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Mandates for Action: Corporate Governance Meets Climate Change

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The crisis presented by climate change manifests in both environmental and economic terms. The evidence is *felt* in the hurricanes' headwinds, the wildfires' fury, the floods surging rivers and seas over the landscape, and in all of the damage, destruction, and death. These environmental and public health phenomena also toll economic *costs*[1]—costs that are positioned to rise.[2] And, together, the growing risk puts new pressure on existing institutions like governments and corporations, creating new (and compelling) mandates for action.

Increasingly, the global community is coming to terms with the impact that climate-related risk poses to "health, livelihoods, food security, water supply, human security, and economic growth."[3] This risk is "projected to increase with global warming of 1.5°C and increase further with 2°C" (or 2.7°F and 3.6°F, respectively),[4] which would be warming limited to Paris Agreement-consistent levels. The risk rises in a far more dramatic fashion under the warming that will

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1. In the United States alone, these costs likely have exceeded $1.1 trillion since just 1980. 1 U.S. GLOB. CHANGE RESEARCH GRP., CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT 12 (Donald J. Wuebbles et al. eds., 2017).

2. *See id.* at 13 (noting that "[t]he global, long-term, and unambiguous warming trend" behind the economic costs of climate change "has continued during recent years"). The result is both an increasing reach and robustness of the risk.

3. Myles Allen et al., Intergovernmental Panel on Climate Change, *Summary for Policymakers*, *in* GLOBAL WARMING OF 1.5°C: AN IPCC SPECIAL REPORT ON THE IMPACTS OF GLOBAL WARMING OF 1.5°C ABOVE PRE-INDUSTRIAL LEVELS AND RELATED GLOBAL GREENHOUSE GAS EMISSION PATHWAYS, IN THE CONTEXT OF STRENGTHENING THE GLOBAL RESPONSE TO THE THREAT OF CLIMATE CHANGE, SUSTAINABLE DEVELOPMENT, AND EFFORTS TO ERADICATE POVERTY 9, B.5 (Valérie Masson-Delmotte et al. eds., 2018).

4. *Id.*

likely take place on our (current and catastrophic) *business as usual* pathway.[5] In part, that coming-to-terms has meant governments taking stock of the fiscal implications of climate change.[6]

But now entities involved across the broad spectrum of private capital formation are also starting to analyze the financial implications of climate change. One analysis suggests that seventy-two out of seventy-nine industries are exposed to climate-related financial risk.[7] In particular, private corporations are exposed to manifestations of the risk such as loss of revenue and asset valuation, and increased operating and financing costs.[8] And the risk presents as especially challenging because it is "non-linear," "[s]ystemic," and a risk for which we, collectively, are generally "[u]nder-prepared."[9]

The bottom line is this: Climate-related risk is powerful and pervasive;[10] and the responsibilities for action flow to leaders both of policy development and of capital allocation. This Essay explores the latter—the implications of climate change for corporate governance. Part I grounds the mandate for climate action in concepts of corporate purpose and the traditional and emerging duties of corporate leaders. Part II outlines where that mandate falls in terms of roles and responsibilities among boards and management. Part III and Part IV survey the mechanics of metabolizing climate risk within a corporation, and how that improved understanding of risks might inform a strategic response. Finally, Part V describes the regulatory context surrounding this discussion of corporate governance. Overall, this Essay seeks—briefly—to identify the purpose, people, and processes activated in the engagement of climate change by corporate governance, and it notes with optimism that the

5. *See, e.g.*, UNITED NATIONS ENVIRONMENT PROGRAMME, EMISSIONS GAP REPORT 2019: EXECUTIVE SUMMARY ix (2019), https://perma.cc/2F45-N9FR.

6. One analysis by the U.S. government suggests that, if left unchecked, climate change could "reduce annual global economic output by as much as four percent by 2100," and, in turn, result in an adverse U.S. fiscal impact that totals an amount "equivalent to as much as 15 percent of total discretionary spending by late-century . . . ." Ali Zaidi, *Climate Action Is a Matter of Fiscal Responsibility*, WHITE HOUSE (Nov. 15, 2016, 11:30 AM ET), https://perma.cc/3PYC-9CSU.

7. SUSTAINABILITY ACCOUNTING STANDARDS BD., TECHNICAL BULLETIN NO. TB001-10182016, CLIMATE RISK TECHNICAL BULLETIN 2 (2016) (analyzing industries based on the taxonomy in the Sustainable Industry Classification System and noting further that this exposure represents $27.5 trillion in market capitalization—or, effectively, almost all U.S. equities).

8. *See id.* at 7.

9. *See* JONATHAN WOETZEL ET AL., MCKINSEY GLOB. INST., CLIMATE RISK AND RESPONSE: PHYSICAL HAZARDS AND SOCIOECONOMIC IMPACTS 7-8 (2020), https://perma.cc/LVC8-JV2Z.

10. Illustratively, climate-related risks broke new ground this year in the World Economic Forum's annual risks survey. For the first time in the survey's history, a single category of risks—in this case, "climate change and related environmental issues"—claimed each of the top five spots as the most likely risks for the global economy. Børge Brende, *Preface* to WORLD ECON. FORUM, THE GLOBAL RISKS REPORT 2020, at 4 (15th ed. 2020), https://perma.cc/4E7X-AX5J.

decision points for corporate governance in this context are heterogenous: Opportunities exist to go on offense, not just defense.

I. The Mandate

Unavoidably, questions of climate change and corporate governance are wound up in the broader debate (and dynamism) about society's expectations of corporate purpose, because different conceptions of corporate purpose likely require different levels of attention to and action on climate change. Corporate purpose informs the duties that corporate leaders face. Narrower conceptions of corporate purpose often yield a set of duties wound tightly around shareholder interests and profit maximization. By contrast, more capacious conceptions of corporate purpose give way to a broader set of emerging duties, owed not just to shareholders but to a more diverse group of stakeholders. Even within the narrowest conceptions of corporate purpose (and the forms that follow), sound corporate governance still demands some attentiveness to and action on climate change. However, the debate around more capacious conceptions—even if not yet settled—has already started to seed emerging duties for corporate leaders to consider, mandates that go beyond traditional duties.

Recently, the debate between the two conceptions has grown more strenuous and sophisticated. For example, in August 2019, leading U.S. chief executives, who make up the Business Roundtable, issued a *Statement on the Purpose of a Corporation*. It proclaimed that "[e]ach of [their] stakeholders"—which they delineated as including customers, employees, suppliers, communities, and long-term shareholders—"is essential,"[11] and challenged (implicitly) the notion that a corporation only exists to advance shareholder interests and maximize profits. Signaling a potentially similar shift on the bench, particularly in the consequential jurisdiction of Delaware, the recently retired Chief Justice of the Delaware Supreme Court has proposed a series of reforms designed to ensure that corporations—and the broader private capital ecosystem—consider employee, environmental, social, and governance factors in furtherance of a decidedly public-benefit conception of corporate purpose.[12] And in the corporate form itself, we have started to see evolution in the corporate mainstream. Recent years have witnessed the enactment of a multitude of state-level statutes, each creating types of benefit corporations

11. Business Roundtable, Statement on the Purpose of a Corporation (2019), https://perma.cc/4CXL-PKER.

12. *See* Leo E. Strine, Jr., *Toward Fair and Sustainable Capitalism: A Comprehensive Proposal to Help American Workers, Restore Fair Gainsharing Between Employees and Shareholders, and Increase American Competitiveness by Reorienting Our Corporate Governance System Toward Sustainable Long-Term Growth and Encouraging Investments in America's Future* 3 (Univ. of Pa., Inst. for Law & Econ. Research Paper No. 19-39, 2019), https://perma.cc/KLY5-TD4T.

with either social, public, or flexible purposes.[13] In addition, corporate leaders are increasingly evaluating hybrid and tandem structures (that is, structures that include both for-profit and non-profit entities) as well as external certifications that impose some rigor and accountability on sustainability commitments by otherwise traditionally structured corporations (such as B Corp Certification[14] and Delaware's Transparency and Sustainability Certification[15]).[16]

The imprint of this broader churn on corporate purpose and form has already started to result in three emerging duties. First, and in line with the employee-focused proposal being advanced by former Delaware Chief Justice Leo Strine,[17] corporate leaders may be forced to grapple with the worker transition resulting from the switch away from fossil fuels. In certain industries, governmental regulation already exists to address some of these transition challenges in part;[18] however, where that regulatory framework falls short or fails to reach entirely, corporate leaders may be called on to respond. Second, another open question for corporate governance relates to evaluation of and efforts to remedy historic contributions to climate change. In the absence of clear regulation[19] (similar to what exists, for example, in the context of a number of hazardous and non-hazardous wastes regulated under the Resource Conservation and Recovery Act (RCRA)),[20] some have turned to common law to seek retroactive liability.[21] However, as that area of the law remains in flux, the question of how to engage with this aspect of climate change is left largely to the discretion of those in board rooms. Third, how these questions are answered will likely gain increasing salience, particularly where historic contributions to climate change have paired with local air and water quality issues—places often referred to as "hot spots" in which environmental justice

13. *See, e.g.*, Antony Page, *New Corporate Forms and Green Business*, 37 WM. & MARY ENVTL. L. & POL'Y REV. 347, 348-49 (2013), https://perma.cc/62F7-4YDQ.

14. B LAB, *Certified B Corporation* (2020), https://perma.cc/6QED-ZW5Q.

15. DEL. CODE. ANN. tit. 6, § 5002E (2020).

16. The author notes, having counseled a number of clients on matters related to corporate structuring and the utilization of these forms and approaches, that many (if not most) of the corporate leaders interested in such forms and approaches tend to also be highly aware of climate risk.

17. *See supra* note 12 and accompanying text.

18. *See, e.g.*, *About the Black Lung Program*, DIV. OF COAL MINE WORKERS' COMP., OFFICE OF WORKERS' COMP. PROGRAMS, U.S. DEP'T LABOR, https://perma.cc/X5XA-CD97 (archived Apr. 16, 2020) (providing one example of such a framework, which, in this case, provides some support to mineworkers with regard to a particular health risk exposure).

19. *See, e.g.*, Albert C. Lin & Michael Burger, *State Public Nuisance Claims and Climate Change Adaptation*, 36 PACE ENVTL. L. REV. 49, 50-60 (2018) (providing an overview of some litigation focused on resolving aspects of this uncertainty).

20. 42 U.S.C. §§ 6901-6992k (2018).

21. *See, e.g.*, Martin Olszynski et al., *From Smokes to Smokestacks: Lessons from Tobacco for the Future of Climate Change Liability*, 30 GEO. ENVTL. L. REV. 1, 19-20 (2017).

concerns are particularly heightened. To be sure, some legal requirements already exist with respect to environmental justice at the local,[22] state, and federal[23] levels; however, corporate governance may have to (and likely should) reckon with these issues in a more robust manner than merely what compliance with these laws requires.

Far before these emerging duties begin to bind corporate governance, traditional duties, in the face of climate change, already yield a mandate: Even with the narrowest conceptions of corporate purpose, sound corporate governance demands some attentiveness to and action on climate change, not in the future, but today. This begins with the core corporate governance duties placed on the board of directors—the duty of care and duty of loyalty.[24] The duty of care entails making business decisions after responsible investigation and deliberation. The duty of loyalty entails prioritizing the best interests of the corporation above self-interest. Together, these form the fiduciary duties of the board—and sit at the heart of corporate governance.[25] To understand the interaction of corporate governance and climate change, then, is to understand what these duties demand in the face of a sweeping and systemic risk like climate change.

To be sure, corporate governance, and the charges placed upon the same, extends beyond the fiduciary duties owed to shareholders. This broader set of duties includes those arising from common law, contract, or regulation. For example, executive management within the corporation faces duties within this paradigm, some of which were codified in the Sarbanes-Oxley Act of 2002.[26] These duties are particularly relevant to the corporate governance response to climate change as they deal, in part, with the adequacy (and accuracy) of controls and disclosures. Other such duties may actually serve to constrain aspects of the corporate governance response to climate change. For example, certain investment managers may be governed by the Employee Retirement Income Security Act of 1974[27] or the state-level version of the Uniform Prudent Investor Act[28] or Uniform Prudent Management of Institutional Funds Act[29]—

22. *See, e.g.*, ANA ISABEL BAPTISTA ET AL., TISHMAN ENV'T & DESIGN CTR., LOCAL POLICIES FOR ENVIRONMENTAL JUSTICE: A NATIONAL SCAN (2019), https://perma.cc/4KMC-ACMJ.

23. *See, e.g.*, Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994) (detailing "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations").

24. For a broader discussion on corporate governance, see generally the framework in ORGANISATION FOR ECON. CO-OPERATION & DEV., G20/OECD PRINCIPLES OF CORPORATE GOVERNANCE 46 (2015), https://perma.cc/83TK-XHMK.

25. *See, e.g.*, Bayer v. Beran, 49 N.Y.S.2d 2, 6-7 (N.Y. Sup. Ct. 1944).

26. Pub. L. No. 107-204, 116 Stat. 745 (codified in scattered sections of 15, 18, 28 & 29 U.S.C.); *see, e.g.*, 15 U.S.C. § 7241 (2018); 18 U.S.C. § 1350 (2018).

27. 29 U.S.C. §§ 1001-1461 (2018).

28. UNIF. PRUDENT INVESTOR ACT 7B U.L.A. 1 (1995).

29. UNIF. PRUDENT MGMT. OF INSTITUTIONAL FUNDS ACT 7A PT. III U.L.A. 1 (2006).

each of which, to varying degrees, arguably constrains the range of strategic responses a corporation may undertake because of the nature of the underlying funds that it holds.[30]

Beyond the duties imposed by government regulation, corporations also frequently owe duties to other financial stakeholders such as insurance providers, lenders, suppliers, and customers.[31] Although these duties are often defined in terms of contract, they are no less powerful in shaping the contours of corporate governance and, in turn, how a corporation might interact with the challenges (and opportunities) presented by climate change.

II. Leadership

The Delaware Code puts it thusly: "The business and affairs of every corporation organized . . . shall be managed by or under the direction of a board of directors . . . ."[32] In the modern corporation, of course, the board of directors is less a group sitting atop the corporation than a group serving as the structural keystone. At once, the board is connected to the shareholders and the management, limited in its scope but far-reaching in its influence. Given its empowerment within the corporate governance scheme, the board has a critical role to play in attending to any set of significant risks. It follows that the board is center stage on climate change too.

The fit is natural when considering the functions of the modern board, each of which is often associated with a standing committee.[33] First, consider the Nominating and Governance function: A board might evaluate the new directors it intends to nominate based on awareness of (or relevant aptitude for) climate-related risk assessment and mitigation approaches,[34] and whether

30. *See, e.g.*, Susan N. Gary, *Is It Prudent to Be Responsible?: The Legal Rules for Charities That Engage in Socially Responsible Investing and Mission Investing*, 6 NW. J.L. & SOC. POL'Y 106, 108-09, 115-19 (2011).

31. Although the sort of generic representations, warranties, and covenants that often define these relationships likely have bearing (arising from core contract concepts like the duty to mitigate), the author is primarily focused here on reflecting personal experience with counseling clients on provisions that are far more direct, such as *force majeure* provisions that incentivize extreme weather resilience, information rights or performance requirements related to carbon footprint, or limitations on executives' or investment managers' discretion.

32. DEL. CODE. ANN. tit. 8, § 141(a) (2020).

33. Drawing on personal experience counseling boards and management on these topics, the author notes the increasing frequency with which corporations are modifying the charters of standing committees to explicitly integrate these roles and responsibilities (often within the context of increasing the board's oversight on environmental, social, and governance ("ESG") matters more generally). Discussion of these clarifications regarding the board's roles and responsibilities are also increasingly presented in annual and proxy disclosures.

34. Naturally, there will be limitations on the board's ability to become educated on the topic of climate change, which is complex, technical, and dynamic. To that end, it is

adequate governance practices exist at the management level to develop a strategic response, as necessary, to the climate-related risks material to the corporation. Second, consider the Audit function: A board might stress-test whether the executive management is focused on (and faithfully evaluating and reporting) the appropriate metrics to measure and manage any material climate-related risk. Finally, consider the Executive Compensation function: Particularly in an era where inequality continues to expand (eroding, in many sectors, the social contract between executive management and workers), a board might calibrate its basis for selecting and rewarding management on particular aspects of performance. In some cases, this could mean tying elements of compensation to performance criteria that benefit multiple stakeholders, including improved environmental performance or climate resilience.

Cross-walking the functions of the board, to the challenges and opportunities that climate change presents, is one way of integrating management of this risk in an appropriate way at the board level. Such an exercise may be especially valuable at a time when no clear benchmark exists defining minimum adequate board competence on climate change.[35]

Of course, management, led by the chief executive officer (CEO), carries the primary mandate for execution of the corporation's strategy that the board shapes and steers. The CEO must effectively define roles and responsibilities across the "C-Suite," the group of leaders responsible for heading the core functions of the corporation. Given the permeability of climate-related risk, the CEO may consider if and how climate-related risk is being accounted for, and appropriately integrated into, functions as broad and diverse as budgeting and accounting, branding and marketing, and contracting and procurement.

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helpful to recall that corporate law is generally permissive of reasonable reliance on outside experts. The Delaware Code provides that directors may rely on "information, opinions, reports or statements presented . . . by any other person as to matters . . . reasonably believe[d] [to be] within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the corporation" DEL. CODE. ANN. tit. 8, § 141(e).

35. Some scholars have started to outline what climate change competence might resemble in this context. For example, Veena Ramani has helpfully proposed a series of five steps that corporations can undertake to bolster their board-level competence on climate change. First, they can institute "board systems" for appropriate oversight, such as defining a responsible committee. Second, they can nominate "directors with expertise on climate change," a skillset that pension managers like CalPERS and CalSTRS are increasingly encouraging. Third, they can take steps to educate "the full board on climate change," ensuring that all board members—not just those with climate change expertise—are able to effectively engage with the related risks. Fourth, they can facilitate board engagement with "stakeholders and shareholders" on the topic of climate change, a step grounded in the realization that those parties will bring unique insights regarding the materiality of climate risk for the corporation. And, fifth, they can increase transparency on board-level, climate-related decisions—spurring increased competency-reinforcing feedback (and accountability) from outside the corporation. Veena Ramani, *Five Key Steps for Building a Climate-Competent Board*, NACD BOARDTALK (Mar. 7, 2017), https://perma.cc/DD53-WLKB.

III. The Mechanics

A. Scenario Analysis

Unpacking the full implications of climate change for a corporation can be challenging given its sweeping and systemic nature. Scenario analysis provides a process to digest the disparate into the discrete. In addition to direct physical and transition risks, indirect risks to the corporation might also exist. For example, reputational impacts based on the corporate leadership's chosen strategic response to climate-related risks, while economically sound in terms of direct risks, might lead to reputational issues that disadvantage the corporation in the battle for talent.

The Task Force on Climate-Related Financial Disclosure (TCFD), which was established by the G20's Financial Stability Board, has outlined a six-step approach to scenario analysis that corporate leaders can use.[36] First, the corporate leadership should "ensure governance is in place," including both internal and external stakeholders and defining roles and responsibilities at the board level, for management, and among counsel. Second, they should "assess materiality of climate-related risks," distinguishing between ancillary and core challenges and opportunities. Third, the leaders should "identify and define a range of scenarios," leveraging scenarios already developed by the United Nations, International Energy Agency, and others. These scenarios essentially project how the world will respond to climate change over the course of several decades, and then capture the corresponding feedback effects. Fourth, leaders should "evaluate business impacts," by tracing relevant quantitative and qualitative conclusions from scenarios to effects on strategy. Fifth, the leaders should "identify potential responses," recognizing the different time horizons, implementation risks, and potential liabilities. Sixth, and finally, the leaders should "document and disclose," determining a thoughtful approach with board, management, counsel, and technical advisors.[37]

Over the course of this exercise, corporate leaders might find that the temporal distribution of when various climate change risks might become material for their particular corporation is not necessarily back loaded—that, when well-understood, climate change risks do not necessarily swim against corporate "short-termism" (and our cognitive biases) for attention. For example, a corporation with unmitigated exposure to fossil fuel production might find that the reputational, talent retention, or cost-of-capital implications resulting from that exposure appear in the near term. Another corporation with real property in the wildland urban interface might find that its exposure to medium-term physical risk yields a nearer-term financial risk

36. TASK FORCE ON CLIMATE-RELATED FIN. DISCLOSURES, THE USE OF SCENARIO ANALYSIS IN DISCLOSURE OF CLIMATE-RELATED RISKS AND OPPORTUNITIES 7 fig.2 (2017), https://perma.cc/E3RV-2XFV.

37. *Id.* (capitalization altered).

related to declining insurability of its assets. Alternatively, other corporations might find that because of the nature (and geography) of their business, their exposure—at least in the near and medium term—is very limited. Regardless, corporate governance is not well-served without this analytical foundation.

In undertaking the scenario analysis, corporate leadership might also consider its supply chain. The demands on corporate governance do not necessarily stop at the corporation's fence line. The sweeping and systemic nature of the risk makes the inclusion of supply chain analysis prudent. To the extent the norm around such analysis has not been established, it is likely only a matter of time. Certainly, the fact pattern in the evolution of corporate governance norms around modern slavery, conflict minerals, and cybersecurity provide a look over the normative horizon—each risk is now generally assessed not just as related to a corporation's direct operations, but more broadly across the supply chain.

Scenario analysis alone, however, can be inadequate, especially for a corporation that has transactional activity at the core of its business. For corporations that unlock returns through the completion of transactions, including mergers, acquisitions, and project financings, governance of those transactions likely requires particular attention through the lens of climate change. Each transaction matters. In the context of private equity acquisitions, for example, an evolution of due diligence practices is already underway. Investment committees, in the discharge of their fiduciary duties, are evaluating the physical and transition risks to targets. Each transaction must pass a sort of climate test. The commitment to undertake these process modifications can originate in the fund. Investors may seek to constrain the degrees of freedom that a particular investment vehicle has through commitments in charter documents, side letters, and the like. Increasingly, similar approaches are also being extended to non-equity transactions.[38]

B. Disclosure

Understanding risk exposure is the predicate to disclosing those risks and formulating a strategic response to climate change for the corporation. Disclosure provides a powerful tool with which to engage (and protect) investors.

In many ways, and in a very short period of time since its launch, TCFD has come to define the standard in terms of disclosure on climate-related

38. Based on direct experience counseling across asset classes and financial instruments, the author notes the increasing rigor with which physical and transition risk evaluation is being integrated by some investors into portfolio construction and strategy development, due diligence questions and analyses, and, ultimately, investment decisions and structuring. This trend is likely to be accelerated as institutional investors, in particular, become increasingly sophisticated in their requests and requirements for the asset managers, sponsors, and other similarly situated entities responsible for diligently deploying capital.

financial risk.[39] Its adoption has been driven by three sets of actors in particular. First, it has been propelled by the over 2,500 signatories to the United Nations Principles for Responsible Investments (UNPRI), which represents almost $90 trillion and, in January 2020, began to mandate elements of TCFD-aligned reporting for all of its signatories.[40] Second, it has been propelled by institutional investors, from large pensions to large asset managers, acting individually and in concert.[41] And finally, it has been supported by active international regulators, primarily in the banking sector and led (in many ways) by the Bank of England.[42]

Despite increasing traction, fulsome adoption of TCFD is far from complete. In fact, very few companies provide the sort of quantitative data that TCFD appears to recommend. Part of the challenge is data collection.[43] Corporate leaders may also be slowed down by concerns that collecting, and then releasing, such data might be net-unhelpful to their perceived value. Such concerns—whether or not they are prudent—may not be sustainable for long. The emergence of low-cost tools to collect data (for example, drone flights observing methane leakage and algorithms scraping data from public sources), and then to aggregate and analyze that data (in increasingly insightful ways using artificial intelligence), creates a new data environment where corporate decisions about self-disclosure may no longer be the final arbiter of transparency.

IV. Strategic Response

A corporation's *optimal* strategic response to climate change will be the product of a fact-sensitive inquiry that will vary based on a number of factors, including the liquidity of its assets; whether the corporation is an operator, investor, or arranger; and the industry, geography, size, and sophistication of the enterprise and its supply chain. A corporation's optimal strategic response must be the product of robust engagement with its fiduciary duties and other governance constraints.[44]

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39. Ali Zaidi et al., *FSB Climate Disclosure Framework Poised for 2020 Traction*, LAW360 (Sept. 24, 2019 5:17 PM EDT), https://perma.cc/9C8Q-ZSA2.

40. *Id.*

41. *See id.*; *see also* Daniel Brooksbank, *Institutional Investors Welcome TCFD Climate Task Force Recommendations*, RESPONSIBLE INVESTOR (June 29, 2017), https://perma.cc/59SV-9BMQ.

42. *See id.*; *see also* Mark Carney, Governor, Bank of Eng., Speech at the Tokyo TCFD Summit 2019 (Oct. 8, 2019), https://perma.cc/Q4Q5-TDXP.

43. TASK FORCE ON CLIMATE-RELATED FIN. DISCLOSURES, 2019 STATUS REPORT 65 (2019), https://perma.cc/A9K9-W7SJ.

44. For example, based on an interpretation of its fiduciary duties, a corporation may only become comfortable tackling those risks that clearly, directly, and adversely impact the firm's economic value on a net cost-benefit basis.

Even so, there is ultimately a defined set of options among which the corporation must choose in developing its strategic response. The simplest paradigm is binary: mitigation or adaption. The former refers to reducing greenhouse gas emissions, and the latter refers to increasing extreme weather event resilience. The first interacts most directly with transition risk, and the second interacts most directly with physical risk. In this binary paradigm, however, sits a full spectrum of strategic responses that is far broader. A number of significant choices for corporate governance shape which strategic responses might be selected. For example, one choice is the extent to which the corporation considers its supply chain. Another is whether the corporation merely seeks to be neutral going forward or whether it seeks to generate negative emissions (perhaps in an effort to retroactively reduce its footprint). Some corporations may choose merely to shift their risk through contracts and insurance; others may choose to seek the reward potential paired with their risk—through new business lines or products. Even for financial institutions, broad options exist to develop or facilitate sustainable securities, such as green bonds, or, in the opposite direction, to institute "negative screening." Finally, especially after *Citizens United v. FEC*,[45] corporations might also consider how they engage with relevant public policy through lobbying and political contributions, directly or via industry associations.

V. Regulatory Overlay

In many ways, the absence of comprehensive climate change regulation—a legal framework capable both of internalizing the forward-looking social costs of additional greenhouse gas emissions and of addressing the backward-looking social costs of accumulated greenhouse gas emissions—increases the discretionary burden on corporate governance. What has not been resolved in the public sphere (for now) has been delegated to the board room.

Increasingly, however, both domestically and internationally, financial regulators are beginning to turn their attention to climate-related financial risks, and the shift is a prompt for changes in corporate governance. For example, the Commodity Futures Trading Commission has launched a process to study climate-related market risks.[46] Some Governors of the Federal Reserve Bank have started to outline a rational basis for climate-related banking regulation that might follow the pattern of regulatory activity initiated in the United Kingdom and elsewhere.[47] The Federal Trade Commission already has

45. 558 U.S. 310 (2010).

46. Press Release, Commodity Futures Trading Comm'n, CFTC Commissioner Behnam Announces Members of the Market Risk Advisory Committee's New Climate-Related Market Risk Subcommittee (Nov. 14, 2019), https://perma.cc/N8T9-6AC5.

47. *See* Lael Brainard, Member, Bd. of Governors of the Fed. Reserve Sys., Remarks at the Economics of Climate Change Research Conference: Why Climate Change Matters for

standards in place to address "greenwashing,"[48] but may be positioned to undertake additional rulemaking. And at the Securities and Exchange Commission, which has been largely silent since a 2010 guidance on climate change, the issue seems to be gaining prominence among current Commissioners.[49]

Conclusion

Climate change creates both new challenges and new opportunities for corporate governance, and corporate leaders are charged with understanding (and then acting upon) those challenges and opportunities. Although it can be daunting, tools exist, like scenario analysis, to metabolize this sweeping and systemic risk, to distill its interaction with the corporation into cogent disclosures, and to formulate a strategic response on behalf of the corporation. Even as the federal government lags in addressing climate change, corporations must not. For leaders charged with corporate governance, the crisis presented by climate change demands action not tomorrow—but today.

Monetary Policy and Financial Stability 2, 9 (Nov. 8, 2019), https://perma.cc/6FX4-WGZP.

48. *Green Guides*, FTC, https://perma.cc/5H8Y-CVNG (archived Apr. 16, 2020).

49. Allison Herren Lee, Comm'r, SEC, *"Modernizing" Regulation S-K: Ignoring the Elephant in the Room*, SEC (Jan. 30, 2020), https://perma.cc/7W9F-JPFC.