



GOVERNANCE & CLIMATE CHANGE

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About the Blog

Launched in February 2022, the ECGI Blog serves as a prominent global voice on corporate governance, stewardship, and corporate responsibility. By featuring commentaries and analyses from the ECGI network and beyond, the blog aims to enhance the wider understanding of research, sparking and influencing global debate.

Throughout the year, the blog focuses on selected themes with global interest. The articles, written by experts in their field, showcase diverse global perspectives from academics, practitioners, and policymakers on the topics, aimed at general readership. The blog hopes to inspire new insights, and provoke new research and debate in the field

In this series, we tackle one of the hottest topics in governance and industry; "Climate Change". As the world grapples with the ongoing challenges of climate change, our theme explores the pivotal questions that every boardroom will confront in the years ahead. We extend our gratitude to our guest editors, Harald Walkate (University of Zurich CSP) and Thom Wetzler (University of Oxford), for curating a thought-provoking compendium that spotlights the critical issues and debates surrounding this pressing topic.

For further reading and to access all hyperlinks and article references, please visit the Blog section of the ECGI website: www.ecgi.global/blog

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Governance & Climate Change

SERIES EDITOR'S NOTE

It has become a cliché to say that climate change is the defining issue of our time. Which does not make it less true.

But while the history of climate science is already long – scientists were already studying the effects of greenhouse gas emissions in the late 19th century, and started ringing climate alarm bells in the 1970s and 80s – the issue only rose up the corporate and investor agenda in the mid-2010s.

Still, this has given corporate boardrooms and fund managers about a decade to take a position on this defining issue.

However, the corporate and investor climate change debate today – what there is of it – is a rather hopeless jumble of net zero commitments, TCFD reports, stresstests, decarbonization plans, and emissions disclosures. Often it remains unclear what the underlying objectives of these initiatives are, whether it be signalling virtue, managing business and investment risk, identifying business opportunities, contributing to climate action, or perhaps a combination of all of four.

This series of ECGI blog posts, under the theme of "Governance and Climate Change", is designed to showcase a broad range of perspectives on how managers and investors can think about the impact of climate change on business, by highlighting and summarizing the climate science; by discussing the technological, economic and political aspects of the energy transition that we will need to engineer to mitigate climate change; by discussing what the likely business and investment implications are of these scientific, technological, economic and political insights and developments; and, finally, by presenting a number of tools that corporate managers and investment managers alike can use to take action.



- Harald
Harald Walkate, Guest Editor
University of Zurich CSP,
Finding Ways Ahead,
Route17

The views



Steven Bowen

The transition for the O&G sector is going to be really hard. To give it the best chance of success we need to think like an activist investor or a corporate raider.



Aisha Saad

Corporate executives in high emitting sectors must now grapple with litigation risk across multiple jurisdictions, new oversight obligations and fiduciary duties to shareholders, and an enhanced



Zacharias Sautner

Will there be any benefits for firms or are they left with large implementation and disclosure costs and no tangible benefits?



Ben Franta

As with many things in life, prevention is the best cure, and while the future of greenwashing litigation is still unwritten, some hot issues are emerging.



Daniel Fiorino

The private sector is critical for addressing the causes and effects of climate change. This is where most decision-making related to emissions occurs, political pressures are applied, products and services are delivered, and by far the most investments are made.



Dilyara Salakhova

For borrowers, issuance of green bonds can lead to better organised and stronger sustainability processes and reporting within a company, as well as extending their investor base to bond investors focused on sustainability themes.



Stavros Gadinis

Entire sectors of the economy will need to reorient themselves toward more sustainable development strategies. But since each company's contribution to climate change is different, corporate managers will have to make many critical decisions.



Alexander Lehmann

For capital markets to work, bond issuers will need to get better at explaining their climate transition plans and underpin such plans with sound management and governance arrangements.

The views



**Luca Enriques,
Vittoria Battocletti &
Alessandro Romano**



Cheap and inflated offsets allow corporations to reach their climate target at a lower cost. And, given that their end-consumers are unable to assess the quality of the offsets they purchase, the expected reputational sanctions that corporations face for relying on inflated offsets are extremely low.



Madison Condon

The proliferation of Scope 3 as a blunt metric for all measures of climate progress and transition risk overlooks not only its lack of standardization but also what Scope 3 on its own is capturing.



Scott Hirst

The SEC should let companies opt out of all or part of their climate disclosure obligations if sufficient investors have voted to allow it to do so.



Virginia Harper Ho

Investors cannot and should not do the SEC's job, and there are high costs to making them try.



Vincent Triesschijn

Selling a high polluting company from a portfolio, for example, may reduce the carbon risk in the portfolio, but it does not necessarily change anything in the real world.



Kumar Venkat

Many emission reduction claims are not additional in the sense that they do not reduce emissions relative to a business-as-usual baseline – at least not in the short term – so a company could take credit for a reduction this year that may have no climate impact for years to come.



Robert Walker

Unprecedented changes in climate and biodiversity, driven by human activities, have combined and increasingly threaten nature, human lives, livelihoods and well-being around the world. Business as usual is not a viable long-term strategy.



**Robert Eccles &
Cynthia Williams**



Doing nothing about climate change is not an option that is consistent with board directors' duties and company operations.



Latvia State Forrests

Improving carbon sequestration and enhancing biodiversity protection may appear to be a win-win situation, but in the long term, the forest environment may reach a point where natural mortality equals the annual increment level, and the forest can no longer provide additional carbon sequestration.

The views



Zacharias Sautner

It is striking that the link between biodiversity and finance has received very little attention by academic researchers. As a result, important issues such as the risks related to biodiversity loss, how those risks are priced, or how financing flows need to be shifted toward biodiversity conservation remain under-explored.



Constantijn van Aartsen

The interim draft standards for the CSRD require companies to disclose biodiversity risks, opportunities, dependencies, and impacts. This repeated terminology, suggests that influential players around the world are aligning on these four terms as an emerging standard for global biodiversity reporting.



Esther Choi and Lihuan Zhou

Institutional investors can strategically collaborate with public financial institutions, which can de-risk investment opportunities, create favorable investment environments, blend different sources of capital, and provide expertise in working with developing and emerging countries



Matt Moscardi

We're predicting this year could be the first time a director is voted out strictly on carbon bona fides, marking a sea change in carbon due diligence.



Christian Leuz

Transparency regulation can be an important piece in the regulatory toolkit for policymakers aiming to address environmental externalities. This is good news for the efforts to create transparency about corporate carbon emissions.



Alperen A. Gözlügöl & Wolf-Georg Ringe



Climate action creates a new transactional surplus for highly emitting assets to switch owners. Firms and their investors might arrive at different valuations of such assets as they differ in their opinion on at which pace and under which conditions the net-zero transition will occur.



Caroline Flammer

While private investments in biodiversity are a useful addition to the toolbox, they are unlikely to provide a silver bullet against the biodiversity crisis



Arjuna Dibley

These firms are often owned by the state because of their significance in strategic sectors. But this geopolitical and economic significance, makes them particularly challenging to decarbonise.



Urs Lendermann

The concept of a 'pollution premium' as a form of 'negative greenium' appears to be an under-recognised narrative.

How should investors constructively engage with Oil & Gas companies?

Steven Bowen

Founder of The Sustainable Investor blog and ex activist fund manager.

Climate-related engagement: how should investors engage with oil & gas companies—insist they transition to renewable (pivot), or insist they liquidate once demand for oil & gas disappears (run down)? And what can we learn from how corporate raiders work?

"It is difficult to get a man to understand something, when his salary depends upon his not understanding it!" Upton Sinclair 1934

Sadly, there is no simple answer. Successfully engaging with Oil & Gas (O&G) companies depends much more on their individual characteristics than on what industry they sit in. I spent many years working at a large activist fund, and my argument is simple. The transition for the O&G sector is going to be really hard. To give it the best chance of success we need to think like an activist investor or a corporate raider.

When you say 'corporate raider' to people, they tend to picture Gordon Gekko from the movie Wall Street, or real world raiders such as T Boone Pickens. It's generally a derogatory term. So it might seem odd to argue that ESG investors can learn from how corporate raiders and activist investors work.

The bottom line is that we need to think about the transition company by company, rather than at an industry level. And use the language of finance wherever possible – it's the language companies understand. This approach isn't going to be cheap and it's not going to be easy – but it's likely to work. Look at [Engine No 1](#). It's not about right or wrong, it's what makes the best long term sense for the company and all of its stakeholders

"The transition for the O&G sector is going to be really hard. To give it the best chance of success we need to think like an activist investor or a corporate raider."

Our absolute number one rule – identify exactly what it was we want the company to do. And I mean exactly. Many debates start with peak oil, the risk of stranded assets, and the need to transition. This is a start, but we need to quickly move on to the company's individual circumstances. The first is probably how does their business model work, and what assets do they have? Are they lowest cost and easy to extract, or are they closer to the end of life and expensive? This requires a field by field review.

Then we have willingness. If senior management is unwilling to engage on the renewables option, it's unlikely that proposals to pivot to renewables would get traction. Conserve our resources for other battles.

What about expertise, or in other words competitive advantage? Some skills may transfer (say drilling into geothermal), but most will not. Compare running an O&G field to running a solar farm. And activities such as electricity supply, storage, grid stability, interconnectors etc are even more different. Many companies will be unable to build the resources required to successfully execute a pivot. For these companies, the best path is to run down.

So what concrete actions do we want from these companies? No new exploration is an obvious start, as is methane emission reductions. After that it gets tougher. Do we want them to be able to buy existing O&G fields? The answer to that could be 'yes', which may not sit comfortably with some stakeholders. But scale is important, and as the run-down gathers pace, we should support consolidation.

On the finance side, we should starve them of free cash to spend on new projects. So get them to distribute all of their free cash via dividends and share buybacks. This might get bad publicity. But it will make it harder for them to backtrack.

Of course some O&G companies will have the capability to pivot to renewables. They have the right culture, or they may just get the economic imperative. But take care. In lots of transitioning companies the power, and promotion prospects, can still lie within the old business. And we need a clear and very concrete plan. What technologies will be the focus? How will they build competitive advantage? How will they build a new culture? If they are just providing capital, the financial markets can do that much more efficiently.

So, what is our pitch to the O&G companies?

You need to transition, as there is a real risk of stranded assets. Our analysis leads to the view that for you the best option is rundown/pivot. If it's run down, no new fields and increased dividends; If it's pivot, we need a detailed "how to" plan. For both we need concrete metrics, so capex plans, dividend commitments - things we can track.

And to be clear, as well as supporting these companies' strategy, we will be doing all we can to destroy their end markets. We will support the uptake of Electric Vehicles, the electrification of building heating/cooling and the replacement of fossil fuels in heavy industry. Given this, your selected decision is not just a nice to have, it's a commercial imperative. Doing nothing could be your Nokia "burning platform" moment.

Then we build our alliances. We sell our plan to everyone who can help - politicians, NGO's, existing & potential shareholders, and debt providers. This last group can be particularly helpful. If they believe that the company's credit position will deteriorate, they will be less willing to lend.

Our final rule was never personalise the debate. Why? By publically attacking someone, you make them defensive and they stop talking to you. And you help to persuade people in their organisation who might have become voices of reason and compromise, that they need to close ranks.

Reducing our reliance on fossil fuels is going to be tough. The simplified message of "no new oil and gas exploration" is a good start in terms of mobilising public opinion, but on its own it's not enough. While our strategy is driven by our values, our tactics should be driven by what works. And in many cases its thinking and acting like a corporate raider. Use the tools of the financial system to create change.

By Steven Bowen, founder of The Sustainable Investor blog and ex activist fund manager.



What can financial markets expect from mandatory ESG disclosures?

Zacharias Sautner

University of Zurich and Swiss Finance Institute

Many investors, regulators, and policy makers complain that we have too little firm-level information on firms' environmental, social, and governance (ESG) profiles to make informed investment decisions. In response, several countries have initiated mandatory ESG disclosure regulations that force firms to disclose information on ESG issues. On top of these country-level initiatives, there are significant efforts at the global level to design, harmonize, and eventually mandate international ESG disclosure standards. Most relevant are probably the initiatives by the International Sustainability Standards Board (ISSB), which has launched a first set of proposals on ESG reporting standards. But what can we expect from these ESG disclosure mandates? Are they worth the costs associated with political processes and administration that were set up? Will there be any benefits for firms or are they left with large implementation and disclosure costs and no tangible benefits?

Answering these questions is hard, and we will only have a comprehensive and definite answer in a few years. However, we can gauge some answers by examining what has happened in those countries that did introduce some form of ESG disclosure mandates in the past years. Hopefully, these insights provide some guidance on what to expect in those countries that will introduce ESG disclosure mandates in the future, and possibly also on the potential effects of global ESG disclosure mandates as drafted by the ISSB.

To address these questions, my co-authors Philipp Krueger, Dragon Tang, and Rui Zhong and I have compiled a dataset on mandatory ESG disclosure regulations around the world. We analyze in this paper how such disclosure mandates affect firm-level stock liquidity. Why stock liquidity rather than other outcomes? There are several reasons. For example, liquidity is of importance as it affects the valuation of real and financial assets. Moreover, measures of stock liquidity are easily available and comparable across countries. Our measures include the bid-ask spread, the price impact measure developed by Amihud [2002], the fraction of trading days with zero returns, and a summary measure derived from the common factor of the individual proxies. On top of this, stock liquidity is a prime outcome variable in the literature on financial disclosure mandates, which allows us to compare the relative magnitudes of the effects of financial and nonfinancial disclosure rules.

What makes our analysis interesting is that the effect of mandatory ESG disclosure on stock liquidity is unclear ex ante. On the one hand, such regulation may improve liquidity by reducing information asymmetry about firm fundamentals, which should mitigate adverse selection problems and improve liquidity. On the other hand, one could argue that disclosure mandates covering ESG topics do not have such effects, either because nonfinancial information is too complex, broad, unstructured, and qualitative, or because it is financially immaterial. In addition, there may be a lack of standardized reporting structures and little guidance on the ESG metrics that firms need to disclose. Firms may take advantage of this vacuum by adopting minimum disclosure criteria to just superficially meet regulatory requirements, especially on those disclosure items that make firms look good.

So what do we find? Our data analysis delivers consistent and robust evidence that the introduction of ESG disclosure mandates does have beneficial liquidity effects. The estimated magnitudes are sizeable; for example, bid-ask spreads decrease by 8.4% once a country requires ESG disclosure. Importantly, we reveal substantial heterogeneity across countries beyond these average effects.

In a first step, we examine variation in how countries implemented the disclosure mandates. We find that ESG disclosure mandates improve liquidity almost three times more when implemented by governments rather than stock exchanges. Moreover, the liquidity improvements are about 40% stronger in countries where firms cannot evade full compliance through a comply-or-explain option. That said, our estimates still suggest that it is better to have some form of ESG disclosure mandates—even if issued by stock exchanges or implemented on a comply-or-explain basis—rather than not requiring such disclosures at all.

In a second step, we examine heterogeneity related to disclosure enforcement. Mandatory ESG disclosure is unlikely to have a meaningful impact if the disclosure requirements are not enforced properly. We consider enforcement effects stemming from formal and informal institutions. A large literature demonstrates that enforcement by formal institutions is critical to reap any real or capital market benefits of disclosure mandates. Informal institutions, that is, societal norms or values, may also matter for the enforcement of ESG disclosure mandates. Given that ESG disclosure mandates in part cover societal externalities, social and environmental norms may affect how strictly firms apply ESG disclosure rules. These arguments imply that the liquidity benefits of ESG disclosure rules may be strengthened if enforcement pressure related to a country's formal or informal institutions is stricter.

"Will there be any benefits for firms or are they left with large implementation and disclosure costs and no tangible benefits?"

We find that stricter informal enforcement increases the liquidity benefits of ESG disclosure mandates, while there is no such evidence for formal enforcement mechanisms. Together with prior evidence in the literature, it appears that informal mechanisms are critical for enforcing nonfinancial disclosure mandates, while formal enforcement channels drive the benefits of financial reporting mandates (such as IFRS).

Overall, mandatory ESG disclosure seems to have beneficial effects by improving stock liquidity, but it also becomes clear that such mandates need to be implemented and enforced well. Our findings encourage and support more regulatory changes for other countries that have not required mandatory ESG disclosure yet.

By Prof. Zacharias Sautner, Professor of Finance at Frankfurt School of Finance & Management and ECGI



Does the private sector need government to manage climate change?

Daniel Fiorino

Center for Environmental Policy at American University

Can the private sector lead the way to a net-zero carbon future? Can it develop the investments, policies, and collaboration that will be necessary in adapting to the manifold impacts of a changing climate? The thesis of this piece is that it cannot. This is not to say that the private sector does not play a critical role in meeting the challenges of both mitigation and adaptation. It will. Yet the private sector cannot get us there on its own, for four reasons:

- The costs of greenhouse gasses are not reflected in the market costs of carbon-based fuels and damages they cause.
- There are few incentives for the private sector to invest in public goods—those for which the private sector cannot commercialize a good or service and gain a return on investments.
- Managing the causes and effects of climate change demands a great deal of coordination. It is hard to imagine how this would occur without governments around the world playing a role.
- Climate change is a global collective action problem. Governments represent countries at an international level. Although there are flaws in the current global climate regime, a turn to entirely private actors constitutes a major loss in mitigation and adaptation capacity. In addition, many state-owned enterprises are themselves major course of emissions.

Central to the environmental movement in the second half of the last century was the role of government and public policy.

Environmentalism was equated with demands that somebody do something, and that somebody was government. The reason, of course, was that the private sector on its own did not bear the costs of the harms—air pollution, water pollution, chemical risks, and eventually climate change—it was foisting on society. The response from government in most industrial nations was regulation, which required industry to adopt technologies for controlling pollution.

Climate change is more complex than previous pollution problems, one less amenable to technology mandates. Yet the defect remains the same: that individual actors lack motivation to change technologies, practices, and behavior because the price of externalities is not factored into markets. Governments must do that. They are now, but not aggressively enough. The World Bank finds the average price of sixty or so carbon pricing programs globally as insufficient to achieve the Paris Agreement's goals (World Bank 2022). Although internal and voluntary carbon pricing exists, that is unlikely to get the world to where it needs to be.

With the right incentives, the private sector is clever at developing products and services that deal with environmental problems. That is much of what we expect tools like carbon taxes to do. Yet there are investments where the results cannot be commercialized. One example is basic science and technology.

Recently-publicized breakthroughs in nuclear fusion technology were funded by governments. Much of the early research on solar photovoltaics was as well.

In addition to basic science and technology are required investments in infrastructure. Can we count on the private sector to lead efforts to build the massive amounts of infrastructure that is needed to enable the transition to clean energy?

Both mitigation and adaptation are complex problems requiring lots of coordination and direction. Although public-private partnerships are essential to both sides of the climate coin, the reliance on the public part of the equation is indisputable. In addition to investing in infrastructure, government will play a central role in making decisions about building and linking the many parts. Grids will have to be redesigned, supply chains revised, digital technologies introduced, and much more. It is hard to imagine how this could happen without government playing a central role.

At times, this need for coordination reaches almost mundane levels. Grist (2022) recently ran a story about the number of electricians that will be needed to meet needs for electrification, which is a pillar of a clean energy transition. Especially in states like California, where incentives and mandates are prominent, there simply are not enough electricians to build up capacity, such as installing electric vehicle chargers.

Climate change is a huge, global collective action problem. Organizations and institutions interact in planning investments, proposing and ratifying policies, and coordinating action. That will continue. But national governments are the critical actors in developing national policies, making international commitments, and reaching agreements. Although it is wise to expand non-governmental opportunities for interaction and cooperation, national governments remain critical to global progress. When it comes to establishing legitimacy and delivering on commitments, governments at all levels are essential.

Government is necessary for mitigating the causes of climate change and adapting to its effects. It must put a price on carbon, methane, and other pollution; invest in public goods; coordinate the moving parts; and engage in international problem-solving. This is why many of us have stressed the need for effective governance, strong political institutions, effective legal systems, economic fairness, and other aspects of good governance ([Fiorino 2018](#)).

At the same time, the private sector is critical for addressing the causes and effects of climate change. This is where most decision-making related to emissions occurs, political pressures are applied, products and services are delivered, and by far the most investments are made. The private sector and civil society are important, and their actions are vital to meeting the climate challenge, but government plays a necessary role in managing the climate crisis.

By Daniel Fiorino, Director for the Center for Environmental Policy at American University.



Climate action poses a stark legitimacy challenge to corporations

Stavros Gadinis
University of California, Berkeley

Climate change, one of the most consequential issues of our time, is largely in the hands of corporate managers. If we want to limit global temperature increases to less than 1.5 degrees Celsius, as the Paris Agreement contemplates, companies will have to reduce their greenhouse emissions – but it is up to managers to determine which steps to take, decide how much they will spend on this effort, and choose the most effective manner of reaching that goal. For example, will they switch transport to electric cars, invest in green buildings, or use biofuel for production? Or will managers simply flout their, so far voluntary, commitments? Of course, government measures like “green” subsidies, carbon taxes, or disclosure requirements, will play an important role too. After all, entire sectors of the economy will need to reorient themselves toward more sustainable development strategies. But since each company’s contribution to climate change is different, corporate managers will have to make many critical decisions.

This poses a stark legitimacy challenge to corporations: how will managers set in motion appropriate measures and convince people from vastly different viewpoints? For those preoccupied with the planet’s dire condition, corporations bear a lot of the blame. Not only is industrial production directly responsible for burdening the environment, but many other aspects of human activity underwritten by corporations, from mass agricultural methods to recreational intercontinental travel, have a direct impact on worsening climate measures.

Companies are under pressure to act, not only by climate critics, but also by those shareholders concerned about the implications of climate change for the future of their investments. Already afraid of doing “too little too late,” many are wondering whether current corporate activity is failing to move the needle, and accuse companies of “greenwashing,” by adopting token actions that fall short of addressing the problems. Yet, others are concerned about the costs of climate protection for the company and their impact on profits, particularly in the short term. They wonder whether incremental changes in a single company can make any real dent in a problem of global scale and are concerned that their companies’ competitors may not exhibit similar care for the environment. Moreover, some doubt whether scientific evidence can really pinpoint their company’s unique contribution to climate change.

To inspire confidence in their leadership, corporate managers need a governance process that helps reach out to audiences on both ends of the spectrum and builds some agreement on their substantive goals and expected outcomes. Moreover, they need to convince their audiences that the company is sticking to commitments, either staying on course or correcting shortfalls where necessary. Corporate practices lack the majoritarian affirmation of the electoral process, typically conferred to laws and regulations. But through their governance efforts, managers can persuade investors, governments, and the wider public that they are not making arbitrary and biased choices.

The foundational element of legitimate governance is increased transparency and disclosure. Many companies are issuing sustainability reports that detail the company's efforts to improve its environmental footprint, either voluntarily or because they are required to do so by local securities laws. By disclosing their efforts, companies are publicly undertaking commitments that are harder to renege, thus inherently increasing pressure for management. The push for net-zero commitments raises the stakes further, because it distills an intractable problem to a single easily understood metric. Moreover, it allows all parties to follow companies' efforts and assess its credibility. Companies need to benchmark their performance against scientific measures, agreed upon by experts in the field. To determine these benchmarks, standard-setters help pool resources, devise measures that can be applied across companies, increase comparability, and alleviate fears about bias and arbitrariness.

At this moment, one of the most ambitious standardization efforts involves the International Sustainability Standards Board (ISSB) which is expected to release its first set of standards at the end of June 2023. Its industry-based approach relies heavily on technical expertise and scientific evidence, further buttressed by an extensive public notice-and-comment process. Benchmarking company performance to specific standards brings new challenges: companies need to beef up their internal oversight function to ensure that they meet and monitor the standard, and investors must be convinced that the information released by the company is credible. The first challenge calls for internal reforms, while the second one calls for external monitoring and validation. The TCFD framework also embraces procedural legitimacy, seeking to ensure investors that companies will achieve the right outcome if they follow the right process. Thus, they can undertake specific commitments of net-zero carbon footprints by a specific future date, which are hard to renege and thus more credible.

"Already afraid of doing "too little too late," many are wondering whether current corporate activity is failing to move the needle"

Over half of U.S. publicly traded companies now rely on third-party assurance, provided by big audit firms, or by smaller specialized providers. Assurance offers external validation and boosts the credibility of the company's reports by adding another layer of checks.

In parallel, investors are pooling resources to better monitor companies. Climate Action 100+, an investor coalition currently counting over 600 asset managers from around the world with a combined portfolio of over \$60 trillion is one example. By joining forces, investors can speak with one voice when asking companies to make changes, rather than having different investors push for different approaches. Participating investors have an allotment framework that assigns one of them as the lead for engaging with each company, being responsible for researching, analyzing, and monitoring the data it releases.

By focusing on disclosure, standardization, robust internal functions, external validation and increased monitoring, the emerging framework is geared toward addressing many of the legitimacy challenges associated with corporate choices on climate change. To be sure, the framework is far from perfect; standards need to be refined, weaknesses in internal functions need to be straightened, conflicts of interest may hamper the system's smooth operation. But this framework sets the foundations of for a corporate governance geared toward climate change.

By Stavros Gadinis, Professor of Law at the University of California at Berkeley School of Law and ECGI

The impact of climate litigation on corporate governance

Aisha Saad
University of Chicago Law School

Climate litigation is progressing apace in the United States, with cascading effects for corporate governance. Cities, states, and municipalities are increasingly filing negligence and nuisance claims against major greenhouse gas emitting companies, seeking redress for climate damages. Until recently, scholars and jurists thought it unlikely, even impossible, for these claims to succeed in redressing the physical harms of climate change. But advances in the science of climate change attribution undermine this assumption.

Scientists can now model the impacts of anthropogenic emissions on climate change and link human contributions to GHGs to specific extreme weather events and impacts. These developments are promising for climate litigants, and they have major implications for companies in high emitting sectors.

Corporate executives in high emitting sectors must now grapple with litigation risk across multiple jurisdictions, new oversight obligations and fiduciary duties to shareholders, and an enhanced understanding of stakeholder impacts. Beyond the financial damages and reputational risks that defendant corporations face because of these climate lawsuits, internal company records and other information produced through discovery motivate additional corporate and securities claims. In one recent example, ExxonMobil shareholders brought claims against negligent managers for misleading investors about climate risks. In another case, Shell shareholders brought claims against executives for failing to plan for climate change and a net zero transition.

Access to internal corporate communications concerning emissions and climate risks can also inform criminal or conspiracy claims against fossil fuel executives, as alleged by the state of Minnesota in its lawsuit against the American Petroleum Institute, for example. This evolving legal landscape presents corporate managers with new material risks.

Should climate litigants succeed in leveraging the tools of climate attribution to secure damages from corporate defendants, companies in high emitting sectors, like fossil fuel producers, could conceivably face bankruptcy. While such a scenario would likely be forestalled by a federal bailout, mass settlement agreement, or legislative preemption of climate tort claims, bankruptcy does not eliminate the targeted industries but restructures them. In the comparable example of tort litigation against opioid manufacturers, industry leaders faced bankruptcy because of lawsuits brought by cities, states, and municipalities seeking redress for the harms and public health burdens of the opioid crisis. In its bankruptcy settlement, Purdue Pharma was restructured as a public benefit corporation, owned by a public trust, and with restricted operations

"Corporate executives in high emitting sectors must now grapple with litigation risk across multiple jurisdictions, new oversight obligations and fiduciary duties to shareholders, and an enhanced understanding of stakeholder impacts"

A similar fate is plausible for companies like ExxonMobil and ConocoPhillips, which could be restructured as public benefit corporations owned by a climate trust, for example, and with operational restrictions in the public interest. These outcomes would require novel ownership arrangements and new experiments in governance that deviate from existing terms.

More proactive managers might find an opportunity in the growing popularity of climate lawsuits to take initiative among industry peers. To be sure, the possibility of defending lawsuits across fifty state jurisdictions presents a litigation risk for high emitting industries and companies. Fossil fuel producers might get ahead of this risk by brokering a grand bargain with Congress to pre-empt all such litigation, along the lines of what gun manufacturers successfully secured with the Protection of Lawful Commerce in Arms Act. Instead of lobbying against climate legislation, corporate executives might instead negotiate an agreement for legal cover in exchange for a carbon tax. The costs of greenhouse gas emissions might then be internalized in a more predictable manner conducive to informed and systematic governance.

Advances in climate attribution that can be leveraged by litigants to advance their claims for climate damages also present managers with tools to revise their own risk oversight systems and operating strategies. For example, as attribution studies make specific climate harms and impacts foreseeable to managers, this might implicate Caremark oversight liability. Under Caremark, directors may be liable for failing "to implement any reporting or information system or controls" or, having implemented such systems or controls, for failing to monitor or oversee a company's operations and related risks or problems requiring their attention.

Already, an ongoing debate concerns whether corporate boards should face potential liability for failing to monitor ESG risks where no legal requirement exists and where compliance is purely voluntary or aspirational. Climate litigation advances the case that climate risks are "mission critical" and that they incur managerial oversight duties.

Furthermore, advances in climate attribution methods have implications for the raging debate over ESG and stakeholder governance. Climate modeling methods linking emissions to climate damages can be used to project and quantify the impacts of different operational scenarios on specific stakeholder groups, giving corporate executives tools to operationalize their commitment to stakeholderism in a manner that is analytically and empirically rigorous, rather than merely performative or symbolic.

Climate tort litigation bolstered by developments in climate attribution prompts reconsideration of the duties and responsibilities of greenhouse gas emitters. Corporate executives will have to contend with these dynamics, and they would be well advised to do so proactively by reforming internal governance procedures and agendas instead of reactively as a result of adverse court rulings.

By Aisha Saad, Dickerson Fellow at the University of Chicago Law School.



Corporate greenwashing: The lawyers are coming

Benjamin Franta
Oxford Sustainable Law Programme

Greenwashing may be one of the greatest emerging legal risks across corporate sectors worldwide. Once a topic of relatively niche concern, the spectre of greenwashing liability continues to grow as more brands seek to portray themselves as climate-friendly and lawyers (and the broader public) get wise to the fact that not all that appears green is what it seems.

As with many things in life, prevention is the best cure, and while the future of greenwashing litigation is still unwritten, some hot issues are emerging. Here, I'll explore some of them and offer some suggestions to avoid greenwashing.

To start, it may be helpful to review the basics. Generally, greenwashing is the practice of portraying a company, product, or activity as more environmentally friendly than it actually is. Legally, greenwashing claims often (though not always) fall under consumer protection laws, which typically prohibit commercial claims that have a tendency to mislead consumers. Often, these laws not only prohibit outright falsehoods, but also – and crucially – factually true statements that nonetheless have a tendency to mislead due to omitted context or overemphasis of one fact over another. These laws recognize that sometimes the best way to lie is to tell the truth – but only part of it.

Already, states in the US such as Massachusetts have filed consumer protection cases against fossil fuel producers for allegedly misleading consumers about global warming (a side effect of fossil fuel products) and the companies' current climate credentials.

On the other side of the pond, regulatory bodies such as the UK's Advertising Standards Authority have fielded complaints about allegedly misleading climate-themed advertising across a variety of sectors, including banking. And movements within the public relations and advertising professions are calling for reform to expose and prevent greenwashing within their industries.

As legal interventions to address greenwashing expand, some of the key topics and issues we might see addressed include:

Carbon capture

Companies like ExxonMobil frequently advertise their carbon capture activities in terms that may appear impressive to consumers, but actual carbon capture capabilities are often negligible, and the high and potentially irreducible cost of the process may doom it to non-viability within for-profit contexts. Additionally, of the relatively small amount of carbon that is captured (and heavily advertised), a significant fraction is a) used to stimulate further fossil fuel production (increasing emissions) and/or b) captured during the natural gas refining process (leaving emissions from fossil fuel use unchanged). During a partial takeover of ExxonMobil's board in 2021, for example, insurgent investor Engine No. 1 alleged the company's "minimal investment in more advanced carbon capture mostly produces advertising" and that its "[l]atest advertising blitz regarding a theoretical and unfunded carbon capture project lacks any real substance."

Strong words, and as more fossil fuel companies promote carbon capture as their route to sustainability (while renewables fall in cost), we may see the technology challenged on grounds that it's not actually happening and may not be foreseeably viable.

Carbon offsets

Similar to carbon capture, carbon offsets – paying to plant or protect a forest, for example – have been advertised as a way for fossil-fuel-reliant industries to achieve carbon neutrality. And today, consumers are regularly offered “carbon neutral” airline flights and more, all based on offset accounting. Behind the curtain, however, lurk problematic details. A recent investigation, for example, found that over 90% of the rainforest offsets approved by the world's largest offset certifier were exaggerated or meaningless. And more fundamentally, carbon absorbed by trees is often re-emitted into the atmosphere over decades or sooner – meaning carbon offsets don't really “offset” the burning of fossil fuels (which moves carbon from the earth's crust to the atmosphere, forests, and oceans for thousands of years). As the offset market explodes, legal action might too.

Net zero

A large fraction of the world's biggest companies have pledged to emit net zero greenhouse gas pollution by 2050 or some other future point (and advertise those pledges to consumers). But the “net” in net zero has little meaning without negative emissions, which generally come in two forms: carbon capture and carbon offsets. If carbon capture and carbon offsets are not viable solutions to global warming, then where does that leave advertisements of net zero pledges (not to mention the broader net zero concept)? As net zero continues its march as the dominant paradigm for proving good corporate climate citizenship, legal interventions might seek to force companies to prove their pledges with hard numbers, investments, and business plans.

Natural gas

Moving on to products that may be the basis of greenwashing actions, natural gas continues to be promoted to policymakers and advertised to consumers as a solution to global warming. When both methane and carbon dioxide emissions are accounted for, however, natural gas causes essentially as much global warming as other fossil fuels. Adding fuel to the fire, new research has revealed just how bad natural gas is for human health. Advertisements promoting gas often use (possibly) narrowly true but potentially misleading terms such as “cleaner-burning” and “lower-carbon.” Even if gas isn't the deadliest poison, though, it's still harmful, and courts might find such promotions misleading.

Hydrogen fuel

Long a favorite of oil and gas companies, hydrogen's secret is that it is almost entirely produced from natural gas, meaning – at least at present and for the foreseeable future – it's a fossil fuel in disguise. This fact makes advertisements promoting “zero-emissions” hydrogen flat-out false.



Biofuels

For years and until recently, ExxonMobil loudly told the public it was creating zero-emissions biofuels from algae. The problem: it wasn't (and as of this year, the project is officially closed). Perhaps the harshest assessment came from insurgent investor Engine No. 1 in 2021, which while capturing seats on the company's board told shareholders that "[a] decade of promoting algae biofuels despite lack of viability shows a similar focus [to carbon capture] on advertising over reality ... ExxonMobil has touted algae biofuels for more than a decade, yet has little to demonstrate for it other than advertising ... Its most recent goal of producing 10,000 barrels by 2025 is ~0.02% of ExxonMobil's refining capacity." Other problems with biofuel advertisements include omitting cost viability, scalability, and the fact that biofuels typically still contain fossil fuel.

Green branding

Some advertisements don't focus on a particular product but rather portray the overall brand as climate-friendly (e.g., BP's Beyond Petroleum campaign, Shell's Make the Future campaign, and Chevron's We Agree campaign). Inspiring music plays over images of solar panels, wind turbines, and electric vehicles, suggesting to consumers the presence of a truly diversified energy company. The problem is that the hard numbers show many of these companies are far from diversified and retain a near-total business focus on fossil fuels. Carbon majors and others may continue to pledge that they will invest heavily in non-fossil energy sources in the future, but courts might decide non-binding promises are not good enough.

If the above is any indication, greenwashing claims might keep lawyers busy for a very long time. Beyond the legal risk, however, there's the human risk: fundamentally, greenwashing is harmful because it wastes time and misdirects attention.

So how to avoid greenwashing and be part of the solution? Three suggestions:

Recognize that negative emissions might not be viable, at least in a business context.

In 1981, Exxon internally considered carbon capture as a solution to prevent global warming but concluded the process would be too expensive compared to renewables. Not only does this illustrate how carbon capture has had plenty of time to mature (with remarkably limited success), but it also points to the cost dilemma facing the technology: to be market competitive, carbon capture doesn't just need to be cheaper than some hypothetical carbon price, it needs to be cheaper than renewables (e.g., battery-backed solar), which continue to rapidly fall in cost. Perhaps future governments will spread the cost of cleaning up the atmosphere, but that scenario isn't relevant to corporate carbon capture advertisements today.

Recognize that in practice, net zero likely means replacing fossil fuels.

Global warming is primarily a side effect of fossil fuel use, and the lack of foreseeably viable negative emissions processes means controlling global warming requires controlling (and replacing) fossil fuels. The good news is that renewables have rapidly fallen in cost due to economies of scale and mass production. And decarbonizing corporate supply chains by building or purchasing renewable power will accelerate further cost reductions and the necessary energy transition.

Recognize that making true green claims is not hard, and consumers reward companies doing the right thing on one of this generation's defining challenges.

Most companies don't have an existential conflict with decarbonization – meaning they can replace fossil fuels within their product and supply chains, advertise that fact loudly, and reap the rewards.

Attention on greenwashing is overdue and bound to increase – and that's ultimately a good thing, because when it comes to climate change, we can't afford to waste more time on false solutions and half-truths. Companies that lead the way in developing true green branding – backed by meaningful action – may see rewards, while those putting image over substance may face legal liability. One way or another, it's an issue that isn't going away anytime soon.

By [Dr. Benjamin Franta](#), a Senior Research Fellow in Climate Litigation at the University of Oxford Sustainable Law Programme

"Attention on greenwashing is overdue and bound to increase – and that's ultimately a good thing, because when it comes to climate change, we can't afford to waste more time on false solutions and half-truths."



Beyond the greenium: Assessing the additionality of green bonds

Dilyara Salakhova

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This year green bonds are celebrating their 15th anniversary. The introduction of principles structuring issuance of bonds earmarked to finance green projects (Green Bond Principles) by International Capital Markets Association in 2014 helped to stimulate their issuance. In more recent years, green bonds have seen a rapid growth, with global issuance exceeding US\$ 2 trillion dollars in 2022, though still representing only about 2% of the global bond market. In 2019, Sustainability-Linked Bonds (SLBs) were introduced, aiming to provide investors with measurable environmental objectives and penalties in case of the issuer's failure to meet its commitments. They have attracted considerable attention and exceeded US\$ 200 billion of global issuance just in two years. Despite this startling market growth, debate around additionality of both green and sustainability-linked bonds (GSLBs thereafter) and their contribution to net-zero objectives is still there.

As the term suggests, 'additionality' refers to an additional effect that GSLBs provide, either by enabling capital to flow to green assets and projects that would not otherwise get financed (financial additionality) or by enabling environmental impact of investments that would not otherwise been achieved (development additionality according to the OECD).

The ambition behind green bonds is to enable a large (systemic) shift of capital to green projects and a tangible impact on transition to a low-carbon economy. Their potential lies, particularly, in their visibility to investors and provision of global understanding what green investments are and what they seek to achieve.

Financial additionality of green bonds is thus reflected in providing 'green' issuers with lower financial performance or higher credit risk with access to capital at a more affordable rate than otherwise would be possible; while issuers already with access to markets and with good financial strength are positioned to obtain cheaper funding by issuing green bonds.

In developed countries green bonds are mostly issued by companies that already have access to capital markets and experience no funding shortage. The effect could, in theory, be larger in developing markets as access to capital is more limited both for firms and countries, however, evidence of such an impact is scarce.

Do green bonds provide cheaper funding? It depends. Several studies show that green bonds trade at tighter spreads relative to conventional bonds of the same risk profile, the so-called 'greenium'[1]. The differential is on average rather limited, albeit with wide variations across sectors, countries, and issuer types. Greenium has shown to be particularly associated with a bond's credibility, as a legitimately 'green' investment. That is, those green bonds with external verification or issued by companies with established environmental credentials tend to enjoy tighter spreads. Green bonds of developing countries appear not to benefit from greenium, potentially due to lower credibility and higher financial risk. A big challenge with assessing greenium is to pair green bonds with conventional bonds of the same risk profile (the same issuer, maturity, bond type). This is not an easy task for developed countries, and even more so for developing countries as number of both green and conventional bonds are limited.

Do green bonds enable positive environmental impact through green projects, such as reduction in carbon emissions? Overall, issuance of green bonds seems to be associated with improved environmental performance of issuers, notably, for green bonds that are more credible and that are issued for new projects and not for refinancing old projects. However, the impact cannot be attributed specifically to green bonds as their share in total funding of these issuers remains too small. Both the issuance of green bonds and improved environmental performance largely reflect companies' general commitment to sustainability.

SLBs which were created to foster environmental impact have also shown only limited contribution to achieving environmental objectives, as most issuers set up targets lacking ambition, and most SLBs have low probability of hitting a penalty coupon step-up. For example, recent research finds that some SLBs obtain greenium larger than potential penalty of the bond thus limiting issuers' incentives to respect the objectives. Demand-chasing-supply can also partially explain the greenium for GSLBs.

If judged by definitions of development finance, green bonds show overall limited financial and development additionality. However, according to surveys of issuers and investors, they have been significantly contributing to the discussion of sustainability both within a company and in the market and through their introduction in companies' and markets' culture and practices.

In sum, these investors are learning how to invest sustainably, assess companies' commitments and environmental impact of green projects.

Up to now, the marketing of GSLBs has succeeded in drawing investors' interest in green projects; however, it is time for GSLBs to realise their potential to bring capital flows to green projects with real environmental impact if they are to foster transition to a low-carbon economy. For this, a number of obstacles needs to be overcome.

"For borrowers, issuance of green bonds can lead to better organised and stronger sustainability processes and reporting within a company"

Transparency, data availability, comparability and standardisation of GSLBs are essential to make these bonds more attractive and efficient. Thus, it is key to strengthen green bond standards with a clear definition of a green project, (ideally mandatory) standardised reporting and audited certification. To close the gap between project-level financing by green bonds and issuers overall sustainability performance, it is essential for companies to show how issuance of green bonds contributes to their sustainability and transition objectives. Even more importantly, environmental objectives need to be aligned with financial performance and risk constraints.

This last point is more difficult to address as it concerns provision of capital to the public and corporate sectors in developing countries and also to riskier and overindebted firms in developed countries that still are to undergo transition. For many investors financing of these issuers is inconsistent with their mandates as they primarily invest in low-risk investment grade bonds. The small size of the green projects is often mentioned as another obstacle. A potential solution could include green securitization and blended finance with involvement of public agencies and international organisations. But this naturally requires larger involvement and coordination among public authorities, regulators, and market participants.

By Dilyara Salakhova, formerly Senior Financial Stability Expert at the Financial Stability Department at the European Central Bank (Frankfurt).

Transition finance in bond markets will require credible corporate governance arrangements

Alexander Lehmann
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Bond issuers in capital markets are increasingly focused on transition finance. Unlike green finance, which is directed at activities that are already consistent with a 1.5 degree warming scenario, transition finance funds emission abatement and low-carbon technologies where no purely green technology is readily available. This form of finance inherently relies on climate commitments by the company. For capital markets to work, bond issuers will need to get better at explaining their climate transition plans and underpin such plans with sound management and governance arrangements.

On the side of investors, the low-carbon transition has also defined some very different investor mandates and objectives. A new interpretation of fiduciary duty that is consistent with climate policies has already been reflected in legislation in a number of jurisdictions. Requirements for better sustainability disclosures will also expose asset managers and investment advisers to greater market discipline. Individually and in the various investor coalitions, such as the [Glasgow Financial Alliance for Net Zero](#), asset owners set themselves targets for the mobilization of green assets and also for the decarbonization of their portfolios.

Many have argued that transition finance requires a new type of taxonomy, in addition to the green taxonomy that identifies unambiguously green activities aligned with a 1.5 degree climate scenario. Such a classification would set out the various 'shades of green' of technologies deployed on the path to a net zero world.

Shipping, for instance, is a typically 'hard-to-abate' sector. Gas-powered vessels may reduce emissions at first, while not offering the ultimate net zero technology. The EU's technical expert group proposed such a separate taxonomy but legislation seems unlikely in the remaining term of the current EU Commission.

That is no grave loss, as a static taxonomy is neither sufficient nor necessary for transition finance to take off. A more logical step will be to elevate climate transition plans issued by enterprises and to make sure such plans are sufficiently robust and ambitious based on private sector verification. Transition plans indeed seem to be central in recent templates developed by international bodies, such as the OECD or the G20 Sustainable Finance Working Group.

As yet, corporate climate targets on the whole seem unambitious or lack credibility. Net-zero pledges and other climate plans lack sufficient detail or fail to set credible targets. In February, the Climate Disclosure Project showed that only a small fraction of the 18,000 companies monitored globally met their key indicators of climate transition plans. Only in a handful of EU countries did more than 10 percent of reporting companies define plans that met most of the required indicators.

"Requirements for better sustainability disclosures will also expose asset managers and investment advisers to greater market discipline"

Overall, the number of climate plans, and their support in corporate governance remains disappointing.

Current trends in the EU bond market underline why better transition plans are direly needed. Green bonds issuance experienced strong growth in 2021, though then dropped slightly last year. The instrument still appeals to investors with a mandate for ESG alignment. Yet as is well known, green bonds do not necessarily deliver climate outcomes. The use of bond proceeds is the subject of a non-contractual green bond framework which is subject to private sector verification. Failure to use proceeds in the way initially set out by the issuer in its green bond framework will not constitute an event of default or give the bondholder the option to accelerate repayment or demand other remedies.

A more recent phenomenon are sustainability-linked bonds which have grown rapidly in the past years, with about EUR 89 billion issued in EU corporate bond markets in 2022. Such instruments are essentially agnostic on the way bond proceeds are used, though will hold the issuer to account for a time-bound sustainability target. Should that target be missed the issuer would pay a higher coupon rate or incur other penalties. Despite recent rapid growth, this market is still quite immature. A new ESMA study showed there has been a near uniform bond contract structure and typically undemanding coupon step-up penalties of only 25 basis points, largely unrelated to the issuer's credit risk. Many of the performance targets set in corporate bond issues seem to have been unambitious or failed to capture relevant emissions. As it operates currently, the corporate bond market does not reward climate commitments sufficiently.

In the EU, this picture will change quickly as the Corporate Sustainability Reporting Directive (CSRD) requires roughly 50,000 enterprises to publish climate transition plans from 2024. EFRAG, the EU accounting body, has just articulated some detail in its new draft standard. This should bolster market transparency of where the Union's corporate sector truly stands in relation to the 1.5 degree climate target.

But important additional detail still needs to be fleshed out. One question is how the finite remaining budget for global greenhouse gas emissions is allocated to decarbonisation paths in each industrial sector in the EU. Here, a number of private sector initiatives already offer guidance based on scientific decarbonization pathways. A second key aspect of transition plans is how internal management systems back up corporate climate targets. Companies, in particular those with a capital market presence, will need to explain better how they will deliver on often distant climate targets and define robust incentives and management structures. The EFRAG standard merely requires companies to explain how the transition plan is embedded in the overall business strategy, which risks producing superficial language. Investors will require much more detail, for instance on how executive remuneration relates to climate change performance, or whether the company uses an internal carbon price.

Sustainability-linked and transition bonds are becoming mainstream. Bond investors increasingly seek reassurance on climate outcomes, rather than on climate-related expenditures. If outcome-based instruments are to work, information and disclosure needs to become much better. The new EU green bond standard, agreed provisionally in late February, belatedly also includes disclosure provisions for sustainability-linked bonds, implying that verification providers which are accredited under the new standard will also assess transition plans.

Last year, over 21 per cent of EU and UK bond issuance was labelled as being sustainable in some form. Institutional and retail investors, including the beneficiaries in long term pension plans, deserve a better sense how Europe's corporate sector delivers a monumental structural transformation as the low-carbon transition unfolds.

By Alexander Lehmann, a non-resident fellow at Bruegel, the Brussels think tank & Frankfurt School of Finance.

Can voluntary carbon markets be fixed?

Luca Enriques, Alessandro Romano
& Vittoria Battocletti
University of Oxford & Bocconi University

Companies that have announced climate targets (for instance: becoming "net zero" by 2050) represent a market capitalization of over \$20 trillion. Almost all of them will rely on carbon offsets purchased on the voluntary carbon market (VCM) to reach their target. And yet, despite the obvious importance of the VCM, there are virtually no academic studies that analyze in-depth its functioning.

In our working paper, we fill this gap.

The process of creating a carbon offset starts with a project developer setting up an emission reduction project. For example, the project developer might plant a number of trees that will remove 100 tonnes of CO₂ from the atmosphere. At this point, the project developer will select a Verification and Validation body (VVB) to audit the project and a standard setter to certify the offsets. In our example, the VVB would ensure that the trees have been really planted, while the standard setter would certify that the entire project has been carried out in a way that meets its standards. Therefore, there are two actors – standard setters and VVBs – assessing the quality of carbon offsets.

The fundamental problem, however, is that the project developer, the standard setter, as well as the VVB, each have incentives to overstate offset claims (hereinafter, "to inflate offsets"). The project developers can clearly increase its profits if it has more offsets to sell. Similarly, standard setters can profit from offset inflation, as their fee depends on the amount of offsets certified: VVBs are hired and paid by project developers and must be accredited by standard setters, thus they also have incentives to facilitate offset inflation.

"Most of the demand of the VCM comes from corporations that have a self-interest in purchasing cheap and inflated offsets."

If offset buyers were interested in purchasing only offsets that correspond to true reductions of CO₂, then reputational sanctions might prevent market players from inflating offsets. But most of the demand of the VCM comes from corporations that have a self-interest in purchasing cheap and inflated offsets. Cheap and inflated offsets allow corporations to reach their climate target at a lower cost. And, given that their end-consumers are unable to assess the quality of the offsets they purchase, the expected reputational sanctions that corporations face for relying on inflated offsets are extremely low. Further, carbon offsets certified by the leading standard setters increasingly provide regulatory benefits. For instance, in several countries' corporations purchasing carbon offsets certified by the leading standard setters can pay lower taxes. Obviously, these companies have incentives to purchase as many offsets at as little cost as possible to cut their tax bill. Thus, offset buyers have no interest in punishing standard setters, VVBs and project developers that inflate offsets.

Do these pervasive market failures imply that we should throw away the baby with the bathwater? We argue that the answer to this question is no.

The Intergovernmental Panel on Climate Change has acknowledged that projects aimed at removing carbon dioxide from the atmosphere are necessary to reach the goal set in the Paris Agreement and the VCM can mobilize the capital needed to develop such projects. Moreover, the VCM can potentially help develop countries to build more resilient and greener economies. For these reasons, we develop a list of dos and don'ts for policymakers who want to help the VCM fulfilling its potential (Table 1).

Instead, we argue that any attempt to improve the functioning of the VCM should simultaneously achieve three things: i) increase the transparency of the market, ii) provide agents that possess the relevant information with the necessary and sufficient incentives to identify low-quality offsets, and iii) strengthen reputational sanctions for inaccurate certifications. In the last part of the article, we propose a policy that simultaneously achieves these three goals.

Do's	Don'ts
Increase the transparency of the market	Ex-ante regulation
Provide agents that possess the relevant information with the necessary and sufficient incentives to identify low-quality offsets	Ex-post liability
Strengthen reputational sanctions for inaccurate certifications	Regulatory licenses

To begin with, we argue that policymakers should not implement ex-ante regulation or impose ex-post liability on standard setters and VVBs that inflate offsets. Given the extreme complexity of the market, policymakers and courts are unlikely to have enough information to be able to implement either of these solutions in an effective manner. Most importantly, we argue that policymakers should avoid that certification from leading standard setters are associated with regulatory benefits, as this further displaces the reputational mechanisms that should limit rating inflation.

By Luca Enriques (University of Oxford and ECGI), Vittoria Battocletti (Bocconi University) and Alessandro Romano (Bocconi University)



What's Scope 3 Good For?

Madison Condon
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The now-commonplace “Scope” terminology used in emissions accounting was established by the Greenhouse Gas Protocol in 2001. At its inception, the Protocol was pitched primarily as a tool for corporate risk management and voluntary reporting to stakeholders; the focus was not on investors. With the EU emissions-trading scheme kicking off in 2005, and the U.S. nearly passing a cap-and-trade bill in 2009, the momentum to standardize accounting was largely driven by heavy-emitting industries anticipating participation in carbon markets.

The primary concern was “Scope 1” emissions, the category covering sources the company directly owns and controls — like the fuel burned to make steel or power gas delivery-vehicles. Over time, however, the category of “Scope 3,” or “supply-chain” emissions has increased in use and importance, especially to investors in financial markets. The GHG Protocol breaks Scope 3 emissions into fifteen categories: eight “upstream,” including “1. Purchased goods and services” and “7. Employee commuting”; and seven “downstream,” including “11. Use of sold products” and “15. Investments.”

The GHG Protocol “Scope 3” system gained near-universality in voluntary corporate reporting in part because it was designed to be flexible. The Protocol leaves a significant amount of discretion to the disclosing company to set reporting boundaries, determine which subcategories of emissions are “relevant,” and make a variety of methodological choices requiring judgment calls. As Jimmy Jia, Nicola Ranger, and Abrar Chaudhury describe in detail, the effect of these choices can aggregate through a supply chain, resulting in substantial differences in totaled emissions at the Scope 3 level.

The GHG Protocol itself makes clear that it is designed to track individual corporate progress over time and should not be used for comparison between companies. Nevertheless, inter-corporate comparison appears to be a primary use of Scope 3 data today.

I must emphasize that my critique on the limits of the applications of Scope 3 data does not mean this data is not needed by investors. Indeed, limiting mandatory disclosures to Scope 1 and 2 emissions makes little sense, as the division between Scopes follow the arbitrariness of firm boundaries. Channels of transition risk—and reputational risk—are not eliminated by simply outsourcing a high-risk process to a third-party.

However, the utility of Scope 3 as a metric depends on the use-case, as well as its granularity and the availability of other contextual data. The proliferation of Scope 3 as a blunt metric for all measures of climate progress and transition risk overlooks not only its lack of standardization but also what Scope 3 on its own is capturing. In various legal and practical contexts determining "relevant" corporate emissions requires judgment calls about: 1. Timeframe; 2. Granularity and Aggregation; 3. "Double Counting" and Boundary Drawing; 4. Control; and 5. Tradeoffs. Users of emissions data may have different preferences and expectations around each of these judgment calls. I elaborate on these considerations in my forthcoming symposium article in the U.C. Davis Law Review, *What's Scope 3 Good For?* To point out just one oddity in the application of Scope 3 accounting: a growing number of lawsuits seek to hold fossil companies responsible for the harms of their products. In this case, historic emissions are likely to be more relevant for assessing liability risk than forward-looking projections, yet this metric does not appear in many financial sector uses of emissions data.

A range of initiatives seek to make carbon accounting more transparent and granular, such as the proposed "Net-Zero Data Public Utility," an open platform for verified data on emissions and other transition information. Others try to increase the granularity and reliability of emissions measurements along the supply chain, including industry coalitions using blockchain to pass information related to emissions without needing to share internal business information like costs and sourcing. Some of these initiatives work to improve reporting at the (Scope 3) corporate level, while others work to meet the growing demand for disclosure of emissions footprints at the product level. In the US, a growing number of "Buy Clean" purchasing standards are based on "embodied" emissions, calculated through a traditional life-cycle analysis (LCA) approach. And the EU is rolling out product-level carbon border adjustments that similarly rest on third-party certification of "embedded" emissions.

"The proliferation of Scope 3 as a blunt metric for all measures of climate progress and transition risk overlooks not only its lack of standardization but also what Scope 3 on its own is capturing"

One may expect that there might be an easy way to aggregate various product level disclosures to the corporate level and back again, but there are fundamental inter-comparison challenges. Scope 3 aims to be a snapshot of yearly emissions, including product use, while LCA aims to capture all of those attributable to a material product, even if the production process began two years ago in time. Linking product level to corporate level accounting becomes yet more complicated and abstract when Scope 3 data is used for asset level accounting that purports to capture forward-looking risks.

To many, Scope 3 double-counting "is a feature, not a bug." It is meant to shed insight on all the various exposures throughout the economy. Without (granular) Scope 3 data, investors might miss some of the easiest-to-decarbonize parts of a company's supply chain, or some of its riskiest regulatory exposures. From a strategic angle of decarbonization, a focus on certain corporations may provide better leverage than other parts of the corporation's financial ecosystem — there are certainly fewer insurers underwriting oil wells than there are potential customers for oil. But from a transition perspective, financial risks are channel, regulation, and asset specific. Meaning, "Scope" emissions, even in intensity form, can serve as only a poor proxy of asset-level transition risk without more contextual information incorporating sector, geography, and net-zero policy pathways.

To illustrate: A recent engineering article highlighting the philosophical challenge of allocating downstream Scope emissions asks, rhetorically, "How much does an injection pump contribute to the emissions of a passenger car during its use phase?". But if your carbon-aware investing strategy is to simply underweight the injection pump manufacturer in your portfolio, you should perhaps think more deeply about the future of the diesel engine.

While these metrics will develop and standardize over time—and must, I end by arguing that their limits surely need not result in paralysis. It's not like we don't know where the emissions are, we just need to stop consuming, selling, investing in, and insuring them. I say this as a moral matter, but I can also observe for the first time that the energy transition really is happening. Being part of it seems more like a governance problem than one for index tilting.

"Channels of transition risk—and reputational risk—are not eliminated by simply outsourcing a high-risk process to a third-party."

By Madison Condon, Associate Professor,
Boston University School of Law.



Saving climate disclosure

Scott Hirst
Boston University School of Law

It has been almost a year since the Securities and Exchange Commission (SEC) proposed that corporations should be required to disclose their carbon emissions, and the SEC is thought to be close to adopting a final rule. When it does, a judicial challenge is all but inevitable.

In a recent paper, *Saving Climate Disclosure*, I argue that the best way for the SEC to save climate disclosure and to protect investors is to let them decide.

This “investor-optional” approach would result in three important improvements necessary to save climate disclosure from invalidation, and best protect investors:

1. It would make the design of the SEC’s rule consistent with the SEC’s core claim that there is investor demand for climate disclosure; if this is indeed the case, a mandatory rule is not necessary, creating a logical inconsistency that threatens the validity of a mandatory rule.
2. Making climate disclosure investor-optional would circumvent claims that the rule is invalid, which—to the extent they apply at all—apply only to a mandatory disclosure rule.
3. An investor-optional rule would better protect investors than a mandatory rule, reducing their net costs, while preserving their benefits. As a result, the SEC is required to consider an investor-optional rule, and having done so, it will be difficult for the SEC to justify adopting a mandatory rule instead.

In this issue of the ECGI Blog, [Virginia Harper Ho responds to my paper](#), arguing that the SEC should not let investors play a role in determining whether disclosure rules apply to companies.

Professor Harper Ho and I disagree on several important points about my proposal. Below I respond by clarifying certain aspects of my proposal, and how it would help save climate disclosure and better protect investors.

Professor Harper Ho argues that “leaving it to investors” is the same, failed, approach that the SEC and the world’s major capital markets have been taking for years. But an investor-optional rule improves on the status quo in important ways. The status quo is effectively “opt-in” climate disclosure, with the opt-in decision made by directors and executives—who may have little incentive to do so. Investors have limited ability to influence the opt-in decision through engagement or shareholder proposals. And their collective action problems make it less likely that investors’ aggregate preferences will be heard. In contrast, because opting-out would require an investor vote, whether the company opted-out would be entirely up to a majority of investors.

Opt-out votes are unlikely to impose significant additional costs on investors. At many companies, there will be nothing to vote on. Where there is strong investor support for a company following all of the SEC’s disclosure requirements, rational directors will not expect investors to opt-out, and will not put the question to a vote. If investors do vote it will only be because many of them likely do not support certain disclosures. The investors whose votes would be decisive are large investors that already vote on many other proposals at hundreds or thousands of companies each year. They have voting policies and sophisticated mechanisms in place that allow them to make informed decisions on these matters at scale. Many already have policies on climate disclosure that they can follow.

Some opposition to investor-optionality seems to be predicated on the assumption that the most substantial parts of mandatory climate disclosure are likely to survive judicial scrutiny. I do not take a position on this question, and only note that many others appear to think there is a significant chance of a federal court invalidating the rule. Making the rule investor-optional would significantly reduce this risk. The strongest arguments against the rule apply—if they apply at all—only to a mandatory rule. Those arguing against an investor-optional rule should thus compare it not only to the mandatory disclosure they would prefer, but also to the prospect of mandatory climate disclosure being invalidated, leaving the status quo unchanged.

This is especially important because the benefits of investor-optionality strengthen the case for invalidating mandatory climate disclosure. As I explain in my article, clear precedent requires the SEC to consider reasonable alternatives to its proposed rule; these would obviously include an investor-optional rule. In order to nonetheless adopt a mandatory rule, the SEC would have to justify why it would be better for investors than an investor-optional rule. This will be very hard for them to do, for the reasons I detail in my article.

Simply put, if a majority of investors favor all of the SEC's disclosure requirements, then no companies will opt-out and an investor-optional rule will be no worse than a mandatory rule. But if a majority of investors in any company believe that some climate disclosure rules have greater costs than benefits to investors, then they will vote to opt-out, making the investor-optional rule less costly than the mandatory rule. If this is the case, forcing disclosure on such a company against its investors' wishes could only be justified on the grounds their opt-out decision would hurt investors in other companies even more.

This will be a hard case to make. Investors in the disclosing company are likely to share many of the same views about the benefits of disclosure as investors in other companies (including benefits from disclosure standardization).

Indeed, the investors with the most votes—including BlackRock, Vanguard, and State Street Global Advisors—are also investors in many, many other companies. Their voting decisions will thus include the costs of opting-out for investors in other companies.

A case could be made that it is not investors in other companies that would benefit from mandatory disclosure, but others in society. Indeed, Professor Harper Ho also argues that climate disclosure's mitigation of systemic risk is a potential justification for the SEC's proposed rule. But if systemic risks are also risks to investors, they will weigh them in their opt-out decisions. And although there could be risks to non-investors, the SEC's justification for its climate rule has been focused squarely on investor demand. The SEC has not even tried to make the case that climate disclosure is justified on the grounds of public interest beyond investors.

The centrality of broad investor demand to the SEC's justification for climate disclosure reveals a paradox in the claims of those who are skeptical of investor-optionality. If a broad group of investors demand all of the disclosure required by the SEC's rule, why would they opt-out? If they wouldn't, then an opt-out rule is no worse than a mandatory rule. On the other hand, if a majority of investors believe the costs to investors of certain disclosure requirements exceed their benefits, then how can the SEC justify requiring such a rule in the interests of investors?

There is a simple way to resolve this paradox, and the competing claims regarding what investors want: Let investors decide.

By Scott Hirst, Associate Professor, Boston University School of Law and ECGI

Why climate disclosure is the SEC's job – Not investors'

Virginia Harper Ho
City University of Hong Kong

The US Securities and Exchange Commission (SEC)'s proposed climate disclosure rules are expected to be released soon in final form. Although I and others have argued that the rules fall squarely within the SEC's long-standing regulatory authority and should easily pass constitutional muster, litigation is inevitable, possibly on both of these grounds.

Assuming investors are right when they say they need climate risk information that companies aren't telling them, then an obvious question for skeptics of the SEC's authority to mandate climate disclosure is, "If the SEC can't do it, who can?" In the US system, the next best option would be the Environmental Protection Agency (EPA), but the EPA isn't authorized to regulate how information reaches the capital markets – not to mention that the Supreme Court decided last summer that the EPA isn't even authorized to protect the environment by regulating emissions. (This context explains why a post that is about the SEC's climate disclosure rules is not, in fact, about climate change. To stay at the core of its clear statutory authority, the SEC has taken pains to stress that its rules do not address climate issues generally.)

The status quo - and what investors are left with if the new rules cannot survive court challenge - is to look to investors themselves. Reliable opponents of disclosure rulemaking like the US Chamber of Commerce have long argued that shareholders proposals and other forms of private ordering are better ways for investors to get information than imposing more transparency on all companies as a condition for access to the public capital markets (though the US Chamber also argued for tighter limits on shareholders' access to these tools).

The suggestion that investors are the answer has been extended in a recent paper by Scott Hirst, who argues that the SEC could (and in Hirst's view, must) use shareholder voice to prove that climate risk is material to a given firm's investors. This proposal could also make the SEC's climate disclosure rules more flexible and thus more defensible.

Specifically, Hirst argues that the SEC should let each company opt out of all or part of the climate disclosure rules if investors vote to do so. Management would start the process by deciding what rules to put to an opt-out vote. If investors think climate risk is material and the benefits of transparency outweigh the compliance costs, they won't support an opt-out. If they do, so the argument goes, then the costs of climate risk disclosure outweigh the benefits, and the firm shouldn't have to report. Hirst rightly observes that an opt-out would be preferable to an opt-in, where the default position for most firms would be to not provide any specific climate risk disclosures.

Leaving the tough questions up to shareholders has a certain appeal. Giving firms more flexibility could well stave off the more far-reaching administrative and constitutional arguments that, were they to stick, could invalidate not only climate risk disclosure but most of the existing federal disclosure regime as well. This would be a death knell for investor confidence in the U.S. capital markets. And since US investors already get a "say on pay," why not a "say on climate disclosure"? But investors cannot and should not do the SEC's job, and there are high costs to making them try.

One reason not to just leave it to investors is that this is the approach the SEC, along with the rest of the world's major capital markets, has been taking for years. It is now over a decade since the SEC issued guidance urging companies to assess the materiality of climate-related information under the existing reporting rules, but the level of climate-related reporting in corporate filings is low.^[2] More importantly, most companies still report climate information, if at all, outside their public filings based on disparate, self-selected standards. This makes it difficult for investors to see what's missing and to compare information across sectors and over time. Leaving disclosure demands to investor self-help is also costly not just to investors, but to companies too.

The second reason is that disclosure is about more than materiality. Even if climate risk were not material to investors and important to helping markets efficiently price climate risk, the SEC has clear authority and justification to adopt climate risk disclosure because of the systemic risk that climate risk poses to the capital markets as a whole. The SEC is charged with maintaining orderly markets, which includes using disclosure to mitigate systemic risk. This responsibility cannot be left to investors.

"Investors cannot and should not do the SEC's job, and there are high costs to making them try"

But the main reason that investor (read "corporate") opt-outs, like voluntary disclosure and shareholder proposals, aren't reasonable or acceptable alternatives to SEC-mandated climate disclosure is that they don't advance the same goals. The core goal of the SEC's rules, like the standards coming out later this year from the International Sustainability Standards Boards (ISSB) and the European Union, is in fact to standardize climate disclosure across firms and sectors.

"The SEC is charged with maintaining orderly markets, which includes using disclosure to mitigate systemic risk. This responsibility cannot be left to investors."

All three use the baseline framework of the [Task Force on Climate-Related Financial Disclosures \(TCFD\)](#), which it's worth noting, aligns with financial materiality as defined under the US securities laws.

Flexibility is necessary but it impedes standardization. In fact, [as I've argued in recent work](#), the SEC's rules already build in flexibility, maybe too much flexibility. Corporate disclosure opt-outs would go further, tuning the SEC's rules into a menu from which a new generation of case-by-case exemptions would emerge. If their goal is to help the SEC's rules survive as Hirst argues, it is hard to see how a system that makes it impossible for the rules to achieve their most basic purpose would survive challenge, even if the courts take a liberal view of the SEC's cost-benefit analysis.

Shareholder referenda, like shareholder proposals, ultimately push the regulatory burdens of investor protection – a clear responsibility of the SEC – onto investors themselves. Outsourcing disclosure regulation to investors (or voluntary standard setters) also pushes the costs of getting information on risk – something companies are loathe to disclose voluntarily – onto investors as well. This is because the real cost of any shareholder vote is the cost of ensuring that the vote is informed. Management is unlikely to present to investors the informational benefits of the information the firm hasn't and won't produce if the opt-out passes. Nor is management likely to divulge the value of the compliance cost "savings" investors should weigh against those benefits unless another new SEC disclosure mandate compels them.

Since more information disclosure would be needed to make voting on climate disclosure informed, shareholder disclosure referenda would be unworkable, not readily administrable, and far more costly to investors than a straightforward, but flexible, disclosure mandate such as the SEC has proposed.

Blocking mandatory climate disclosure or subjecting it to opt-outs will make the U.S. the only major market in the world where investors do not have reliable, comparable climate risk information as a matter of course. This comes at a high cost to the reputation, competitiveness, and stability of the U.S. capital markets. Investors are already paying the costs of climate risk transparency that companies should have to bear. They shouldn't be asked to take on the SEC's job as well.

By Virginia Harper Ho, Professor at the City University of Hong Kong School of Law and ECGI.



SEC

The “Net-Zero pitfall”

Vincent Triesschijn
ABN AMRO Bank

In many ways the last year has been remarkable to me. Besides geopolitical and economic events, the heated public debate on ESG (environmental, social, governance) is one that I will always remember. It adds a new dimension to my job, as head of the ESG and Sustainable Investment team of a bank with over 5 million clients and high visibility in the markets where we operate. Internet search engine requests for ESG information have skyrocketed – and so have stakeholder questions.

In 2022 ABN AMRO communicated its climate strategy. Again, this raised questions, most notably around the “real world outcomes” of our net-zero approach (i.e. how do we make sure that net-zero on paper is also net-zero in the real world). Why would you want to invest using a net-zero approach? From my perspective, there could be (at least) two reasons: 1) to reduce financial risk in portfolios (the effect of climate change on investments) and 2) to support the sustainability transition that is necessary to limit global warming (the effect of investments on climate change). Respectively, these approaches to sustainability can be categorised as single and double materiality.

"Selling a high polluting company from a portfolio, for example, may reduce the carbon risk in the portfolio, but it does not necessarily change anything in the real world."

Let's take a look at single materiality (related to financial risk for the company). Companies with high carbon emissions may be required by (future) laws and regulations to reduce carbon emissions or to offset them. In some cases, companies will be subject to paying a carbon price or carbon taxes and this will affect their financial results, especially if they cannot pass this cost on to their end-clients. In addition, companies may be hurt financially by physical damage caused by extreme weather, such as heat waves and flooding. When this is a material risk, it threatens the financial goals of the company and its investors. We therefore aim to understand how vulnerable a company may be to these risks, by forming an opinion on sectors and public policy development. As this focuses on financial risk, we believe it should be something that every investor would want to address in any portfolio – although there is no market consensus on this, considering relatively high valuations for some high risk companies.

In 2022, I had several conversations with asset managers on their climate strategies. Most of them have a plan to structurally lower portfolio company carbon emissions and to estimate and monitor how these emissions may differ from general capital markets, i.e. measuring their “tracking error”. In addition, some asset managers screen a company's vulnerability to extreme weather. From a single materiality point of view, this all makes sense.

From a double materiality point of view (related to risk for society, in addition to financial risk for the company and investor), I believe we should be more critical. Selling a high polluting company from a portfolio, for example, may reduce the carbon risk in the portfolio, but it does not necessarily change anything in the real world.

In the summer of 2022, Robert Eccles (visiting professor at Oxford's Saïd Business School and formerly at Harvard Business School and MIT) wrote a tutorial for investing in oil and gas companies, triggered by the US debate on ESG. He explained that selling stocks has no direct impact on companies. The stocks that are sold simply get bought by others. These new shareholders may not care about the environment and vote against change at the company. According to Eccles, it is much better to work with companies to stimulate the transition to net-zero. I call this the "net-zero pitfall". In periodic reporting, a divestment will register as a reduction in portfolio carbon emissions, while outside the portfolio, nothing has really changed. There may also be a risk of divesting from or denying capital to companies that are essential to enabling the energy transition. Carefully stated, divestment is at least a debatable investment strategy in terms of its ultimate effectiveness.

In April 2022, the UN-convened "Net-Zero Asset Owner Alliance" published a paper in partnership with the World Wildlife Fund (WWF) stressing that "Facilitating the net-zero transition in the real economy requires that investors also actively support decarbonisation efforts through engagement with companies and their stakeholders" by means of a "forward-looking, systematic stewardship approach".

It supports allowing companies to work on climate targets and plans. If the progress lags, ultimately divesting can give a final signal to the company.

It may be easier to meet carbon reduction targets by simply selling companies in portfolios. From a reporting point of view, you do not see a difference. However, to prevent that net-zero strategies are relegated to "net-zero blah, blah, blah," it is essential to consider the difference between single and double materiality and for asset managers to be transparent to their stakeholders regarding their intentions, approach, engagements and voting behaviour at AGMs.

Evaluating financial risk related to net-zero goals is a good start. But for real change to be made – to achieve the goal of a net-zero world – more work and engagement are required. Engagement with companies allows for a better fundamental qualitative analysis and may allow to influence portfolio companies directly. Something on the list for when you speak with your asset manager.

By Vincent Triesschijn, Global Head ESG and Sustainable Investments ABN AMRO.

N E T

Z E R O

The shaky logic of corporate emission reduction claims

Kumar Venkat
Climate Trajectories

If we could hypothetically measure the GHG emissions to the atmosphere from the operation of a single company, it is unlikely that we would see the same reductions in emissions that the company might be reporting in its annual disclosures.

The question of whether a climate action delivers any additional emission reductions beyond what would have happened anyway – defined as additionality – is not limited to carbon offsets but is pervasive in the decarbonization space.

Energy efficiencies and electrification do lead to additional and immediate emission reductions

Let us say a company weatherizes its buildings, so it is using less natural gas to heat the buildings in the winter and less electricity for air conditioning in the summer.

"Many emission reduction claims are not additional in the sense that they do not reduce emissions relative to a business-as-usual baseline – at least not in the short term – so a company could take credit for a reduction this year that may have no climate impact for years to come"

This cuts down the company's direct (scope 1) emissions from natural gas combustion. Indirect (scope 2) emissions from purchased electricity will also decrease because lower electricity use can translate in almost real-time to less fossil fuel burnt at power plants. Both emission reductions are immediate and additional and would be picked up by our hypothetical measurement system.

If the company replaces some of the fossil fuels it uses in heating and transportation through electrification, that will further reduce its scope 1 emissions while increasing its scope 2 emissions. On balance, electrification generally (though not always) leads to more efficient use of energy and lower overall emissions. These reductions are immediate and additional as well.

Renewable energy purchases open the door to non-additionality

Outside of the direct use of fuels and electricity, emission reductions get trickier. Companies generally cut their scope 2 emissions by buying renewable electricity to compensate for each MWh of grid power consumed and then using market-based accounting to take credit for it. Nearly 44% of all voluntary renewable electricity purchases in the US are in the form of unbundled renewable energy certificates (RECs). These are just the environmental attributes of renewable electricity that has already been produced and sold into the grid, and the emission benefits have already been realized. A company using RECs to cut its scope 2 emissions will have no discernible effect on the GHG emissions entering the atmosphere because there are no additional reductions as a direct result of the purchase.

A recent study estimates that 42% of committed scope 2 emission reductions will not result in real-world mitigation because they depend on RECs. Bloomberg reports that S&P 500 companies bought 32.7 million MWhs of unbundled RECs in 2020, which calls into question the emission reduction claims of major technology and consumer product companies.

Many scope 3 emission reductions are non-additional

The lack of additionality extends to many other emission reduction actions in the scope 3 category which covers the upstream/downstream value chain. Consider a company that is replacing virgin raw materials with recycled materials which have lower life-cycle emissions. If the company increases its purchase of recycled materials, then other buyers in the market will see a lower supply of recycled materials and will have to use more virgin materials in their own products. All of these materials have already been produced and the resulting emissions are baked in, so this change will not result in any detectable reduction in actual emissions at the time that the company takes credit for using the recycled materials.

If a company reduces business travel in order to cut emissions, the same number of airplanes are still going to be flying unless a large number of travelers decide to stop flying. Companies shifting the menus in their on-site cafeterias in favor of plant-based options must confront the fact that emissions-intensive meat production is unlikely to slow down without a mass movement toward meatless foods.

In the short term, the primary effect of a single company changing its purchasing choices is to reallocate a fixed emissions pie across all market participants. If some businesses reduce their carbon footprints, then others will be saddled with higher footprints.

Many purchasers acting in concert, however, could change the future production decisions of suppliers and potentially reduce the size of the total emissions pie down the road – but that will require significant market alignment among a large number of market participants which we haven't seen yet.

The underlying issue

Carbon accounting as practiced today – and systematized by GHG Protocol's corporate accounting standard – is based on the attributional model and simply aims to allocate existing global emissions to companies (as opposed to the more complex consequential model one might use to answer the question of how global emissions would change as a result of changes to a company's operation). This vastly simplifies the calculations and aligns with how markets behave in the short term but is rooted in the assumption that total global emissions are unchanged. Attribution is a suitable method for the retrospective allocation of environmental responsibility but not for assessing the impacts of future long-term changes.



In practical terms, attributional accounting fails to capture the difference between immediate and additional emission reductions (such as the scope 1 and scope 2 reductions from efficiencies and electrification) and potential long-term reductions (such as the scope 3 examples above). The standard makes no distinction between these, and the default approach has been to treat all reductions as immediate and additional. Companies using the Science Based Targets initiative (SBTi) are expected to follow this accounting framework, which raises the question of whether the planet is seeing anything close to the reductions they are reporting.

SBTi is beginning to recognize the problems with scope 2 reporting, but there hasn't been any acknowledgement of the issues with scope 3 reporting. Other industry voices are beginning to speak up on the issue of additionality. It is possible to make targeted changes to both scope 2 and scope 3 accounting rules that allow companies to take credit only for emission reductions that can be reasonably shown to decrease global emissions within the reporting year. Other actions that contribute to potential long-term reductions could be reported separately so that companies are recognized for contributing to the collective effort without undermining the credibility of the accounting process.

These changes might not be easy given the long history of GHG Protocol's well-established standard. But without a more nuanced approach to reporting the impacts of a company's actions, the logic of emission reduction claims will remain shaky and questionable.

By Kumar Venkat, founder and CEO of Climate Trajectories, a company providing climate data services.

Will the U.S. ESG backlash get board directors off the hook for climate change?

Robert Eccles & Cynthia Williams
Said Business School, University of Oxford &
York University, Osgoode Hall Law School

In October of 2021 The Commonwealth Climate and Law Initiative (CCLI) published "Fiduciary Duties and Climate Change in the United States" by Sarah Barker, Cynthia Williams, and Alex Cooper. CCLI is a UK-based NGO which works with leading academic institutions (e.g., the University of Oxford), corporate law firms (e.g., MinterEllison), and civil society organizations (e.g., ClientEarth). The focus of the CCLI is to analyze board directors' legal obligations regarding climate change and to disseminate its findings in order to increase directors' understanding and to improve their ability to fulfill their fiduciary duties. Working together with the Climate Governance Initiative, and with leading law firms throughout the world, CCLI has also published a legal primer on directors' duties regarding climate change in 26 countries and the EU. It finds remarkable similarities across jurisdictions, regarding the obligations of board directors to incorporate climate change into strategy, oversight, and disclosure, even between common-law and civil-law regimes.

This result could hardly be otherwise, given the financial risks and opportunities that climate change poses across industries, technologies, and geographies, and the scientific consensus on which the need to act on climate change is built. As one exemplar of the implications of that strong consensus, in 2021, as part of the COP 26 climate negotiations in Glasgow, the Glasgow Financial Alliance for Net Zero, GFANZ, was announced.

This Alliance of banks, asset managers, and insurance companies, with more than \$130 trillion of assets under management today, was based on a pledge by the participating companies to work towards net-zero status in their businesses by 2050 or sooner. Led by former UK Bank of England Governor Mark Carney, who is now the U.N.'s Special Envoy on Climate, it has promise as a "soft law" governance mechanism to develop voluntary industry standards for the constituent entities in reducing the carbon emissions of their businesses, and of their investment portfolios.

Yet, the visibility of this and other climate initiatives is creating a dangerous backlash in the United States, framed as "anti-ESG" or "anti-woke capitalism," but with a particular focus on slowing the climate transition. Most of this gunfire is being pointed by Republicans at the asset managers and banks that are founding members of GFANZ, accusing them of "boycotting" fossil fuel companies (even though they aren't). The response has been to "boycott the boycotters" by not using them to manage state pension fund assets. Texas passed the "Section 809 Boycott Provision," the logic of which is weak at best. The American Legislative Exchange Council (ALEC) proposed a "Eliminate Political Boycotts Act" as model legislation for Red states to pass. Somewhat embarrassingly, ALEC's board of 23 Republicans rejected this proposal in January of 2023 and the page explaining this act no longer exists.

Presumably some Republican members of the board recognized that it is inconsistent with traditional Republicans'—or Democrats'—principles for government to pass laws telling asset managers what risks they may or may not consider in constructing portfolios or voting their shares of stock.

Much of this is political theater and time will tell whether it makes any substantive differences in how asset managers make their investment decisions. We suspect the answer will be "Not much, if at all." At the same time, we are seeing companies becoming nervous about all this drama and wondering if they should scale back on, or at least be less vocal about, their sustainability efforts, including climate change. The answer here is a definite "No."

Another CCLI report has evaluated litigation risk for companies around the world reporting on trends in litigation that increasingly target companies and boards for failing to incorporate climate change risk into strategies, oversight, and disclosure. In recent months cases have been brought against the directors of Shell plc and against BNP Paribas for failing to align their operational strategies (Shell) or lending (BNP Paribas) to the realities of climate change. While these cases will undoubtedly take a long time to be resolved, the direction of travel is clear. Doing nothing about climate change is not an option that is consistent with board directors' duties and company operations.

Thus, board directors must ensure that the company is adequately prepared to deal with risks that can interfere with shareholder value creation. In the case of climate these are physical risks (e.g., more extreme and intense weather events), economic transition risks (e.g., changes in policy and regulations and technological and business model obsolescence), and litigation and liability risks (e.g., from the attribution of a company's activities to climate change or from failing to manage the previous two risks at the expense of shareholder value). Politics doesn't make physical risks go away and it increases economic transition risks, resulting in increased litigation and liability risks.

"Doing nothing about climate change is not an option that is consistent with board directors' duties and company operations."

The board's fiduciary duty is grounded in duty of loyalty (e.g., to at least monitor the company's compliance with legal obligations) and duty of care (e.g., make lawful and informed decisions through a robust process of information gathering and deliberation). The only way for these duties to disappear would be a fundamental change in company law and there is nothing on the horizon that suggests this is going to happen. It is certainly hard to imagine any Republican initiative that weakens the discretion of board directors given the concern some of them have about the alleged ideological motives of some large asset managers, with BlackRock being a prime target.

The ESG Culture Wars will no doubt rage on, at least until the next Presidential election. Entertaining, amusing, frustrating, and maddening though these activities may be, they change nothing about the board's fiduciary duty to ensure the company is addressing climate change.

By Robert Eccles & Cynthia Williams.
Robert Eccles is Visiting Professor of Management Practice at Said Business School, University of Oxford and Cynthia Williams is Osler Chair in Business Law at York University.

Biodiversity as systemic risk: Game-changers for capital markets

Robert Walker
International Corporate Governance
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The Challenge

Historically ignored by business strategy and investment stewardship, biodiversity is increasingly recognised as core to the task of long term sustainable value creation; and biodiversity loss understood as both a firm-specific and systemic risk.

Some aspects of the economic value of biodiversity and nature are obvious (e.g. fish stocks, forest resources, genetic material for developing medicines). But for centuries abundance has made these resources seem inexhaustible, and therefore of little interest to fiduciaries beyond the prospects of a select number of natural resource-dependent companies. For society as a whole, not just fiduciaries, few understood our economic reliance on ecosystem services and that the lack of payment for these services was unsustainable and a prime generator of investment risk. Our economic prosperity has not reflected nature's true value and the benefits it has provided.

Other aspects of biodiversity and its economic value are only recently becoming understood by capital markets. For example, investment fiduciaries are beginning to understand how biodiversity underpins critical natural systems such as recycling nutrients in soils, pollination, and purifying water. We also now know how the loss of nature can trigger pandemics caused by zoonotic pathogens that for a time find a 'reservoir' in mammals but then cross over to infect humans.

The complex, dynamic, and inter-related connections between biodiversity loss and climate change are also confirmed. In a landmark joint report, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) concludes that:

"Unprecedented changes in climate and biodiversity, driven by human activities, have combined and increasingly threaten nature, human lives, livelihoods and well-being around the world. Business as usual is not a viable long-term strategy"

In this context it is easy to feel overwhelmed, left searching for viable plans of action. Fortunately, scientists, economists, public policy-makers, business leaders, and investors have been developing the strategies and solutions that can allow us to get a handle on the biodiversity challenge. In a recent Viewpoint ICGN advanced 10 "game-changers": concepts, processes, strategies, frameworks, legal regimes that will fundamentally change how the economy and capital markets interact with the environment. For this article, let's have a look at a couple of key game-changers aimed at corporates and investors.

Disclosure Frameworks to be Finalised in 2023

Two corporate biodiversity disclosure frameworks will be finalised this year. The first is the framework now promulgated by the Taskforce for Nature-Related Financial Disclosure (TNFD). Modelled on the Taskforce for Climate-Related Financial Disclosures (TCFD), but adjusted for the unique challenges of reporting on risks and opportunities associated with biodiversity and nature, the TNFD aims to develop and deliver a risk management and disclosure framework for organisations to report and act on evolving nature-related risks.

The ultimate aim is to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.

The TNFD framework uses the four main disclosure categories of the TCFD: governance, strategy, risk and impact management and metrics and targets. While boards will wish to become familiar with the main features of the framework and the nomenclature of biodiversity metrics, directors should also note that the TNFD calls for disclosure of the board's oversight role. Critically, the TNFD advances disclosure of how stakeholders are engaged in the risk assessment process.

Relatedly, in December 2022, the International Sustainability Standards Board (ISSB), clarified that a company's ability to deliver value for its investors is inextricably linked to the stakeholders it works with and serves, the society it operates in, and the natural resources it draws on. Sustainability will be described in the ISSB's General Sustainability-related Disclosures Standard (S1) as the ability for a company to sustainably maintain resources and relationships with and manage its dependencies and impacts within its whole business ecosystem over the short, medium, and long term.

The ISSB has also recognised the connection between climate and biodiversity. The ISSB will now research incremental enhancements that complement the Climate-related Disclosures Standard (S2), including relating to natural ecosystems and the human capital aspects of the just transition to a low carbon economy. To deliver this, consistent with its approach of building upon the work of market-led initiatives grounded in current-best practice and thinking, the ISSB will consider the work of the TNFD and other existing nature-related standards and disclosures where they relate to the information needs of investors.

"The ultimate aim is to support a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes."

The TNFD has promulgated beta version 0.4 for trial and comment. The final version will be released in September 2023. ISSB standards will also be finalised in 2023. Corporate directors should ensure that management is putting in place the people and procedures necessary to ensure compliance.

Finance for Biodiversity Pledge and Nature Action 100

The Finance for Biodiversity Pledge commits financial institutions to call on global leaders to protect and restore biodiversity through their financial activities and investments. The pledge consists of five steps:

1. Collaborate and share knowledge on assessment methodologies, biodiversity-related metrics, targets and financing approaches for positive impact.
2. Incorporate biodiversity into environmental, social and governance (ESG) policies and engage companies to reduce their negative and increase their positive impacts on biodiversity.
3. Assess financing activities and investments for significant positive and negative impacts on biodiversity and identify drivers of its loss.
4. Monitor opportunities to set and disclose targets based on best available science to increase significant positive and reduce significant negative impacts on biodiversity.
5. Report annually and be transparent about the significant positive and negative contributions to global biodiversity goals linked to financing activities and investment portfolios.

As of March 2023, the pledge includes 126 financial institutions in 21 countries representing 18.8 trillion euros.

In December 2022, Finance for Biodiversity partnered with other key groups to launch Nature Action 100, a new global engagement initiative created to drive urgent investor action on the nature-related risks and dependencies in the companies they own. The initiative will engage companies in key sectors that are deemed to be systemically important in reversing nature and biodiversity loss by 2030.

Modelled on Climate Action 100+, Nature Action 100 aims to drive greater corporate ambition and action on tackling nature loss and biodiversity decline, complementing the UN Global Biodiversity Framework. The initiative will identify the actions companies need to take to protect and restore nature. Stewardship teams should assess the value of joining the initiative. Board directors should maintain watch on the sectors and companies that will be prioritised for engagement and take heed of the solution-sets that the investor initiative will propose.

One Last Word

TNFD, reinforced by the standards advanced by the ISSB, and the stewardship action undertaken by Nature Action 100 are key features of a rapidly expanding network of nature-related disclosure frameworks and investor initiatives. Disclosure requirements combined with shareholder demands will prompt companies to allocate the resources necessary to assess their risks and take the steps necessary to avoid negative impacts, minimise where they can't avoid, and begin the process of restoration.

Five years ago biodiversity loss did not feature prominently in discussions of investment risk. But, along with climate change, this challenge has now jumped to the top of the global agenda, presenting potentially existential threats to the economy, society and capital markets. It is difficult to discuss the risks presented without sounding alarmist. But the reality is that the world has now entered an era where humanity has become the dominant evolutionary force and is triggering the greatest extinction of species we have known. Action is required. Happily, opportunities for taking action are rolling out right now.

By Robert Walker, Sustainability Policy Manager at ICGN and current Chair of the Nominations and Governance Committee of the International Institute for Sustainable Development.



Could over-regulation of biodiversity prove counter-productive?

Janis Lapins & Daiga Grinfelde Latvia's State Forests (LVM)

The EU Green Deal is a comprehensive policy framework aimed at transitioning the EU to a sustainable and low-carbon economy. It has significant implications for the forestry sector in Europe, as forests play a crucial role in mitigating climate change and protecting biodiversity.

One of the primary goals of the Green Deal is to achieve carbon neutrality by 2050, which requires significant reductions in greenhouse gas emissions. Forests have a vital role in achieving this goal, as they can sequester and store carbon from the atmosphere. The Green Deal recognizes the importance of sustainable forest management practices in achieving this goal and emphasizes the need to increase the EU's forest carbon sink.

However, it also fails to take into account the environmental differences amongst European forests, creates the potential for negative impacts on biodiversity which without active management can result in monoculture plantations, and fail to adequately address the social aspects of forestry such as the rights and livelihoods of forest-dependent communities.

This article seeks to highlight the complexities of forest management and the need to balance competing goals to achieve sustainable outcomes. It also emphasizes the importance of using multiple indicators and interconnected analysis to assess biodiversity and the potential for innovative approaches to support sustainable forestry practices.

Today, various segments of society have multiple expectations from forests and their management, making it challenging to meet all these expectations simultaneously. By protecting a species of plant, for example, it may become unfeasible to implement sustainable forest management practices. There is also inequality in the approach to forest management on a global level. For instance, the Biodiversity Convention is non-binding, whereas the EU is increasingly adopting legally binding approaches. This difference in international approaches decreases the competitiveness of the EU forestry sector.

The ideal situation would be to have a single solution that helps achieve several goals. However, this is not always feasible.

"Improving carbon sequestration and enhancing biodiversity protection may appear to be a win-win situation, but in the long term, the forest environment may reach a point where natural mortality equals the annual increment level, and the forest can no longer provide additional carbon sequestration"

The time it takes for a forest to reach carbon saturation depends on a range of factors, including the forest type, age, management practices, and environmental conditions.

Young and rapidly growing forests are typically more effective at sequestering carbon than mature or old-growth forests, which are generally close to or at carbon saturation.

Another example is related to drainage systems. The general call to abandon drainage systems can be understood in the context of protecting rare species or habitats, but such an activity can reduce carbon sequestration in forests and even cause trees to die. Published research draws different conclusions regarding forest drainage. From a carbon sequestration perspective, drained forests are more productive, leading to significantly higher CO₂ uptake. As not every forest is alike, the use of drainage systems in European forests should be considered on a case-by-case basis, taking into account the specific forest type, management goals, and environmental conditions. It is important to implement best management practices to mitigate any negative impacts.

Biodiversity protection is crucial at the forest property level, where the details matter. While the guideline is generally to increase strict protection, in practice, protected species may follow management activities outside the territory intended for their protection. An example in Latvia is the plant *Erica tetralix* which has spread well beyond its original habitat as a result of its protected status. Therefore, while a strict protection regime is essential for providing favorable conditions for habitat and species protection, there may also be a need for a special management regime to maintain specific habitats' good conditions.

There is no universal indicator available that can fully characterize biodiversity, and it is unlikely that one such indicator will be discovered in the future, given the broad scope of biodiversity. A combination of indicators is used to characterize biodiversity, and these indicators should be analyzed in interconnected ways rather than separately.

Latvia's State Forests (LVM) is closely involved in biodiversity conservation. With more detailed information on biodiversity than ever before, but without similar data for historical periods, it is difficult to compare the situation over time in Latvia.

Over a century, significant land use changes have occurred in Latvia with forest cover increasing from 27% in 1925, to 53% in 2022. The forestry sector is a major contributor to Latvia's economy, accounting for around 3% of its GDP and providing employment for around 30,000 people. It is an important source of employment and income for rural communities. Forests have long been an important part of Latvian culture and history, and the forestry industry plays a role in preserving this heritage. The industry provides opportunities to maintain these connections through forest management, recreation, and other activities. In the forestry sector, circular economy was understood as a full use of raw materials without creating waste, typically driven by market forces. However, there is a new idea to develop this process further with wood - the idea of using the value cascading principle.

This is a complex concept that can be difficult to implement in practice due to the lack of clarity around how the principle should be applied and how it can be monitored and enforced. It therefore remains an open question whether this requires legislation and whether such regulation can indeed help to achieve the multiple goals that we seek to achieve.

The forestry industry in Latvia is constantly evolving, with new technologies and innovations being developed to improve forest management, harvesting, and processing. This creates opportunities for Latvian companies to develop new products and services, and to become leaders in the global forestry industry and circular economy, but only if future legislation does not become counter-productive. A truly balanced and integrated approach to sustainable forest management should consider economic, social, and environmental factors and recognize the complexities and trade-offs involved in achieving sustainable outcomes including carbon neutrality.

By Latvia's State Forests (LVM), a state-owned company managing more than half of Latvia's forest area.

Do investors care about biodiversity?

Zacharias Sautner
University of Zurich and Swiss
Finance Institute

Biodiversity, the variety of living organisms in all habitats, is deteriorating at an unprecedented and alarming level. Global biodiversity collapse jeopardizes the goods and services humans obtain from ecosystems to ensure their well-being, including food, air and water quality, and landscape, with potentially far-reaching economic implications. In addition, biodiversity loss may bring about a new "era of pandemics."

While the UN Convention on Biological Diversity (CBD) entered into force in 1993 and several Conferences of the Parties (COPs) to the CBD have adopted various plans to protect biodiversity, most goals have not been achieved; notably, the US has signed but not ratified the CBD. Recent globally coordinated steps toward protecting biodiversity include the Kunming Declaration of 2021, the Montreal Agreement of 2022, and the High Seas Treaty of 2023.

Given the potentially dramatic financial consequences of the loss of biodiversity, central banks and financial market supervisors are increasingly paying attention to the topic. As a result, important issues such as the risks related to biodiversity loss, how those risks are priced, or how financing flows need to be shifted toward biodiversity conservation remain underexplored.

In a [new paper](#), Alexandre Garel, Arthur Romec, Alexander Wagner, and I take a first step toward filling this gap by introducing to the finance literature a new proprietary measure, the Corporate Biodiversity Footprint (CBF), and exploring whether investors price the biodiversity harm caused by firms.

New Biodiversity Measure

Our measure is developed by Iceberg Data Lab and reflects the extent to which ecosystems affected by the business operations of a firm have been degraded from their pristine natural state. To this end, the CBF metric aggregates the biodiversity loss caused by a firm's relevant annual activities and expresses this loss in terms of km^2MSA (Mean Species Abundance). A CBF score of $100\text{km}^2\text{MSA}$ corresponds to either the loss of all the original biodiversity over an area of 100km^2 , or a reduction of 10% over $1,000\text{km}^2$. The measure quantifies a firm's direct and indirect impacts on biodiversity from four sources: land use, greenhouse gas emissions, water pollution, and air pollution. On average, land use represents the source of environmental pressure with the greatest impact on biodiversity.

Our analysis focuses on cross-sectional regression models relating the stock returns of individual firms to their biodiversity footprints. Our global sample consists of data on 2,092 listed firms from 35 countries between 2019 and 2021. This sample represents the universe of public firms for which data on biodiversity footprints are available from Iceberg Data Lab over 2018-2020. While our sample period includes only a few years, the most important policy developments concerning biodiversity are also quite recent.



Anatomy of the Corporate Biodiversity Footprint

Before considering stock returns, we analyze the determinants of a firm's biodiversity footprint. We find that it increases with firm size. Unsurprisingly, it relates positively to a firm's carbon emissions, which represent one source of environmental pressure through which firms harm biodiversity. The biodiversity footprint also correlates positively with the environmental (E) score of Refinitiv, one of the leading vendors of ESG data (i.e., firms with a larger biodiversity footprint tend to have better E scores). To the extent firms with a higher biodiversity footprint face a stronger demand from investors and society to report on their potential impact on the environment, one could expect such a correlation. Finally, we demonstrate that country and industry fixed effects capture the substantial variation in biodiversity harm across firms. Firms from Finland, Brazil, and Germany, and in the Retail and Wholesale, Paper and Forest, and Food sectors, record the highest average biodiversity footprints.

Cross-Section of Stock Returns and Biodiversity

Turning to the returns analysis, our first result is that no robust evidence exists that the biodiversity footprint is priced in the cross-section of returns. This result is inconsistent with investors either having preferences for stocks with a lower impact on biodiversity or requiring higher returns for the regulatory and reputational risks associated with a higher impact. When we consider different countries, world regions, and industries, we continue to find no evidence of a link between biodiversity footprints and the cross-section of returns in any of these sample subsets.

Biodiversity Policy Shocks and Stock Returns

Our second result exploits the pricing impact of two recent biodiversity policy shocks that, plausibly, increased both investor awareness about the loss of biodiversity and the prospect of future regulations to preserve biodiversity.

These events are the declarations adopted during the two parts of the UN Biodiversity Conference (COP15), which took place in October 2021 (Kunming) and December 2022 (Montreal). The Kunming Declaration calls for countries to act urgently to protect biodiversity through their decision-making and to recognize the importance of conservation in protecting human health. Analogous to the Paris Agreement for climate change, the Kunming Declaration stresses the need to align financial flows to support the conservation and sustainable use of biodiversity (Article 13).

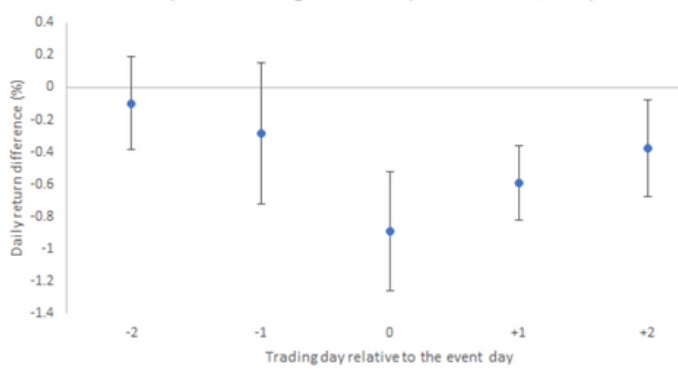
The second part of the COP15, in Montreal, ended with a landmark agreement including 23 targets for achievement by 2030. The most prominent one, known as 30×30, places at least 30% of the world's land and ocean areas under protection. Another target adopted in the Montreal Agreement is to "require large and transnational companies and financial institutions to monitor, assess, and transparently disclose their risks, dependencies, and impacts on biodiversity through their operations, supply and value chains, and portfolios." Because the outcomes of the two parts of COP15 were not determined beforehand, they qualify as plausible shocks to investors' expectations regarding the transition and regulatory risks faced by firms with large biodiversity footprints.

"It is striking that the link between biodiversity and finance has received very little attention by academic researchers."



If the COP15 raised their awareness of biodiversity issues and the prospect of future regulations aimed at preserving it, we would expect investors to revise downward their valuation of firms with larger biodiversity footprints. Indeed, we find that, in the three days following the announcement of the Kunming Declaration, relative to the three days before, large-CBF stocks experienced a stock price reaction of about -0.5 %, significant at the 1% level, relative to small-CBF stocks. This result is illustrated in the figure below.

Average difference in daily returns between stocks with above-median and stocks with below-median Corporate Biodiversity Footprint around the day of the Kunming Declaration (13th of October, 2021)



For the second part of the COP15 (Montreal), we do not detect negative stock price reactions, on average, for large-CBF firms. However, we find economically important heterogeneity in the market reaction when we condition the analysis on country-level measures of biodiversity protection.

Notably, we find a significant negative stock price reaction to the Montreal Agreement for firms located in countries with low levels of protection for biodiversity. The effects are particularly strong for firms with a large biodiversity footprint related to land use, which is plausible, given that the Montreal Agreement's 30x30 target is most relevant for firms with large land-use related biodiversity impacts.

Overall, we conclude that the biodiversity footprint has not, on average, affected stock returns in recent years, but that it is beginning to be priced by investors. Specifically, we show that two recent events likely to raise investors' awareness of the prospect of regulatory interventions to preserve biodiversity are associated with changes in the valuation of large-CBF stocks.

By Zacharias Sautner, Frankfurt School of Finance & Management and ECGI.



Are companies prepared for the new, emerging standard in biodiversity reporting?

Constantijn van Aartsen
Maastricht University

There is good reason that biodiversity loss has become an important topic on the global agenda. The WWF estimates that wildlife population sizes have decreased by 60% globally between 1970 and 2014. And UN Secretary-General António Guterres recently commented that “We are treating nature like a toilet” which, since we are dependent on the living world, amounts to “committing suicide by proxy.” Given this context, it is not unexpected that we are seeing an increase in biodiversity-related state and business activities.

Internationally, the most recent and prominent of these has been the December 2022 (COP15) meeting of the parties to the Convention on Biological Diversity (CBD), at which 188 states adopted four goals and 23 targets for 2030. While legally non-binding, the agreement includes a commitment to protect 30% of global land and water, to reduce subsidies for biodiversity-harming economic activities by \$500 billion per year, and to provide at least \$200 billion a year in funding for biodiversity-related activities. It also includes a reporting target for “large and transnational companies and financial institutions to monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity through their operations, supply and value chains and portfolios” [my emphasis].

It is significant that the terminology of this CBD standard is closely aligned with reporting standards which are under development by the Taskforce for Nature-Related Financial Disclosure (TNFD), and with the interim draft standards of the EU’s Corporate Sustainability Reporting Directive (CSRD).

The aim of the TNFD standards is to support “a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.” They are voluntary but highly influential since TNFD members represent over \$20 trillion in global assets. The current draft version of the standards (beta 0.3; final expected September 2023) asks companies to disclose material information on biodiversity risks, opportunities, dependencies, and impacts. Its guidance includes a raft of information on definitions, data analysis, and modelling, and even a full-fledged risk management framework. It is currently being tested by dozens of companies and financial institutions around the world.

The situation with the CSRD needs more explanation. It has been adopted as a framework Directive to replace the Non-Financial Reported Directive (NFRD), and already entered into force on 5 January 2023. Its detailed reporting standards have not, however, been adopted yet. Instead, their development has been outsourced to EFRAG and, once approved, will be adopted by the Commission through delegated acts.

The CSRD establishes that the first set of draft standards, which covers sustainability reporting in general, will be adopted by June 2023. A second set of standards, with sector-specific requirements, will be adopted by June 2024.

In terms of implementation, around 11,000 companies that are now covered by the NFRD will be required to report in accordance with the new CSRD standards from 2025 onwards (over the 2024 period). Other companies that fall under the expanded scope of the CSRD, a total of 50,000, will need to report from 2026 onwards over the previous year.

Importantly, the [interim draft standards](#) for the CSRD also require companies to disclose biodiversity risks, opportunities, dependencies, and impacts. This repeated terminology, evident also in the CBD and TNFD, suggests that influential players around the world are aligning on these four terms as an emerging standard for global biodiversity reporting.

Even though the emerging standard will only apply to (some) large EU companies in 2025, it is still relevant to ask what companies are doing now and how much they will need to improve.

With this aim in mind, [I examined the biodiversity reporting of 60 Dutch companies listed on the Amsterdam Stock Exchange](#). Of these companies, 34 firms (57%) refer to biodiversity-related activities in their 2021 annual report. Nineteen of them (32%) recognise biodiversity as a material topic, and 20 (33%) are strategically engaged with CSR in terms of policies and large-scale projects.

If we look at the four terms of the emerging standard, then we see that biodiversity is identified as a risk by 11 firms (18%), though only three (5%) of them see it as a separate risk. Eight companies (13%) make a generic statement about their dependence on biodiversity, but none of them explain this dependence in detail. Twelve companies (20%) identify biodiversity-related opportunities, and 15 (25%) have done some kind of biodiversity impact assessment. Only seven (12%) firms do these assessments regularly, and only six (10%) disclose more than their high-level conclusions.

In general, we can see that a significant minority of Dutch companies are active on biodiversity. Also clear is that much of this activity is recent, and that the momentum behind biodiversity reporting is increasing rapidly. Nevertheless, it is also evident that not a single company is reporting in alignment with the new, emerging standards for biodiversity reporting. This leaves little room for doubt that Dutch listed companies, and we can imagine their EU and international counterparts, will need to make big, annual strides to comply with upcoming market expectations and legal requirements.

By Dr. Constantijn van Aartsen, Postdoc for the Maastricht University Elverding Chair on Sustainable Business, Culture and Corporate Regulation.

Carbon emissions are a “who”, not a “what”.

Matt Moscardi
Free Float Media

Climate change might prove that Peter Drucker is a fool.

Drucker once famously (did not) say, “What gets measured, gets managed.” We’ve known about the impacts of climate change for decades. When I started in ESG a decade and a half ago, much of the time building ratings at MSCI, even then there was some available carbon data. And yet, here we are, with a lot of numbers showing us the oncoming apocalypse and lack of real management.

Drucker’s underlying assumption was that knowing something was enough of incentive that it would be managed. V.F. Ridgway took Drucker further, saying things would be managed even if they shouldn’t be. To Drucker, exogenous risk was a distraction. For climate change, the “what” is as much a function of “who” as it is anything else – the (misattributed) quote would be more accurate if it said: “Who we measure and pay to manage it, manages it.”

Incentives here are not solely a matter of compensation. The more powerful incentive might actually be power itself. The looming threat of losing power might be a greater motivating factor than money alone. At this point, regulations and multilateral policy movements don’t (yet) move the needle on personal power loss – but institutional investors absolutely can with their proxies.

We developed Board Sabermetrics to measure how much influence each individual director has over decisions in each boardroom.

It leverages research on social dynamics to understand how a person’s resume, role, status, and social network factor into the power tensions inside a boardroom. Once we know who has the power, we can begin to understand how they wield it. If you want to ruffle the feathers of decision-makers, say they’re bad at their jobs. In this case, the job of managing carbon emissions which in most instances they would say isn’t their job in the first place.

When you look at individual directors and their carbon performance, the results are startling. We mapped the scope 1 and 2 carbon emissions (as disclosed, admitting that scope 3 data is poor and arguably the most important for net zero) of each company to the directors, with “ownership” of those emissions made relative to their influence, over a five-year span. We then compare that performance against the “average” director peer in a sector and country – was this director’s emissions performance somewhere you’d expect? Or were they a negative outlier? In this way we can isolate directors with emissions among the worst in the world over half a decade and target them.

Out of 8,900 publicly traded companies in our database, 986 have boards where the majority of directors’ influence were consolidated with directors in the worst quartile for carbon emissions in the last five years. Yes, more than 10% of publicly traded companies have boards where the majority of power is consolidated amongst the most carbon inefficient directors in the world.

The worst offenders are not who you expect. The biggest overrepresented sector with directors who are the worst carbon performers was Information Technology. In fact, 17% of global large cap IT sector companies have the majority of their board power consolidated in poor carbon performers. The irony should not be lost that ESG ratings routinely award IT sector companies top environmental marks while the directors making decisions were routinely amongst the worst performers in the world. Nowhere is this clearer than looking at a global leader in carbon like Microsoft, which announced a net-negative goal while all of its board members have only overseen rising carbon emissions mostly due to the move to the cloud where emissions are actually worse.

We won't get to net zero as a globe focusing on IT companies, however. But we might if we police targets differently. Globally, of the 986 companies where the boards are power stacked against carbon efficiency, 1 in 5 have committed to science-based carbon targets. Delta Air Lines is a perfect example, having made net zero and science-based commitments, with a board of highly interconnected members, 88% of whom have historically tracked in the bottom quartile for carbon performance against peers. In fact, fully 14% of companies globally that have committed to a science-based target have boards where the majority of power is held by bottom quartile carbon dwellers.

"We're predicting this year could be the first time a director is voted out strictly on carbon bonafides, marking a sea change in carbon due diligence."

So here's the question:

As fiduciaries, when the stewards of your capital make a commitment with no track record of success, should you trust them?

Drucker was part right when he said what gets measured gets managed – we think when we start measuring who is managing, we might see carbon emissions management taken beyond "commitments" and into action.

By Matt Moscardi, CEO at Free Float LLC,
creators of Board Sabermetrics

Bridging the green infrastructure investment gap: Leveraging institutional investors and de-risking greenfield investment

Esther Choi & Lihuan Zhou
World Resources Institute

To deliver on international climate and development goals, it is critical to shift to, and scale up, investments in green infrastructure – what we refer here to as low-carbon, climate-resilient infrastructure. Public funding will continue to be critical to meeting the goals, yet it alone will not suffice with shrinking fiscal space in many countries. Private finance, therefore, must be successfully mobilized for green infrastructure development.

Institutional investors are a key source of long-term capital for scaling up green infrastructure investment. These investors, such as pension funds, insurance companies, mutual funds, and sovereign wealth funds, have trillions of dollars in assets under management, making them central players as in the provision of long-term capital. As the appetite for diversification, search for yield, and the attraction of unlisted assets continue to grow, institutional investors' exposure to alternative assets such as green infrastructure is increasing.

Institutional investors also have compelling reasons to engage in climate action, such as the potential impact of climate change on their performance, the need for long-term, inflation-protected returns, and the growing importance of ESG considerations in infrastructure investment. Low-carbon, climate-resilient infrastructure is a productive asset that can meet these needs.

How can these investors shift their investment more rapidly toward green infrastructure? What mechanisms can best enable that? A compelling answer lies in partnerships with entities like development financial institutions that can de-risk specific opportunities as well as the investment environment.

How do institutional investors invest in green infrastructure?

Institutional investors typically turn to closed-end funds and direct infrastructure investment to gain exposure to green infrastructure. Closed-end private funds lock up committed capital for the term of the fund, typically 7-12 years, by which time all the underlying assets are sold. These funds offer flexibility (as to when to sell assets without having to worry about maintaining liquidity), objective asset valuation, and relatively straightforward management.

However, they may not provide stable, inflation-protected, diversifying cash flows, which are ironically the main attraction of infrastructure investment. Closed funds require investors to exit their best-performing infrastructure assets instead of collecting long-term stable dividend payments. An assessment shows that the average performance of private infrastructure funds is lower than that of private equity buyout, venture capital, and real estate funds.

Direct infrastructure investment allows for greater control over the project and potentially higher returns due to lower management fees and expenses. Institutional investors can also align their investment horizons with the life of the project. However, the requirements of a large commitment to a single asset and of human capital can limit direct infrastructure investments to only the largest institutional investors.

Brownfield investments, a type of direct investment, involve acquiring operational projects with lower risk profiles, making them attractive to institutional investors (e.g., CDPQ acquiring an Indian solar company). However, scalability is limited due to the lack of a steady supply of quality projects. Also, the additionality of brownfield investments to address the investment gap is unclear since it's not guaranteed that the capital freed by institutional investors will continue investing in green infrastructure.

Investment in greenfield (new) infrastructure is essential to closing the infrastructure gap, particularly in emerging and developing economies where private investors are more hesitant to invest and greenfield infrastructure need is greatest. Yet, there are several barriers to this, including the lack of an investible pipeline of projects (quality and size), regulatory and policy uncertainty, unfamiliarity with developing countries, and highly fragmented capital structure. Institutional investors are potential sources of funding to bridge this gap, but they face limitations due to these barriers.

Institutional investors should prioritize direct greenfield investments. De-risking can help.

Institutional investors should prioritize direct investments in greenfield projects, which offer scalability and effectiveness, rather than solely relying on closed-end funds and brownfield investments. For institutional investors to be attracted to greenfield investment in emerging and developing countries, however, it's crucial to mitigate the various existing, perceived, or potential risks associated with such investments.

De-risking, which involves reallocating, sharing, or reducing risks, can be achieved through policy and financial means:

- **Policy De-Risking:** Policymakers, external donors, and development financial institutions can mitigate risks related to the investment environment, project pipelines, and political stability. Investment and infrastructure planning, along with infrastructure development policies, serve as crucial tools to direct and scale capital flows towards green infrastructure.
- **Financial De-Risking:** Employing public financial instruments like debt, equity, and guarantees to reduce risks, a structuring mechanism also known as blended finance. Public financial entities like multilateral development banks or climate funds can share a portion of the risk, thereby improving the risk-return profile for private investors, encouraging private investors to allocate capital and stimulating long-term investment from institutional investors.

Institutional investors can strategically collaborate with public financial institutions, which can de-risk investment opportunities, create favorable investment environments, blend different sources of capital, and provide expertise in working with developing and emerging countries. Such partnerships not only signal long-term political support and stability, but also enhance project credibility.

"Investment in greenfield (new) infrastructure is essential to closing the infrastructure gap, particularly in emerging and developing economies"

One example is the collaboration between the International Financial Corporation (IFC) and Amundi-Acba Asset Management, Armenia's leading pension fund manager, with the goal of catalyzing private investment in Armenian infrastructure. As the lead arranger, IFC streamlines the process for multiple lenders to provide financing to companies, offering expertise in deal-structuring, due diligence, and environmental and social risk management.

Through these strategies and partnerships, institutional investors can actively participate in driving sustainable infrastructure development and maximize their impact. This approach not only supports economic growth and development in emerging markets, but also helps address environmental and social challenges, creating a win-win situation for all stakeholders involved.

By Esther Choi, Research Associate at WRI Finance Center's International Financial Institutions and Lihuan Zhou, Associate with WRI's Sustainable Finance Center.

Can transparency and public pressure help mitigate environmental externalities and climate change?

Christian Leuz
The University of Chicago - Booth
School of Business

In light of the political difficulties of agreeing on more prescriptive emissions regulation or carbon taxation, countries have increasingly turned towards creating transparency over greenhouse gas emissions by asking corporations to provide disclosure of climate-related information. The hope is that public pressure exerted by consumers, investors, and civil society organizations could spur emissions reductions. However, we still have relatively little evidence that targeted transparency for corporate activities with externalities works and how it does so. In a recent study we study these questions in the context of hydraulic fracturing and in particular focus on the role of public pressure in improving environmental outcomes. Specifically, we evaluate whether state mandates requiring transparency for hydraulic fracturing activities are effective when it comes to reducing the impact of fracturing on water pollution.

Hydraulic fracturing, or fracking, is the contentious process where a mixture of water, chemicals, and propping agents are injected into rocks at high pressure to create fractures and allow oil or gas to flow. As a result, it has led to increased production of oil and natural gas in the United States, but it has also raised concerns about potential harm to water quality due to the chemicals used and the large amounts of wastewater produced.

In response to these concerns, several US states have begun mandating that newly fractured wells disclose details about their local drilling activity and the chemical composition of the hydraulic fracturing fluids used.

Our study utilizes a large geo-coded database that combined 325,351 surface water-quality measurements with data from 154,324 hydraulic fracturing wells from 16 states and from 2,209 watersheds with and without hydraulic fracturing activity from 2006-2019. We specifically analyse concentrations of salts associated with the fracking process, such as bromide, chloride, barium, and strontium, as these salts do not biodegrade and have been found in high concentrations in flowback and produced water from wells.

We found consistent declines in salt concentrations in surface water after the disclosure mandates went into effect, with declines ranging from 4.4 percent for strontium to 17.8 percent for chloride. We ruled out other changes in water quality that may have occurred around the time the mandates were introduced by studying other forms of surface water pollution that are not specific to hydraulic fracturing activities. We also showed that there are no significant declines in areas with conventional oil and gas development to which the disclosure mandates did not apply.

We found that the rate of new hydraulic fracturing wells being drilled declined marginally by about 5 percent after the disclosure mandate went into effect. This decline contributed to roughly 14 percent of the overall decrease in water pollution in the post-disclosure period.

Furthermore, firms changed their drilling practices such that wells drilled after the disclosure mandates had a smaller effect on salt concentrations than wells drilled before the mandates. Firms also used fewer hazardous chemicals and chloride-related chemicals in hydraulic fracturing fluids after the disclosure mandate. Additionally, the number of hydraulic fracturing-related accidents and spills that could be pathways for wells to affect water quality declined.

Looking at the mechanisms through which disclosure regulations operate, we find that targeted transparency was more successful in producing change in areas where public pressure was stronger. Hydraulic fracturing-related salt concentrations decreased the most in areas with a greater presence of local environmental NGOs and in counties with more local newspapers. We considered the amount of fracking-related news coverage, Google searches about hydraulic fracturing, as well as the number of local anti-fracking NGOs to see whether the results were more pronounced in areas where public pressure is higher and found that water quality improvements after the disclosure mandate were greater in areas where public pressure was higher. Our evidence points to disclosure regulation as a policy tool enabling social movements, environmental groups, local communities, and the media to exert pressure on hydraulic fracturing operators.

Thus, state mandates requiring transparency for hydraulic fracturing activities were effective in improving water quality, spurring improvements in hydraulic fracturing practices, and enabling public pressure.

"Transparency regulation can be an important piece in the regulatory toolkit for policymakers aiming to address environmental externalities. This is good news for the efforts to create transparency about corporate carbon emissions"

More generally, the study shows that transparency regulation can be an important piece in the regulatory toolkit for policymakers aiming to address environmental externalities. This is good news for the efforts to create transparency about corporate carbon emissions.

However, the link between disclosure, public pressure, and firms' climate or environmental actions is complex and multifaceted. The effectiveness of mandates depends on the accessibility and dissemination of the information and on how much pressure the public can exert on firms to make changes. Moreover, more transparency on greenhouse gas emissions can have a meaningful and welcome effect, but the challenges of climate change cannot be addressed by disclosure alone. Nevertheless, reporting regimes can make an important contribution, in particular, if they become the bedrock for other carbon policies that require emissions information and data.

By Christian Leuz, the Charles F. Pohl Distinguished Service Professor of Accounting and Finance at the University of Chicago Booth School of Business and ECGI.

Net-Zero transition: an inconvenient truth about carbon asset divestment

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When oil majors started to exit the Niger Delta, one of the most polluted areas in the world, it became a cause of celebration. It ostensibly showed that companies such as Shell, Eni, ExxonMobil, and TotalEnergies were making progress towards low-carbon operations in line with their lofty net-zero plans and targets. What followed, however, was rather disappointing: as local companies gradually took over Nigeria's oil production, the region experienced growing production, a dramatic increase in flaring and unattended oil spills, which translated into more greenhouse gas emissions (GHG) and more harm to the climate and broader environment.

Divestments of their carbon-intensive assets (such as oil, gas, and coal) help divesting companies to claim progress towards environmental goals, for example, by hitting their net-zero targets and reducing their emissions, whether or not the transactions have this specific goal in mind. Yet, buyers usually have less commitment to environmental goals and operate under less climate action pressure and transparency, as in the case of the local producers in the Niger Delta. In our new paper, we zoom in on such divestments and evaluate their legal and economic implications.

As alarm bells ring louder regarding climate change, firms are increasingly coming under pressure to reduce their GHG emissions by investors, stakeholders, and regulators, with many firms relatedly adopting net-zero transition plans and targets.

Much has been said about the credibility of these targets, and rightly so. We further highlight that any achievement claimed towards such plans and targets might not translate into a real positive impact on the climate when divestments are the sources of this achievement. The danger is twofold: (i) divested assets might operate as before under new owners, making emissions reduction reported by divesting firms illusory and misleading and (ii) worse, such assets can be operated in a way that causes more emissions as new owners are more likely to be inattentive to climate goals and untransparent.

This danger is underlined by the economics of M&A transactions. Climate action creates a new transactional surplus for highly emitting assets to switch owners. Firms and their investors might arrive at different valuations of such assets as they differ in their opinion on at which pace and under which conditions the net-zero transition will occur.

The danger is twofold: (i) divested assets might operate as before under new owners, making emissions reduction reported by divesting firms illusory and misleading

Those not expecting a swift and sharp transition should value those assets more and have incentives to acquire them. More importantly, perhaps, different ecosystems firms find themselves in regarding climate action pressure also create different valuations of highly polluting assets for a transaction to take place.

For firms under pressure to take climate action from their investors, stakeholders, or regulators, holding highly emitting assets will be costly, reducing their value for such firms. In contrast, for firms that are relatively immune to this pressure, there will not be a similar cost element, and they will value such assets higher and have the incentive to acquire them. Therefore, equilibrium outcomes would involve highly emitting assets passing to owners that do not expect a swift net-zero transition or, more importantly, to those that operate in a more comfortable ecosystem in terms of climate action and, therefore, can be expected to be non-committal to climate goals. This might lead to higher emissions associated with the asset.

Based on the theory we present in our paper, we contend that assets might switch to privately held parties and state-owned entities. These owners face little to no investor pressure, are less likely to be targeted by stakeholders and can be (wrongly) omitted by regulators from their interventions (such as climate-related disclosure rules and mandatory adoption of net-zero transition plans and targets). Transactions between publicly held parties should not be, however, without concern as some publicly held players might still face less investor pressure, for example, when they are small-cap or have controlling shareholders. Alternatively, they might be local producers with different investor bases and social/regulatory expectations.

Indeed, emerging empirical and anecdotal evidence and reports from industry participants and stakeholders confirm these concerns.

Our look at the transactional characteristics post the Paris Agreement also indicates that transactions in which private players are acquirers and publicly held parties are sellers make up the biggest share of the transaction universe (in number but not in value). The list of frequent acquirers also features many private companies, while they are not among frequent sellers.

In a recent case, a Singaporean-listed company, Sembcorp Industries, sold its Indian coal power plants to a private consortium to cut its GHG emissions and avoid triggering paying higher interest payments on its sustainability-linked debts. This suggests that while market pressure might green some firms, the emission reduction might not be real when achieved through such divestments.

We see a role for regulators and private ordering in ensuring a framework where M&A transactions of carbon-intensive assets do not hamper climate goals. Such transactions can also be efficiency-driven rather than based on a surplus created by climate action-driven differences. Therefore, an important task is to separate those transactions from those that can undermine climate-action-related goals.

This perspective precludes the option of a ban on these transactions, but regulators can be given the power of vetting certain transactions in terms of their alignment with climate goals, and they might require some climate standards to be complied with by transacting parties. Regulators should also remove arbitrage opportunities where some firms are under less pressure to decarbonise and thus have incentives to acquire highly polluting assets. This is especially true with climate-related disclosure rules that have traditionally applied only to publicly held companies in the EU and the UK, which is now being remedied by extending the scope of these rules to some private companies. In all likelihood, this parity will, however, not be the case in the US if and when the proposed SEC rules are implemented.

Private ordering options are also important. Such transactions are not in the interest of climate-conscious investors even though the transaction can be value-maximizing for the investee firm. For such investors, overall climate impact can be important for financial reasons or due to their non-financial preferences. Thus, they might oppose transactions whereby highly emitting assets switch to owners likely to be non-committal to climate-action-related goals, especially privately held parties and state-owned enterprises. These investors have various tools to express their 'voice': voting on M&A transactions, say on firms' net-zero transition plans, private engagements, and taking positions in relevant activist hedge fund campaigns.

Another important tool is to utilise deal terms. The idea is to put covenants or other provisions in the contract to bind new owners to climate-related goals and standards. For example, if the seller is committed to net zero by a certain date, the buyer is required to do the same. Or, other climate-beneficial commitments in terms of how new owners handle the acquired assets can come into question (disclosing emissions, reducing flaring, plugging inactive wells etc.).

The usefulness of such covenants is that they eliminate the transactional surplus when it stems from the ability or willingness of the buyer to exploit the acquired assets fully or to engage in more climate-harmful activities.

This prevents such-surplus-dependent transactions while not affecting otherwise efficiency-driven transactions (where buyers have incentives to acquire assets not to benefit from climate-action-related arbitrage but rather have some real efficiency sources). We, however, see some enforcement problems with such deal terms, especially relating to specific performance and penalty clauses. Nevertheless, private enforcement can be supported by reputational issues and complemented by regulatory powers.

In conclusion, as we accelerate the climate transition, it is important to ensure that divestments of carbon-intensive assets do not lull us into a false sense of security or, worse, hamper climate goals.

By Alperen A. Gözlügöl, a postdoctoral researcher at the Law & Finance Cluster of the Leibniz Institute for Financial Research SAFE & Wolf-Georg Ringe, Professor of Law and Finance and Director of the Institute of Law & Economics at the University of Hamburg and ECGI.



Biodiversity finance: How can biodiversity be financed by private capital investments?

Caroline Flammer
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The biodiversity crisis is one of the grand challenges our world is facing. The current state of affairs is alarming. In their Living Planet Report 2022, the World Wildlife Fund (WWF) reports an average decline of 69% in species populations between 1970 and 2018, referring to this development as a “code red alert” for humanity. In addition, the loss of biodiversity represents an existential threat to the world economy. Recent estimates of the World Economic Forum reveal that more than half of the world’s GDP is dependent on nature and its services.

The protection and conservation of biodiversity requires considerable amounts of funding. Historically, most of this funding has been provided by the public sector and philanthropic organizations. However, this is unlikely to be enough. In a recent report, The Nature Conservancy estimates that about USD 722-967 billion per year of additional financing is needed to close the financing gap and effectively address the biodiversity crisis. How can we close this financing gap? One avenue could be the reliance on private capital. In this regard, a new development in sustainable finance is the emergence of “biodiversity finance,” in which private investors invest in biodiversity projects that aim to provide both financial returns and biodiversity impact. While this phenomenon is gaining momentum in practice, it is not well understood.

In a new study entitled “Biodiversity Finance”, Thomas Giroux, Geoffrey M. Heal, and I take a first step at exploring how private capital can help mitigate the biodiversity crisis.

Specifically, we provide a conceptual framework that lays out how biodiversity investments can appeal to private investors, and provide first evidence on biodiversity finance using the proprietary database of a leading biodiversity finance institution.

Risk and returns

Traditional investors care primarily about risk and returns. How can biodiversity investments generate returns? This is a difficult question, as biodiversity is a public good—that is, one cannot exclude individuals from “consuming” biodiversity even if they do not pay for it. Accordingly, the challenge is to find a way to monetize the benefits that arise from this public good. This can be done by bundling the public good (biodiversity) with a private good whose value depends on biodiversity. For example, the preservation of pollinators (such as bees, beetles, and butterflies) can enhance the farmland’s productivity. Hence, investments that bundle farmland investments with pollinators’ preservation can achieve the dual role of persevering biodiversity while providing a financial return to investors.

The second dimension is risk. While the bundling may help generate financial returns, these returns may not be sufficient to compensate investors for bearing the risks of biodiversity investments. One potential remedy is to de-risk biodiversity investments through the use of blended finance.

That is, private capital is supplemented (and hence “blended”) with funding from the public sector or philanthropic organizations. The blending reduces the risk borne by private investors, thereby improving the risk-return tradeoff from the private investors’ perspective. In this case, blended capital serves as a catalyst to attract private capital.

Private investments in biodiversity

To examine the practice of biodiversity finance, we obtain access to the proprietary database of a leading biodiversity finance institution. Since biodiversity investments are a new phenomenon, the database only includes 33 deals that were closed between 2020 and 2022 and are still ongoing (the average maturity of these deals is 8 years). We find that 19 deals are financed purely by private capital, while the remaining 14 deals are blended finance deals. On average, the pure private capital deals have higher expected returns. Their scale is smaller, however, and so is their expected biodiversity impact. For larger-scale projects with a larger biodiversity impact, blended financing is the more prevalent form of financing. While these deals have lower expected returns, their risk is also lower due to the de-risking from the blending.

Overall, these findings point toward a tradeoff between financial returns and biodiversity returns, with implications for the type of financing. Projects with higher expected returns can be viably financed by pure private, but tend to have lower biodiversity returns. Projects with higher biodiversity returns tend to be less profitable, but can nevertheless appeal to private investors through blending.

Finally, we also obtained data about 32 deals that were under consideration, but ultimately did not make it to the portfolio stage. When comparing these discarded deals with the 33 deals that made it to the portfolio stage, we find that the discarded deals tend to have lower expected returns and lower biodiversity impact.

“While private investments in biodiversity are a useful addition to the toolbox, they are unlikely to provide a silver bullet against the biodiversity crisis”

This suggests that deals need to be sufficiently profitable and impactful to attract private capital. Accordingly, private capital may not be a feasible option for a large set of biodiversity projects.

Private investments can help close the financing gap and contribute to the conservation and restoration of biodiversity, but are unlikely to substitute for the implementation of effective public policies.

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Confronting carbon in the state sector: Why engaging SOEs is critical for the climate challenge

Arjuna Dibley
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State-owned enterprises (SOEs) are significant – albeit under-examined – contributors to global climate change. At the turn of the twenty-first century, SOEs seemed to be diminishing in size and significance as advanced economy governments were selling off and redistributing state assets in a bid to shrink the size of the government, and development finance institutions encouraged emerging economies to do the same. But since the year 2000, the role of SOEs in the global economy has rebounded. Today, SOEs own around 20 percent of the total assets of the largest 2000 companies around the world, around 4 times higher than in 2000. Beyond their USD45 trillion asset base, SOEs also have become important actors in cross border acquisition activity, and large players in financial markets. SOEs now hold USD7.4 trillion in corporate debt, making them sizeable issuers in the debt capital markets.

Much of the growth in the economic significance of SOEs is driven by the meteoric expansion of China's state-heavy economy over the past two decades. But it would be a mistake to think that the growth of SOEs is just a 'China story'. Government owned companies remain active across large emerging markets in Asia, South and Latin America and Africa. Even in advanced market economies governments have recently sought to renationalise previously privatized firms (e.g. France's EDF) or are setting up previously mothballed firms (e.g., the Australian state of Victoria's State Electricity Commission). This growth of SOEs in the global economy matters for climate change because these firms are particularly active in high emitting sectors.

SOEs as key contributors to climate change

SOEs are globally significant emitters. These government-owned companies tend to dominate in high emissions sectors, including on the supply side of energy markets (such as in oil and gas exploration) and on the demand side (including electricity generation and transportation). It is perhaps no surprise that the so called 'carbon majors' – the firms with the highest cumulative production emissions in the world – count among their number, many SOEs, including India's Coal India Limited, Mexico's PEMEX, Germany's RWE, Norway's Equinor, and the firm with the highest global cumulative emissions, Saudi Arabia's Aramco. Emerging estimates of SOE emissions, suggest that globally, if these firms were a country, they would have a bigger emissions footprint than every country's, except China's.

The deeply significant role of SOEs to global emissions will be brought into sharp relief later this year at the annual climate change conference, being hosted by the United Arab Emirates. The president of the conference this year, Sultan Al Jaber, is also the CEO of the Abu Dhabi National Oil Company, an SOE. This case illuminates the vexed role that SOEs often play in the political economy of fossil fuel dependant nations.

These firms are often owned by the state because of their significance in strategic sectors. But this geopolitical and economic significance, makes them particularly challenging to decarbonise.

"These firms are often owned by the state because of their significance in strategic sectors. But this geopolitical and economic significance, makes them particularly challenging to decarbonise"

As a consequence, policymakers, sustainable finance investors and advocates have historically put SOEs into the 'too hard' basket, focusing instead on reducing emissions from investor held firms. But it may be time to re-interrogate whether SOEs are indeed 'too hard' to decarbonize or whether some might offer promises for deep decarbonization that investor held firms do not.

SOE corporate governance and decarbonization

Recent work by the OECD has demonstrated that governments are increasingly using SOEs to try and advance their climate change goals and peer reviewed studies offer some explanation why that might be the case. For example, a recent study has shown how political support for climate change and higher levels of state ownership tend to work together to enable state-owned firms to decarbonize more quickly than investor-owned firms, at least in the electricity sector in Europe. A multi-country study of listed SOEs also show that SOEs are more responsive to environmental issues than their investor-owned peers. Nonetheless, not all SOEs are made equal. Other recent work has highlighted how electric utilities in some markets face difficulties in decarbonizing owing to prevailing policy, SOE capability and economic conditions.

So why are some SOEs more effective than others at decarbonizing? And what role do firm corporate governance structures play this? In my recent paper in the Harvard Environmental Law Review I show how corporate governance and financing structures at the firm level shape green innovation at SOEs.

Specifically, I show how the interaction of the political interests of the firms' key shareholder – the government – interact with the level of state control the government has over the firm through their corporate governance and financing arrangements. This includes mechanisms such as government authority to appoint board and management, government influence in firm investment decision making and strategy, auditing powers over firm decisions, the availability of concessional public finance and government guarantees to raise debt finance, among others.

In the article, I suggest that a government's political interests in green innovation and state control over the firm are interrelated. It is usually in cases where governments have a strong policy reason to pursue green technologies and strong corporate control, that SOEs tend to decarbonize most quickly. Where governments have weaker control mechanisms, decarbonization progress turns on the inclinations of the board and management of the firm.

Investor engagement with SOEs

In addition to the corporate governance structure of the firm, finance is also a key lever of influence which could be used to encourage SOE climate action. Direct SOE debt issuance to domestic and international capital markets rose significantly over the past decade, in the prevailing low interest rate environment. SOE debt plays a strategic role for the governments that manage these firms, as they can often raise finance off the government's balance sheet and thus deliver strategic goods and services to the public at lower cost.

As interest rates rise and put pressure on government borrowers, debt investors are in a powerful position to engage with SOEs and their sovereign managers on climate change. As I have discussed elsewhere, however, investors need to be cognisant of the important ethical dimensions of engaging with sovereign entities, as engagement actions can have significant social costs.

Far from being intractable, governments, investors, and advocates have many options for engaging with SOEs on climate change. Where an SOEs managing government is a climate laggard, it may be most effective to exploit the firm's exposure to capital markets. For SOEs under the stewardship of climate-leading governments, it may be more effective to encourage the government to exercise greater state-influence over the firm to accelerate decarbonization. In any event, it is now clear that as major contributors to global emissions and sometimes fast green transitioners, it is no longer a solution to simply ignore these important firms in the global climate challenge.

By Dr. Arjuna Dibley, Head of the Sustainable Finance Hub, Melbourne Climate Futures, University of Melbourne.

Dissecting greenium: Germany's pioneering role in green securities

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Germany has emerged as a significant player in the European green bond market, having issued the first green federal securities through syndication in 2020. Capitalising on its influential role in debt capital markets, the German federal government aims to promote the market for green financial products and establish itself as a benchmark issuer in this asset class, potentially earning an additional benchmark premium. The traits of the Bund investor base, including risk aversion, a preference for liquidity, and low sensitivity to yield, align well with green bonds. To accommodate market demand, the government offers a wide range of maturities (currently five, ten, and 30 years), with the prospect of future expansion.

Green federal securities have a unique characteristic as 'twin bonds.' They are closely linked to corresponding conventional bonds of the same maturity and coupon. The Bundesrepublik Deutschland – Finanzagentur GmbH, acting as a fiscal agent, enables trading through combined transactions and promotes liquidity through debt-neutral sale-and-purchase (switch) transactions, in addition to standard secondary market operations. Consequently, the liquidity premium for green bonds can be mitigated by leveraging the market liquidity of their conventional counterparts. Green federal securities adhere to the standard green 'use of proceeds' bond type as defined by the ICMA's Green Bond Principles, and prospectively, the EU green bond standard.

The funds raised are intended for allocation across multiple green sectors: transportation, international cooperation, research and innovation, energy, industry, agriculture, forestry, and biodiversity conservation.

Nonetheless, the same issuer–same risk principle applies: The green bonds carry the same extremely low risk premium as their conventional twins since both are issued and supported by the German government. Their debt service payments reflect German sovereign risk and are not dependent on or limited by the revenue generated from specific environmental projects.

According to the German government, green federal securities serve to indirectly contribute to climate protection by signalling the existence of a 'greenium' in the market. This term, an artificial combination of 'green' and 'premium,' refers to the yield difference between a green bond and its conventional counterpart. The basic premise of the greenium concept is that investors are willing to accept lower returns to support non-financial investment objectives and derive personal satisfaction, such as advancing ethical goals or expressing moral sentiment. The emergence and size of this market are influenced by regulatory preferences and the commencement and discontinuation of the Eurosystem's public sector asset purchase programmes. The funding cost advantage should encourage other issuers to issue similar bonds, thereby facilitating the financing and expansion of green investments.

"Green bondholders may either be uninformed or filter out the fact that the mix of green and conventional bonds does not determine the overall environmental impact of the investment."

One might question why green bonds do not directly contribute to climate protection. To understand this concept, it is important to recognise that the funding structure does not affect the environmental implications, nor does it impact the return on investment, as established by Modigliani and Miller's irrelevance theorems. The distinction lies in the allocation of proceeds, which can be designated as 'green,' rather than the source of funding itself. It is well known that creditor governance is limited, especially when dealing with sovereign debtors. The parliament is, in general, not obligated to allocate funds raised for specific purposes, due to the constitutional principle of non-affectation. In reality, when green bonds are issued, they primarily earmark existing green projects. It does not inherently imply the creation of new, additional green investments.

In a perfect market scenario, the division of bonds into green and grey tranches should not impact the total funding costs. However, this concept is qualified by market imperfections that create an opportunity for issuers to take advantage of the information deficit and potentially exploit the investors' irrational behaviour. The green bondholders may either be uninformed or filter out the fact that the mix of green and conventional bonds does not determine the overall environmental impact of the investment. Thus, they willingly pay a greenium, harbouring the hopeful, albeit optimistic, expectation that this particular financial arrangement will prompt the sovereign debtor to enhance investments in eco-friendly endeavours.

Moreover, the concept of a 'pollution premium' as a form of 'negative greenium' appears to be an under-recognised narrative. The pollution premium should compensate conventional bondholders for the increasing lack of the issuer's 'unencumbered' green assets caused by the issuance of green bonds. Considering the bond segmentation as a zero-sum game, the yield reduction (greenium) on the green bonds should ideally be offset by a yield increase (pollution premium) on the outstanding conventional bonds. However, this is not the case. Indeed, conventional bondholders, possibly due to their limited environmental consciousness, either remain unaware or indifferent to their deteriorating position in the creditor hierarchy of eco-friendliness and thus miss out on the pollution premium. Consequently, purchasers of both green and conventional bonds will face compromised returns.

Upon reflection, the sell side may realise that green financing effectively lowers the total cost of capital, without imposing penalty rates for failing to meet pre-defined green key performance indicators, as seen in sustainability-linked bonds—one might consider achieving the Paris climate goal for the federal issuer. From a buy-side perspective, however, an investor who balances ethical considerations and risk diversification in his or her portfolio might choose to allocate equal amounts to green bonds and their conventional twins. As a result, he or she might experience a dip in returns, which could have been avoided without pre-segmenting the bonds.

In conclusion, both the greenium and the retained pollution premium provide market-based subsidies to public finance, creating a voluntary form of taxation to promote the public good.

By Urs B. Lendermann, Professor at Deutsche Bundesbank University of Applied Sciences & ECGI.

Unbundling climate change risk from ESG

Jeffrey Gordon
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Perhaps the most important current development in corporate governance is the growing divide between the United States and the European Union on core questions of fiduciary duty when it comes to ESG. I want to describe this growing divide, to describe some of the underlying political economy that accounts for this difference, and to suggest its danger for the critical task ahead: the aggressive effort to reduce the level of greenhouse gas emissions necessary to avoid catastrophic climate change.

One important implication of this analysis is that we need to unbundle the mitigation of climate change risk from what is now called "ESG." A further implication is that the efforts to use the tools of corporate governance on climate change risk should shift away from a primary attention on companies that produce and refine fossil fuels to a focus on companies, like auto companies, that make products that consume large amounts of energy. More generally, activists should devise strategies to press firms that use fossil fuels or make products that use fossil fuels to prepare for as-soon-as-possible transition to a net-zero economy.

Thus, one important task is to produce a separate net-zero transition index (an "NZE index") that would measure how firms are addressing climate change risk, comparatively and over time. There are two problems with existing ESG indices: They reflect the arbitrary weighting of various ESG components, resulting in a dismaying lack of correlation, and they bundle diverse elements, which diverts attention from the element that must be prioritized, the mitigation of climate change risk.

As the debate over quantifying "scope 3" emissions demonstrates, generating an NZT index is not automatic, but at least the target is clear and unconfounded by other objectives.

There are three critical drivers behind the prioritization of climate change over other elements of ESG and the case for unbundling. Driver one is the consensus among governments world-wide about first, the critical nature of the climate change threat and second, the general policy prescription: keeping global warming within a +1.5C cap and "net zero" emissions by 2050, ideally sooner. This consensus was reached by 196 parties at the Paris conference in 2015 and buttressed by a subsequent series of UN-sponsored conferences. Conference of the Parties (COP) 28 will be held in early December of this year in Dubai, in the UAE.

Thus, corporate governance measures on behalf of the net-zero transition can legitimately be described as facilitating decisions of governments, not an example of a "democracy deficit." Global corporate governance in this matter is congruent with global governance, not a substitute for the failure of governments to act.

This sort of global governance consensus, concerted follow-up, and concrete action plan does not exist for any other prospective component of ESG and is unlikely to exist because governments differ on social values and differ on trade-offs of social rights for economic development.

ESG culture-war attack has been fostered by those whose principal objection to ESG is precisely the climate change element.

Driver two is the distinctive financial justification for addressing climate change and not necessarily other elements of ESG. This is because mitigating climate change risk reduces systematic risk across a portfolio of diversified investments. The disruptions associated with various realizations of climate change risk will spread across the entire economy and thus across a diversified stock portfolio; climate change risk is systematic. Addressing climate change risk can improve risk-adjusted returns for investors holding a diversified portfolio of equity and other investments. This pure financial case does not generally obtain for other elements of ESG. To address them propels us into the controversial realm of trade-offs, debates about investors' utility functions, and contention about the duties of financial fiduciaries.

Driver three for the unbundling of climate change from ESG is realpolitik. ESG in the United States has become embroiled in the culture wars. ESG is "woke," which I suppose is an allegation that ESG – this diverse if not muddled package of environmental, social, and governance concerns – is all about making people feel bad about themselves, or is political correctness squared, or is simply a vehicle for the pursuit of another three-letter word, DEI, Diversity, Equity, and Inclusion, which parties use to make ESG all about race and gender.

As I will suggest later, the ESG culture-war attack has been fostered by those whose principal objection to ESG is precisely the climate change element. The point of the culture war is to disrupt a growing consensus about the importance of addressing the climate change threat by draping it in the now-controversial flag of ESG. The attack against ESG on culture war grounds carries the hope that climate change concerns will be collateral damage.

This brings me back to where I started: the growing divergence between the EU and the U.S. on ESG. The EU has adopted a series of far-reaching measures to take on various elements of ESG. These include:

- 1) A stewardship code for asset managers, calling for both engagement and screening with ESG in mind.
- 2) Sustainable financial disclosure regulation, imposing a "sustainability" disclosure requirement on banks and asset managers that means that any investment product needs to disclose the extent of sustainable investment.
- 3) A Corporate Sustainability Reporting Directive, which requires so-called "impact disclosure" of the effects of the company's activity on people and the environment as well as financial disclosure pertaining to sustainability issues, so-called "double materiality." These disclosure requirements apply to all public companies except for the smallest and to all large private companies. The disclosure requirements are meant to encompass the company's supply chain.

These reporting requirements interact with the so-called "taxonomy regulation," which purports to establish a framework to facilitate sustainable investment by providing common definitions and standards for "green investment" and thus to drive out "greenwashing."

- 4) Finally, most recently, the EU is in the final stages of adopting a Corporate Sustainability Due Diligence Directive ("CSDDD") which, to quote a law firm memo, "could require large companies to undertake due diligence on their own activities and that of their suppliers, and to identify and prevent, end or mitigate any actual or potential adverse impacts of their activities on human rights and on the environment." If adopted this would create environmental and human rights due-diligence duties for companies throughout the companies' supply chains. Companies could face public enforcement action and potentially civil liability for failure.

To say that these measures are far outside the ESG framework often invoked in the United States is to understate the matter. In the U.S., the big issue is whether pension funds can appropriately consider ESG matters in their investment decisions and whether state public pension funds will be barred from doing business with financial institutions that scale back their financing of fossil fuel expansion. President Biden issued his only legislative veto thus far to reject a proposed limitation on the Department of Labor's permission for ESG considerations by a private pension-fund fiduciary. Eighteen states have adopted some version of anti-ESG legislation.

The Biden Administration came into office determined for the SEC to impose mandatory climate change-related disclosure as a top priority. The current schedule calls for a "final" rule by October 2023, and we can anticipate contentious litigation.

These U.S. v. EU differences are vast. Still to be resolved are the EU requirements that will be imposed on U.S. firms with EU subsidiaries or branches. U.S. Treasury Secretary Yellin has publicly signaled formal U.S. concern. "While we're supportive of the high level aims of the CSDDD we are concerned that it has extra territorial scope and potential for unintended negative consequences for US firms," she said in recent testimony before the House Financial Services Committee.

Two major issues of political economy underlie these differences.

First is the nature of retirement savings in the U.S. vs. the EU and, more generally, the differences between the U.S. and the EU in the extent to which politically active citizens see a direction connection between stock market returns and their personal retirement security. In brief, in the U.S., state-provided pensions – social security – offer a thin level of retirement security for private sector employees. Defined benefit pension plans have been substantially phased out for most companies over the past 40 years.

Instead, retirement security is left to a mixture of personal savings (including plans where tax benefits provide an incentive to save) and company-sponsored defined contribution plans. Employees are given an incentive to participate in company plans through a combination of company match and tax benefits. In general the management of these plans is left to individuals, who see regular reports on their investment returns. Individuals' retirement well-being thus materially depends on the success of their investment strategy, both through retirement plan savings and personal savings, and they come to have insight into factors that may affect investment returns. President Trump, an ace marketer, campaigned on the basis of how well voters' stock market portfolios and defined contribution plans had prospered during his presidency.

"Millennials," according to some survey evidence, have a stronger preference for ESG-tilted investment than older generations, but according to the latest tabulation of the Federal Reserve, this age cohort (<= age 40) has relatively little wealth (less than 10 percent of all assets) and even less ownership of equity (less than 3 percent of all equity). "Boomers" and older own approximately 75 percent of all equity. As a result, wealth accumulation is inversely related to remaining years of work; the impact of ESG-tradeoffs becomes more acute as retirement approaches; and the nature of retirement savings in the U.S. provides individuals with motive to become sensitive to the potential trade-off of ESG concerns for stock market returns. The political economy of ESG in the U.S. is thus constrained by this function: Willingness to substitute ESG benefits for pecuniary returns declines with age, but propensity to vote increases with age. This constraining function holds even though equity ownership is concentrated, and only 50 percent of the population has any pension assets.

The provision of retirement savings is altogether different in the EU and produces a different political economy function. As per a recent European Central Bank report, most retirement provision in the EU runs through member state-level PAYG plans.

Pension payouts are funded by contributions paid by current workers; unlike state level public pension plans in the US, such plans do not accumulate funds that could be invested in equities. Robust private employer pension plans, "occupational pension plans," are found only in the Netherlands and Germany. Although private pensions have given way to defined contribution plans in recent years, the overwhelming share of pension assets are held in defined benefit plans, approximately €2.2 trillion vs. €200 billion. The point is this: In a defined benefit plan, the risk-bearer is the sponsoring institution. Short of default, the payout stream does not vary in correlation with the return on the underlying assets; the sponsor is exposed to measures that affect returns, but the pension plan beneficiaries, the individuals, the voters, are not.


More generally, individual equity ownership is generally less prevalent and counts for a smaller share of net worth in EU countries than in the U.S.. A recent study showed that the stock market participation rate in the EU as a whole was approximately half of that in the U.S. (26 percent vs. 49.7 percent).[3] On a country basis, only Sweden (70.8 percent) and Denmark (56.1 percent) had a higher participation rate; Germany's, for example, was 25.4 percent. More striking was the much lower fraction of household net worth invested in the stock market for a given level of wealth, among those who owned stocks. For example, for median net worth households in the U.S. that held any stocks, the fraction of net worth in stocks was 30.5 percent and for the EU, 7.4 percent.

We see a similar pattern of markedly less wealth invest in stocks even in high participation rate countries: Sweden, 14 percent; Denmark, 8.1 percent for median net worth households. Lower stock market participation rates and less wealth sensitivity to changes in stock values means that governments and firms will have greater freedom of action to take ESG measures that may affect stock market returns. This is enhanced by the extent of foreign ownership of EU companies, recently estimated at approximately 30 percent.

Second, perhaps the crucial political economy explanation for the different approaches to climate change especially and for other ESG issues in the U.S. vs. the EU is that the U.S. is a petro-state, and the EU is the opposite. One way to demonstrate this is with statistics on crude oil production. In 2022 the US produced approximately 4 billion barrels of crude oil. This makes the US the world's leading producer of oil, ahead of Saudi Arabia. In the EU, by contrast, crude oil production is miniscule, 125 million barrels in 2021. To cover the gap in energy use, the EU imported 750 million barrels of crude oil in 2021.

With the departure from the EU of the UK and its potential North Sea production after Brexit, no major EU state has a large stake in protecting domestic crude oil extraction as a source of local wealth and high-paying jobs. Indeed, in the EU, reducing oil consumption is favorable from a balance of trade perspective. Energy-consuming businesses may resist, because conversion away from oil to alternative energy sources may be costly, but this is a transition issue. Few businesses have a long-term stake in a high level of energy produced from fossil fuels. Thus, one would expect the political economy dynamics in the EU to facilitate a transition away from crude oil and other fossil fuel products.

The situation in the U.S. is quite different. The average 2022 price of crude oil was about \$100 a barrel, which means that the value of U.S. crude oil production was \$400 billion. As a matter of scale, U.S. GDP that year was \$25 trillion. The American Petroleum Institute, the industry's trade association, asserts that as of 2021, the petroleum and natural gas industries supported 10.3 million jobs and accounted for 8 percent of the U.S. GDP. The American industry is famously concentrated, with major crude oil production in Texas and related refining activities throughout the Gulf States and the Southwest, but there is also significant production throughout the Rocky Mountain States.



As of year-end 2021, proved crude oil reserves in the U.S. were approximately 36 billion barrels. Moreover, fossil fuel energy companies have comprised 5-10 percent of the market capitalization of the S&P 500 in recent years and a higher percentage of specialized market indices.

The shift away from fossil fuels, particularly petroleum products, in the U.S. is thus not a matter of a transitional shift in industry consumption patterns but entails potentially a massive shift in wealth with far reaching political economy consequences. An additional complication is that a significant fraction, perhaps more than half of these U.S.-based reserves, is held by private companies. For example, the U.S. Energy Information Administration recently reported that the 53 publicly traded companies with large U.S. production collectively produced only about one-third of all U.S. crude oil in the quarter. This has significant implications for corporate governance. The influence of investors through the corporate governance machinery is limited to public companies. Without pushing too hard on the numbers, one can see how 1 or 2 trillion dollars of wealth tied up in crude oil is held by private owners, and these owners are unlikely to hold their oil wealth as a fraction of fully diversified portfolios with strong incentives to mitigate climate change risk. Indeed, private parties may benefit from the pressure on public fossil-fuel companies to shed assets.

As a matter of comparative political economy, further note must be taken of the current constitutional protections of virtually unlimited political spending in the United States. This factor interacts with the substantial private ownership of fossil fuel assets.

The different regulatory approaches to climate change risk in the EU and the U.S. will inevitably reflect these fundamental differences of political economy, both in the importance of stock market returns to the voters and the importance of domestic fossil fuels production.

This brings us back to the need first, to unbundle climate change risk from ESG and then second, to focus on the users of fossil fuel and the producers of products that use fossil fuels.

Many believe that the backlash against “woke” is inspired by the parties who have an interest in protecting the fossil fuel industry. The pushback against climate change activism was stirred by political actors in the fossil fuel-producing states, especially Texas, for understandable reasons. Their target was banks that had indicated some reluctance to fund fossil fuel investments and asset managers that had sounded the alarm about climate change risks. But these parties have attempted to broaden the base against climate change activism by linking it to elements of ESG that can be culturally controverted. One strategy is to enlist groups with a broader portfolio, for example the State Financial Officers Foundation (SFOF), to engage on ESG more generally and in a way that links resistance to the “cultural” elements of ESG to climate change issues.

For example, the SFOF organized a May 15, 2023, letter to Larry Fink expressing concern that “taxpayers’ best long-term economic interests have become subordinated to environmental, social, and political interests often divorced from shareholder value – and often pushed through shareholder proposals.” The cited examples started with “shareholder proposals [that] would require companies to pledge fealty to the Paris Climate Agreement” but then moved to other social issues. Similarly, an attached nine page “Proxy Voting Questionnaire” started with questions about BlackRock’s response to proposals on climate reporting and reducing greenhouse gas emissions but then moved to the hottest hot-button issues relating to diversity or racial equity. The majority of the signers were officials from fossil fuel producing states but also included signers from other states.

The on-line magazine Smart Women Smart Money hosted by SFOF, carries a April 2023 article, "What Is ESG Investing?" that asserts that "ESG is impacting inflation," through an increase in fossil fuel products "that will raise cost[s] ... for decades to come" and adds that the same measures will be "adding burdensome costs to farmers and ranchers" that will produce increased costs as well. The article skips from a possible implication of a transition away from fossil fuels to worries about a "woke elite" and how "ESG can, unfortunately, undermine the U.S. Constitution by imposing mandates on people that voters don't approve of at the ballot box." It asserts that "ESG efforts can have a selective focus on en-vogue political causes. For example, some companies work closely with Chinese entities and ignore the truly alarming human rights and environmental records of these companies. The effort to link climate change with controversial positions on various social positions seems in service of a strategy to undermine a consensus about the urgent need to address climate change risks. This argues for unbundling climate change from other ESG concerns.

A climate-change-focused index, such as the proposed NZT Index, is one way to do that. More generally, I think the most important target of corporate governance measures are the companies that either are heavy users of fossil fuel products, public utilities, for example, and the companies that now produce products that will be heavy users of fossil fuel products.

At least some of the automobile companies are pivoting consistent with a net-zero transition but there are many elements in that supply chain.

Frankly it will be hard to change the behavior of public and private oil, gas, and coal companies. This is not to write off such efforts, either through divestment strategies or engagement strategies, because of the social importance of such efforts in solidifying a consensus around climate change imperatives. Because of the direct connection between the danger and the target, such activity is effective for social learning and mobilization.

. Nevertheless, corporate governance activists in the United States should turn attention to the potential users of those products and the producers of high-energy consuming products, like automobiles and trucks, and their supply chains

For such producers, the cost of a climate-sensitive pivot is a transition issue, not the write-off of the logic of the business. Moreover, the genuine transition costs may be at least partially offset by the competitive advantages of an accelerated move. Additionally, focusing on the fossil fuel users and product producers will, by reducing demand, have a second order effect on the fossil fuel producers by encouraging internal divestment from fossil fuel production and exploration.

The approaches to ESG in the U.S. and the EU will differ significantly. This reflects political economy differences which also reflect differences in underlying values. What cannot differ is the commitment to addressing the risks of climate change. The planet can thrive with a diversity of social value choices but successfully addressing climate change requires a common effort. For this reason, climate change must be unbundled from the rest of ESG. It is singular and prior. Concretely, this can be reflected through a separate NZT Index, for example, and a corporate governance activism strategy with a new set of targets.

By Jeffrey N. Gordon, the Richard Paul Richman Professor of Law at Columbia Law School, co-director of the Millstein Center for Global Markets and Corporate Ownership, and co-director of the Richman Center for Business, Law and Public Policy & ECGI.



Governance & Climate Change

EDITORS NOTE

In my note at the beginning of this series I said "It has become a cliché to say that climate change is the defining issue of our time. Which does not make it less true." That this is not less true was evidenced by the large number and extremely high quality of submissions that we received when we put out the invite to contribute, evidencing that this era-defining issue has driven many academics and practitioners to action (or, at least, to thinking and writing).

Just a selection of crucial questions that were addressed in the series:

- Can the private sector lead us out of climate change? (No)
- What can we expect from climate-related disclosures? (Our expectations should be modest)
- Are disclosure-based approaches the most effective way to drive change or are they a distraction from alternative solutions? (Probably not, and quite possibly)
- Is the best way to engage with energy companies to insist they 'pivot' (to renewables) or 'run down'? (Often it will be the latter)
- Does greenwashing distract from genuine action? (Yes)
- What is the end game for climate-related litigation? (Perhaps a "grand bargain" that sees energy companies owned by a public "climate trust")
- Can Voluntary Carbon Markets be fixed? Do they need fixing? (Both: yes).
- Do green bonds result in climate outcomes? (No)
- Are scope 3 emissions a good risk indicator? Does measuring emissions result in reducing them? (Both: no).
- Why should we distinguish between the 'attributional' and the 'consequential' approach in carbon accounting? (Because the former approach does little or nothing to reduce emissions but the latter does).

The brief answers in parentheses obviously don't do justice to the nuanced reasoning in the blogs, however, they show three things:

- 1) Our contributors do not shy away from the sticky questions or from potentially controversial answers when they are the result of rigorous analysis and argumentation.
- 2) Much of the daily practice or thinking about climate change in corporate and investor circles is out-of-sync with the conclusions many blogs reach.
- 3) The gap between academics and practitioners needs to be bridged if we want corporations and investors to start making a credible contribution to tackling climate change – otherwise this may remain the era-defining issue for some time.

So, are we any the wiser now?

As my former boss often used to say after a lengthy deep-dive meeting: "we are still confused. But at a much higher level." I won't pretend I now have all the answers but I certainly feel that guest-editing this series has given me a whole range of new insights, tools and potential collaborators that will allow me to make more of a difference and I hope you feel the same.

~ Harald
Harald Walkate, Guest Editor

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