



Climate Change Poses Significant Underassessed Financial Risks

Climate risks facing the financial sector are typically broken down into two categories: transition risk and physical risk. Transition risk comes from a failure to adapt in time to a changing, less carbon-intensive economy as governments implement carbon regulations, and greener alternative energy becomes cheaper. “Stranded assets” in the fossil fuel industry are a classic example of transition risk. Physical risks are the threats faced by all industries that come from the changing climate itself. They include the impact of sea-level rise on the real estate sector, decreased labor productivity from hotter days, reductions in agricultural output due to droughts or floods, and many others.

The current regulatory regime does not enable the effective evaluation and pricing of these risks. While securities risk reporting has improved since the Securities and Exchange Commission released its 2010 guidance on climate risk disclosure, disclosure remains “quite limited in scope.” Moreover, even those firms which have voluntarily disclosed climate risks have frequently underestimated them. The risks presented by climate change are distinct from other risks in several ways that cause them to be underappreciated and misreported by private actors.

Climate risks are likely to be poorly assessed because these risks are distinctive in ways that will produce information failures absent regulatory oversight. First, many physical climate risks will occur within the relevant horizon for valuing securities but outside of conventional risk assessment horizons for firm decisionmakers with short-term incentives. Second, future risks increasingly differ from risks in the past, meaning that past data cannot simply be projected forward, resulting in “model risk.” Third, while it is challenging to predict any specific climate-related event, a systemic increase in the severity and occurrence of physical and transition risks is relatively certain. Fourth, climate risks are far-reaching and are likely to affect every sector of the economy rather than narrowly targeting certain sectors and firms. While some sectors, such as energy and agriculture, will be more exposed than others, the physical risks of climate change are present for every firm. While large, diversified investors may be insulated from increased risk to any individual firm, they are not insulated from an increased level of systemic risk.

Finally, climate risks are difficult to accurately assess without disclosure of asset-level data. Investors and lenders need information that is not typically disclosed in traditional financial statements, such as the precise location of facilities, or where companies obtain their water resources as a production input. This information is not obtainable without corporate cooperation, and investors need to be broadly aware of the risks before they can press for this information.

Regulation Is Needed to Mitigate Climate-Related Financial Risks

Private actors themselves may be unaware of mounting climate exposures as they continue to rely on outdated methods of risk assessment. Financial models that are employed to make internal capital allocation decisions, for example, often employ backward-looking metrics of historical risk.

In addition, corporate managers may be accustomed to relying on third-party insurance products to assess and price their company's risk exposure. But insurance premiums are typically re-assessed and paid on an annual basis. In a world of non-linear climate responses, the price of insurance may dramatically skyrocket from one year to the next, and certain assets may become uninsurable altogether. Relying on insurance to price risks of investments that are expected to reap returns decades into the future results in a "duration mismatch" that may lead to unrecoverable losses in the event of a disaster. Further, the entire capital stock of corporate America was built using engineering specifications designed to endure certain temperature and weather extremes that may be exceeded under a climate-changed world. A facility that was built to withstand a "100-year flood" may now have a much higher likelihood of failure. Financial regulation, including the requirement of line-item climate risk disclosures, can hasten the discovery of these latent risks.

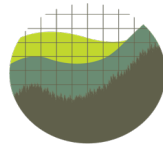
If certain financial assets are misvalued due to the market's failure to account for climate risk, the market may gradually adjust the mispricing as it incorporates new information. Or, the market may correct suddenly, resulting in chain-reaction effects throughout the economy. Around 44 percent of the average investment fund's equity holdings are in fossil fuel or "climate-policy relevant" sectors, including utilities, mining, housing, and transport. If each of these industries has failed to assess their exposure to climate risk, this amounts to a great deal of unaccounted risk that accumulates at the portfolio-level for networked financial institutions. The heads of the central banks of England and France have warned that a "sudden collapse of asset prices" is possible.

A Price on Carbon Is Urgently Needed

While an array of interventions are needed to effectuate the accurate pricing of climate risk—including mandatory disclosure, stress-testing, and oversight of ratings agencies and accounting firms—quickly-implementing a schedule for an economy-wide price on carbon emissions will be particularly crucial for avoiding a climate-related financial crisis. The threat of physical risks will continue to mount if emissions continue unabated. And the nonlinear relationships and feedback loops between CO₂ accumulation, warming, and changes to Earth's systems mean a tipping point could be passed with severely costly consequences. Many climate impacts are irreversible on a human timescale, so the need for ex-ante avoidance of accumulating risks is more urgent than any financial threat previously experienced.

The longer it takes for a price on carbon to be implemented, the more drastic the measures will need to be to limit warming, and the greater the likelihood of transition-related financial losses. Comprehensive, economy-wide pricing of carbon is needed now to ensure the transition is smooth and orderly rather than disruptive and costly. One driver of uncertainty in modeling the economic impacts of climate change is the inability to predict when and how governments will limit emissions. Early adoption and commitment to a carbon pricing scheme will provide the regulatory certainty markets require for financial planning and investment.

Signatories and citations for these comments are found in the attached version.



Institute for
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW



Union of
Concerned
Scientists



Western
Environmental
Law Center

May 14, 2020

Attn: David M. Gillers, Subcommittee Alternate Designated Federal Officer and Chief of Staff to Commissioner Rostin Behnam, CFTC
Re: Climate-Related Market Risk Subcommittee Under the Market Risk Advisory Committee, 85 Fed. Reg. 20,678
Submitted by: Institute for Policy Integrity at New York University School of Law, Montana Environmental Information Center, Union of Concerned Scientists, Western Environmental Law Center

The following comments to the Commodity Futures Trading Commission regard the Climate-Related Market Risk Subcommittee's report to the Market Risk Advisory Committee on climate change-related financial and market risks.

Climate change creates financial risks that are challenging to evaluate as the future increasingly diverges from past experience, and that generally require more granular data than is typically disclosed in financial reporting. Financial actors lack sufficient information and individual incentives to accurately price climate risks into financial assets, a deficit that could accumulate across portfolios and institutions into a systemic risk. While an array of interventions are needed to effectuate the accurate pricing of climate risk—including mandatory disclosure, stress-testing, and oversight of ratings agencies and accounting firms—a quickly-implemented economy-wide price on carbon emissions is the regulatory tool that will be the most effective in mitigating a climate-related financial crisis.

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Climate risks facing the financial sector are typically broken down into two categories: transition risk and physical risk. Transition risk comes from a failure to adapt in time to a changing, less carbon-intensive economy as governments implement carbon regulations, and greener alternative energy becomes cheaper. "Stranded assets" in the fossil fuel industry are a classic example of transition risk. Physical risks are the threats faced by all industries that come from the changing climate itself. They include the impact of sea-level rise on the real estate sector, decreased labor productivity from hotter days, reductions in agricultural output due to droughts or floods, and many others.¹

The current regulatory regime does not enable the effective evaluation and pricing of these risks. While securities risk reporting has improved since the Securities and Exchange Commission released its 2010 guidance on climate risk disclosure, disclosure remains "quite limited in scope."²

¹ The Risky Business Project, co-chaired by Michael Bloomberg, Henry Paulson, and Tom Steyer attempts to quantify specific costs to business. See "The Risky Business Project," <https://riskybusiness.org/report/national/>.

² Joan DiSalvio & Nina Dorata, *SEC Guidance on Climate Change Risk Disclosures: An Assessment of Firm and Market Responses*, in ACCOUNTING FOR THE ENVIRONMENT: MORE TALK AND LITTLE PROGRESS 115-30, 116 (Martin Freedman & Bikki Jaggi, eds., 2014).

Moreover, even those firms which have voluntarily disclosed climate risks have frequently underestimated them.³ The risks presented by climate change are distinct from other risks in several ways that cause them to be underappreciated and misreported by private actors.

Climate risks are likely to be poorly assessed because these risks are distinctive in ways that will produce information failures absent regulatory oversight.⁴ First, many physical climate risks will occur within the relevant horizon for valuing securities but outside of conventional risk assessment horizons for firm decisionmakers with short-term incentives.⁵ Second, future risks increasingly differ from risks in the past, meaning that past data cannot simply be projected forward, resulting in “model risk.”⁶ Third, while it is challenging to predict any specific climate-related event, a systemic increase in the severity and occurrence of physical and transition risks is relatively certain.⁷ Fourth, climate risks are far-reaching and are likely to affect every sector of the economy rather than narrowly targeting certain sectors and firms. While some sectors, such as energy and agriculture, will be more exposed than others, the physical risks of climate change are present for every firm.⁸ While large, diversified investors may be insulated from the increased risk to any individual firm, they are not insulated from an increased level of systemic risk.

Finally, climate risks are difficult to accurately assess without disclosure of asset-level data.⁹ Investors and lenders need information that is not typically disclosed in traditional financial statements, such as the precise location of facilities, or where companies obtain their water resources as a production input. This information is not obtainable without corporate cooperation, and investors need to be broadly aware of the risks before they can press for this information.

Regulation Is Needed to Mitigate Climate-Related Financial Risks

Private actors themselves may be unaware of mounting climate exposures as they continue to rely on outdated methods of risk assessment. Financial models that are employed to make internal capital allocation decisions, for example, often employ backward-looking metrics of historical risk.¹⁰ In addition, corporate managers may be accustomed to relying on third-party insurance products to assess and price their company’s risk exposure. But insurance premiums are typically re-assessed and paid on an annual basis.¹¹ In a world of non-linear climate responses, the price of insurance may dramatically skyrocket from one year to the next, and certain assets may become uninsurable altogether.¹² Relying on insurance to price risks of investments that are expected to reap returns

³ Allie Goldstein, Will Turner, Jillian Gladstone & David Hole, *The Private Sector’s Climate Change Risk and Adaptation Blind Spots*, 9 NATURE CLIMATE CHANGE 18, 20 (2019) (finding that the total value of aggregated climate-related financial risks reported through both voluntary and mandatory corporate disclosures amount to mere tens of billions of dollars of potential negative impact, an amount that diverges from top-down projections of climate costs to financial assets by at least two orders of magnitude, suggesting gross and systemic underreporting of risk).

⁴ BANK OF ENGLAND PRUDENTIAL REGULATION AUTHORITY, TRANSITION IN THINKING: THE IMPACT OF CLIMATE CHANGE ON THE UK BANKING SECTOR 9 (2018).

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ *Id.* at 8.

⁹ Ariel C. Pinchot & Giulia Christianson, *What Investors Actually Want From Sustainability Data*, GREENBIZ (Apr. 17, 2019), <https://www.greenbiz.com/article/what-investors-actually-want-sustainability-data>.

¹⁰ See, e.g., Marcel Kahan, *Securities Laws and the Social Costs of Inaccurate Stock Prices*, 41 DUKE L. J. 977, 1040.

¹¹ Swiss Re, 2018 Financial Report, p. 177, excerpted in TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES STATUS REPORT (June 2019) [hereinafter TCFD Status Report].

¹² Jessica Shankleman, *Growing Climate Risks May Be ‘Impossible to Model’ – and Ultimately Uninsurable*, Insurance J. (Nov. 13, 2017), <https://www.insurancejournal.com/news/national/2017/11/13/470949.htm>.

decades into the future results in a “duration mismatch”¹³ that may lead to unrecoverable losses in the event of a disaster. Further, the entire capital stock of corporate America was built using engineering specifications designed to endure certain temperature and weather extremes that may be exceeded under a climate-changed world.¹⁴ A facility that was built to withstand a “100-year flood” may now have a much higher likelihood of failure. Financial regulation, including the requirement of line-item climate risk disclosures, can hasten the discovery of these latent risks.

If certain financial assets are misvalued due to the market’s failure to account for climate risk, the market may gradually adjust the mispricing as it incorporates new information. Or, the market may correct suddenly, resulting in chain-reaction effects throughout the economy. Around 44 percent of the average investment fund’s equity holdings are in fossil fuel or “climate-policy relevant” sectors, including utilities, mining, housing, and transport.¹⁵ If each of these industries has failed to assess their exposure to climate risk, this amounts to a great deal of unaccounted risk that accumulates at the portfolio-level for networked financial institutions.¹⁶ The heads of the central banks of England and France have warned that a “sudden collapse of asset prices” is possible.¹⁷

A Price on Carbon Is Urgently Needed

While an array of interventions are needed to effectuate the accurate pricing of climate risk—including mandatory disclosure, stress-testing, and oversight of ratings agencies and accounting firms—quickly-implementing a schedule for an economy-wide price on carbon emissions will be particularly crucial for avoiding a climate-related financial crisis. The threat of physical risks will continue to mount if emissions continue unabated. And the nonlinear relationships and feedback loops between CO₂ accumulation, warming, and changes to Earth’s systems mean a tipping point could be passed with severely costly consequences.¹⁸ Many climate impacts are irreversible on a human timescale, so the need for ex-ante avoidance of accumulating risks is more urgent than any financial threat previously experienced.¹⁹

The longer it takes for a price on carbon to be implemented, the more drastic the measures will need to be to limit warming, and the greater the likelihood of transition-related financial losses.²⁰ Comprehensive, economy-wide pricing of carbon is needed now to ensure the transition is smooth

¹³ MCKINSEY GLOBAL INSTITUTE, CLIMATE RISK AND RESPONSE: PHYSICAL HAZARDS AND SOCIOECONOMIC IMPACTS 46 (Jan. 2020).

¹⁴ See, e.g., *id.* at 32.

¹⁵ Stefano Battison et al., *A Climate Stress-Test of the Financial System*, 7 NATURE CLIMATE CHANGE 283, 284 (Apr. 2017).

¹⁶ Steven L. Schwarcz, *Systemic Risk*, 97 GEO. L.J. 193, 198 (2008) (explaining that systemic risk can derive from aggregate risk taking on the part of many individuals because “like a tragedy of the commons, no individual market participant has sufficient incentive, absent regulation, to limit its risk taking in order to reduce the systemic danger to other participants and third parties”).

¹⁷ Mark Carney, Francois Villeroy, & Frank Elderson, *The Financial Sector Must Be at the Heart of Tackling Climate Change*, THE GUARDIAN (Apr. 17, 2019), <https://www.theguardian.com/commentisfree/2019/apr/17/the-financial-sector-must-be-at-the-heart-of-tackling-climate-change>.

¹⁸ See, e.g., Interagency Working Group on Social Cost of Carbon, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 at 31 (2010), <https://obamawhitehouse.archives.gov/sites/default/files/omb/inforeg/for-agencies/Social-Cost-of-Carbon-for-RIA.pdf>.

¹⁹ See PATRICK BOLTON, MORGAN DESPRES, LUIZ AWAZU PEREIRA DA SILVA, FRÉDÉRIC SAMAMA & ROMAIN SVARTZMAN, THE GREEN SWAN: CENTRAL BANKING AND FINANCIAL STABILITY IN THE AGE OF CLIMATE CHANGE 47 (Bank for Int’l Settlements, Jan. 2020) (a climate-driven financial crisis has a “key difference from an ordinary financial crisis, because the accumulation of atmospheric CO₂ beyond certain thresholds can lead to irreversible impacts, meaning that the biophysical causes of the crisis will be difficult if not impossible to undo at a later stage”).

²⁰ BANK OF ENGLAND, TRANSITION IN THINKING: THE IMPACT OF CLIMATE CHANGE ON THE U.K. BANKING SECTOR 26, Sept. 2018, (“Late, abrupt and significant policy action aimed at reducing greenhouse gas emissions would also significantly increase credit and market risks, particularly in carbon-intensive sectors.”); BANK OF ENGLAND PRUDENTIAL REGULATION AUTHORITY, THE 2021 BIENNIAL EXPLORATORY SCENARIO ON THE FINANCIAL RISKS FROM CLIMATE CHANGE 10-12 (2019).

and orderly rather than disruptive and costly.²¹ One driver of uncertainty in modeling the economic impacts of climate change is the inability to predict when and how governments will limit emissions. Early adoption and commitment to a carbon pricing scheme will provide the regulatory certainty markets require for financial planning and investment.²²

Sincerely,

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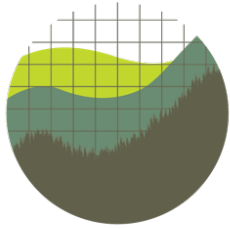
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* No part of this document purports to present New York University School of Law's views, if any.

Attached: Institute for Policy Integrity, Comments on Proposed Securities and Exchange Commission Rule, Management's Discussion and Analysis, Selected Financial Data, and Supplementary Financial Information, 85 Fed. Reg. 12,068, (Apr. 28, 2020).

²¹ NETWORK FOR GREENING THE FINANCIAL SYSTEM, A CALL FOR ACTION: CLIMATE CHANGE AS A SOURCE OF FINANCIAL RISK (April 2019), https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf.

²² See, e.g., Victoria Mills, *Only Public Policy Can Deliver the Speed and Scale of Emissions Reductions Needed to Limit the Worst Impacts of Climate Change*, ENVIRONMENTAL DEFENSE FUND (Feb. 3, 2020), <https://business.edf.org/insights/a-new-decade-demands-new-leadership-in-climate-policy-advocacy/>.



April 28, 2020

VIA ELECTRONIC SUBMISSION

Attn: Vanessa A. Countryman, Secretary, Securities and Exchange Commission
Re: Management’s Discussion and Analysis, Selected Financial Data, and Supplementary Financial Information, 85 Fed. Reg. 12,068 (proposed February 28, 2020; File No. S7–01–20, RIN 3235–AM48)

The Institute for Policy Integrity (“Policy Integrity”) at New York University School of Law respectfully submits the following comments to the Securities and Exchange Commission (“SEC”) regarding a proposed rule modifying Regulation S-K, which governs reporting requirements for public companies (“Proposed Rule”).¹ Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy.

Our comments focus on the SEC’s failure to specifically require disclosure of risks relating to climate change in the Proposed Rule. Climate change presents significant risks to U.S. firms on an investor-relevant timeframe, and investors have increasingly demanded more climate risk disclosure. The Proposed Rule’s reliance on a principles-based materiality standard will produce insufficient disclosure due to the distinctive features of climate risks. Climate risks are economy-wide impacts in which the future increasingly diverges from past experience, and predicting such risks requires more granular data than is typically disclosed in financial reporting. These features interact with firm decisionmakers’ cognitive biases and misaligned incentives in ways that create information asymmetries between corporations and their shareholders and result in inefficient allocations of capital. Voluntary disclosure regimes do not provide sufficient information because they are non-universal, non-standardized, and subject to a lower level of scrutiny. Accordingly, SEC should adopt a more specific line-item approach to climate risk reporting, similar to the framework suggested under the Task Force on Climate-Related Financial Disclosures (“TCFD”). This approach will limit the discretion afforded to managers and encourage corporate preparedness for climate change.

I. U.S. Firms Face Material Risks From Climate Change on an Investor-Relevant Timeframe

The planet is warming, the climate is changing, and human activity is the cause. Increased concentrations of greenhouse gases (GHGs) in the atmosphere have caused global average

¹ Management’s Discussion and Analysis, Selected Financial Data, and Supplementary Financial Information, 85 Fed. Reg. 12,068 (Feb. 28, 2020) (to be codified at 17 C.F.R. pts. 210, 229, 239, 240, and 249) [hereinafter Proposed Rule].

temperatures to rise at a current rate of about 0.2°C per decade.² The Intergovernmental Panel on Climate Change (IPCC) has found that human activity has caused around 1°C of global warming since 1850, with substantially greater warming in some regions, such as the Arctic.³ If GHG emissions continue at their current rate, global average surface temperatures could rise by more than 4°C above pre-industrial levels by 2100.⁴ Additional increases in global temperatures will increase the risk and severity of natural disasters such as floods, heatwaves, wildfires, and storms, as well as cause or exacerbate chronic problems such as sea level rise, desertification and water shortages.⁵ These acute and chronic dangers pose a major threat to human life as well as the U.S. and global economies.

The IPCC and others have therefore advocated concerted action by countries and firms to reduce GHG emissions, with a goal of keeping total warming to 1.5°C or less by reducing global GHG emissions by 2030 and reaching net-zero emissions by 2050.⁶ This goal has been embraced to varying degrees by U.S. peer countries as well as American cities, states and businesses.⁷ The transition to a low or zero-carbon economy will entail substantial disruption of its own, creating both risks and opportunities.

Financial risk factors for firms relating to climate change come in two forms: physical risks and transition risks. Both forms of risk can negatively affect firms through multiple channels and on multiple timeframes. However, even incomplete estimates show that the risks are enormous: a survey of voluntary disclosures from 215 of the world's 500 largest firms showed approximately \$1 trillion in climate-related risks.⁸ These risks are also occurring over an investor-relevant time frame. For example, climate change-related extreme weather could cost the Gulf Coast states \$18-23 billion annually by 2030.⁹ The International Bank for Reconstruction and Development found that climate change could force 100 million people into poverty by 2030.¹⁰

² INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICY MAKERS, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C, § A.1 (2018), <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/> [hereinafter IPCC 2018 SUMMARY FOR POLICY MAKERS].

³ *Id.* at § A.1.2.

⁴ THE ROYAL SOCIETY, KEEPING GLOBAL WARMING TO 1.5°C 2 (2018), <https://royalsociety.org/topics-policy/publications/2018/keeping-global-warming-to-1-5-c/> (last visited April 12, 2020).

⁵ CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME I 12-34 (D.J. Wuebbles et. al. eds., 2017).

⁶ IPCC 2018 SUMMARY FOR POLICY MAKERS, *supra* note 2, at § C.1.

⁷ *Paris Agreement – Status of Ratification*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, <https://unfccc.int/process/the-paris-agreement/status-of-ratification> (last visited, Apr. 11, 2020); Joel Jaeger et. al., *As Trump Steps Away from Paris Climate Agreement, U.S. States, Cities and Businesses Step Up*, WORLD RESOURCES INST. (Oct. 23, 2019), <https://www.wri.org/blog/2019/10/trump-steps-away-paris-climate-agreement-us-states-cities-and-businesses-step-up>.

⁸ Brad Plumer, *Companies See Climate Change Hitting Their Bottom Lines in the Next 5 Years*, N.Y. TIMES (June 4, 2019), <https://www.nytimes.com/2019/06/04/climate/companies-climate-change-financial-impact.html> (noting that these disclosures are voluntary and non-exhaustive of all firms, meaning the value of overall climate risk to the economy is likely significantly higher).

⁹ ENTERGY CORP., BUILDING A RESILIENT ENERGY GULF COAST: EXECUTIVE REPORT 6 (2010), https://www.entergy.com/userfiles/content/our_community/environment/GulfCoastAdaptation/Building_a_Resilient_Gulf_Coast.pdf.

¹⁰ STEPHANE HALLEGATTE ET AL., INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT, SHOCK WAVES: MANAGING THE IMPACTS OF CLIMATE CHANGE ON POVERTY, xi (2016).

Physical risks arise from climate and weather-related events, such as heat waves, droughts, floods, storms and sea level rise. Physical risks can be both acute (such as a hurricane) or chronic (such as water shortages linked to shrinking overall resources).¹¹ These risks may produce direct damage to firm assets and operations, indirect impacts from supply chain disruption, transport challenges, and employee safety, and worse overall market performance due to a weaker economy.¹² The severity and likelihood of physical risks will increase over time as the planet continues to warm, but U.S. firms are already facing climate change-related physical risks. Worsening wildfires in California, for instance, caused severe financial pressure on Pacific Gas & Electric, the state’s largest utility firm, leading the firm to declare bankruptcy in January 2019.¹³

Transition risks arise from an array of government and market responses to climate change. These risks include reputational risks for carbon-emitting firms, shifting supply and demand for products in response to efforts to reduce carbon emissions, regulatory efforts to reduce GHG emissions, including carbon-trading or carbon tax schemes, disruptive technologies, and legal risks from liability for emissions or insufficient disclosure.¹⁴ As concerted action to address climate change increases, these risks (and associated opportunities) will intensify, but U.S. firms are already facing climate change-related transition risks. For instance, the National Bureau of Economic Research has found that investors are already demanding greater returns from firms with higher carbon emissions in compensation for exposure to climate transition risks, although due to a “coarse exclusionary approach” born from limited information, investors have shown a “schizophrenic attitude.”¹⁵ Even absent concerted U.S. government action like a carbon tax, coal producers and coal-fired power stations already face severe financial difficulties.¹⁶ Moreover, the longer government action to address climate change is delayed, the more sharply disruptive future policies will necessarily be.¹⁷

II. Current Disclosure Regulations Do Not Yield Sufficient Disclosure of Climate Risks

Despite the magnitude of the risks presented by climate change, the current disclosure regime does not enable the investing public to assess and incorporate climate risks into its analysis of reporting companies. The risks presented by climate change are distinct from other risks in several ways that cause them to be underappreciated and misreported by managers. The need for

¹¹ TCFD, RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES 5-6 (2017) [hereinafter TCFD Recommendations].

¹² *Id.*

¹³ Zach Wichter, *California’s Largest Utility Says It Is Bankrupt. Here’s What You Need to Know.*, N.Y. TIMES (Jan. 29, 2019), <https://www.nytimes.com/2019/01/29/business/pg-e-bankruptcy.html>.

¹⁴ TCFD RECOMMENDATIONS, *supra* note 11, at 5-6.

¹⁵ Patrick Bolton & Marcin Kacperczyk, *Do Investors Care About Carbon Risk?* 5–9 (Nat’l Bureau of Econ. Research, Working Paper No. 26968, 2020).

¹⁶ Nina Chestney, *Nearly Half of Global Coal Plants Will Be Unprofitable This Year: Carbon Tracker*, REUTERS (Apr. 7, 2020), <https://www.reuters.com/article/us-global-coal/nearly-half-of-global-coal-plants-will-be-unprofitable-this-year-carbon-tracker-idUSKBN21P3HM>; Pippa Stevens, *Murray Energy Joins Growing List of Coal Companies to Declare Bankruptcy*, CNBC (Oct. 29, 2019), <https://www.cnbc.com/2019/10/29/murray-energy-joins-list-of-coal-companies-to-declare-bankruptcy.html>.

¹⁷ BANK OF ENGLAND PRUDENTIAL REGULATION AUTHORITY, THE 2021 BIENNIAL EXPLORATORY SCENARIO ON THE FINANCIAL RISKS FROM CLIMATE CHANGE 10-12 (2019) (hereinafter PRA CLIMATE STRESS TEST).

specific climate risk disclosure is further evidenced by investors’ and other stakeholders’ express demands for such disclosure.

A. Existing Materiality Standards Do Not Result in Sufficient Disclosure

The general materiality standard that guides all disclosure under U.S. law is that a fact should be disclosed if there is a “substantial likelihood” that it would be “viewed by the reasonable investor as . . . significantly alter[ing] the ‘total mix’ of information made available.”¹⁸ While reporting has improved since the SEC released its 2010 guidance on climate risk disclosure, disclosure remains “quite limited in scope.”¹⁹ Moreover, even those firms which have voluntarily disclosed climate risks have frequently underestimated them.²⁰

Under a purely principles-based materiality standard, climate risks are likely to be underreported because these risks are distinctive in ways that will produce information failures absent specific disclosure requirements. The Commission must recognize these distinctive features of climate risks—and the resultant information failures—in order to achieve the SEC’s stated purposes in its proposed rulemaking: “reduc[ing] information asymmetry between registrants and investors”²¹ and “allow[ing] investors to make more meaningful comparisons across firms and make more informed investment decisions” and therefore causing “more value enhancing projects [to] receive more capital allocation.”²²

Climate risks are distinctive in at least five ways.²³ First, many physical climate risks will occur within the relevant horizon for valuing securities but outside of conventional risk assessment horizons for firm decisionmakers with short-term incentives.²⁴ Second, future risks increasingly differ from risks in the past, meaning that past data cannot simply be projected forward, resulting in “model risk.”²⁵ Third, while the occurrence of any specific instance of climate risk is unpredictable, a systemic increase in the risk and severity of the occurrence of physical and transition risks is relatively certain.²⁶ Fourth, climate risks are far-reaching and are likely to affect every sector of the economy rather than narrowly targeting certain sectors and firms. While some sectors, such as energy and agriculture, will be more exposed than others, the physical risks of climate change are present for every firm.²⁷ While large diversified investors may be insulated from increased risk to any individual firm, they are not insulated from an

¹⁸ TSC Indus., Inc. v. Northway, Inc., 426 U.S. 438, 449 (1976).

¹⁹ Joan DiSalvio & Nina Dorata, *SEC Guidance on Climate Change Risk Disclosures: An Assessment of Firm and Market Responses*, in ACCOUNTING FOR THE ENVIRONMENT: MORE TALK AND LITTLE PROGRESS 115-30, 116 (Martin Freedman & Bikki Jaggi, eds., 2014).

²⁰ Allie Goldstein, Will Turner, Jillian Gladstone & David Hole, *The Private Sector’s Climate Change Risk and Adaptation Blind Spots*, 9 NATURE CLIMATE CHANGE 18, 20 (2019).

²¹ Proposed Rule, *supra* note 1, at 12,097; *see also* Frank Schiemann & Alice Sakhel, *Carbon Disclosure, Contextual Factors, and Information Asymmetry: The Case of Physical Risk Reporting*, 28 EUROPEAN ACCT. REV. 791 (2019) (showing that climate risk disclosure reduces information asymmetry between firms and investors).

²² Proposed Rule, *supra* note 1, at 12,104.

²³ BANK OF ENGLAND PRUDENTIAL REGULATION AUTHORITY, *TRANSITION IN THINKING: THE IMPACT OF CLIMATE CHANGE ON THE UK BANKING SECTOR* 9 (2018).

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.* at 8.

increased level of systemic risk: for example, the CEO of major multinational insurance firm AXA has declared that a world with 4°C of global warming would be “uninsurable.”²⁸

Finally, climate risks are difficult to accurately assess without disclosure of asset-level data.²⁹ Investors need information from corporate managers that is not typically disclosed in traditional financial statements, such as the precise location of facilities, or where they obtain their water resources as a production input. This information is not obtainable without corporate cooperation, and firms are not likely to provide it without a specific mandate to do so.

The current principles-based approach in the Proposed Rule does not provide enough guidance and incentive to corporate insiders to discover, organize, and disclose the climate-risk related information material to investors. Corporate managers are likely to underreport climate risks for many reasons, including incentives misaligned to the short-term, cognitive biases, and reliance on outdated methods of risk assessment. A more detailed line-item approach to disclosure would limit the broad discretion currently afforded to corporate managers and help overcome these barriers to comprehensive reporting.

Corporate managers may have incentives to ignore longer-term risks because executive compensation frequently depends on measures that reward short-term over long-term performance.³⁰ A drop in stock price may open up a manager to the risk of being fired, or ousted in a proxy contest,³¹ so, in the interest of self-preservation, she may focus on keeping stock price high in the short term, even if that means sacrificing longer-term fundamental value.³² Issuer-firm efforts to adapt to or mitigate climate change impacts may impose substantial upfront costs—such as relocating facilities, or constructing seawalls—with only prospective payoffs.³³ It may be better, from a manager’s perspective, to ignore long-term risks and neglect to devote resources to preparing for them. Publicly admitting the risks may depress the stock as it provides new information to the market about fundamental values, damaging managers’ personal financial position and perhaps job security. While internal investment in climate adaptation may decrease revenue in the short term, it guards against future losses as future operations become more resilient to climate risks. But this investment cannot begin until first individual managers, and then the market, appreciate the challenges of climate change related risks.

²⁸ Michael Holder, *AXA: 4C Warming Makes the World Uninsurable*, GREENBIZ (Dec. 18, 2017), <https://www.greenbiz.com/article/axa-4c-warming-makes-world-uninsurable>.

²⁹ Ariel C. Pinchot & Giulia Christianson, *What Investors Actually Want From Sustainability Data*, GREENBIZ (Apr. 17, 2019), <https://www.greenbiz.com/article/what-investors-actually-want-sustainability-data>.

³⁰ See, e.g., LUCIAN BEBCHUCK & JESSE FRIED, *PAY WITHOUT PERFORMANCE: THE UNFULFILLED PROMISE OF EXECUTIVE COMPENSATION* (2004) (documenting how executive pay arrangements were leading executives to focus excessively on the short term).

³¹ See, e.g., Tim S. Campbell & Anthony M. Marino, *Myopic Investment Decisions and Competitive Labor Markets*, 35 INT’L ECON. REV. 855 (1994); Bengt Holmstrom & Joan Ricart I Costa, *Managerial Incentives and Capital Management*, 101 Q. J. ECON. 835 (1986).

³² Marcel Kahan & Edward B. Rock, *Hedge Funds in Corporate Governance and Corporate Control*, 155 U. PA. L. REV. 1021, 1088 (2007) (“A plausible argument can be made that it is managers, not just markets, that suffer from myopia these days. Many CEOs are close to retirement age and, even among younger CEOs, turnover is high. Executives’ stock options continually vest and are exercised or hedged, if only to diversify their portfolio. Bonuses are often based on short-term performance goals.”)

³³ Daina Mazutis & Anna Eckardt, *Sleepwalking into Catastrophe: Cognitive Biases and Corporate Climate Change Inertia*, 59 CAL. BUS. R. 74, 87 (2017).

Some industries have adapted their compensation structures to counteract the underinvestment pressure of general market short-termism, but these metrics may incentivize the wrong kind of long-term goals, reinforcing the neglect of climate risk. In the fossil fuel industry, for example, many companies have policies that tie executive compensation to metrics of exploration and reserves replacement, rather than revenue.³⁴ This practice creates a particular incentive in an industry where capital projects may not generate revenues for many years.³⁵ However, government policies sufficient to prevent cataclysmic levels of warming will require enormous reductions in fossil fuel demand within the next decade, meaning that the assets that fossil fuel executives are incentivized to develop could become “stranded” within an investor-relevant timeframe.³⁶

Without any willful deception, corporate insiders themselves may be unaware of mounting climate exposures as they continue to rely on outdated methods of risk assessment. Financial models that are employed to make internal capital allocation decisions, for example, often employ backward-looking metrics of historical risk.³⁷ In addition, managers may be accustomed to relying on third-party insurance products to assess and price their company’s risk exposure. But insurance premiums are typically re-assessed and paid on an annual basis.³⁸ In a world of non-linear climate responses, the price of insurance may dramatically skyrocket from one year to the next, and certain assets may become uninsurable altogether.³⁹ Relying on insurance to price risks of investments that are expected to reap returns decades into the future results in a “duration

³⁴ INSTITUTE FOR POLICY STUDIES, MONEY TO BURN: HOW CEO PAY IS ACCELERATING CLIMATE CHANGE, 13 (Sept. 2, 2015); *see also* ExxonMobil proxy statement, April 14, 2015, <http://www.sec.gov/Archives/edgar/data/34088/000119312515128602/d855824ddef14a.htm> (citing the successful drilling of the first exploration well in the Russian Arctic as a basis for executive compensation decisions); ConocoPhillips, 2017 Proxy Statement, 86 (2017) (citing the removal of the reserves replacement ratio metric from the compensation incentive program as part of the company’s long term strategy for adapting to climate change); Simon Bowers & Harry Davies, *Oil Company Bosses’ Bonuses Linked to \$1tn Spending on Extracting Fossil Fuels*, THE GUARDIAN (May 25, 2015).

³⁵ ANDREW GRANT, THE CARBON TRACKER INITIATIVE, PAYING WITH FIRE: HOW OIL AND GAS EXECUTIVES ARE REWARDED FOR CHASING GROWTH AND WHY SHAREHOLDERS COULD GET BURNED 4-5 (2019), <https://carbontracker.org/reports/paying-with-fire/> (finding that out of 40 of the largest listed oil and gas companies in the S&P Global Oil Index, 32 had growth incentives based on production levels, 27 linked compensation with reserves, resources, drilling inventor, and acreage metrics, and 24 included both).

³⁶ *Id.* at 9-15.

³⁷ *See, e.g.*, Mohsen Taheri, Mehdi Irannajad & Majid Ataee-Pour, *Risk-Adjusted Discount Rate Estimation for Evaluating Mining Projects*, 4 THE FINSIA JOURNAL OF APPLIED FINANCE 36, 36 (2009) (describing CAPM as the “main method” for estimating the risk adjusted discount rate for mining projects). Marcel Kahan, *Securities Laws and the Social Costs of Inaccurate Stock Prices*, 41 DUKE L. J. 977, 1040 (describing how one common method of approximating the appropriate risk premium for a project is to calculate the cost of capital of similar firms in the same industry relative to the market, which is done using long term averages of the firms’ stock prices); M. Onischka, *Environmental and Climate Risks in Financial Analysis*, in ENVIRON. ECON. & INVESTMENT ASSESSMENT II (K. Aravossis, C.A. Brebbia, N. Gomez, eds.) (2008).

³⁸ Swiss Re, 2018 Financial Report, p. 177, excerpted in TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES STATUS REPORT (June 2019) [hereinafter TCFD Status Report], (“Since most of the re/insurance contracts with our clients have a duration of one year, we can thus adequately price natural catastrophe risks by updating our models to reflect the current climate.”).

³⁹ Jessica Shankleman, *Growing Climate Risks May Be ‘Impossible to Model’ – and Ultimately Uninsurable*, Insurance J. (Nov. 13, 2017), <https://www.insurancejournal.com/news/national/2017/11/13/470949.htm>.

mismatch”⁴⁰ that may leave these assets stranded without insurance, leading to unrecoverable losses in the event of a disaster. Finally, the entire capital stock of corporate America was built using engineering specifications designed to endure certain temperature and weather extremes that may be regularly exceeded under a climate-changed world.⁴¹ A facility that was built to withstand a “100-year flood” may now have a much higher likelihood of failure. Line-item disclosures can hasten the discovery of these latent risks.

Further, and relatedly, corporate managers are subject to cognitive biases that may lead them to undervalue climate risks because of the distinctive characteristics of those risks. For instance, availability bias may cause decisionmakers to undervalue climate risks if climate change-related economic or human costs have not yet happened to them or to firms like them.⁴² Unless a firm has suffered direct or indirect costs from climate change in the recent past, these issues may remain under-considered in risk assessment. Similarly, relevance bias, and related present bias, may cause decisionmakers to undervalue temporally remote climate risks and apply improperly steep discount rates to far-off but severe climate risks.⁴³ “Professional bias” or reliance on conventional wisdom by management professionals may exacerbate model risk and lead to underestimation of the costs of inaction.⁴⁴ In the face of great uncertainty around the future of carbon regulation, for example, managers may disregard future scenarios for decreased oil demand that are well within the realm of possibility and focus instead on more favorable predicted pathways.⁴⁵

Because corporate insiders themselves might not be aware of the risks their companies face, a principles-based approach is inferior to a more detailed line-item structure, which would force companies to consider risks they may otherwise neglect. Disclosure is typically thought of as forcing corporate managers—who have the best information about the risks their companies face—to tell their shareholders about these risks. In the case of climate change, informational

⁴⁰ MCKINSEY GLOBAL INSTITUTE, CLIMATE RISK AND RESPONSE: PHYSICAL HAZARDS AND SOCIOECONOMIC IMPACTS 46 (Jan. 2020).

⁴¹ See, e.g., *id.* at 32.

⁴² Mazutis & Eckardt, *supra* note 33, at 83-84.

⁴³ *Id.* at 86-88; In addition, prospect theory suggests that company executives may be reluctant to spend upfront capital on climate adaptation measures, even if those measures save the company money in the long run. Under prospect theory, individuals put more weight on outcomes that are certain, and less weight on outcomes that are uncertain, discounting them by more than the rational weighting of their probability of occurrence. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979). Thus, managers may overweight the costs of adaptation measures in the present, which have a certain, known, price tag, and underweight expected future climate damages whose magnitude and timing is more uncertain. Relatedly, researchers have found that “present bias” influences many of the decisions made by individuals, wherein “people tend to overvalue immediate rewards while undervaluing the long-term implications of a choice.” Lisa Zaval & James F. M. Cornwell, *Cognitive Biases, Non-Rational Judgments, and Public Perceptions of Climate Change*, OXFORD RESEARCH ENCYCLOPEDIA, CLIMATE SCIENCE (2016).

⁴⁴ *Id.* at 89; Andrew Winston, *What 1,000 CEOs Really Think About Climate Change and Inequality*, HARV. BUS. R. (Sept. 24, 2019), <https://hbr.org/2019/09/what-1000-ceos-really-think-about-climate-change-and-inequality>.

⁴⁵ See Donald Langevoort, *Organized Illusions: A Behavioral Theory of Why Corporations Misdemean Stock Market Investors (and Cause Other Social Harms)* 146 U. PENN. L. REV. 101, 144 (1997) (arguing that even in the absence of intentional misrepresentation, managers “may subconsciously perceive information in a way, if at all possible, that permits them to maintain consistency with their self-image of efficacy and control, thereby justifying (to themselves and others) preservation of their positions and status”).

asymmetry alone does not adequately describe the market’s failure to price climate risk. While managers certainly know more about where their own facilities are located, where their consumers are based, and over which routes their supply chains travel, they are not necessarily up to date on the scientific cutting edge, or even consensus, about climate change’s physical impacts. The publicly available information on the likelihood of climate risks, published in scientific journals, must be applied to asset-level, company-specific details. Many of these details are publicly available, but they require research and effort to uncover and may not be centrally located or listed in a usable format. It is this mismatch – the lack of a link between information that managers know about their companies with the information climate experts know about the coming changes to the planet – that line-item disclosures could help address.

In sum, a detailed rule-based requirement would both overcome decisionmaker incentives to downplay climate risks and address inadvertent neglect of climate change from cognitive biases and model risk.

B. Stakeholders Are Demanding Disclosure of Climate Risks

Investor demand for environmental risk disclosure shows both that these risks are material and that the current disclosure regime is not sufficient. Investors are increasingly considering climate change in their capital allocation decisions and are demanding more information to guide their decisions.⁴⁶ For example, 450 investors collectively managing more than \$40 trillion in assets have joined the coalition Climate Action 100+ and pledged to secure commitments from portfolio companies to provide climate risk disclosure.⁴⁷ Larry Fink, the CEO of the world’s largest asset manager, BlackRock,⁴⁸ recently sent a letter directly to CEOs calling for widespread, standardized disclosure of sustainability risks for shareholders.⁴⁹

This demand for improved disclosure of environmental risks was also evident in the response to the Commission’s 2016 Concept Release: over two-thirds of the 276 comment letters called for “improved sustainability-related disclosure in SEC filings and/or a market standard for such disclosure.”⁵⁰ One comment letter on behalf of 120 institutional investors representing more than \$14 trillion in assets outlined a set of specific sustainability- and climate-related disclosures that the Commission should require, such as water disclosure, carbon asset risk disclosure, climate risk disclosure by insurers, and deforestation risk disclosure.⁵¹

⁴⁶ MERCER, EUROPEAN ASSET ALLOCATION SURVEY (2018) (finding that 17% of investors had considered climate change as part of their asset-allocation process, up from 5% in 2017).

⁴⁷ Climate Action 100+ homepage (last visited Apr. 10, 2020), <http://climateaction100.org/investors>.

⁴⁸ Tim Lemke, *The 10 Largest Investment Management Companies Worldwide*, THE BALANCE (Apr. 9, 2020), <https://www.thebalance.com/which-firms-have-the-most-assets-under-management-4173923>.

⁴⁹ *Larry Fink’s Letter to CEOs*, BLACKROCK (last visited Apr. 11, 2020), <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>. See also Robert G. Eccles & Svetlana Klimenko, *The Investor Revolution*, HARV. BUS. REV. (May-June 2019), <https://hbr.org/2019/05/the-investor-revolution> (stating that most of the investment leaders in a study of 70 senior executives at 43 global institutional investing firms described taking meaningful steps to integrate sustainability issues into their investing criteria).

⁵⁰ SUSTAINABILITY ACCOUNTING STANDARDS BOARD, THE STATE OF DISCLOSURE 2016: AN ANALYSIS OF THE EFFECTIVENESS OF SUSTAINABILITY DISCLOSURE IN SEC FILINGS 4 (2016), <https://www.sasb.org/wp-content/uploads/2019/08/StateofDisclosure-Report-112916-EXCERPT.pdf>.

⁵¹ Comment Letter Re: SEC Concept Release from Mindy S. Lubber, President, CERES to Mary Jo White, Chair, Securities and Exchange Commission (July 21, 2016), <https://www.sec.gov/comments/s7-06-16/s70616-214.pdf>.

Financial regulators in many other jurisdictions have recognized the need for climate risk disclosure. According to the TCFD, 36 central banks and supervisors encourage reporting under the TCFD system.⁵² In the United Kingdom, the Bank of England has announced a 2021 climate-risk-oriented “stress test” of financial institutions⁵³ and the autonomous Financial Conduct Authority has proposed a “comply-or-explain” rule for climate risk disclosures.⁵⁴ In Canada, the Canadian Securities Administrators (a collective of provincial securities regulators) issued guidance in August 2019 reinforcing existing climate risk disclosure requirements under their environmental risk disclosure framework.⁵⁵

III. Existing Voluntary Disclosure Regimes Do Not Yield Sufficient Disclosure of Climate Risks

Although some companies have started to voluntarily report their climate risks, voluntary disclosure regimes are not sufficient to address the urgency and deficit of information. First, voluntary disclosures are insufficient because they are not universal. Although disclosures under regimes like the TCFD are a step in the right direction, more than half of the 250 largest U.S. companies still report no climate-related financial risks.⁵⁶ And smaller firms are even less likely to disclose climate risks.⁵⁷

Without enforcement, companies can pick and choose which categories of risk they disclose. As of 2018, the average company provided less than 4 of the 11 disclosure metrics recommended under the TCFD.⁵⁸ Firms have been slow to employ scenario analysis and discuss climate-related operational risk. As such, an investor looking to evaluate climate-related risks for a company that has not provided disclosure—or all the metrics necessary to get a clear picture—will not be able to make investment decisions accordingly. At the same time, the significant amount of reporting evident from this data that *has* occurred on a voluntary basis suggests that companies are capable of providing meaningful, timely data on environmental risks in a cost-effective manner.

Second, voluntary disclosures are insufficient because they result in disparate, nonstandardized disclosures that are difficult for stakeholders to analyze and compare across companies. Companies that do choose to report climate risks can do so under a wide array of frameworks, including the TCFD, CDP (formerly the Carbon Disclosure Project), the Sustainability Accounting Standards Board, the Global Reporting Initiative, and many more. The multiplicity of voluntary reporting standards is challenging to investors because they must reconcile

⁵² TCFD Status Report, *supra* note 38 at iv.

⁵³ PRA CLIMATE STRESS TEST, *supra* note 17, at 1-2.

⁵⁴ *FCA Announces Proposals to Improve Climate-Related Disclosures by Listed Companies*, FINANCIAL CONDUCT AUTHORITY (Mar. 6, 2020), <https://www.fca.org.uk/news/press-releases/fca-announces-proposals-improve-climate-related-disclosures-listed-companies>.

⁵⁵ Canadian Securities Administrators, *CSA Staff Notice 51-358 Reporting of Climate Change-related Risks*, ONTARIO SECURITIES COMMISSION (Aug. 1, 2019), https://www.osc.gov.on.ca/documents/en/Securities-Category5/csa_20190801_51-358_reporting-of-climate-change-related-risks.pdf.

⁵⁶ The Conference Board, *Companies Have Significantly Increased Disclosure on Sustainability Issues, But Pressure to Do More Continues* (Feb. 10, 2020), <https://www.sustainability-reports.com/companies-have-significantly-increased-disclosure-on-sustainability-issues-but-pressure-to-do-more-continues/>.

⁵⁷ *Id.*

⁵⁸ TCFD Status Report, *supra* note 38 at 8.

corporate sustainability disclosures as best as they can before trying to draw comparisons among companies.⁶³ As a result, 75% of investors called for a single reporting standard in a recent survey.⁶⁴

Finally, voluntary disclosures are subject to a significantly lower level of scrutiny, leading to doubts about the quality of the information provided. Among the S&P 500 companies, most sustainability and environmental disclosures lack external assurance and the vast majority of external assurance is done on only a fraction of the information provided.⁶⁵ As a result of the lack of third-party audits, investors harbor doubts about current corporate sustainability disclosures.⁶⁶ Investors relying on inaccurate and incomplete disclosure might have better access to legal remedies if those misleading statements were made pursuant to federal regulations rather than voluntary sustainability reporting.⁶⁷

Without regulatory oversight companies may systematically underestimate their risk exposures.⁶⁹ When voluntarily disclosing their environmental risks to CDP, more than 1,000 U.S. manufacturing companies report they anticipate no climate-related risks.⁷⁰ The total value of aggregated climate-related financial risks reported through both voluntary and mandatory corporate disclosures amount to mere tens of billions of dollars of potential negative impact.⁷¹ This amount diverges from top-down projections of climate costs to financial assets by at least two orders of magnitude, suggesting gross and systemic underreporting of risk.⁷²

In addition to reliability, external auditing can serve an important information-forcing function: in the course of the audit, an independent party probes the disclosures, tests them, and deepens corporate management's own thinking about them. Samantha Ross, former Special Counsel at

⁶³ Sara Bernow *et al.*, *Refining Sustainability Reporting for Investors*, MCKINSEY & COMPANY, <https://www.mckinsey.com/business-functions/sustainability/our-insights/more-than-values-the-value-based-sustainability-reporting-that-investors-want> (last visited Apr. 11, 2020).

⁶⁴ *Id.*

⁶⁵ Jon Lukomnik, *State of Integrated and Sustainability Reporting 2018*, HARV. L. SCH. F. CORP. GOVERNANCE (Dec. 3, 2018), <https://corpgov.law.harvard.edu/2018/12/03/state-of-integrated-and-sustainability-reporting-2018/> (reporting that only 36% of sustainability report include external assurance and about 90% of that assurance pertains to only some data).

⁶⁶ See Bernow *et al.*, *supra* note 74 (finding that 97% of investors surveyed believed that sustainability measures should be audited in some way and 67% said that the audits should be as rigorous as financial audits); see also PWC, MIND THE GAP: THE CONTINUED DIVIDE BETWEEN INVESTORS AND CORPORATES ON ESG (Feb. 2019), <https://www.pwc.com/us/en/services/assets/pwc-esg-divide-investors-corporates.pdf> (explaining that many asset managers rely on unverified third party datasets of environmental risk information that can only be improved and made more accurate through corporate participation and disclosure).

⁶⁷ Tom Riesenber & Alan Beller, *Sustainability Accounting Standards and SEC Filings*, HARV. L. SCH. FORUM CORP. GOV (Jun. 5, 2019), <https://corpgov.law.harvard.edu/2019/06/05/sustainability-accounting-standards-and-sec-filings/>

⁶⁹ For example, fossil fuel companies, in their voluntary reporting to CDP report in the aggregate “more opportunities than risks” from climate change. CDP, MAJOR RISK OR ROSY OPPORTUNITY: ARE COMPANIES READY FOR CLIMATE CHANGE? (2019).

⁷⁰ *Id.* (showing that 1041 manufacturing companies report no climate-related risk, as compared to 300 reporting physical risks, 326 reporting transition risks, and 472 reporting both).

⁷¹ Goldstein *et al.*, *supra* note 20 at 20.

⁷² *Id.*

the SEC, has argued that the auditing process results in more rigorous disclosure, providing a substantial benefit to boards, management, and investors.⁷³

In short, only a system of mandatory disclosure of climate risks, unlike a voluntary disclosure system, can provide investors with disclosures that are universal, standardized, and reliable. Further, the Proposed Rule's principles-based materiality standard does little to address the unique characteristics of climate risks that make them particularly likely to be underassessed and underdisclosed by issuers.⁷⁴ Policy Integrity urges the SEC to adopt a mandatory climate-risk reporting regime with concrete guidance and required categories of disclosure. This approach will limit the discretion afforded to managers and encourage internal corporate preparedness for climate change.

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⁷³ *CleanLaw: Hana Vizcarra Interviews Samantha Ross about Investor Assurance and Corporate Climate Disclosures*, HARV. ENVTL. & ENERGY L. (Jan. 9, 2020), <http://eelp.law.harvard.edu/wp-content/uploads/Samantha-Ross-and-Hana-Transcript.pdf>.

⁷⁴ See Joint Statement of Commissioners Robert J. Jackson, Jr. and Allison Herren Lee on Proposed Changes to Regulation S-K (Aug. 27, 2019) (describing how principles-based disclosure gives management a risky amount of discretion over what is revealed to investors).