Corporate Governance for Carbon Majors

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Keywords: corporate governance, climate change, corporate purpose, directors' duties

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Abstract: We present a critical examination of the corporate governance frameworks governing carbon major corporations – those responsible for the majority of historical carbon dioxide and methane emissions. We demonstrate that the axioms underpinning the traditional focus on shareholder value maximisation are violated for carbon majors, and that therefore an exclusive focus on shareholder value has no theoretical justification for such corporations. We then lay the foundations for a 'climate corporate governance regime' for carbon majors, which accounts for the kind of externalities imposed by such corporations. We thus propose to tweak directors' duties, director elections, shareholder proposals, and executive remuneration to mitigate climate externalities caused by carbon majors.

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1. Introduction

Ninety corporations are responsible for 63 per cent of the carbon dioxide and methane emitted between 1751 and 2010 (hereinafter 'carbon majors').[1] While this staggering figure highlights that carbon majors are different from other firms, the corporate governance to which they are subject to is not materially different from that of ordinary firms and revolves around the idea of shareholder value maximisation (SVM). In this paper we advance two claims. First, the corporate governance of carbon majors cannot be centered

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[1] Climate Accountability Institute, 'Carbon Majors' (4 April 2024), at https://climateaccountability.org/carbon-majors/. See also Richard Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010' (2014) 122 Climatic Change 229, 238.

only on SVM. Second, a tailored regime of 'climate corporate governance' could induce carbon majors to pay greater attention to the externalities that they cause.

Shareholder value maximisation has long been at the core of corporate law in many jurisdictions, especially in the Anglo-American world. SVM is premised on two fundamental axioms: mutualism and separability. Mutualism is the idea that shareholder value can only be created by generating value also for other stakeholders.[2] As stakeholders[3] can contract with the corporation or sue in court, they must be compensated adequately for providing the firm with the inputs it need to create value.[4] Separability, refers to the distinct roles of corporations and policymakers: the former is tasked with creating wealth; the latter with preventing or redressing the externalities created by corporations in the pursuit of wealth.[5]

However, neither of these two axioms hold in the case of carbon majors. First, most of the damage from climate change is going to be felt by future generations. But because future generations can neither contract with corporations, nor can sue in court, carbon majors do not need to account for their preferences. For this reason, carbon majors that save in mitigation efforts can increase shareholder wealth at the expense of the welfare of a crucial group of stakeholders. This is a fundamental violation of the mutualism axiom. Second, the tools that policymakers have at their disposal to redress the externalities created by carbon majors are grossly imperfect. Consequently, for carbon majors also separability must be refuted. As both mutualism and separability are so openly violated, there are no economic

[2] Lucian A Bebchuk and Roberto Tallarita, 'The Illusory Promise of Stakeholder Governance' (2020) 106 Cornell Law Review 91, 109. We borrow the term 'mutualism' from biology where it is used to describe 'interspecific interactions that benefit both species', and hence captures the idea that creating value for shareholders benefits also stakeholders, and vice versa (Judith L Bronstein, 'Our Current Understanding of Mutualism' (1994) 69 Quarterly Review of Biology 31).

[3] In line with a widely cited strand of literature, we define stakeholders as those actors who have a *stake* in the actions of a corporation (R Edward Freeman and David L Reed, 'Stockholders and Stakeholders: A New Perspective on Corporate Governance' (1983) 25 California Management Review 88, 89).

[4] Frank H Easterbrook and Daniel R Fischel, *The Economic Structure of Corporate Law* (Harvard University Press 1996) 35-39; Bebchuk and Tallarita (n 2) 109.

[5] Oliver Hart and Luigi Zingales, 'Companies Should Maximize Shareholder Welfare Not Market Value' (2017) 2 Journal of Law, Finance, and Accounting 247, 249.

justifications for having a corporate governance regime for carbon majors designed around SVM.

We then turn to developing a concrete framework for the corporate governance of carbon majors, which we label 'climate corporate governance.' Because reforms need to be fine-tuned with the specific features of a given jurisdiction,[6] rather than detailing reform proposals with granular precision, we offer a roadmap of general and adaptable rules and standards that could constitute the core of a climate corporate governance regime. In that spirit, we focus on directors' duties, directors' elections, managers' compensation, and shareholders' proposals. To be sure, none of the rules discussed is sufficient in and of itself to induce carbon majors to optimally account for the externalities they create. However, they are pieces of a mosaic that, when combined, can contribute to steering carbon majors towards more sustainable strategies.

Directors' duties are an obvious starting point because they represent the clearest signal sent by the legal system to those in charge of managing corporations. So long as those who run a corporation perceive they have a duty to focus on the interests of shareholders only, corporations will have shareholder value as their polestar. Instead, we suggest that directors of carbon majors should have a 'climate duty,' which would require them to balance shareholder value and the impact of their corporation on the environment. The goal of the climate duty would be twofold: expressing a bold counter to the idea that directors of carbon majors are only tasked with the pursuit of profit and preventing egregious conduct with a negative impact on the environment greater than the benefits for the shareholders. We explain how to implement the climate duty to achieve such goals while ensuring that they do not become a straitjacket for directors.

In addition, we discuss other important pieces of the climate corporate governance framework that promise to create important synergies with the climate duty: director

[6] For instance, countries with an effective class action mechanism might place a greater reliance on the plaintiff bar as an enforcement mechanism, whereas countries with a less effective class action must rely to a larger extent on public enforcement.

elections, shareholder proposals, and executive remuneration. One of the often-cited reasons behind directors' alignment with shareholder interests is that it is shareholders who generally appoint (and remove) directors and (albeit indirectly) management.[7] Therefore, we discuss the possibility of having some members of the board of directors elected by constituents other than shareholders, and in particular by actors with a clear interest in environmental issues. Alternatively, policymakers may consider providing non-shareholder climate constituents with a right to appoint board observers who, while not having formal voting rights, can promote stronger compliance with the climate duty by overseeing board decision-making from within. Furthermore, we note that in many jurisdictions shareholders who want to bring proposals related with climate issues face significant hurdles. We argue that such obstacles should be removed, or at least lowered, in relation to climate related proposals by the shareholders of carbon majors. Finally, executive remuneration can influence managerial behaviour through incentives created by the design of compensation plans.[8] Accordingly, we highlight the need to review and align the design of executive remuneration plans with the proposed climate duty.

Last, we develop a theoretical framework to determine to which extent private parties should be allowed to contract around climate corporate governance rules. Our framework suggests that the *scope* of green corporate governance rules should not be subject to private contracting. For instance, shareholders and directors should not be allowed to contract around the content of the climate duty. Private contracting should be allowed only on the *allocation* of costs among corporate actors. For example, shareholders should be allowed to decide whether to insure directors against breaches of the climate duty.

The balance of this paper is as follows. Section 2 discusses the historical debate on corporate purpose, highlighting the limitations of SVM in addressing climate change impacts. We argue that SVM fails to consider future generations and show the inadequacy

[7] Bebchuk and Tallarita (n 2) 143-146.

[8] Michael C Jensen and William H Meckling, 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure' (1976) 3 Journal of Financial Economics 305, 323; Jennifer Hill and Charles M Yablon, 'Corporate Governance and Executive Remuneration: Rediscovering Managerial Positional Conflict' (2002) 25 UNSW Law Journal 294, 295.

of traditional regulatory tools. Section 3 introduces and defines the directors' climate duty, requiring them to balance shareholder value with the social cost of carbon emissions. It explains how these duties can be quantified and enforced within existing corporate governance frameworks. In Section 4, we suggest additional measures, including the representation of climate interests on corporate boards through the appointment of climate directors or climate observers, facilitating shareholder proposals related to climate issues, and aligning executive remuneration with climate objectives. In Section 5, we argue for the mandatory nature of the climate duty and related rules, while allowing limited private contracting for cost allocation among corporate actors.

2. From Smith's Baker to Carbon Majors: Moving Beyond Shareholder Value Maximisation

In this section, we set the background for introducing a distinct corporate governance framework for carbon majors: a small number of corporations that make a disproportionate contribution to the climate crisis. We start with a sketch of the debate on corporate purpose explaining how SVM became the dominant paradigm. Afterwards, we show that SVM is not an appropriate goal for carbon majors. We do this by challenging the axioms of *mutualism*, according to which carbon majors can create shareholder value only by creating value for stakeholders, and *separability*, which posits that the traditional regulatory tools available to governments put them in a strong position to address externalities created by carbon majors.

2.1. The Debate on Corporate Purpose

The negative impact of the corporate sector on climate is linked with the fundamental question of corporate purpose. Corporate laws in many major economies and especially in Anglo-American jurisdictions endorse the shareholder value maximisation norm, the view that shareholders are economically the ultimate principals of companies.[9] The SVM model of corporate governance has traditionally put various stakeholder interests, including climate, behind the primary goal of increasing shareholder returns. The way this approach is perceived and practiced by different institutional gatekeepers offers limited justifications to corporate managers for controlling the negative externalities of business activities beyond the minimum prescribed by mandatory laws and regulations.[10] Not surprisingly, the SVM norm has faced frequent criticism and stimulated numerous normative debates as to how the law ought to define the corporate purpose.[11]

The growing urgency of global challenges, such as climate change, environmental degradation, and social and economic inequalities, has only reinforced the importance of this debate. The core arguments in support of SVM, on the one hand, and of the more pluralistic stakeholder approach, on the other hand, have been extensively covered in the academic literature. Here we sketch only the core issues of the debate.

The accounts of the debate in the Anglo-American world usually go back to the famous exchange of arguments in the early 1930s between Adolf Berle and E. Merrick Dodd. Berle supported the unequivocal adherence to SVM as a means to rein in managerial opportunism,[12] while Dodd argued that business corporations, in addition to a profit-making function, must also consider the interests of others (the term 'stakeholders' was introduced

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[9] See eg Mark J Roe, 'The Shareholder Wealth Maximization Norm and Industrial Organization' (2001) 149 University of Pennsylvania Law Review 2063, 2072-2074; Amir Licht, 'Varieties of Shareholderism: Three Views of the Corporate Purpose Cathedral' in Elizabeth Pollman and Robert Thompson (eds), *Research Handbook on Corporate Purpose and Personhood* (Edward Elgar 2021) 396-397; Neil Fligstein and Adam Goldstein, 'The Legacy of Shareholder Value Capitalism' (2022) 48 Annual Review of Sociology 7.2.

[10] Øyvind Ihlen, 'Business and Climate Change: The Climate Response of the World's 30 Largest Corporations' (2009) 3 Environmental Communication 244, 251.

[11] Consider, for example, a call for reforming corporate governance by a large group of academics (Andrew Johnston et al, 'Corporate Governance for Sustainability Statement' Harvard Law School Forum on Corporate Governance (7 January 2020), at https://corpgov.law.harvard.edu/2020/01/07/corporate-governance-for-sustainability-statement/).

[12] Adolf A Berle, Jr, 'Corporate Powers as Powers in Trust' (1931) 44 Harvard Law Review 1049; Adolf A Berle, Jr, 'For Whom Corporate Managers Are Trustees: A Note' (1932) 45 Harvard Law Review 1365, 1367-1368.

later)[13] as part of their social service function.[14] The debate has continued since then, with the SVM model firmly dominating the U.S. corporate law and finance landscape, including business school and law school teaching.[15] This dominant approach was articulated clearly in the famous 1970 *New York Times Magazine* opinion piece where Milton Friedman, a future Nobel laureate in economics, argued that corporate executives must conduct the business in the interest of shareholders.[16] The only social responsibility of business is 'to use its resources and engage in activities designed to increase its profits.'[17] Many scholars have joined this debate by either following Friedman and arguing that SVM should be the goal of corporate law,[18] or exposing the shortcomings of SVM and proposing alternatives.[19]

While judges and scholars continued to dispute what directors were required to do under the law,[20] the debate was revitalised at the end of the last decade. In his 2018 letter, Larry Fink, the chairman and CEO of the world's largest investment manager, warned that '[c]ompanies must benefit all of their stakeholders.'[21] In August 2019, the Business

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[13] Professor Dodd listed various non-shareholder constituencies of business corporations, like employees and customers, but did not use the term 'stakeholders' which was introduced only in 1960s (Stephen M Bainbridge, 'Director Primacy: The Means and Ends of Corporate Governance' (2002) 97 Northwestern University Law Review 547, 549.

[14] E Merrick Dodd, Jr, 'For Whom Are Corporate Managers Trustees?' (1932) 45 Harvard Law Review 1145, 1148.

[15] Lyman Johnson, 'Why Corporate Purpose Will Always Matter' (2022) 17 University of St Thomas Law Journal 862, 865.

[16] Milton Friedman, 'The Social Responsibility of Business Is to Increase its Profits' New York Times (Magazine) (13 September 1970), 32-33.

[17] ibid 126. Many authors, reportedly mistakenly, attribute the rise and popularization of SVM in the United States to Milton Friedman's short piece (Brian R Cheffins, 'Stop Blaming Milton Friedman!' (2021) 98 Washington University Law Review 1607, 1611-1613; Samuel Knafo and Sahil Jai Dutta, 'The Myth of the Shareholder Revolution and the Financialization of the Firm' (2020) 27 Review of International Political Economy 476, 486-495).

[18] See eg John H Matheson and Brent A Olson, 'Corporate Law and the Longterm Shareholder Model of Corporate Governance' (1992) 76 Minnesota Law Review 1313, 1326; Henry Hansmann and Reinier Kraakman, 'The End of History for Corporate Law' (2001) 89 Georgetown Law Journal 439, 439.

[19] See eg Colin Mayer, *Prosperity: Better Business Makes the Greater Good* (OUP 2018) 31-45; Lynn A Stout, 'Bad and Not-So-Bad Arguments for Shareholder Primacy' (2001) 75 Southern California Law Review 1189, 1190-1195.

[20] See eg Leo E Strine, Jr, 'The Dangers of Denial: The Need for A Clear-Eyed Understanding of the Power and Accountability Structure Established by the Delaware General Corporation Law' (2015) 50 Wake Forest Law Review 761, 768; Lynn Stout, *The Shareholder Value Myth: How Putting Shareholders First Harms Investors, Corporations, and the Public* 31 (Berrett-Koehler Publishers 2012) 31.

[21] BlackRock, *Larry Fink's 2018 Letter to CEOs: A Sense of Purpose* (2018), at https://www.blackrock.com/corporate/investor-relations/2018-larry-fink-ceo-letter [https://perma.cc/3YYU-MAEL.

Roundtable, the lobbying organization of CEOs of America's largest corporations, embraced the stakeholder approach in a one-pager signed by its CEO members titled 'Statement on the Purpose of a Corporation' (the BRT Statement).[22] In the document, which draws from works by Professor Colin Mayer[23] and by Martin Lipton,[24] each stakeholder (including employees, suppliers, and customers) is considered 'essential.'[25] These pro-stakeholder positions reignited the debate,[26] and politicians on both sides have taken notice.[27] The current draft of '*Restatement of the Law*, *Corporate Governance*' by the American Law Institute seemingly moves towards a stakeholderist direction.[28]

Similarly, SVM put down strong roots in the United Kingdom during the 1980s and 1990s, but, in contrast to the U.S., its domination was challenged much earlier. During the mid-1990s, the UK government set up a special committee called the Company Law Review Steering Group whose task was to review and offer proposals for a major reform of company law.[29] The committee paid big attention to the question of the objective of the company and,

[22] Business Roundtable, *Statement on the Purpose of a Corporation* (19 August 2019), at https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans.

[23] Colin Mayer, *Prosperity: Better Business Makes Greater Good* (OUP 2018); Colin Mayer, *Firm Commitment: Why the Corporation is Failing Us and How to Restore Trust in It* (OUP 2013).

[24] Martin Lipton, 'Corporate Governance: The New Paradigm' Harvard Law School Forum on Corporate Governance (11 January 2017), at https://corpgov.law.harvard.edu/2017/01/11/corporate-governance-the-new-paradigm/#1.

[25] Business Roundtable (n 22).

[26] See eg Edward B Rock, 'For Whom Is the Corporation Managed in 2020?: The Debate over Corporate Purpose' (2021) 76 Business Lawyer 370, 370-378, 394; Bebchuk and Tallarita (n 2) 91; Jens Dammann and Daniel Lawrence, 'CEOs' Endorsements of Stakeholder Values: Cheap Talk or Meaningful Signal? An Empirical Analysis' (2024) 49 Journal of Corporation Law 577, 606.

[27] On the one hand, politicians on the left, like Senators Elizabeth Warren and Bernie Senders, embraced the stakeholder approach in corporate law reform proposals they put forth while they were vying for the Democratic nomination in the 2020 presidential election (Accountable Capitalism Act, S. 3348, 115th Congress § 5 (2018); BernieSanders.com, *Corporate Accountability and Democracy Plan*, at https://berniesanders.com/issues/corporate-accountability-and-democracy/. On the other hand, opponents to pro-climate initiatives, like conservative lobbyists and Republican-controlled state houses, have pushed bills and legislation to, among other things, bar public pensions from considering environmental, social, and governance investment criteria (for a critical account, see eg David J Berger, David H Webber, and Beth M Young, 'The Liability Trap: Why the ALEC Anti-ESG Bills Create a Legal Quagmire for Fiduciaries Connected with Public Pensions' (2023), at https://ssrn.com/abstract=4360119).

[28] American Law Institute, *Restatement of the Law, Corporate Governance*, at https://www.ali.org/publications/show/corporate-governance-rs/#drafts.

[29] Andrew Keay, 'Tackling the Issue of the Corporate Objective: An Analysis of the United Kingdom's "Enlightened Shareholder Value Approach"' (2007) 29 Sydney Law Review 577, 588.

after reviewing SVM and pluralistic stakeholder models, proposed a new framework called 'enlightened shareholder value' approach.[30] This new approach later became part of the codified directors' duties in the Companies Act 2006.[31] The debate over corporate purpose in the UK has been intense since then and does not show signs of abating.

2.2. One Size Fits All Corporate Purpose and the Focus on Fiduciary Duties

The debate on corporate purpose has thus far been largely grounded on two universally accepted assumptions: the universality of one corporate purpose for all companies and the exclusive role of directors' duties in promulgating and implementing corporate purpose.

First, often implicit in this debate is the idea that there is one optimal model of corporate purpose for all companies. Advocates and policymakers argue that the corporate purpose to be adopted by the given jurisdiction, whatever that may be: SVM, stakeholderism, or a combination – should apply to all companies in the exact same manner. As a reflection of this, corporate laws in different jurisdictions generally adopt one model of corporate purpose for all for profit corporations or similar entities. However, this one-size-fits-all approach ignores that different types of companies, depending on their industry, have different impacts on stakeholders and society in general. For instance, where the negative externalities created by a company are disproportionately large and hard to regulate, the case for extending the SVM model to that company is weaker because most likely the company success is based on such externalities. Conversely, where a company's business does not create major externalities or affect a broad range of different stakeholders, the normative argument for forcing a broad stakeholder-oriented approach on this company is weaker. What the debate largely ignores is the need to develop a plurality of systems of corporate

[30] ibid, 589-590.
[31] UK Companies Act 2006 (c 46), s 172(1).

law and governance that contemplate more industry-specific corporate purpose models when the economics so require.[32]

To be sure, different jurisdictions do have special sector-specific[33] or business size-related[34] legal regimes that may affect the application of the SVM model to various extent – consider for instance banking. Accordingly, the idea of introducing different corporate governance models within a jurisdiction is less revolutionary than one would think. Yet, it is crucial to acknowledge that carbon majors also require their own specific regime given the magnitude of the externalities they produce.

The second peculiar feature of this debate is the excessive narrow focus on directors' duties in establishing the appropriate corporate purpose. Consider the study on directors' duties and sustainable corporate governance prepared by Ernst & Young for the European Commission in July 2020, which identifies directors' duties as a key driver of 'the short-term maximisation of shareholder value' in corporate governance.[35] Director duties receive attention because the company, although a separate legal entity, does not make its own decisions; the key corporate decisionmakers are, in fact, the company's directors.[36] But this exclusive focus on directors' duties implies, wrongly, that reforming duties is all what is needed for changing the established corporate purpose. As a result, ignored are other legal

[32] Christopher M Bruner, 'Corporate Governance Reform and the Sustainability Imperative' (2022) 131 Yale Law Journal 1217, 1229, 1276.

[33] Christopher M Bruner, *The Corporation as Technology: Re-Calibrating Corporate Governance for a Sustainable Future* (OUP 2022) 152-156; Patricia A McCoy, 'A Political Economy of the Business Judgment Rule in Banking: Implications for Corporate Law' (1996) 47 Case Western Reserve Law Review 1, 12, 21-22; Christopher M Bruner, 'Conceptions of Corporate Purpose in Post- Crisis Financial Firms' (2013) 36 Seattle University Law Review 527, 533-541.

[34] See eg Katharina Pistor, 'Codetermination: A Sociopolitical Model with Governance Externalities' in Margaret M Blair and Mark J Roe (eds), *Employees and Corporate Governance* (Brookings Institution Press 1999) 163; Jens Dammann and Horst Eidenmüller, 'Codetermination: A Poor Fit for U.S. Corporations' (2020) 20202 Columbia Business Law Review 870, 878-886.

[35] European Commission, *Study on Directors' Duties and Sustainable Corporate Governance: Final Report* (July 2020) 32-33, 61, at https://op.europa.eu/en/publication-detail/-/publication/e47928a2-d20b-11ea-adf7-01aa75ed71a1/language-en.

[36] For brevity, we use 'directors' duties' to refer to the duties of corporate directors and officers. But it is important to recognize that the board of directors in a large company typically delegates most day-to-day decision-making authority to corporate officers.

rules and various institutional and cultural factors that support the SVM norm.[37] Corporate law alone has many other provisions that, taken together, 'require or incentivize corporate directors to put shareholder interests ahead of those of stakeholders.'[38]

2.3. Smith's Baker and Shareholder Value Maximisation

According to the mutualism axiom, by pursuing their own wealth, economic agents produce valuable outputs and increase social welfare. This view is summarised by the famous Adam Smith's adage: '[i]t is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.'[39] To put it differently, entrepreneurs and corporations need to create value for the stakeholders, and ultimately for society, in order to create value for the shareholders.[40]

A second axiom of the shareholderist approach, which is labeled separability of the roles,[41] asserts that there should be a division of responsibilities between corporations, on the one hand, and individuals and governments, on the other hand.[42] Supporters of shareholder primacy acknowledge that corporations impose negative externalities in the pursuit of shareholder value. However, they argue that it is up to governments and individuals to deal with such externalities. In simple terms, '[l]et companies make money and let individuals and governments deal with externalities.'[43]

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[37] Mark J Roe, *Political Determinants of Corporate Governance* (OUP 2003) 45-46; Bebchuk and Tallarita (n 2) 140-146, 147-154; Matteo Gatti and Chrystin Ondersma, 'Can A Broader Corporate Purpose Redress Inequality? The Stakeholder Approach Chimera' (2020) 46 Journal of Corporation Law 1; Dorothy S Lund and Elizabeth Pollman, 'The Corporate Governance Machine' (2021) 121 Columbia Law Review 2563, 2578-2609.

[38] Stephen M Bainbridge, *The Profit Motive: Defending Shareholder Value Maximization* (CUP 2023) 73.

[39] Adam Smith, *An Inquiry into The Nature and Causes of the Wealth of Nations* (Penn State Electronic Classics Series 2005) 19.

[40] Bebchuk and Tallarita (n 2) 109.

[41] Hart and Zingales (n 5) 249.

[42] ibid.

[43] ibid.

These pieces together create the strong theoretical framework supporting SVM. First, Adam Smith's baker can only make profits by creating value for its stakeholders, and therefore to create value for the shareholders the baker will also create value for society by making good bread, paying a good wage to the employees, and repaying creditors on time. Second, the baker might still generate negative externalities, but it is the job of policymakers and individuals to prevent or reverse these externalities.[44] In the ensuing subsections, we explain why this framework does not hold when dealing with climate change.

2.3.1 Creating Shareholder Value Implies Creating Value for Stakeholders

Shareholder primacy advocates argue that the norm is beneficial for stakeholders too, because to generate value for their shareholders firms need to establish mutually beneficial relationships with creditors, employees, customers, and stakeholders in general.[45] Thus, even if focused on creating shareholder value, management must necessarily account for the welfare of other stakeholders.[46] The main reason, according to this view, is that many key stakeholders like employees and creditors can contract for fixed payouts (salaries, pensions, interests, etc.), and more generally can protect their rights contractually.[47] Thus, there would be no reason to expand corporate purpose beyond shareholder value creation.

The strength of this argument depends on the extent to which stakeholders can protect themselves contractually, by lobbying policymakers or by suing in court.[48] Clearly, this argument loses some of its strength for stakeholders that have imperfect means to contract for with the corporation and are therefore forced to accept sub-optimal terms. For instance, employees often are in a weak contractual position when negotiating with a corporation.[49]

[44] Stephen M Bainbridge, 'In Defense of The Shareholder Wealth Maximisation Norm: A Reply to Professor Green' (1993) 50 Washington & Lee Law Review 1423, 1431.

[45] Bebchuk and Tallarita (n 2) 109.

[46] ibid.

[47] See eg Easterbrook and Fischel (n 4) 35-39.

[48] Lynn A Stout, 'Bad and Not-So-Bad Arguments for Shareholder Primacy' (2001) 75 Southern California Law Review 1189, 1192-95.

[49] Gatti and Ondersma (n 37) 24.

However, with climate change this problem is not merely one of imperfect bargaining, as it affects a class of stakeholder that has no ability whatsoever to bargain with the corporation or lobby policymakers: future generations. While stakeholders like employees might often have an imperfect ability to bargain with the corporation, the problem faced by future generations is different in nature as they cannot bargain *at all* with the corporation.

Consequently, carbon majors do not need to generate *any* value for future generations to create shareholder value or to assign *any* weight to future generations' preferences. If anything, by saving on mitigation technology and increasing emissions corporations cause a net transfer of wealth from future generations to present-day shareholders (and other stakeholders, such as workers of carbon majors who would face job losses as a result of climate regulation).[50]

For these reasons, the mutualism axiom is violated when one is concerned with the long-term consequences of corporate emissions on climate. Firms can and do create shareholder value at the expense of a key stakeholder, future generations, which is not even at the bargaining table.

2.3.2. Separability of the Roles

The separability axiom requires that there exist (scalable) interventions that can prevent or reverse the consequences of the project implemented by the corporation.[51] For instance, if a consumer's property is damaged by a corporation, tort law can redress this externality. In the context of climate change, separability would hold if and only if there exist policy solutions that can effectively either prevent or undo the consequences of corporations' greenhouse gas (GHG) emissions. We explain next why this condition does not hold by surveying the most common policy responses to global warming and showing that – while

[50] Gilbert E Metcalf 'On the Economics of a Carbon Tax for the United States' (2019) Brookings Papers on Economic Activity (Spring) 405, 444.

[51] Hart and Zingales (n 5) 249.

important and necessary – none are sufficient to redress firm externalities deriving from significant emissions in pursuit of shareholder value.

Tort law. To begin with, the most natural candidate to induce firms to internalise their impact on the climate is tort law. However, tort law is patently inadequate in the context of dealing with climate change.[52] First, damages caused by climate change are gargantuan and often irreversible. A recent study estimates that at the current rate, absent mitigation policies, climate change will cost 7 per cent of the world's GDP by 2100.[53] Most importantly, climate change is expected to cause 83 million of excess deaths by 2100,[54] and to result in a significant loss in biodiversity.[55] No injurer has a sufficiently deep pocket to internalize losses of this magnitude. Second, the harm is dispersed among billions of individuals scattered around the globe and across multiple generations. It is well-known that tort law tends to be ineffective when harm is dispersed.[56] Third, establishing causation in climate litigation is complex. One thing is identifying the global consequences of global warming, another is attributing a specific event to the emissions of a particular polluter.[57]

Regulations. Another traditional legal tool for addressing the problem of externalities is the use of command-and-control regulations. Prescriptive environmental standards can set minimum requirements on corporate behaviour in line with the goal of addressing the climate crisis. But in the area of environmental regulation, it is well recognized that the information asymmetries faced by governments impose significant limitations.[58] The use of command and control regulations to solve the climate problem is further complicated by political

[52] Douglas A Kysar, 'What Climate Change Can Do About Tort Law' (2011) 41 Environmental Law 1, 8-44.

[53] Matthew E Kahn et al, 'Long-Term Macroeconomic Effects of Climate Change: A Cross-Country Analysis' (2021) 104 Energy Economics 105624.

[54] R Daniel Bressler, 'The Mortality Cost of Carbon' (2021) 12 Nature Communications 4467, 5.

[55] Sarahi Nunez et al, 'Assessing the Impacts of Climate Change on Biodiversity: Is Below 2°C Enough?' (2019) 154 Climatic Change 351, 357-360; Sandra Díaz et al, 'Biodiversity Loss Threatens Human Well-Being' (2006) 4 PLOS Biology 1300.

[56] Michael Faure and Franziska Weber, 'Dispersed Losses in Tort Law – An Economic Analysis' (2015) 6 Journal of European Tort Law 163-196.

[57] Elisabeth A Lloyd and Theodore G Shepherd, 'Climate Change Attribution and Legal Contexts: Evidence and the Role of Storylines' (2021) 167 Climatic Change 1, 2.

[58] Fredrik Carlsson and Olof Johansson-Stenman, 'Behavioral Economics and Environmental Policy' (2012) 4 Annual Review of Resource Economics 75, 82.

dysfunction on climate matters, namely the inability or unwillingness of governments to act because of weak political will or lack of consensus.[59] To make things worse, even where governments are resolved to address climate change, corporate lobbying efforts against climate legislation dilute the proposed regulatory attempts.[60] Possible reputational harms of lobbying against pro-climate laws are reduced by loopholes in the U.S. lobbying disclosure rules that allow firms to hide their efforts behind the veil of industry trade associations. This allows firms to publicly support climate legislation while simultaneously funding industry organizations that lobby against the very same legislation.[61]

Carbon Pricing. Given the obvious shortcomings of tort law and prescriptive environmental regulations, policymakers have experimented with a variety of alternative tools. An 'indispensable' instrument to reduce emissions is carbon pricing.[62] The basic idea is that of attaching a price to carbon emission so that activities that have a greater impact on the climate become relatively more expensive to carry out than activities that generate less emissions.[63]

(1) Carbon Taxes. A first form of carbon pricing are carbon taxes, which impose a tax on either the emission of greenhouse gasses or on the carbon content of fossil fuels.[64] Carbon taxes have been introduced or are being introduced in several countries, including Canada, France and Mexico.[65] One obvious advantage of carbon taxes is that they induce firms to internalize the cost of their pollution while avoiding the complex causation problems

[59] Sarah E Light, 'The Law of the Corporation as Environmental Law' (2019) 71 Stanford Law Review 137, 212.

[60] Catherine Rocchi, 'Climate Protagonists? Strategic Misrepresentation and Corporate Resistance to Climate Legislation' (2022) 74 Stanford Law Review 1153, 1161-1164.

[61] ibid 1171-1173.

[62] Carbon Pricing Leadership Coalition, *Report of the High-Level Commission on Carbon Prices* (May 2017) 9, at https://static1.squarespace.com/static/54ff9c5ce4b0a53decccfb4c/t/59b7f2409f8dce5316811916/1505227332748/CarbonPricing_FullReport.pdf.

[63] Alex Bowen, *The Case for Carbon Pricing* (December 2011) 4-5, at https://www.cccep.ac.uk/wp-content/uploads/2015/09/PB_case-carbon-pricing_Bowen.pdf.

[64] World Bank, *Carbon Pricing: What Is Carbon Pricing?*, at https://www.worldbank.org/en/programs/pricing-carbon.

[65] World Bank, *Carbon Pricing Dashboard*, at https://carbonpricingdashboard.worldbank.org.

raised by ex post remedies. Moreover, carbon taxes are easy to administer[66] and generate significant revenues for the governments implementing them.[67]

However, as a matter of fact, the implementation of carbon taxes has proven to be very difficult. Suffices it to say that the major polluters – the United States and China – do not have a carbon tax.[68] One reason is that national governments fear triggering the problem of 'carbon leakage,' where carbon intensive business activities relocate to jurisdictions that do not have carbon taxes or strict environmental regulations.[69] Carbon tariffs can address this problem by imposing a cost on imports from carbon-friendly jurisdictions, thereby creating equal competitive conditions for lightly-regulated importers and domestic businesses that face higher carbon taxes.[70] But the legality of carbon tariffs is uncertain under international law and may contradict the World Trade Organization's (WTO) rules of trade law.[71] To complicate matters further, the WTO's Appellate Body, which could clarify the status of carbon tariffs, has lacked a quorum since 2019 and thus has not been functioning.[72] Finally, carbon taxes are considered a regressive policy by some,[73] but many solutions have been proposed to address this shortcoming.[74]

(2) Cap-and-trade. Another form of carbon pricing is cap-and-trade. Under this arrangement, a policymaker identifies a 'cap' of emissions that regulated entities can

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[66] Carbon Pricing Leadership Coalition (n 62) 10.

[67] Lawrence H Goulder, 'Effects of Carbon Taxes in an Economy with Prior Tax Distortions: An Intertemporal General Equilibrium Analysis' (1995) 29 Journal of Environmental Economics and Management 271, 280.

[68] World Bank (n 65).

[69] Joshua Elliott et al, 'Unilateral Carbon Taxes, Border Tax Adjustments and Carbon Leakage' (2013) 14 Theoretical Inquiries in Law 207, 208.

[70] Developments in the Law: Climate Change, 'The Promise and Perils of Carbon Tariffs' (2022) 135 Harvard Law Review 1640, 1643-1644.

[71] ibid 1648-1651.

[72] ibid 1651-1652.

[73] Corbett A Grainger and Charles D Kolstad, 'Who Pays a Price on Carbon?' (2010) 46 Environmental and Resource Economics 359, 367-371; Gilbert E Metcalf, 'Carbon Taxes in Theory and Practice' (2021) 13 Annual Review of Resource Economics 245, 256; Zohar Goshen, Assaf Hamdani, and Alex Raskolnikov, 'Poor ESG: Regressive Effects of Climate Stewardship' (April 2024) European Corporate Governance Institute Law Working Paper No 764/2024, at https://ssrn.com/abstract=4771137.

[74] Matto Mildenberger et al, 'Limited Impacts of Carbon Tax Rebate Programmes on Public Support for Carbon Pricing' (2022) 12 Nature Climate Change 141.

generate, and then allows those entities to trade emission allowances.[75] This mechanism has the advantages of allowing policymakers to set exactly the overall desired amount of emissions and of rewarding companies which innovate to develop ways to cut emissions.[76] Nevertheless, administering cap-and-trade systems is complex and fraud and price volatility of allowances are serious problems of caps-and-trade.[77]

Against this background, recent evidence suggests that carbon pricing only had a marginal impact on carbon emissions.[78] For instance, a recent review of the literature found that EU emissions trading scheme – the oldest in the world – resulted in an average annual reduction of emissions ranging from 0 per cent to 1.5 per cent per annum.[79]

Summary. Tort law, ex-ante regulation, and carbon pricing are necessary tools to fight global warming. Yet, they are grossly imperfect, and therefore the separability assumption does not hold. Hence, with respect to climate change, the traditional 'division of labor' between corporations and policymakers, with the former tasked with creating value and the latter tasked with accounting for externalities, breaks down. For these reasons, in addition to traditional policy instruments for limiting the magnitude of such externalities, we argue that policymakers should also explore rules governing business organizations, as the ensuing Section 3 illustrates.

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[75] Lawrence H Goulder, 'Markets for Pollution Allowances: What are the (New) Lessons?' (2013) 27 Journal of Economic Perspectives 87.

[76] ibid 89.

[77] William D Nordhaus, 'To Tax or Not to Tax: Alternative Approaches to Slowing Global Warming' (2007) 1 Review of Environmental Economics & Policy 26, 37; Lawrence Goulder and Marc Hafstead, *Confronting the Climate Challenge* (Columbia University Press 2018) 80; Gilbert E Metcalf, 'On the Economics of a Carbon Tax for the United States' (2019) 50 Brookings Papers on Economic Activity 405, 412.

[78] Jessica F Green, 'Does Carbon Pricing Reduce Emissions? A Review of Ex-Post Analyses' (2021) 16 Environmental Research Letters 043004, 5.

[79] ibid 9.

3. Climate Corporate Governance: Directors' Duties

As the standard premises on which shareholder primacy is typically grounded do not hold in the case of carbon majors, we explore an alternative organisational framework that reshapes the internal governance of carbon majors to better absorb their climate impact. We call this framework Climate Corporate Governance. We argue that this framework should apply to carbon majors, a group of 90 entities that has been responsible for 63 percent of the carbon dioxide and methane emitted between 1751 and 2010.[80] This list includes companies like BP plc, Chevron Corporation, ExxonMobil Corporation, ENI SpA, Shell plc, and TotalEnergies SE.[81]

Our analysis begins with directors' duties not because of their practical relevance. In fact, in many jurisdictions, directors' duties operate only as a weak constraint on directors' activities – other incentives shape their behaviour more significantly.[82] Rather, we move from directors' duties because they are intuitively related to the purpose of the corporation. So long as those who run a corporation have an ultimate duty to focus exclusively on the interests of shareholders, corporations will have shareholder value as their polestar. Put differently, directors' duties are the signal sent by the legal system to those in charge of a corporation regarding the goals that they should pursue. Stating unequivocally that accounting for carbon majors' impact on climate change is among the duties of directors would help re-shaping narratives and expectations around carbon majors' goals, which in turn can affect the cultural environment in which corporations operate and ultimately contribute to shaping carbon majors' behaviour.[83]

[80] Climate Accountability Institute (n 1).
[81] Climate Accountability Institute, *Carbon Majors 2010 Data Set*, at https://climateaccountability.org/carbon-majors-dataset/.
[82] See eg Roe (n 37) 45-46; Bebchuk and Tallarita (n 2) 140-154; Rock (n 26) 372.
[83] Robert J Shiller, *Narrative Economics: How Stories Go Viral and Drive Major Economic Events* (Princeton University Press 2019) 3.

3.1. Basic Definition

The core or basic duties of directors in most countries require taking reasonably informed decisions that are made on a disinterested and independent basis, in good faith, and that are, in the honest belief of a director, in the best interests of the company and – typically through an indirect duty owed to the company, like in the UK – its shareholders.[84] The climate duty would require directors to take informed decisions that balance shareholders' interest and the social cost of the corporation's emissions.

Under our proposal, directors would breach their climate duty when the expected value created for their shareholders is smaller than the social cost of carbon imposed on society.[85] In case of breach, directors would pay damages equal to the difference by which the social cost of carbon for the project exceeds the expected equity return created by the project.[86] Thus, the climate duty would not be breached solely because the corporation engages in a project causing negative externalities. A breach would occur only if the negative externality of the project is larger than the value created for the shareholders. Put differently, the climate duty is breached only when a project would be inefficient even assuming optimal redistribution mechanisms.

3.2. The Building Blocks of the Climate Duty

Balancing the social cost of CO_2 emissions with shareholder value assumes that both can be quantified and compared. We argue that this is indeed the possible. The social cost of carbon (SCC) is a standard concept in climate economics and there are sophisticated tools

[84] William M Lafferty, Lisa A Schmidt, and Donald J Wolfe, Jr, 'A Brief Introduction to the Fiduciary Duties of Directors Under Delaware Law' (2012) 116 Penn State Law Review 837, 841, 842, 844-845; UK Companies Act 2006 (c 46), ss 170-177. See also Eva Micheler, *Company Law: A Real Entity Theory* (OUP 2021) 125, 128.

[85] In formal terms, the climate duty is breached when the following inequality does not hold for a given project i: $SV_i > SCC_i$, where SV_i is the expected equity return created for the shareholders by project i and SCC_i is the social cost of carbon caused by project i.

[86] That is, $SCC_i - SV_i$.

to calculate it,[87] like the Dynamic Integrated Climate and Economy (DICE) model developed by the Nobel laurate Nordhaus.[88] Countries around the globe routinely use SSC when assessing the costs and benefits of regulations.[89]

True, there is significant uncertainty on the exact value of the social cost of carbon, and policymakers adopt different approaches. The US government, for example, estimates the social cost at $51 USD for every tonne of carbon dioxide,[90] whereas the Stern-Stiglitz Commission calculated a price of $100 per ton to achieve the Paris Agreement's goal of limiting this century global temperature increase to 2° Celsius above preindustrial levels.[91] Turning to differences in measurement approaches, the UK government introduced the use of SSC in policy appraisal and evaluation in 2002, but it has moved more recently to a 'target consistent' approach of estimating the value of carbon emissions based on the calculation of the marginal abatement cost of meeting the government's net zero targets.[92] The European Commission, in turn, recommends member states to use shadow cost of carbon for quantifying a project's impact on climate which was set at €131 per tonne of CO_2 emissions for 2023 (with an annually increasing schedule).[93] Measurement differences among governments are unavoidable when dealing with climate change, an issue that presents many unknown unknowns. Uncertainty, however, is not a good reason to ignore the social cost of carbon. As noted by the U.S. Ninth Circuit Court of Appeals in a widely cited passage,

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[87] For an overview of these methods Cees Withagen, 'On Simple Rules for the Social Cost of Carbon' (2022) 82 Environmental and Resource Economics 461.

[88] William Nordhaus, 'Evolution of Modeling of the Economics of Global Warming: Changes in the DICE Model, 1992–2017' (2018) 148 Climatic Change 623.

[89] Kerry Krutilla and John D Graham, *Benefit-Cost Analysis of Air Pollution, Energy, and Climate Regulations* (CUP 2023) 25-26.

[90] The Economist, 'Special Report: The Many Prices of Carbon Dioxide' (25 November 2023); Juliet Eilperin and Brady Dennis, 'Biden is Hiking the Cost of Carbon. It Will Change How the U.S. Tackles Global Warming' Washington Post (26 February 2021), at https://www.washingtonpost.com/climate-environment/2021/02/26/biden-cost-climate-change/.

[91] Carbon Pricing Leadership Coalition (n 62) 29.

[92] Department for Business, Energy & Industrial Strategy and Department for Energy Security and Net Zero, *Valuation of Greenhouse Gas Emissions: For Policy Appraisal and Evaluation*, Policy Paper (2 September 2021), at https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation.

[93] European Commission, *Economic Appraisal Vademecum 2021-2027: General Principles and Sector Applications* (20 September 2021) 23, at https://ec.europa.eu/regional_policy/sources/guides/vademecum_2127/vademecum_2127_en.pdf.

'[w]hile the record shows that there is a range of values [of SSC], the value of carbon emissions reduction is certainly not zero.'[94] In that holding, the Court decided that the National Highway Traffic Safety Administration had to monetize the cost of CO_2 emissions in its cost-benefit calculus.[95] In a similar fashion, despite the uncertainty surrounding the 'true' value of SCC, directors should account for the social cost of CO_2 emissions when assessing the impact of corporations' business decisions. Relying on publicly available estimates of regulatory agencies would likely be a good place to start.

SCC can be quantified and compared with the expected equity return on the project, which would be estimated by directors under the protection of the liability-shielding rules and procedures existing in their jurisdictions. For instance, for corporations incorporated in Delaware, the estimates of both the social cost of carbon and of equity return associated with the project should be reviewed under the usual protections of the business judgment rule. Plaintiffs would thus have the burden of proving any of the following: that directors were interested, that they were not reasonably informed about the project including its associated social cost of carbon, or that their decision was irrational.[96] Similarly, although the UK does not have a formal business judgment rule, the subjective standard of the general duty of directors to promote the success of the company requires courts to consider what a director thinks, in good faith, is the success of the company – and not what the court or a reasonable director would think in similar circumstances.[97] This subjective standard protects the discretion of directors to make business decisions.[98]

[94] *Center for Biological Diversity v NHTSA*, 538 F.3d 1172, 1190 (9th Cir 2008).

[95] ibid.

[96] This rationale was laid out by Chancellor Allen of the Delaware Court of Chancery in *Gagliardi v TriFoods International, Inc.*, 683 A.2d 1049, 1051 (Del. Ch. 1996). According to the court,

> in the absence of facts showing self-dealing or improper motive, a corporate officer or director is not legally responsible to the corporation for losses that may be suffered as a result of a decision that an officer made or that directors authorized in good faith.

[97] UK Companies Act 2006 (c 46) s 172(1). See also *Re Smith and Fawcett, Ltd* [1942] Ch 304, 306 (Court of Appeal); *Regentcrest plc v Cohen* [2001] 2 BCLC 80, 105 (Chancery Division).

[98] Micheler (n 84) 137.

While this solution is necessary to prevent courts from substituting their judgement for that of directors and to avoid making directors too risk-averse, it admittedly allows directors considerable freedom to inflate expected returns. Nevertheless, the climate duty remains a crucial pillar of green corporate governance for carbon majors for three reasons. First, it does away with the idea that directors of carbon majors are tasked exclusively with the pursuit of profit like any other director of an ordinary corporation. Second, the proposed rule may prevent carbon majors from engaging in conduct resulting in a SCC that is patently larger than the value created by the shareholders (and thus constitute a loss for society). Third, it would require directors to get informed about the SCC of the project and arguably develop best practices around approvals. This conceptualization is similar to the role played by traditional fiduciary duties, which are not designed to sanction every conduct with a negative expected value for the corporation. Instead, they aim to prevent the most egregious misconduct and to focus directors' attention on creating value for the corporation and its shareholders.

3.3. Possible Objections to the Climate Duty

We discussed earlier how one argument against requiring directors to account also for the welfare of other stakeholders (that corporations cannot create value for shareholders without also creating value for stakeholders like employees, customers, or creditors) does not apply to the case of climate change because it cannot take into account a crucial set of stakeholders, arguably those mostly affected by it, the *future* generations.[99] In this Section, we introduce two additional counterarguments traditionally levied against proposals to expand directors' duties, and explain why both are misguided in the context of the climate duty.

[99] Text to nn 48-50.

3.3.1. Multiple Principals.

One important criticism to broadening fiduciary duties to cover more stakeholders is often referred to as the problem of multiple principals. The actions of a corporation generally affect stakeholders with very different interests. For instance, shutting down a polluting factory might be positive for environmental concerns but might be negative for employees' welfare. Trade-offs like these are present in virtually all corporations' endeavors. Allowing courts to intervene and review how different legitimate interests are balanced by directors implies that courts would have the power to second guess in hindsight virtually every decision taken by directors. However, not granting courts that power would imply that directors can justify any course of action ex-post so long as it is in line with *at least one* of the many goals they have been tasked to pursue.

Thus, proponents of broad stakeholder-oriented directors' duties must navigate between Scylla and Charybdis. Either they concede that courts should have extremely extensive powers[100] or they acknowledge that directors should de-facto become unaccountable.[101] In fact, having too many principals at best confuses directors,[102] at worst gives them a blank check to cherry pick which class to support, depending on the very interests of directors.[103] Under both scenarios, the approach would be unworkable and efficient decision-making would suffer.[104]

[100] Gatti and Ondersma (n 37) 21.

[101] Easterbrook and Fischel (n 4) 38; Mark J Roe, 'The Shareholder Wealth Maximization Norm and Industrial Organizations' (2001) 149 University of Pennsylvania Law Review 2063, 2065.

[102] A variation of this critique is that a stakeholder approach seeks to protect a realm of interests that is just too broad since it purports to protect interests of constituencies also *outside* the corporation (creditors, consumers and local communities), whilst the proper policy focus should just be on the weak constituency *within* the corporation, that is, workers (Matthew T Bodie, 'The Next Iteration of Progressive Corporate Law' (2017) 74 Washington & Lee Law Review 739, 748-52).

[103] Easterbrook and Fischel (n 4) 38; Roe (n 101) 2065.

[104] Jonathan R Macey and Geoffrey P Miller, 'Corporate Stakeholders: A Contractual Perspective' (1993) 43 University of Toronto Law Journal 401, 414; Jonathan R Macey, 'Fiduciary Duties as Residual Claims: Obligations to Nonshareholder Constituencies from a Theory of the Firm Perspective' (1999) 84 Cornell Law Review 1266, 1267; Bainbridge (n 13) 547; Simone M Sepe, 'Directors' Duty to Creditors and the Debt Contract' (2007) 1 Journal of Business & Technology Law 553, 563.

While this is possibly the most powerful argument against departures from SVM, it does not apply to the proposed climate duty. Because the climate duty only induces directors to account for shareholder value and the social cost of carbon, it would require directors to consider only two goals that can be measured in monetary values. For this reason, the climate duty is immune to this criticism.

3.3.2. Insufficiency of the Climate Duty

Another criticism that is often raised against expanding directors' duties to other stakeholders is that it would achieve very little. For instance the business judgement rule, a cornerstone of US corporate laws, makes the shareholder primacy norm de facto 'unenforceable,' so long as its preconditions are met (lack of conflict, reasonable investigation, and good faith) and managers do not explicitly admit that they acted against shareholders' interests.[105] And, in fact, '[n]o court [in the United States] has ever imposed liability for breach of fiduciary duty on the specific reason that the board, in managing operational matters, failed to maximize shareholder profit, though it made the decision informedly, disinterestedly, and in good faith.'[106] Similarly, in the UK, despite the lack of a formal business judgment rule, the general duty of directors to promote the success of the company is subjective and requires courts to consider what a director thinks, in good faith,

[105] Robert J Rhee, 'A Legal Theory of Shareholder Primacy' (2018) 102 Minnesota Law Review 1951, 1965. Cases, such as the famous *Dodge v. Ford Motor Co* (170 NW 668, 684 (Mich 1919)) and its more recent iteration *eBay Domestic Holdings, Inc. v. Newmark* (16 A.3d 1, 11 (Del Ch 2010)), which on their face would seem to limit directors' freedom to depart from strict profit maximisation, can be reconciled with judicial deference. Several commentators of *Dodge* and of *eBay* maintain that such cases had an adverse outcome for the directors because during deposition the directors explicitly admitted their goal was to *not* benefit shareholders (Bainbridge (n 38) 46; Strine (n 20) 777 (labeling *Dodge* and *eBay* as 'confession cases')). But the consensus among courts and scholars is that, in the absence of such an admission, directors can still enjoy the deference of the business judgment rule if they are wary enough to show in the deliberative process that they reasonably believe the action in question, say a benefits expansion for some members of the workforce, is also *rationally related* to the long-term interest of the shareholders (Bainbridge (n 38) 60).

[106] Rhee (n 105) 1961.

is the success of the company – and not what the court or a reasonable director would think in similar circumstances.[107]

These qualifications make a director duty to promote certain interests (whether of shareholders, stakeholders, or a combination) a weak deterrence tool.[108] In fact, Macey defines profit-maximisation a 'norm' as opposed to an actual duty.[109]

But despite all this being true, the climate-duty proposal is not weakened. First, norms are per se important, as the law has an expressive value which can influence behaviour independently of sanctions.[110] Law, according to Richard McAdams, 'influences behaviour independent of the sanctions it threatens to impose' and 'works by what it says in addition to what it does.'[111] Currently, the existing norm signals directors of carbon majors that they have a duty to increase shareholders' bottom line, which means they will keep playing an outsized role in worsening global warming. Yet, basic economic principles suggest that corporate actors should be induced to account for the negative externalities they produce when taking decisions. Second, as mentioned, one of the main features of the climate duty is that in their decision-making process, directors will need to get informed and reflect on the record that they have factored in the expected social cost of carbon for the relevant corporate action, otherwise the business judgment rule cannot be invoked, because their decision would not be in good faith after reasonable investigation. In other words, with climate duties directors have a procedural obligation that, if not followed, will result in

[107] n 97.

[108] See Micheler (n 84) 137. On how D&O insurance can impact the deterrent effect of shareholder litigation, see Tom Baker and Sean J Griffith, *Ensuring Corporate Misconduct: How Liability Insurance Undermines Shareholder Litigation* (University of Chicago Press 2011) 77-104.

[109] Jonathan R Macey, 'A Close Read of an Excellent Commentary on Dodge v. Ford' (2008) 3 Virginia Law & Business Review 177, 179.

[110] Richard H McAdams, 'A Focal Point Theory of Expressive Law' (2000) 86 Virginia Law Review 1649, 1650-1651; Robert Cooter, 'Expressive Law and Economics' (1998) 27 Journal of Legal Studies 585. For empirical evidence in support of this view, see Richard H McAdams and Janice Nadler, 'Testing the Focal Point Theory of Legal Compliance: The Effect of Third-Party Expression in an Experimental Hawk/Dove Game' (2005) 2 Journal of Empirical Legal Studies 87.

[111] McAdams (n 110) 1650-1651.

potential liability. Most importantly, climate duties could create important synergies with other rules that should be part of a climate corporate governance regime.

4. Climate Corporate Governance: Other Measures

While tweaking fiduciary duties has an important symbolic value and may help preventing some conducts that are particularly detrimental for the environment, it is clearly not enough to induce carbon majors to assign sufficient weight to the externalities they create. In addition to the climate duty, it is necessary to incorporate climate interests into the corporate governance of carbon majors. This can be achieved by changing the rules on board representation and shareholder proposals, as well as rethinking the practice of executive pay. Accordingly, we discuss in this section other corporate governance rules and practices that could be implemented in conjunction with climate duties, and with which they could create important synergies. We focus on the appointment of directors or board observers, shareholder proposals, and executive remuneration, but other corporate governance rules can also be tweaked.[112]

4.1. The Appointment of Directors or Climate Observers

One of the most cited reasons behind directors' alignment with shareholder interests is that shareholders are typically the exclusive appointers of directors in many jurisdictions, especially in the Anglo-American world.[113] This institutional choice is coherent with the

[112] See eg Vittoria Battocletti, Luca Enriques, and Alessandro Romano, 'Dual-Class Shares in the Age of Common Ownership' (2022) 48 Journal of Corporation Law 541; Alessio M Pacces, 'Controlling Shareholders and Sustainable Corporate Governance: The Role of Dual-Class Shares' (2024) Theoretical Inquiries in Law (forthcoming).

[113] Famously, some jurisdictions impose co-determination for large corporations, whereby in some cases workers get to appoint up to half of the entire board – often at the level of the supervisory board in companies with a two-tier board model. To be sure, in some cases, thanks to ownership dispersion and dynamics of the proxy machinery, directors even manage to self-perpetuate themselves (Lucian A Bebchuk, 'The Myth of the Shareholder Franchise' (2007) 93 Virginia Law Review 675, 688-694).

underlying goal of corporations. As directors are, in economic sense, the agents of shareholders and are tasked with maximising shareholders' value, they should be appointed (and removed) by shareholders. But because shareholder value maximisation cannot be the only goal of carbon majors, also this institutional arrangement is worth reconsidering.

Policymakers should consider two options for strengthening the consideration of climate interests in corporate boards. The first option is the appointment of one or more directors of carbon majors from stakeholders other than shareholders, whom we call 'climate directors.' The second option is the appointment of board observers by the same non-shareholder stakeholders, whom we call 'climate observers.' While climate observers would not have formal voting rights, they could promote stronger compliance with the climate duty by overseeing board decision-making from within.

One possibility would be having climate directors elected by academics and scientists working in the area of climate change or by leading NGOs operating in the area of climate change. This would significantly reduce the risk of capture by carbon majors and ensure that climate directors have incentives to act in a way that promotes the climate duty in line with the latest climate science. Importantly, policymakers mandating the appointment of climate directors need to act with care to make sure that climate directors fit within the existing board model. The traditional model of the board in Anglo-American countries is a fiduciary board where directors act as fiduciaries for the company and its shareholders as a whole, rather than represent specific interest groups. Consider, for example, the requirement of the UK Companies Act 2006 that directors must act in a way that promotes the success of the company in the interests of its members *as a whole*.[114] In parallel, the duty to exercise independent judgment prohibits directors from taking instructions from a third party when making corporate decisions.[115] By contrast, some boards like supervisory boards in a two-tier board model, may be a constituency board by nature with members who have a mandate from a specific interest group and clearly represent the interests of that group

[114] UK Companies Act 2006 (c 46), s 172(1).
[115] ibid s 173(1).

during decision-making. Board decisions are then the outcome of negotiations and compromises between different constituency directors.[116]

Fiduciary directors may consider various interests when making decisions but must act in a way that they believe, in good faith, promotes the interests of the company and its all shareholders. In countries where the fiduciary board model is the norm in for-profit business organisations, climate directors should be treated as fiduciary directors who are subject to the general duties of directors and do not owe any specific duties to those who appointed them. The requirement to appoint climate directors by non-shareholder stakeholders has as its purpose strengthening the independence and objectivity of climate directors in promoting the consideration of and compliance with the climate duty during board decision-making.

Alternatively, policymakers may choose a lighter version of providing climate stakeholders with a right to appoint climate observers to oversee board activity. The appointment of such observers is an increasingly common practice by some activist shareholders as a form of engagement and monitoring.[117] Their appointment could strengthen the consideration of the climate duty during board deliberations. Although climate observers will not be subject to the same general duties of directors or have formal voting rights, their access to inside information can improve the oversight of directors by climate stakeholders and strengthen the compliance with the climate duty during board decision-making.

Crucially, the appointment of climate directors or board observers would have an important synergy with climate duties. The fundamental shortcoming of the climate duty is that directors can game it by artificially inflating the expected value of a project for the shareholders or by downplaying the implications that the project has for the environment. Climate directors or board observers would have access to inside information and would not

[116] Lynn S Paine, 'What Does "Stakeholder Capitalism" Mean to You? A Guide to the Four Main Types' (September-October 2023) Harvard Business Review 109, 119.

[117] Nizan Geslevich Packin and Anat Alon-Beck, 'Board Observers: Shadow Governance in the Era of Big Tech' (2024), at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4745278.

have a single-minded focus on shareholder value creation, thereby acting as an effective watchdog in terms of ensuring compliance with the climate duty. The proposed alternative mechanisms for the stronger consideration of climate interests on corporate boards can thus greatly reduce the extent to which gaming of climate duties would be possible.

Of course, such a policy would require making important choices like defining the fraction of climate directors relative to overall board size. From this perspective, the tension between cohesiveness and conflict is clear, each carrying well-known positives and negatives.[118] We reckon that even appointing a small fraction of the board or choosing even a lighter option of having climate-oriented board observers, while not drastically altering its dynamics, would contribute to marginal increases in cognitive distance among board members, with likely beneficial effects in terms of compliance with the climate duty.[119]

4.2. Shareholder Proposals

Shareholder voting is another lever that could potentially induce carbon majors to account for climate externalities. For instance, Climate Action 100+, an initiative led by investors managing $68 trillion in assets, pushed some corporations to set concrete and transparent emission reduction targets.[120]

Currently, shareholder proposals face significant hurdles in several jurisdictions. For example, the UK Companies Act 2006 requires that shareholders hold 5 per cent of the company's capital to request the submission of proposals to the agenda of the general

[118] On this tension, in the management literature, see Marilieke Engbers and Svetlana N Khapova, 'How Boards Manage the Tension Between Cognitive Conflict and Cohesiveness: Illuminating the Four Board Conflict Climates' (2024) 32 Corporate Governance: An International Review 32. For an analysis of the collective decision-making rationale behind board design, see Martin Gelter and Genevieve Helleringer, 'Lift Not the Painted Veil! To Whom are Directors' Duties Really Owed' (2015) 2015 University of Illinois Law Review 1069, 1108-09.

[119] For a similar argument on the containment of AI risk, see Roberto Tallarita, 'AI Is Testing the Limits of Corporate Governance' Harvard Business Review (5 December 2023), at https://hbr.org/2023/12/ai-is-testing-the-limits-of-corporate-governance.

[120] Sofie Cools, 'Climate Proposals: ESG Shareholder Activism Sidestepping Board Authority' in Thilo Kuntz (ed), *Research Handbook on Environmental, Social, and Corporate Governance* (Edward Elgar 2024) 139.

meeting.[121] Comparable thresholds are in place in France and in Germany.[122] For a large carbon major like BP this is equal to billions of dollars in shares. In the United States, monetary thresholds are lower, but shareholders cannot bring a proposal unless they have owned shares in the company for at least a year.[123] Moreover, in most jurisdictions strategic decisions are within the exclusive powers of the board of directors, and therefore companies can exclude certain shareholder proposals related with climate change.[124] For example, in France – home of TotalEnergies SE – the Haut Comité Juridique de la Place Financière de Paris, a committee created by the financial markets authority and the Banque de France, confirmed that resolutions requiring companies to reach specific emission goals can be excluded from the agenda of shareholder meetings.[125]

In general, the purpose of rules limiting shareholders' powers to make proposals is to prevent the proliferation of resolutions with little importance or that are detrimental to the best interests of the corporation.[126] But as discussed extensively above, directors of carbon majors must account also for the externalities created by their corporations. Therefore, in the case of climate proposals it might be warranted for policymakers to remove many of the hurdles faced by shareholders who want to put forward climate related proposals. For instance, in UK shareholders that hold less than 5 per cent of the company's capital should be allowed to submit proposals related with climate change, whereas in France companies should no longer be allowed to exclude from the agenda proposals that focus on emission goals.

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[121] UK Companies Act 2006 (c 46), s 338(3). Countries like France and Germany have similar thresholds (Paul Oudin and Sophie Vermeille, 'Shareholder Proposals and Boards' Veto Power' Oxford Business Law Blog (13 September 2022), at https://blogs.law.ox.ac.uk/oblb/blog-post/2022/09/shareholder-proposals-and-boards-veto-power).

[122] Oudin and Vermeille (n 121).

[123] US Securities and Exchange Commission, *Press Release: SEC Adopts Amendments to Modernise Shareholder Proposal Rule* (23 September 2020), at https://www.sec.gov/news/press-release/2020-220.

[124] Cools (n 120) 139.

[125] Haut Comité Juridique de la Place Financière de Paris, *Rapport sur les résolutions climatiques 'Say on climate'* (15 December 2022) 24, at https://www.banque-france.fr/sites/default/files/rapport_54_f.pdf; Cools (n 120) 142.

[126] Stephen M Bainbridge, 'Preserving Director Primacy by Managing Shareholder Interventions' in Jennifer G Hill and Randall S Thomas (eds), *Research Handbook on Shareholder Power* (Edward Elgar 2015) 231.

Once again, lowering or removing the hurdles to climate proposals would have important synergies with the climate duty, especially when coupled with the presence of climate directors. Directors appointed by shareholders with traditional fiduciary duties may have incentives to downplay the positive externalities of a climate proposal while emphasizing its negative impact on the corporation. In contrast, climate directors and climate observers would have more incentives to also emphasize the environmental benefits of the shareholder proposal. Overall, this would help the remaining shareholders to have a more balanced and complete understanding of the proposal and to cast a more informed vote.

4.3. Executive Remuneration

Executive remuneration, also known as executive compensation or executive pay, is another important corporate governance tool that shapes the corporate objective of for-profit business organisations. The practice of aligning the incentives of managers with the interests of shareholders by linking executive compensation with financial and share price performance began in the 1980s and remains the dominating model.[127] Intuitively, so long as compensation is tied to various financial performance metrics, executive directors will have strong incentives to give priority to shareholder value creation.[128] Climate governance calls for finessing pay design and reconsidering the merits of say-on-pay votes.

On the one hand, choices related to the design of executive compensation can promote or hinder the achievement of a specific corporate objective. This design has traditionally been a matter of private contracting. In fact, many companies have been seeking to align pay with ESG goals as of late, though the results have been subject to various criticism.[129] The directors of carbon majors will be expected to reform existing compensation

[127] Michael B Dorff, *Indispensable and Other Myths: Why the CEO Pay Experiment Failed and How to Fix It* (University of California Press 2014) 6.

[128] See eg Bebchuk and Tallarita (n 2) 141.

[129] Lucian A Bebchuk and Robert Tallarita, 'The Perils and Questionable Promise of ESG-Based Compensation' (2022) 48 Journal of Corporation Law 37; David I Walker, 'The Economic (In)significance of Executive Pay ESG Incentives' (2022) 27 Stanford Journal of Law, Business & Finance 318; Marco Dell'Erba and Suren Gomtsyan, 'Regulatory and Investor Demands to Use ESG Performance Metrics in Executive Compensation: Right Instrument, Wrong Method' (2024) 24 Journal of Corporate Law Studies (forthcoming);

plans to algin their incentive structures with the requirements of the climate duty. It will be hard for directors responsible for designing executive compensation plans to justify how incentive rewards linked only (or predominantly) to shareholder value creation without regard to corporate emissions facilitate compliance with the climate duty. Successful implementation of the climate duty thus does not require regulatory intervention aimed at promulgating a particular design of executive compensation plans for carbon majors.

On the other hand, shareholder say-on-pay votes need to be reconsidered. Say-on-pay tends to entrench the shareholder value maximisation norm by giving shareholders a channel for communicating their preferences regarding the incentive structure of executive compensation to the board.[130] These preferences act as a major constraint on the discretion of directors when designing the structure of executive pay and setting its level. Indeed, a recent survey of investors and directors offers evidence that directors view avoiding controversy with investors as the main constraint of CEO pay and that this constraint has a meaningful impact on the structure and level of pay.[131] Accordingly, if shareholder say-on-pay votes may constrain the efforts of directors to align executive compensation plans with the climate duty, governments may find it necessary to repeal shareholder say-on-pay votes partially or fully in relation to carbon majors. The need for considering such a reform is especially relevant in countries where prior shareholder approval of a remuneration policy is a formal requirement in the process of designing a compensation plan for executive directors. Consider, for example, the right of shareholders in some UK companies to vote on a remuneration policy of executive directors once every three years.[132] This vote is binding and essentially defines how executive directors will be paid during the three years following the shareholder vote.

Marco Dell'Erba and Guido Ferrarini, 'ESG Remuneration in Europe' (2024) 25 European Business Organisation Law Review (forthcoming).

[130] Lund and Pollman (n 37) 2620.

[131] Alex Edmans, Tom Gosling, and Dirk Jenter, 'CEO Compensation: Evidence from the Field' (2023) 150 Journal of Financial Economics 6-8.

[132] UK Companies Act 2006 (c 46), s 439A(1).

As above, changes in the design of executive pay and shareholder say-on-pay votes offer synergies with the climate duty. These changes are needed to align the incentives of directors with the requirement of the climate duty. Incentives structures that reward directors for the successful outcomes of shareholder value maximising business projects without regard to the negative externalities of these projects encourage behaviour that, although formally compliant with the climate duty, undermines the duty's objective.

5. Climate Corporate Governance Rules: How Mandatory?

How the changes to corporate governance described above should in practice be specifically devised and implemented depends on idiosyncratic features of a jurisdiction. Yet, some important rules of thumb should be followed. First, private contracting around climate corporate governance rules should *not* be allowed on the *scope* of such rules. For instance, shareholders and directors should not be allowed to contract around the content of climate duties, the appointment of directors, or to implement hurdles to shareholder proposals related with climate change. Private contracting should be allowed only on the *allocation* of costs among corporate actors deriving from climate corporate governance rules. For instance, companies should be allowed to decide whether to insure directors against breaches of climate duties and thus determine whether the related costs should be borne by the directors or shareholders.

5.1. No Contracting Space

Given that climate corporate governance rules seek to mitigate an externality that for the most part affects agents who are not in the position to bargain, such rules should be mandatory and contracting around them should therefore not be allowed. In this section, we intentionally focus on the United States because most other countries allow neither partial or complete waivers of the duty of care of directors, nor exempting a director from any breach of the duty. Consider, for example, the UK's prohibition of contractual provisions protecting directors from liability for breach of duty.[133]

By contrast, liability waivers for breaches of fiduciary duties are a common practice in many US corporations. Virtually all of US states allow corporations to include in their charter provisions that aim at either limiting or eliminating directors' personal liability for breaching the duty of care.[134] Most notably, section 102(b)(7) of the Delaware General Corporation Law (DGCL) allows corporations to eliminate 'the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director.'[135] This provision was passed in 1986 in the aftermath of *Smith v. Van Gorkom*,[136] which shattered the calm waters of the business judgment rule to impose monetary liability for failure to comply with the duty of care in the sale of the company. Under Section 102(b)(7) of the DGCL, the certificate of incorporation of a Delaware corporation may contain a 'provision eliminating … the personal liability of a director … for monetary damages for breach of fiduciary duty …, [except]: (i) [f]or any breach of the director's duty of loyalty …; (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law.'[137] Corporations routinely include in their charters provisions of this kind: in Delaware, directors are exculpated in virtually all firms incorporated (or reincorporated) after section 102(b)(7) became effective[138] and in more than 90 per cent of the pre-existing corporations, which have managed to pass the charter amendment.[139] Recently, the Delaware legislature extended such protection to officers as well – before, CEOs could be sued for duty of care violation qua officers.[140]

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[133] UK Companies Act 2006 (c 46), s. 232(1).

[134] Gabriel Rauterberg and Eric Talley, 'Contracting Out of the Fiduciary Duty of Loyalty: An Empirical Analysis of Corporate Opportunity Waivers' (2017) 117 Columbia Law Review 1075, 1084.

[135] DGCL, Del Code Ann tit. 8, § 102(b)(7) (2022).

[136] *Smith v. Van Gorkom*, 488 A.2d 858 (Del 1985).

[137] DGCL, Del Code Ann tit. 8, § 102(b)(7) (2022).

[138] Holger Spamann, 'Monetary Liability for Breach of the Duty of Care?' (2016) 8 Journal of Legal Analysis 337, 338.

[139] Roberta Romano, 'Corporate Governance in the Aftermath of the Insurance Crisis' (1990) 39 Emory Law Journal 1155, 1160-1161.

[140] DGCL, Del Code Ann tit. 8, § 102(b)(7) (2022). See also Richard J Grossman, Allison L Land and Marc S Gerber, 'Exculpation of Personal Liability Expanded to Include Certain Corporate Officers' Harvard Law School Forum on Corporate Governance (20 December 2022), at

Carbon majors, whether organized as a corporation or as an alternative business entity, should not be allowed to opt out from the climate duty. The reason for the mandatory application of the climate duty is straightforward. Because the traditional duty of care in most US state corporate laws is towards the company and its shareholders, contracting between the corporation and the directors might lead to an efficient outcome. In simple terms, directors are expected to demand higher compensation and be more risk-averse if they are exposed to liability; also, eliminating the duty of care decreases the amount of the D&O insurance premium.[141] The corporation can then decide to forego the protection offered by the duty of care if it considers more important to incentivize directors to take on more risk and to save on executive compensation and D&O insurance. This is because directors' duties are an 'internal' matter aimed at addressing problems internal to the corporation.

By contrast, the climate duty addresses a major externality inflicted primarily on future generations. And given that contracting with future generations is impossible, contracting around the climate duty should not be allowed.

For the same reasons, corporations should not be allowed to introduce hurdles to the ability of shareholders to bring climate related proposals or to reduce the number of climate directors on the board. As these rules are aimed to protect future generations, private contracting among shareholders or among shareholders and directors cannot lead to efficient outcomes.

5.2. Space for Private Contracting

Private contracting should be allowed only when it relates with the allocation of costs deriving from climate corporate governance rules among corporate actors, or between corporate actors and other actors with which the carbon major can bargain.

An example is bargaining between carbon majors and companies providing directors and officers (D&O) insurance against any liability for the breach of climate duties. Some

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https://corpgov.law.harvard.edu/2022/12/20/exculpation-of-personal-liability-expanded-to-include-certain-corporate-officers/.

[141] Romano (n 139) 1158-1159; Baker & Griffith (n 108) 78.

jurisdictions, including famously Delaware[142] and the United Kingdom,[143] permit a company to purchase and maintain insurance on behalf of the directors of the company and its subsidiaries. D&O liability insurance covers the risk of litigation against directors and officers and is a common practice among many corporations. Indeed, nearly all public corporations purchase D&O policies for their directors and officers.[144] As a result, top-level corporate decisionmakers almost never pay directly for breaches of their duties.[145]

The question then is whether D&O liability insurance can diminish the impact of the climate duty by protecting corporations and their directors and officers from their potentially increased liability exposure by, for example, reducing the likelihood that a company or its directors would bear any monetary costs for the breach of the climate duty. Counterintuitively, as this issue relates with the allocation of risk, we answer in the negative and argue that availability of D&O liability insurance will not weaken the incentives provided by climate duties.

Insurers seek to price policies according to the company-specific risk posed by each insured entity.[146] Directors of carbon majors that will continue investing in projects causing significant CO_2 emissions will face a higher liability threat than directors who focus on green investments and will therefore be required to pay higher D&O liability insurance premia. This will raise the cost of brown strategies vis-à-vis green strategies, which is precisely the goal behind imposing climate duties. D&O liability insurance can act as a market mechanism that disciplines managers by aligning their actions with the requirements of the climate duty.

True, some polluters, especially in less competitive markets, could pass the increased costs of D&O insurance on their ultimate customers. Yet, rather than offsetting the effect of the climate duty, this ensures that the cost of products reflects – at least in part – the SCC of producing them, which also is in line with the philosophy behind climate duties.

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[142] DGCL, Del Code Ann tit. 8, § 145(g) (2022).

[143] UK Companies Act 2006 (c 46), s 233.

[144] Tom Baker and Sean J Griffith, 'Predicting Corporate Governance Risk: Evidence from the Directors' & Officers' Liability Insurance Market' (2007) 74 University of Chicago Law Review 487.

[145] Margaret M Blair and Lynn A Stout, 'Trust, Trustworthiness, and the Behavioral Foundations of Corporate Law' (2001) 149 University of Pennsylvania Law Review 1735, 1790-1791.

[146] Baker and Griffith (n 144) 509, 529-531.

Therefore, private contracting on the allocation of costs stemming from climate corporate governance rules does not undermine the purpose of the rule and ensures that the risks are borne by those who can better bear the risk.

6. Conclusion

We propose a transformative approach to corporate governance for carbon majors, those companies responsible for a significant portion of historical carbon dioxide and methane emissions. Recognizing the inadequacy of the traditional shareholder value maximisation (SVM) model for these corporations, we advocate for a climate corporate governance framework. This framework involves redefining directors' duties to include climate duties, appointing climate-focused directors or board observers, facilitating climate-related shareholder proposals, and redesigning executive remuneration to align with environmental goals.

We reckon that implementing this framework presents significant challenges. First, determining which entities qualify as carbon majors requires robust methodologies based on reliable emissions data. Second, calculating the social cost of carbon (SCC) is complex due to varying economic models and assumptions. It is essential to use the best available scientific and economic tools and periodically revise these estimates as our understanding evolves. Third, appointing climate directors necessitates a careful selection process to ensure their independence and expertise, potentially involving environmental NGOs, scientific institutions, and intergovernmental organizations. Fourth, redesigning executive remuneration to reflect climate goals involves setting clear, objective, and enforceable performance metrics that genuinely incentivise sustainable practices.

Policymaking for these reforms can occur at multiple levels. International adoption would clearly be optimal, providing uniform standards and preventing regulatory arbitrage, but of course international cooperation has proven exceptionally hard to achieve. However, institutions like the European Union have proven to not be shy in setting high standards and driving broader adoption, adopting efforts that some would label as 'cosmopolitan jurisdiction' – the latest case in point being the Corporate Sustainability Due Diligence Directive.[147] In addition, or as a fall back, national governments with strong constituencies advocating for fighting climate can set the example of mandating baseline rules, possibly adapted to their local contexts. In sum, a multi-layered strategy can effectively address the difficulties of reform and promote sustainable corporate governance practices.

While we do not underestimate the challenges of implementing climate corporate governance for carbon majors, the need for such reforms is urgent. By redefining directors' duties, involving diverse stakeholders in governance, and aligning executive incentives with climate goals, we show important and necessary first steps to steer carbon majors towards more responsible and sustainable practices.

[147] In May 2024, the European Union adopted the Directive on Corporate Sustainability Due Diligence (CSDDD), requiring large companies operating in the EU to identify, prevent, and mitigate adverse human rights and environmental impacts in their operations, subsidiaries, and value chain entities. As Luca Enriques and one of us pointed out (Luca Enriques and Matteo Gatti, 'The Extraterritorial Impact of the Proposed EU Directive on Corporate Sustainability Due Diligence' (21 April 2022) Oxford Business Law Blog, at https://www.law.ox.ac.uk/business-law-blog/blog/2022/04/extraterritorial-impact-proposed-eu-directive-corporate), a groundbreaking aspect of the CSDDD is its extraterritorial reach, requiring companies to monitor subsidiaries and entities in their value chain, regardless of location. This extraterritorial approach by the EU exemplifies the Brussels Effect (Anu Bradford, *The Brussels Effect: How the European Union Rules the World* (OUP 2020) 25), and is framed by international law scholars as cosmopolitan jurisdiction, which allows states or international bodies to assert jurisdiction over actions affecting universal norms, human rights, and environmental protections globally (Cedric Ryngaert, 'Cosmopolitan Jurisdiction and the National Interest' in Stephen Allen et al (eds) *The Oxford Handbook of Jurisdiction in International Law* (OUP 2019) 209).

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