringly passed the universal demand laws (UDLs), making it more difficult for shareholders to file derivative lawsuits against top management (Bourveau et al., 2018; Nguyen et al., 2018; Ni & Yin, 2018). Rather than directly suing the wrongdoer(s), UDL mandates the shareholders to take a preliminary step to formally request the firm's board of directors to initiate actions against the alleged wrongdoer(s). However, boards commonly decline these shareholder requests, frequently citing conflicts of interest, especially when individual directors named in the lawsuit are involved. Empirical evidence by Nguyen et al. (2018) and Appel (2019) indicates a substantial reduction in the frequency of derivative lawsuits after the implementation of UDL at the state level. This suggests that UDL diminishes the ability of shareholders to bring forth derivative lawsuits, thereby weakening their litigation rights.

Mixed evidence from prior studies on the relation between shareholder litigation risk and corporate disclosure environment exists. On the one hand, a positive relation between the two is reported (Bourveau et al., 2018). The UDL substantially reduces the costs related to litigation risk and makes managers to be more willing to disclose information to the market. On the other hand, the reduction in the threat of derivative lawsuits could result in increased managerial entrenchment, potentially influencing managers' motivations for transparency. For example, entrenched managers might prefer maintaining a lack of transparency and disclosing less information to capital markets to preserve private benefits (e.g., Ferreira & Laux, 2007).

Motivated by the importance of biodiversity and mixed evidence of the effect of shareholder litigation rights on corporate disclosure, we explore whether the UDL has any effect on corporate biodiversity reporting in the United States. We offer two contrasting hypotheses as follows. In line with Ferreira and Laux (2007), we firstly propose the *short-termism, risk aversion and agency hypotheses*, predicting that a weakening shareholder litigation right leads to less corporate biodiversity disclosure. Conversely, we advance the *long-termism, shareholder activism and stakeholder hypotheses*, suggesting that the reduction in the threat of derivative lawsuits leads to more corporate biodiversity disclosure (Bourveau et al., 2018).

To test the above hypotheses, we exploit the staggered adoption of UDL, exogenously lowering derivative litigation risk as a quasi-experiment in the US setting over the period of 2002 to 2016. Overall, we find support to our *short-termism, risk aversion and agency hypotheses* with a negative difference-in-differences (DiD) coefficient estimate. A weakening chance for shareholders to file a lawsuit against top management results in a drop in corporate biodiversity disclosure by 87%. Intensified agency costs motivate self-interests serving managers to prefer a *quiet life* as they believe that corporate biodiversity disclosure or long-term (but risky) investments in biodiversity reduction activities could bring potential future litigation against them and damage their reputations. As such, they disclose less biodiversity-related information to the market. In addition to DiD, we also run a battery of robustness checks, including Oster's (2019) test, propensity score matching, entropy balancing and placebo tests, which confirm our main findings.

We contribute to the existing literature in several ways. First, we add to the relatively novel and thin literature on corporate biodiversity reporting. We confirm existing literature on the scarcity of biodiversity reporting (Addison et al., 2019; Mäkelä, 2017; Mansoor & Maroun, 2016; Panwar et al., 2023; Roca & Searcy, 2012; Romolini et al., 2014; Skouloudis et al., 2019; Usher & Maroun, 2018). Our sample indicates a low level of 19% of the US companies disclosing biodiversity-related information. Next, we fill the gap in corporate governance literature as our study is the first to explore how shareholder litigation rights, one of the external governance mechanisms, could potentially influence corporate biodiversity reporting. We document that the UDLs, drastically lowering the shareholder litigation rights, have a strong adverse effect in corporate biodiversity disclosure. Additionally, we also contribute to existing studies exploring the effect of the staggered passage of the UDLs (as exogenous shocks) on corporate outcomes and policies such as the accumulation of firm welfare in view of firm operations and investment decision (e.g., Arena & Julio, 2015; Chu & Zhao, 2021; Nguyen et al., 2018; Ni & Yin, 2018), corporate innovation (Lin et al., 2021), ESG controversies (Treepongkaruna et al., 2022), corporate social responsibility (Freund et al., 2023) and corporate disclosure (Bourveau et al., 2018). Further, we contribute to literature on corporate non-financial disclosure and information environment (Bourveau et al., 2018; Obaydin et al., 2021). Finally, we contribute to the classical and one of the most important theories in corporate finance—agency theory (Jensen & Meckling, 1976), driving managers' decisions. Our findings support self-interest serving and risk-averse managers prefer to live quiet lives and disclose less biodiversity-related information with the fear of potential future litigation. This highlights the role of ethical leadership in minimizing the biodiversity losses, which is our best-bet in addressing climate changes.

The remainder of this paper is organized as follows. Section 2 briefly reviews related literature and develops hypotheses. Section 3 discusses data and method. Section 4 reports empirical results. Section 5 concludes.

2 | REVIEW LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 | Corporate sustainability and biodiversity

The World Economic Forum's 2020 Global Risks Report highlights biodiversity loss and ecosystem collapse as one of the leading concerns humanity is facing for the next decade (WEF, 2020). In December 2022, the post-2020 Global Biodiversity Framework (GBF) agreed upon by many governments provides an action plan to fight against biodiversity loss with the global target of halting and reversing

biodiversity loss by 2030. The post 2020 GBF also sets a longer-term target as follows: '*by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.*[10]' Addressing biodiversity losses could lead us to the goal of sustainability. With increasing institutional pressures from various stakeholders, corporations can no longer be blind to the importance of biodiversity issues. Playing a big part in both global biodiversity loss and efforts to halt and reverse biodiversity loss, corporations must act as a good citizen to support international collaborations to stop the declining biodiversity (Dempsey, 2013; Mace et al., 2018; Smith et al., 2020). By doing so, firms will eventually achieve long-term goals of corporate sustainability. In recognition of biodiversity and ecosystem services (BES) as an in-replaceable resource in the production of goods and services that need to be preserved, companies adopt voluntary environmental initiatives to protect the environment and increase their competitiveness, legitimacy and corporate sustainability (Dangelico & Pontrandolfo, 2015; Hart & Ahuja, 1996; McCrory & Langvardt, 2012; Porter & van der Linde, 1995). Macellari et al. (2018) also highlight nature as a key ingredient towards the United Nations sustainable development goals (SGDs) and propose a conceptual model embedding strategic BES management to achieve SDGs. In addition, Addison et al. (2020) acknowledge biodiversity performance as a necessary tool in achieving corporate sustainability such that corporations should have reliable indicators to evaluate and manage their biodiversity performance. They note the drawbacks of the Global Reporting Initiative (GRI) biodiversity indicators (GRI, 2016), designed to release negative impacts of corporate-level biodiversity activities externally but fail to provide a comprehensive internal assessment of positive corporate biodiversity outcomes. As such, they introduce a framework to guide biodiversity indicator development for business performance management. It is undeniable that biodiversity performance is among the top choices to reach corporate sustainability. However, businesses still lag the biodiversity strategic goals, have not done enough to reduce biodiversity loss and are barely accountable for their impacts on biodiversity (Mace et al., 2018; Smith et al., 2020). Smith et al. (2020) call for businesses to do more for conservation efforts and reverse biodiversity loss and be accountable for their actions. They also highlight the critical role played by regulation frameworks and financial standards in enforcing businesses' accountability for biodiversity. Finally, Busch et al. (2024) suggest that capitalizing on the strengths of both businesses and regulators to create a unified structure recognizing both the conflicts and agreements between business and environmental interests is the way forward to achieve corporate sustainability.

2.2 | Corporate biodiversity reporting

Ongoing biodiversity losses put ecosystem stability at risk, signify a breach of a crucial planetary boundary, threaten sustainable development and pose alarming risks to the global socio-economy (Athanas, 2005; Duffy et al., 2017; Remme et al., 2016; Venter et al., 2016; Wijkman & Rockström, 2013). Given the danger posed by accumulating biodiversity losses, the public calls for an urgent need of collective conservation efforts and comprehensive accounting and reporting systems for biodiversity. Schaltegger et al. (2023) highlight the important role of management accounting in supporting effective corporate biodiversity management. Porter and Kramer (2019) also note that companies are increasingly viewed as a culprit in deteriorating social, environmental and economic prospects as they prosper at the expense of the broader community and nature. They further suggest that proactively managing biodiversity as shared value creation provides new opportunities and improved corporations' stakeholder engagements and reputation. These highlight the importance of corporate biodiversity disclosure.

Theoretically, the benefits of corporate biodiversity disclosure are several fold. First, it assists companies to assess and understand their operational effects on ecosystems, allowing them to make a better and more informed decision to alleviate negative consequences and promote sustainable business practices. Second, it improves companies' risk management and legal compliance. Faced with risks associated with biodiversity loss, including disruption in supply chain or reputational damages, companies preparing biodiversity reports can identify and manage such risks. Next, it enhances companies' competitive advantages, stakeholder engagement and long-term sustainability. For instance, companies can use biodiversity reporting to engage with all stakeholders, strategically adopt sustainable business practices and as a marketing tool to attract environmentally conscious customers and investors. Finally, it supports global conservative efforts, contributing to the United Nations' SDGs.

Recently, there is an increasing trend for companies to disclose biodiversity-related information. However, existing research suggests that corporate biodiversity reporting is still in its infancy stage, limited and fragmented (Sharma & Nguan, 1999; Skouloudis et al., 2019; Westley & Vredenburg, 1997; Whiteman et al., 2013). In comparison to other environmentally responsible measures, reported in non-financial disclosure, companies hardly report information related to biodiversity (Mäkelä, 2017; Roca & Searcy, 2012; Romolini et al., 2014). For example, analysing sustainability reports of Fortune 100 Global firms in 2016, Addison et al. (2019) reveal disappointing evidence of corporate biodiversity disclosure with merely 49% of their sample briefly mentioning biodiversity and 31% indicating clear commitments. Similarly, exploring the Fortune Global 15 on their disclosures related to threatened species and habitats, Adler et al. (2018) document even more disappointing evidence of less than 10% of samples reporting substantial information. Additionally, other studies confirmed low quality and level of biodiversity reporting in Denmark (van Liempd & Busch, 2013), South Africa (Mansoor & Maroun, 2016; Usher & Maroun, 2018), Australia (Adler et al., 2017), Canada (Roca & Searcy, 2012) and mega-diverse countries such as Bolivia, Brazil, Colombia, China, India, Indonesia, Malaysia and the Philippines (Skouloudis et al., 2019).

[10]https://www3.weforum.org/docs/WEF_Biodiversity_Targets_for_Business_Action_2022.pdf

2.3 | Shareholder litigation rights and staggered passage of the universal demand laws

Agency costs arising from the separation of ownership and control suggest that managers may act for their own interests rather than shareholders' benefits, causing moral hazard problems. One way to mitigate agency problems is via the legal protection of shareholders (La Porta et al., 1998). Shareholder litigation rights are external corporate governance mechanisms to effectively monitor top management and deter managerial misconduct (Bhagat et al., 1987; Edmans, 2014; Ferris et al., 2007; Pukthuanthong et al., 2017; Romano, 1991). However, shareholder litigation comes with substantial costs on firms. Aside from the direct financial implications, shareholder litigation may give rise to concerns about managers' career paths, potentially deterring them from actively pursuing risky projects that could ultimately contribute to increased firm value (Lin et al., 2021). Ferris et al. (2007) also document a large drop in market value of equity of the defendant firms faced with shareholder litigation filing while Deng et al. (2014) report higher external financing costs and a loss of corporate reputation.

Shareholder litigation can be done either via securities class action and derivative lawsuits. A securities class action lawsuit generally revolves around a subset of shareholders who traded a company's shares within a defined period, prompted by a sudden stock price drop linked to alleged securities fraud. Shareholders are entitled to any cash settlement resulting from the securities class action lawsuit. In a derivative lawsuit (DL), shareholders file on behalf of the corporation, typically alleging breaches of fiduciary duties by directors and officers. Unlike a securities class action lawsuit, any amount agreed upon by the directors and officers in a derivative lawsuit is directed to the corporation, with the plaintiff's attorney fees deducted before distribution. As such, DL can be viewed as an external governance tool in disciplining the directors and officers for the wrongdoing(s). However, over the period of 1989 to 2005, 23 states in the United States staggeringly passed the UDLs, hindering shareholders to hold corporate directors and managers accountable for their wrongdoings or breach of fiduciary duties. This is because the UDLs mandate that shareholders must seek approval from the board of directors before initiating a derivative lawsuit against the directors and officers. Nevertheless, obtaining approval is rare, as boards typically hesitate to grant it due to the common inclusion of board members as defendants in such lawsuits. Evidence provided by Appel (2019) suggests a weakening shareholder litigation risk after the passage of the UDL. Recently, the staggered passage of UDL has been used as an exogenous shock in a quasi-experiment design to explore the causal effect of shareholder litigation rights on various corporate performances and policies in various recent studies, including Ni and Yin (2018), Obaydin et al. (2021), Nguyen et al. (2020, 2018), Bourveau et al. (2018), Chu and Zhao (2021), Lin et al. (2021), Treepongkaruna et al. (2022) and Freund et al. (2023). These studies report mixed evidence of the shareholder litigation rights effect. For example, the staggered adoption of UDLs, reducing shareholder litigation rights, increases corporate innovation (Lin et al., 2021) but causes a significant increase in the cost of debt due to declining corporate governance and rising information asymmetry (Ni & Yin, 2018).

2.4 | Hypotheses development

Focusing on the effect of shareholder litigation rights on corporate disclosure, Bourveau et al. (2018) propose two channels that the reduction in the risk of derivative litigation could impact companies' disclosure strategies: (i) changes in managers' incentives to disclose, arising from trade-off between anticipated costs and benefits associated with potential derivative lawsuits, and (ii) the role of DLs as a corporate governance tool. We rely on these arguments and develop two contrasting hypotheses as follows.

We first hypothesize that a weakening shareholder litigation right reduces managers' incentives to disclose biodiversity-related information, to take long-term projects (often deemed to be risky but contribute to sustainable growth) and to focus on their own interests. We term these as '*short-termism, risk aversion and agency hypotheses*'. As noted by Skinner (1994), to prevent stock price impacts from DL filings, managers have more incentives to voluntarily disclose bad news to the market. Dropping in the threats of shareholder litigations reduces the marginal benefit of voluntarily disseminating bad news. Disclosing firms' biodiversity impacts may potentially bring future litigation. Likewise, investing in biodiversity reduction activities is risky and requires long-term commitments that could adversely affect shareholders' wealth, resulting in potential future litigation. Additionally, a decline in the shareholder litigation risk reduces corporate governance quality, resulting in a drop in disciplining manager effect of the shareholder litigation rights. As such, managers have low incentives to disclose biodiversity-related information (e.g., biodiversity impacts or activities to reduce its impact).

On the contrary, we advance *long-termism, shareholder activism and stakeholder hypotheses*, predicting a *positive synergy* between the UDLs and corporate biodiversity disclosure. When the threat of shareholder litigation becomes lower, the marginal costs associated with the disseminating biodiversity-related information to the market also drop. This incentivizes managers to be more willing to disclose such information, invest in long-term projects that help reduce biodiversity impacts and lead to sustainable growth. By doing so, companies engage more with stakeholders addressing public expectations on global conservation efforts. Further, when the disciplinary effect of shareholder litigation rights becomes lower, shareholders will pressure managers to disseminate more information.

3 | DATA AND METHOD

Data are from various sources. First, in constructing shareholder litigation rights, we rely on the historical state of incorporation made available by Bill McDonald and label this variable as Universal Demand Laws (UDLs), setting it to one for a firm incorporated in a state where a UDL has been implemented each year, and zero otherwise. Next, we

TABLE 1 Summary statistics.

	N	Mean	SD	Median	p25	p75
Biodiversity	2401	19.270	35.292	0.000	0.000	0.000
UDL	2401	0.175	0.380	0.000	0.000	0.000
Total assets	2401	9.491	1.118	9.486	8.643	10.291
Total debt/total assets	2401	0.267	0.143	0.257	0.165	0.358
Profitability	2401	0.111	0.073	0.105	0.064	0.152
Capital expenditures/total assets	2401	0.050	0.039	0.041	0.023	0.065
R&D expense/total assets	2401	0.021	0.039	0.000	0.000	0.024
Advertising expense/total assets	2401	0.017	0.039	0.000	0.000	0.021
Dividends/total assets	2401	0.023	0.026	0.018	0.007	0.033
Cash holdings/total assets	2401	0.105	0.110	0.070	0.028	0.148
SG&A expense/total assets	2401	0.188	0.183	0.140	0.058	0.273
Female	2193	16.483	8.952	15.385	10.000	21.429
Independent	2193	80.104	12.040	83.333	72.727	90.000
lnBsize	2193	2.457	0.180	2.485	2.303	2.565

Note: Biodiversity Impact Reduction Score is from Refinitiv. It measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. Universal Demand Laws (UDL) is a binary variable for a firm incorporated in a state where a universal demand law has been implemented in a given year, and zero otherwise. Control variables include firm size (total assets), leverage (total debt/total assets), profitability (EBIT/total assets), capital investments (capital expenditures/total assets), intangible assets (R&D expenses/total assets & advertising expenses/total assets), dividend payouts (dividends/total assets), cash holdings, fixed asset and discretionary spending (SG&A expense/total asset), female on board (proportion of female director on board), board size (natural logarithm of number of director on board) and board independence (proportion of independent director on board). The sample covers the years 2002 to 2016.

draw data on board size, proportion of independent and female directors, along with the *Biodiversity Impact Reduction Score* from the Refinitiv. *Biodiversity Impact Reduction Score* measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. Finally, the remaining control variables are from COMPUSTAT. The sample covers the period of 2002 to 2016.[11] Table 1 provides summary statistics of all variables included in this study. Firms in our sample have low *Biodiversity Impact Reduction Score* with the average score of only 19.27, suggesting that approximately 19% of our sample disclose biodiversity-related information. Observations with a UDL implemented account for 17.5% of our sample. For board governance variables, we find consistent evidence with existing studies; on average, firms in our sample have 12 members on board with nine of them being independent directors and only two are females (Treepongkaruna et al., 2022; Treepongkaruna & Padungsaksawasdi, 2024).

To explore the effect of shareholder litigation rights on a corporate's biodiversity reporting, we estimate the following difference-in-differences (DiD) analysis:

$$Biodiversity_i = \alpha + \beta UDL_{it} + \gamma Controls_{it} + \varepsilon_{it}. \quad (1)$$

We control for firm characteristics, corporate governance variables and fixed effects (firm and year) as follows: firm size, leverage, profitability, capital investments, research and development (R&D), advertising expenses, dividend payouts, cash holdings and discretionary spending, female on board, board size and board independence (see Treepongkaruna et al., 2022).

4 | RESULTS

Table 2 reports parameter estimates from our difference-in-differences analysis with firm and year fixed effects and firm clustered standard errors, where corporate biodiversity reporting (*Biodiversity*) is our dependent variable and *UDL* is the main variable of interest. Models 1 and 2 in Table 2 are baseline regression with and without control variables and provide consistent findings of statistically significant and negative DiD estimates. Based on Model 2 of Table 2, the coefficient estimate of *UDL* is −30.957, indicating that the biodiversity score of firms incorporated in states where the UDLs are implemented drops by 30.957. Given the standard deviation of the biodiversity score is 35.29, we divide 30.957 by 35.29, implying an exogenous decline in the threat of derivative litigation economically decreases a corporation's biodiversity reporting by 87%. Findings

[11]Following Treepongkaruna et al. (2022) and Treepongkaruna and Padungsakswadi (2024), we rely on a sample period of 2022 to 2016. The starting point of 2022 is due to the availability of the Refinitiv's Biodiversity Impact Reduction Score. As the most recent passage of UDLs occurred right before 2010, we end our sample in 2016 to ensure sufficient window to observe the impact of UDL without confounding effect for years beyond 2016.

TABLE 2 The effect of shareholder litigation rights on corporate biodiversity's reporting

	(1)	(2)
	Biodiversity	**Biodiversity**
Universal Demand Laws (UDL)	**−27.696*** **	**−30.957*** **
	(−3.005)	**(−3.304)**
Firm size		−3.614
		(−0.632)
Leverage		1.933
		(0.137)
Profitability		−8.276
		(−0.523)
Capital investments		−58.986
		(−1.051)
R&D intensity		−6.780
		(−0.060)
Advertising intensity		−16.119
		(−0.088)
Dividend payouts		5.089
		(0.119)
Cash holdings		−11.661
		(−0.684)
Discretionary spending		−37.139
		(−1.003)
Female		0.061
		(0.399)
Independent		−0.033
		(−0.253)
lnBsize		−2.803
		(−0.421)
Constant	24.115***	81.079
	(14.955)	(1.342)
Observations	2401	2193
R-squared	0.615	0.625
Firm FE	Yes	Yes
Year FE	Yes	Yes
Clustered firm	Yes	Yes
Adj *R*-squared	0.582	0.589

Note: Biodiversity Impact Reduction Score is from Refinitiv. It measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. Universal Demand Laws (UDL) is a binary variable for a firm incorporated in a state where a universal demand law has been implemented in a given year, and zero otherwise. Control variables include firm size (total assets), leverage (total debt/total assets), profitability (EBIT/total assets), capital investments (capital expenditures/total assets), intangible assets (R&D expenses/total assets & advertising expenses/total assets), dividend payouts (dividends/total assets), cash holdings, fixed asset and discretionary spending (SG&A expense/total asset), female on board (proportion of female director on board), board size (natural logarithm of number of director on board) and board independence (proportion of independent director on board). The sample covers the years 2002 to 2016. Robust *t*-statistics are in parentheses.
***$p < 0.01$.**$p < 0.05$.*$p < 0.1$.

from Table 2 are consistent with our *short-termism, risk aversion and agency hypotheses* suggesting increased agency problems such that managers avoid voluntarily disclosing biodiversity impacts, potentially attracting future lawsuits and prefer to live a *quiet life* to enjoy private benefits (e.g., Ferreira & Laux, 2007). In line with existing studies that rely on the staggered passage of UDLs across different states as an identification technique, our DiD estimate is less contaminated with endogeneity concerns and likely to indicate a causal relation between *UDL* and the corporate biodiversity reporting (e.g., Lin et al., 2021; Nguyen et al., 2020; Ni & Yin, 2018; Obaydin et al., 2021; Treepongkaruna et al., 2022; Treepongkaruna & Padungsaksawasdi, 2024).

To further validate our findings, we conduct various robustness checks such as Oster's (2019) test, propensity score matching, entropy balancing and placebo tests. Firstly, we follow Treepongkaruna et al. (2022) and conduct Oster's (2019) unobservable selection and coefficient stability test in assessing omitted variable bias. As noted in Oster (2019), the ratio of selection on unobserved explanatory variables to selection on observables being greater than one implies that regression estimation is not subject to the omitted-variable bias. Applying Oster's (2019) test to our findings in Table 2, we find a range of ratio of 3.78–7.68, indicating that our estimates are not subject to omitted variable biases.

Next, to account for confounding variable bias, we perform propensity score matching technique, introduced by Rosenbaum and Rubin (1983). The potential confounding variables bias occurs as factors predicting treatment, not the treatment (*UDL* in our case) itself driving a difference in the treatment outcome between treated (firms incorporated in the states governed by UDLs) and control (firms incorporated in the states without UDLs) groups. We then compare *Biodiversity* scores of treated to control groups chosen based on the probability of the firm being incorporated in the states governed by UDLs given their firm characteristics, governance structure, year and industry. Panel A of Table 3 reports a statistically and significantly lower *Biodiversity* score of firms incorporated in the states governed by UDLs (lower by 6.96). Additionally, we re-estimate Equation (1) on the firms that are matched based on propensity score and report the coefficient estimate of *UDL*, equivalent to −36.28, confirming our previous findings reported in Table 2.

Additionally, we further adopt Hainmueller (2012) entropy balancing, which is a statistical technique that reduces confounding bias by balancing covariates between treated and control groups and is often used when propensity score matching inadequately balances covariates between the two groups. Confirming our previous findings reported in Tables 2 and 3, we find that the estimate of our DiD coefficient remains significantly negative.

Finally, we validate the reliability of our analyses by performing a placebo test to check on whether the significant findings reported in Tables 2–4 happen by pure chance. We do this by re-estimating Equation (1) and replacing our key independent variable with a dummy variable *UDL(t − 1)*, setting it to one for the year immediately before the adoption of UDLs, and zero otherwise. If the UDLs causally affect corporate biodiversity reporting, then we should not find

TABLE 3 Propensity score matching.

Panel A: treatment effect of Universal Demand Laws (UDL) corporate biodiversity reporting (Biodiversity)					
Sample	Treated	Controls	Difference	SE	*T*-stat
Unmatched	21.55647	20.51994	1.03653	2.00786	0.52
ATT	21.55647	28.51874	−6.96226	2.98763	−2.33**

Panel B: regression results (firms matched on propensity score)		
	(1) Biodiversity	**(2) Biodiversity**
Universal Demand Laws (UDL)	**−35.549*** **	**−36.281*** **
	(−6.416)	**(−5.646)**
Firm size		−12.627
		(−1.436)
Leverage		19.807
		(0.732)
Profitability		−0.091
		(−0.004)
Capital investments		−89.803
		(−0.913)
R&D intensity		38.872
		(0.191)
Advertising intensity		−280.080
		(−0.479)
Dividend payouts		−89.590
		(−0.624)
Cash holdings		13.502
		(0.327)
Discretionary spending		4.571
		(0.070)
Female		−0.140
		(−0.517)
Independent		−0.081
		(−0.412)
lnBsize		9.882
		(0.854)
Constant	44.732***	152.808*
	(15.290)	(1.802)
Observations	663	663
R-squared	0.686	0.695
Firm FE	Yes	Yes
Year FE	Yes	Yes
Clustered firm	Yes	Yes
Adj *R*-squared	0.618	0.622

Note: Panel A reports findings from propensity score matching. For Panel B, the dependent variable is Biodiversity Impact Reduction Score from Refinitiv. It measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. The main independent variable—Universal Demand Laws (UDL)—is a binary variable for a firm incorporated in a state where a universal demand law has been implemented each year, and zero otherwise. Robust *t*-statistics are in parentheses. ***$p < 0.01$.**$p < 0.05$.*$p < 0.1$.

TABLE 4 Entropy balancing.

	(1)	(2)
	Biodiversity	**Biodiversity**
Universal Demand Laws (UDL)	−30.362***	−39.648***
	(−2.998)	(−12.202)
Firm size		−3.898
		(−0.444)
Leverage		19.570
		(0.844)
Profitability		5.885
		(0.222)
Capital investments		−89.562
		(−0.990)
R&D intensity		132.626
		(0.733)
Advertising intensity		−32.609
		(−0.098)
Dividend payouts		−215.205
		(−1.471)
Cash holdings		7.696
		(0.242)
Discretionary spending		−4.033
		(−0.072)
Female		−0.066
		(−0.314)
Independent		−0.000
		(−0.000)
lnBsize		−0.663
		(−0.079)
Constant	35.735***	84.747
	(7.057)	(0.982)
Observations	2401	2193
R-squared	0.619	0.628
Firm FE	Yes	Yes
Year FE	Yes	Yes
Clustered firm	Yes	Yes
Adj *R*-squared	0.587	0.593

Note: The dependent variable is Biodiversity Impact Reduction Score from Refinitiv. It measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. The main independent variable—Universal Demand Laws (UDL)—is a binary variable for a firm incorporated in a state where a universal demand law has been implemented each year, and zero otherwise. Robust *t*-statistics are in parentheses.
***$p < 0.01$.**$p < 0.05$.*$p < 0.1$.

statistically significant this newly introduced independent variable, *UDL(t − 1)*. Table 5 indicates insignificant *UDL(t − 1)* and validates that our previous findings reported in Tables 2–4 indeed reflect causal relation and do not happen by pure chance.

TABLE 5 Placebo test based on the year before UDL is adopted.

	(1)
	Biodiversity
UDL(−1)	**0.835**
	(0.176)
Firm size	7.726***
	(3.338)
Leverage	−1.725
	(−0.130)
Profitability	0.205
	(0.010)
Capital investments	91.074
	(1.551)
R&D intensity	28.091
	(0.444)
Advertising intensity	11.125
	(0.262)
Dividend payouts	115.663
	(1.645)
Cash holdings	−15.143
	(−0.890)
Discretionary spending	−22.237*
	(−1.782)
Female	0.201
	(1.098)
Independent	0.135
	(0.965)
lnBsize	−8.337
	(−0.845)
Constant	−48.713*
	(−1.846)
Observations	2193
R-squared	0.187
Year FE	Yes
Clustered firm	Yes
Adj *R*-squared	0.177

Note: The dependent variable is Biodiversity Impact Reduction Score from Refinitiv. It measures whether the company reports on its impact on biodiversity or on activities to reduce its impact on the native ecosystems and species, as well as the biodiversity of protected and sensitive areas. The main independent variable—*UDL(t − 1)*—is equal to one for the year immediately before the passage of universal demand laws. The sample covers the years 2002 to 2016. Robust *t*-statistics are in parentheses.
***$p < 0.01$.**$p < 0.05$.*$p < 0.1$.

5 | CONCLUSIONS

The United Nation calls upon our generation to 'act now' for a healthy planet and its future survival. Biodiversity may be our best bet

to save the world as it constitutes the interconnectedness of life essential for numerous aspects of our well-being, including food, water, medicinal resources, climate stability, economic prosperity and more. Nature underpins over 50% of the world's Gross Domestic Product (GDP) and the livelihoods of over a billion people hinge on forests. Additionally, both land and oceans play a crucial role by absorbing more than half of the total carbon emissions. Given the importance of biodiversity, the public calls for corporations to do more to limit biodiversity losses. To act as a good citizen to the world, corporations start to report their biodiversity impacts and activities to reduce such impacts.

Motivated by the importance of biodiversity and the scarcity of studies on corporate biodiversity reporting, we investigate the role played by one of the external governance mechanisms in corporate biodiversity reporting. We focus on shareholder litigation rights as the external governance tool in disciplining managers to act for all stakeholders' interests and disseminate more biodiversity-related information to the market. Relying on the staggered passage of UDL as exogenous shocks in a quasi-experimental design, we find a drop in the likelihood that shareholders file a lawsuit against top management intensifies agency costs, leading to a drop in corporate's biodiversity reporting by 87%. Our findings support *short-termism, risk aversion and agency hypotheses* such that self-interest-serving managers may want to live a quiet life, disclose less information of biodiversity impact and participate less in activities that reduce biodiversity impacts when shareholder litigation risks decline. This also infers a positive relation between shareholder litigation risk and corporate biodiversity disclosure. As such, our findings, implying the adverse effect of lax regulations on corporate diversity reporting, underscore the crucial role of regulators in promoting corporate biodiversity management by strengthening the regulations and standards required corporations to conform to design, implement and disclose their biodiversity protection strategies.

Practical implications from our studies are as follows. Shareholders could learn from our findings to demand more disclosure on biodiversity-related information from firms incorporated in states where UDLs are mandated. Further, environmental concerns investors should invest in firms with high-quality corporate governance to compensate for the drop in quality of external governance due to the mandate of UDL. Additionally, in states where UDLs are not mandated, a positive relation between shareholder litigation risk and biodiversity disclosure suggests that companies faced with higher litigation risk are proactively addressing environmental concerns by disseminating more biodiversity-related information. This proactive approach can result in benefits such as enhanced transparency, improved risk management, investor confidence and a positive impact on the company's reputation and competitiveness in the market. More biodiversity-related information disclosure increases transparency, fostering accountability and providing stakeholders with a clearer understanding of the company's environmental practices. Proactive biodiversity reporting also reduces the likelihood of legal disputes, enhances overall risk management practices, attracts environmentally conscious consumers and investors, demonstrates commitments to globally collective conservation efforts and encourages engagement with all stakeholders, including local communities, environmental organizations and regulatory bodies.

On the final note, to ensure genuine commitment to corporate biodiversity preservation by top management, we provide some recommendations on business strategies regarding biodiversity reporting as follows. Firstly, the most obvious and important strategy is for companies to release timely, transparent and accurate corporate biodiversity reporting to their shareholders and other stakeholders. Companies should engage with their stakeholders by understanding their biodiversity expectations and concerns and incorporating them into the company's biodiversity reporting process. By doing so, companies build shareholders' and stakeholders' trusts, lowering the probability of biodiversity litigation. Secondly, companies have effective compliance and risk management in place. The recent developments in legislation and soft law on biodiversity issues by many jurisdictions, for example, the EU's biodiversity strategy for 2030, lead to an increasing biodiversity litigation risk faced by companies, especially for multinational corporations with complex value chains. To limit future litigations and ensure compliance, companies should appoint experts on biodiversity and its potential impact on their businesses and vice versa to voice their opinions to top management. Further, companies' legal departments must be trained and kept up to date on upcoming legislation on biodiversity issues. Thirdly, top management and the audit and risk committees must integrate aspects of biodiversity in their decision-making to avoid future litigation risks. This will lead to a clear set of metrics and targets on biodiversity impact reduction to be implemented into their day-to-day operations. Through their complex supply and value chains, companies must map the potential negative effects of their operations and activities on biodiversity and implement strategic plans to reduce such impacts. Finally, we recommend companies to strategically form partnerships with government agencies, NGOs and other stakeholders to collectively commit to global conservation efforts. Given, recent development in biodiversity-related regulation framework, along with NGOs' active engagements in various strategic litigations to protect the environment,[12] strategic partnerships with them can equip companies with valuable insights, resources and potential support in addressing governance challenges, promoting shareholder rights and assisting businesses to navigate complex regulatory environments. These will eventually lead to better outcomes for companies and our planet.

CONFLICT OF INTEREST STATEMENT

The author has no competing interests to declare that are relevant to the content of this article.

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[12]One of the successful stories is the NGOs involvement in the case against Shell in the Dutch courts for climate change violations. See https://climatecasechart.com/non-us-case/milieudefensie-et-al-v-royal-dutch-shell-plc/

REFERENCES

Addison, P. F. E., Bull, J. W., & Milner-Gulland, E. J. (2019). Using conservation science to advance corporate biodiversity accountability. *Conservation Biology*, *32*(2), 307–318. https://doi.org/10.1111/cobi.13190

Addison, P. F. E., Stephenson, P. J., Bull, J. W., Carbone, G., Burgman, M., Burgass, M. J., Gerber, L. R., Howard, P., McCormick, N., McRae, L., Reuter, K. E., Starkey, M., & Milner-Gulland, E. J. (2020). Bringing sustainability to life: A framework to guide biodiversity indicator development for business performance management. *Business Strategy and the Environment*, *29*(8), 3303–3313. https://doi.org/10.1002/bse.2573

Adler, R., Mansi, M., & Pandey, R. (2018). Biodiversity and threatened species reporting by the top Fortune Global companies. *Accounting, Auditing & Accountability Journal*, *31*(3), 787–825. https://doi.org/10.1108/AAAJ-03-2016-2490

Adler, R., Mansi, M., Pandey, R., & Stringer, C. (2017). United Nations decade on biodiversity: A study of the reporting practices of the Australian mining industry. *Accounting, Auditing & Accountability Journal*, *30*(8), 1711–1745. https://doi.org/10.1108/AAAJ-04-2015-2028

Appel, Ian, Governance by Litigation (June 2019). Available at SSRN: https://ssrn.com/abstract=2532278 or https://doi.org/10.2139/ssrn.2532278

Arena, M., & Julio, B. (2015). The effects of securities class action litigation on corporate liquidity and investment policy. *Journal of Financial and Quantitative Analysis*, *50*(1–2), 251–275. https://doi.org/10.1017/S0022109015000010

Athanas, A. (2005). The role of business in biodiversity and impact assessment. *Impact Assessment and Project Appraisal*, *23*(1), 29–35. https://doi.org/10.3152/147154605781765698

Aurand, T. W., Finley, W., Krishnan, V., Sullivan, U. Y., Abresch, J., Bowen, J., Rackauskas, M., Thomas, R., Willkomm, J., & Willkomm, J. (2018). The VW diesel scandal: A case of corporate commissioned greenwashing. *Journal of Organizational Psychology*, *18*(1). https://doi.org/10.33423/jop.v18i1.1313

Bhagat, S., Brickley, J. A., & Coles, J. L. (1987). Managerial indemnification and liability insurance: The effect on shareholder wealth. *Journal of Risk and Insurance*, *54*, 721–736. https://doi.org/10.2307/253119

Boiral, O., & Heras-Saizarbitoria, I. (2017). Corporate commitment to biodiversity in mining and forestry: Identifying drivers from GRI reports. *Journal of Cleaner Production*, *162*, 153–161. https://doi.org/10.1016/j.jclepro.2017.06.037

Bourveau, T., Lou, Y., & Wang, R. (2018). Shareholder litigation and corporate disclosure: Evidence from derivative lawsuits. *Journal of Accounting Research*, *56*(3), 797–842. https://doi.org/10.1111/1475-679X.12191

Busch, T., Barnett, M. L., Burritt, R. L., Cashore, B. W., Freeman, R. E., Henriques, I., Husted, B. W., Panwar, R., Pinkse, J., Schaltegger, S., & York, J. (2024). Moving beyond "the" business case: How to make corporate sustainability work. *Business Strategy and the Environment*, *33*(2), 776–787. https://doi.org/10.1002/bse.3514

Chu, Y., & Zhao, Y. (2021). The dark side of shareholder litigation: Evidence from corporate takeovers. *Financial Management*, *50*(3), 845–873. https://doi.org/10.1111/fima.12342

Dangelico, R. M., & Pontrandolfo, P. (2015). Being green and competitive: The impact of environmental actions and collaborations on firm performance. *Business Strategy and the Environment*, *24*, 413–430. https://doi.org/10.1002/bse.1828

Dempsey, J. (2013). Biodiversity loss as material risk: Tracking the changing meanings and materialities of biodiversity conservation. *Geoforum*, *45*, 41–51. https://doi.org/10.1016/j.geoforum.2012.04.002

Deng, S., Willis, R. H., & Xu, L. (2014). Shareholder litigation, reputational loss, and bank loan contracting. *Journal of Financial and Quantitative Analysis*, *49*, 1101–1132. https://doi.org/10.1017/S002210901400057X

Donelson, D., & Yust, C. (2014). Litigation risk and agency costs: Evidence from Nevada corporate law. *Journal of Law and Economics*, *57*, 747–780.

Duffy, J. E., Godwin, C. M., & Cardinale, B. J. (2017). Biodiversity effects in the wild are common and as strong as key drivers of productivity. *Nature*, *549*, 261–264. https://doi.org/10.1038/nature23886

Edmans, A. (2014). Blockholders and corporate governance. *Annual Review of Financial Economics*, *6*(1), 23–50. https://doi.org/10.1146/annurev-financial-110613-034455

Ferreira, M., & Laux, P. (2007). Corporate governance, idiosyncratic risk, and information flow. *Journal of Finance*, *62*(2), 951–989. https://doi.org/10.1111/j.1540-6261.2007.01228.x

Ferris, S. P., Jandik, T., Lawless, R. M., & Makhija, A. (2007). Derivative lawsuits as a corporate governance mechanism: Empirical evidence on board changes surrounding filings. *Journal of Financial and Quantitative Analysis*, *42*, 143–165. https://doi.org/10.1017/S0022109000002222

Freund, S., Nguyen, N. H., & Phan, H. V. (2023). Shareholder litigation and corporate social responsibility. *Journal of Financial and Quantitative Analysis*, *58*(2), 512–542. https://doi.org/10.1017/S002210902200031X

Gao, J., Chu, D., Zheng, J., & Ye, T. (2022). Environmental, social and governance performance: Can it be a stock price stabilizer? *Journal of Cleaner Production*, *379*, 134705. https://doi.org/10.1016/j.jclepro.2022.134705

GRI. (2016). *GRI 304: Biodiversity*. Global Reporting Initiative.

Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis*, *20*(1), 25–46.

Hart, S. L., & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment*, *5*, 30–37. https://doi.org/10.1002/(SICI)1099-0836(199603)5:1<30::AID-BSE38>3.0.CO;2-Q

Hassan, A., Roberts, L., & Rodger, K. (2022). Corporate accountability for biodiversity and species extinction: Evidence from organisations reporting on their impacts on nature. *Business Strategy and the Environment*, *31*(1), 326–352. https://doi.org/10.1002/bse.2890

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

Jiang, B., Ugirashebuja, E., de Boer, D., & Fan, D. (2021). *Landmark cases for biodiversity*. Client Earth.

Jones, M. J., & Solomon, J. F. (2013). Problematising accounting for biodiversity. *Accounting, Auditing & Accountability Journal*, *26*, 668–687.

Kinney, T. P. (1994). Stockholder derivative suits: Demand and futility where the board fails to stop wrongdoers. *Marquette Law Review*, *78*(1), 172–189.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance*, *52*(3), 1131–1150. https://doi.org/10.1111/j.1540-6261.1997.tb02727.x

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113–1155. https://doi.org/10.1086/250042

Lin, C., Liu, S., & Manso, G. (2021). Shareholder litigation and corporate innovation. *Management Science*, *67*(6), 3346–3367.

Mace, G. M., Barrett, M., Burgess, N. D., Cornell, S. E., Freeman, R., Grooten, M., & Purvis, A. (2018). Aiming higher to bend the curve of biodiversity loss. *Nature Sustainability*, *1*, 448–451. https://doi.org/10.1038/s41893-018-0130-0

Macellari, M., Gusmerotti, N. M., Frey, M., & Testa, F. (2018). Embedding biodiversity and ecosystem services in corporate sustainability: A strategy to enable sustainable development goals. *Business Strategy & Development*, *1*(4), 244–255. https://doi.org/10.1002/bsd2.34

Mäkelä, M. (2017). Trends in environmental performance reporting in the Finnish forest industry. *Journal of Cleaner Production*, *142*, 1333–1346. https://doi.org/10.1016/j.jclepro.2016.11.177

Mansoor, H., & Maroun, W. (2016). An initial review of biodiversity reporting by South African corporates: The case of the food and mining sectors. *South African Journal of Economic and Management Sciences*, *19*(4), 592–614. https://doi.org/10.4102/sajems.v19i4.1477

McCrory, M. A., & Langvardt, K. T. (2012). Cutting out the middle-man: The case for direct business involvement in environmental justice. *Business Horizons*, *55*(4), 357–362. https://doi.org/10.1016/j.bushor.2012.02.005

Nguyen, H. T., Phan, H. V., & Sun, L. S. (2018). Shareholder litigation rights and corporate cash holdings: Evidence from universal demand laws. *Journal of Corporate Finance*, *52*, 192–213. https://doi.org/10.1016/j.jcorpfin.2018.08.002

Nguyen, N. H., Phan, H. V., & Lee, E. (2020). Shareholder litigation rights and capital structure decisions. *Journal of Corporate Finance*, *62*, 101601. https://doi.org/10.1016/j.jcorpfin.2020.101601

Ni, X., & Yin, S. (2018). Shareholder litigation rights and the cost of debt: Evidence from derivative lawsuits. *Journal of Corporate Finance*, *48*, 169–186. https://doi.org/10.1016/j.jcorpfin.2017.10.008

Nirino, N., Santoro, G., Miglietta, N., & Quaglia, R. (2021). Corporate controversies and company's financial performance: Exploring the moderating role of ESG practices. *Technological Forecasting and Social Change*, *162*, 120341. https://doi.org/10.1016/j.techfore.2020.120341

Obaydin, I., Zurbruegg, R., Hossain, M. N., Adhikari, B. K., & Elnahas, A. (2021). Shareholder litigation rights and stock price crash risk. *Journal of Corporate Finance*, *66*, 101826. https://doi.org/10.1016/j.jcorpfin.2020.101826

Oster, E. (2019). Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*, *37*(2), 187–204. https://doi.org/10.1080/07350015.2016.1227711

Panwar, R., Ober, H., & Pinkse, J. (2023). The uncomfortable relationship between business and biodiversity: Advancing research on business strategies for biodiversity protection. *Business Strategy and the Environment*, *32*(5), 2554–2566. https://doi.org/10.1002/bse.3139

Porter, M. E., & Kramer, M. R. (2019). *Creating shared value: How to reinvent capitalism—And unleash a wave of innovation and growth. Managing Sustainable Business* (pp. 327–350). Springer. https://doi.org/10.1007/978-94-024-1144-7_16

Porter, M. E., & van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, *73*(5), 120–134.

Pukthuanthong, K., Turtle, H., Walker, T., & Wang, J. (2017). Litigation risk and institutional monitoring. *Journal of Corporate Finance*, *45*, 342–359. https://doi.org/10.1016/j.jcorpfin.2017.05.008

Remme, R. P., Hein, L., & van Swaay, C. A. (2016). Exploring spatial indicators for biodiversity accounting. *Ecology Indicators*, *70*, 232–248. https://doi.org/10.1016/j.ecolind.2016.06.024

Rimmel, G., & Jonäll, K. (2013). Biodiversity reporting in Sweden: Corporate disclosure and preparers' views. *Accounting, Auditing & Accountability Journal*, *26*(5), 746–778. https://doi.org/10.1108/AAAJ-02-2013-1228

Roca, L. C., & Searcy, C. (2012). An analysis of indicators disclosed in corporate sustainability reports. *Journal of Cleaner Production*, *20*(1), 103–118. https://doi.org/10.1016/j.jclepro.2011.08.002

Romano, R. (1991). The shareholder suit: Litigation without foundation? *The Journal of Law, Economics, and Organization*, *7*(1), 55–87.

Romolini, A., Fissi, S., & Gori, E. (2014). Scoring CSR reporting in listed companies—Evidence from Italian best practices. *Corporate Social Responsibility and the Environment Management*, *21*(2), 65–81. https://doi.org/10.1002/csr.1299

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41–55. https://doi.org/10.1093/biomet/70.1.41

Schaltegger, S., Gibassier, D., & Maas, K. (2023). Managing and accounting for corporate biodiversity contributions. Mapping the field. *Business Strategy and the Environment*, *32*(5), 2544–2553. https://doi.org/10.1002/bse.3166

Sharma, S., & Nguan, O. (1999). The biotechnology industry and strategies of biodiversity conservation: The influence of managerial interpretations and risk propensity. *Business Strategy and the Environment*, *8*(1), 46–61. https://doi.org/10.1002/(SICI)1099-0836(199901/02)8:1<46::AID-BSE179>3.0.CO;2-K

Skinner, D. J. (1994). Why firms voluntarily disclose bad news? *Journal of Accounting Research*, *32*, 38–60. https://doi.org/10.2307/2491386

Skouloudis, A., Malesios, C., & Dimitrakopoulos, P. G. (2019). Corporate biodiversity accounting and reporting in mega-diverse countries: An examination of indicators disclosed in sustainability reports. *Ecological Indicators*, *98*, 888–901. https://doi.org/10.1016/j.ecolind.2018.11.060

Smith, T., Beagley, L., Bull, J. W., Milner-Gulland, E. J., Smith, M., Vorhies, F., & Addison, P. F. E. (2020). Biodiversity means business: Reframing global biodiversity goalsfor the private sector. *Conservation Letters*, *13*, e12690. https://doi.org/10.1111/conl.12690

Smith, T., Paavola, J., & Holmes, G. (2019). Corporate reporting and conservation realities: Understanding differences in what businesses say and do regarding biodiversity. *Environmental Policy and Governance*, *29*(1), 3–13. https://doi.org/10.1002/eet.1839

Treepongkaruna, S., Kyaw, K., & Jiraporn, P. (2022). Shareholder litigation rights and ESG controversies: A quasi-natural experiment. *International Review of Financial Analysis*, *84*, 102396. https://doi.org/10.1016/j.irfa.2022.102396

Treepongkaruna, S., & Padungsaksawasdi, C. (2024). Green innovation and shareholder litigation rights. *Finance Research Letters*, forthcoming, *62*, 105130. https://doi.org/10.1016/j.frl.2024.105130

Usher, K., & Maroun, W. (2018). A review of biodiversity reporting by the South African seafood industry. *South African Journal of Economic and Management Sciences*, *21*(1), 1–12. https://doi.org/10.4102/sajems.v21i1.1959

van Liempd, D., & Busch, J. (2013). Biodiversity reporting in Denmark. *Acc. Accounting, Auditing & Accountability Journal*, *26*(5), 833–872. https://doi.org/10.1108/AAAJ:02-2013-1232

Venter, O., Sanderson, W. G., Magrach, A., Allan, J. R., Beher, J., Jones, K. R. J., Possingham, H. P., Laurance, W. F., Wood, P., Fekete, B. Z. M., Levy, M. A., & Watson, J. E. M. (2016). Sixteen years of change in the global terrestrial human footprint and implications for biodiversity conservation. *Nature Communications*, *7*, 12558. https://doi.org/10.1038/ncomms12558

Walsh, G., Mitchell, V. W., Jackson, P. R., & Beatty, S. E. (2009). Examining the antecedents and consequences of corporate reputation: A customer perspective. *British Journal of Management*, *20*(2), 187–203.

WEF. (2020). *The global risks report 2020* (15th ed.). World Economic Forum.

Westley, F., & Vredenburg, H. (1997). Interorganizational collaboration and the prevention of global biodiversity. *Organization Science*, *8*(4), 381–403. https://doi.org/10.1287/orsc.8.4.381

Whiteman, G., Walker, B., & Perego, P. (2013). Planetary boundaries: Ecological foundations for corporate sustainability. *Journal of Management Studies*, *50*(2), 307–336. https://doi.org/10.1111/j.1467-6486.2012.01073.x

Wijkman, A., & Rockström, J. (2013). *Bankrupting nature: Denying our planetary boundaries*. Routledge. https://doi.org/10.4324/9780203107980

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