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Private companies: The missing link on the path to net zero

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Private Companies: The Missing Link on The Path to Net Zero

Law Working Paper N° 635/2022

March 2022

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Abstract

Global consensus is growing on the contribution that corporations and finance must make towards the net-zero transition in line with the Paris Agreement goals. However, most efforts in legislative instruments as well as shareholder or stakeholder initiatives have ultimately focused on public companies: for example, most disclosure obligations result from the given company's status of being listed on a stock exchange.

This article argues that such a focus falls short of providing a comprehensive approach to the problem of climate change. In doing so, it examines the contribution of private companies to climate change, the relevance of climate risks for them, as well as the phenomenon of brown-spinning. We show that one cannot afford to ignore private companies in the net-zero transition and climate change adaptation. Yet, private companies lack several disciplining mechanisms available to public companies such as institutional investor engagement, certain corporate governance arrangements, and transparency through regular disclosure obligations. At this stage, only some generic regulatory instruments such as carbon pricing and environmental regulation apply to them. The article closes with a discussion of the main policy implications. Primarily, we propose extending sustainability disclosure requirements to private companies.

Sustainability disclosures aim at promoting a transition to a greener economy, rather than (only) protecting investors by addressing information asymmetry. Therefore, these disclosures should encompass private companies that are of relevance for the net-zero transition. Such disclosures can be a powerful tool in shedding light on the polluting private companies that have so far been in the dark as well as serving as a disciplining mechanism.

Keywords: private companies, net zero transition, sustainability disclosures, brown-spinning, climate change, private equity.

JEL Classifications: G38, K22

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PRIVATE COMPANIES: THE MISSING LINK ON THE PATH TO NET ZERO

Alperen A. Gözlügöl* & Wolf-Georg Ringe†

Abstract

Global consensus is growing on the contribution that corporations and finance must make towards the net-zero transition in line with the Paris Agreement goals. However, most efforts in legislative instruments as well as shareholder or stakeholder initiatives have ultimately focused on *public* companies: for example, most disclosure obligations result from the given company's status of being listed on a stock exchange.

This article argues that such a focus falls short of providing a comprehensive approach to the problem of climate change. In doing so, it examines the contribution of *private* companies to climate change, the relevance of climate risks for them, as well as the phenomenon of brown-spinning. We show that one cannot afford to ignore private companies in the net-zero transition and climate change adaptation. Yet, private companies lack several disciplining mechanisms available to public companies such as institutional investor engagement, certain corporate governance arrangements, and transparency through regular disclosure obligations. At this stage, only some generic regulatory instruments such as carbon pricing and environmental regulation apply to them. The article closes with a discussion of the main policy implications. Primarily, we propose extending sustainability disclosure requirements to private companies.

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I. INTRODUCTION

Climate change is currently one of the highest-ranking issues on the political and social agenda.¹ It is among the greatest existential risks facing humanity, and, even if the target of limiting global warming to an ultimate increase of 1.5°C is achieved, will still have an enormous impact on the world ecosystem.² Policies currently in place across the world are projected to only limit global warming to 2.7°C.³ Accordingly, governments are increasingly introducing measures to achieve and accelerate the transition to a net-zero carbon economy in line with the Paris Agreement goals.⁴

Corporations are among the main contributors to climate change.⁵ Recently, they have come under an intensifying spotlight and mounting pressure to adopt sustainable operations, most importantly by reducing their carbon footprint.⁶ As well as the rising urgency expressed by the public and relevant stakeholders pushing against environmentally harmful activities, governments are contemplating and introducing various measures to put companies on a more sustainable path. Efforts in

¹ In the EU, the European Green Deal presents an ambitious plan to be 'climate-neutral' by 2050 which includes a series of initiatives to protect the environment and boost the green economy. See https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en. In the US, the election of Joe Biden as the US president gave a new impetus to climate change adaptation and mitigation efforts. See, eg, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>.

² See in this regard Intergovernmental Panel on Climate Change, 'The Special Report on Global Warming of 1.5 °C' (2018) at <https://www.ipcc.ch/sr15/>. Scientists indicate however that few scenarios are left to limit global warming to 1.5°C. See L. Warszawski et al, 'All Options, Not Silver Bullets, Needed to Limit Global Warming To 1.5°C: A Scenario Appraisal' (2021) 16 *Environmental Research Letters* 1.

³ See <https://climateactiontracker.org/global/temperatures/>.

⁴ The Paris Agreement's goal is to limit global warming to well below 2°C, preferably to 1.5°C above pre-industrial levels. Currently 196 countries are parties to the Paris Agreement. See <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement#:~:text=The%20Paris%20Agreement%20is%20a,compared%20to%20pre%2Dindustrial%20levels.>

⁵ For example, a relatively recent report suggests that just 100 companies have been behind more than 70 per cent of the greenhouse gas emissions since 1988. See 'The Carbon Majors Database CDP Carbon Majors Report 2017', 8 at <https://www.cdp.net/en/articles/media/new-report-shows-just-100-companies-are-source-of-over-70-of-emissions> [hereinafter Carbon Majors Report 2017]. See also R. Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010' (2014) 122 *Climatic Change* 229 (tracing 63 per cent of cumulative worldwide emissions to 90 'carbon majors').

⁶ For instance, very recently, Royal Dutch Shell, a carbon major, was ordered by a Dutch court to drastically deepen its reduction of carbon emissions and bring itself in line with the Paris Agreement goals. The judgement's English version is available at <https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2021:5339&showbutton=true&keyword=2021%3a5339>.

this regard range widely from transparency measures to corporate governance arrangements, and to direct regulation of business operations.

Yet, the focus of these efforts seems to be largely on public companies, meaning those whose shares are listed for trading on a public stock exchange ('listed' or 'publicly traded' companies).⁷ For example, sustainability disclosures so far in place apply only to public companies, with no or only limited coverage of private companies. Clearly, public companies are major operations, some of them being the locomotives of the national economies and among the largest employers and players in the relevant industry, and thus draw much attention from investors, media, and other stakeholders when they impose externalities on the environment. Business law scholarship also focuses on public companies when addressing sustainability questions. Private companies, however, do not receive significant attention in the policy discourse. Moreover, as they are private, they lack the transparency provided in the context of a capital market. Yet, if the aim is to achieve a speedy transition to a net-zero carbon economy with the help of companies reducing their carbon footprint to acceptable levels, one cannot afford to ignore private companies. In most jurisdictions across the world, private companies form a major part of the economy and conduct extensive business operations.⁸ The share of the largest 'private' companies is rising as potential high-growth companies abandon listing as part of their strategic planning and as some companies that are already public go private.⁹ This increasing concentration of economic value in private companies has also

⁷ The term 'public companies' may have a broader meaning, for example, indicating those with freely tradable shares. See J. Armour, H. Hansmann, R. Kraakman and M. Pargendler, 'What is Corporate Law?' in R. Kraakman et al (eds), *The Anatomy of Corporate Law: A Comparative and Functional Approach* (Oxford: OUP, 2017) 10–11.

⁸ See, eg, J. Asker, J. Farre-Mensa and A. Ljungqvist, 'Corporate Investment and Stock Market Listing: A Puzzle?' (2015) 28 *The Review of Financial Studies* 342, 345 (finding that 'private firms form a substantial part of the U.S. economy. We estimate that in 2010, private U.S. firms accounted for 52.8% of aggregate nonresidential fixed investment, 68.7% of private-sector employment, 58.7% of sales, and 48.9% of aggregate pretax profits. Nearly all of the 5.7 million firms in the United States are private (only 0.06% are listed), and while many are of course small, private firms predominate even among the larger ones: in 2010, for example, 86.4% of firms with 500 or more employees were privately held.').

⁹ See, eg, R. M. Stulz, 'Public Versus Private Equity' (2020) 36 *Oxford Review of Economic Policy* 275 (stating that there has been a sharp decline in public equity in the last 20 years or so, and presenting 'a framework that explains the forces that cause the listing propensity of firms to change over time.'); C. Doidge et al, 'Eclipse of the Public Corporation or Eclipse of the Public Markets?' (2018) 30 *Journal of Applied Corporate Finance* 8 (arguing that we are witnessing 'an eclipse [...] of the public markets as the place where young firms with mostly intangible capital seek their funding.').

recently attracted notable attention in the literature from a governance perspective¹⁰ and in the media in terms of opacity.¹¹

Private companies also impose significant externalities on the environment. Some of them are industry leaders in their regions or even worldwide, operating in climate-relevant sectors. Some are smaller in size in comparison to their public counterparts, but are operating in carbon-intensive sectors and are still high emitters. Overall, private companies' contribution to climate change can be so significant that the exclusive focus on public companies is somewhat ignorant and not warranted.¹²

Furthermore, there has been a concerning recent phenomenon known as *brown-spinning* whereby public companies sell their carbon-intensive assets to players in private markets (including private equity firms and hedge funds). This helps divesting companies to reduce their *own* emissions but does not result in any overall emission reduction in the atmosphere. Granted, the buyers may (better) decarbonise these assets and re-sell them (eg through an IPO). But, having carbon-intensive assets going dark where they are not subject to the usual strict scrutiny of public markets is worrisome from the perspective of lowering emissions.

Another reason why we need to be concerned about private companies is their exposure to climate-related (financial) risks. As two types of systematic risk, *transition* risks and *physical* risks are also major threats for private companies. It is important that private companies monitor and manage these risks for financial stability and

¹⁰ See, eg, R. P. Bartlett and E. Talley, 'Law and Corporate Governance' in B. E. Hermalin and M. S. Weisbach (eds), *The Handbook of The Economics of Corporate Governance* (Elsevier, 2017) 185-186 ('Th[e] increasing concentration of economic value in private companies poses something of a challenge for corporate governance scholars, both empirically and theoretically [...] To the extent this trend continues, the study of governance in privately held firms is likely to become more critical to important policy debates.'). See also E. Pollman, *Private Company Lies* (2020) 109 *The Georgetown Law Journal* 353.

¹¹ See, eg, L. Barber, 'Too Big to Fail: FT Editor Lionel Barber on The Future of Financial Journalism' *Financial Times* 23 November 2018 at <https://www.ft.com/content/d2a3e50e-ef07-11e8-89c8-d36339d835c0> ('private companies and markets are, by definition, much more opaque and therefore difficult to report on. Holding these private companies and markets to account will be very hard.').

¹² A strand of literature shows that public firms may still be worse sustainability performers. See in this regard, S. E. Shive and M. M. Foster, 'Corporate Governance and Pollution Externalities of Public and Private Firms' (2020) 33 *The Review of Financial Studies* 1296, 1298 (finding that 'private independent firms emit less than do comparable public firms, whereas there is no strong difference between sponsor-backed private firms and public firms.'). See also J. Li and Di (Andrew) Wu, 'Does Corporate Social Responsibility Benefit Society?' (Ross School of Business Working Paper No. 1335, February 2017) at <https://deepblue.lib.umich.edu/handle/2027.42/136092>. Cf R. De Haas and A. Popov, 'Finance and Carbon Emissions' (ECB Working Paper Series No. 2318, September 2019) at <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2318~44719344e8.en.pdf> (finding that CO2 emissions per capita are lower in economies that are more equity-funded than in more credit-dependent economies).

broader macroeconomics concerns even if this would not considerably affect financial market participants.

As a main policy recommendation, we argue that sustainability disclosures should (also) be mandatory for (certain) private companies which must report on environmental impacts (including emissions), sustainability performance through metrics, and relevant targets and strategy. These disclosures whose main purpose should be to promote a transition to a greener economy need to be decoupled from a securities regulation paradigm. It is certainly true that these disclosures can be relevant for investors, but the relevant audience is broader, and the aim is not only to overcome information asymmetries on public markets. Sustainability disclosures from private companies that are relevant for the decarbonisation of the economy can provide a certain impetus to improve their environmental record as well as offering a fuller picture regarding the path to net zero.

Overall, this article investigates the role of private companies within the framework of sustainability efforts, most importantly in the context of climate change. Specifically, it highlights the externalities imposed by private companies on the environment and the phenomenon of brown-spinning. **Section II** exemplifies in detail how some major private companies have large carbon footprints and demonstrates the available evidence on greenhouse gas (GHG) emissions by private companies. It explains brown-spinning in further detail and examines the question of why climate-related risks are relevant for private companies. Currently, compared to public companies, there is a lack of attention, transparency, and discipline for private companies with regards to pursuing more sustainable activities. **Section III** highlights this contrast and points to the sources and contexts from which this discrepancy emanates. Despite this divergence between public and private companies, the latter are not entirely free of constraints in their operations. **Section IV** presents current controls on the externalities imposed by private companies and examines the extent to which they can be effective. **Section V** discusses the relevant policy options for the issues discussed in the previous sections and potential ways forward. Finally, the last section concludes.

II. THE RELEVANCE OF PRIVATE COMPANIES TO CLIMATE CHANGE MITIGATION AND ADAPTATION

It would be apt to begin by exploring the relevance of private companies for climate change mitigation and adaptation. As we show in this section, private companies make a substantial contribution towards climate change that one cannot afford to disregard. Private companies also buy highly-polluting assets from public companies that increasingly divest these assets because of climate action and pressure. Private companies are also relevant to climate change adaptation when it comes to macroeconomic and financial stability concerns.

- a. Contribution of private companies to environmental externalities, especially climate change

GHG emissions mainly come from energy use in industry, transport & buildings, direct industrial processes, waste, agriculture, and the use of forestry and land.¹³ These emissions are generally categorised into the following three groups: (i) **scope 1 emissions** that relate to direct emissions from the company's own or controlled sources; (ii) **scope 2 emissions** that include indirect emissions from energy, heat, and steam use; and (iii) **scope 3 emissions** that encompass all other indirect emissions that occur in the value chain of a company (including its suppliers).¹⁴ Private companies are very active in all of these sectors. To illustrate this point, the table below presents the main sectors relevant to GHG emissions and indicates examples of several prominent and large private companies from around the world operating in those sectors, with an explanation of their carbon footprint (ie how they (potentially) emit GHG directly (scope 1) or indirectly (scope 2)).¹⁵ Many of them are included in the 2021 Fortune Global 500 list, an annual ranking of the top 500 corporations worldwide measured by global revenue.¹⁶

Sector	Companies (examples)	Emissions
Oil & Gas and Utilities	Hilcorp, Energy Capital Partners, EPH	(direct) fugitive emissions from oil & gas exploration and transportation; energy-related (indirect) emissions from fuel exploration and extraction; and direct emissions from fuel combustion
Energy & Commodity Trading	Vitol, Trafigura*, Mercuria, Gunvor	(direct) emissions from transportation of fuels and commodities through shipping, pipelines etc.; fugitive (direct) emissions from energy transportation; and emissions from refineries

¹³ See H. Ritchie and M. Roser, 'CO₂ and Greenhouse Gas Emissions' at <https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions>.

¹⁴ These definitions emanate from Greenhouse Gas Protocol which is overwhelmingly used by companies to report their emissions. For more detail, see The Greenhouse Gas Protocol, 'A Corporate Accounting and Reporting Standard', 25 at <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>.

¹⁵ The table does not indicate the sources of 'scope 3' emissions.

¹⁶ See <https://fortune.com/global500/>.

Iron & Steel	Riva Group, Celsa Group, Liberty Steel, Dillinger, Moravia Steel	(direct) emissions from the production of iron & steel; and energy-related (indirect) emissions from the same source
Construction	Bechtel	energy-related (indirect) emissions from construction & (direct) emissions as a by-product of cement production
Transport	MSC Mediterranean Shipping Company, CMA CGM*	(direct) emissions because of burning of fossil fuels during maritime freight trips
Chemical Industry	Koch Industries, Ineos, Heraeus*, Boehringer Ingelheim*, Hengli*, Amer International*	energy-related (indirect) emissions from the manufacturing of fertilizers, pharmaceuticals, refrigerants, oil and gas extraction, metals, paper, and pulp etc.; and (direct) emissions as a by-product of chemical processes
Agriculture & Food	Cargill, Lactalis, Louis Dreyfus*, CHS*	energy-related (indirect) emissions from food processing (and the food system as a whole) and energy use in agriculture; (direct) emissions as a by-product of decomposition of organic matter and residues from animals and plants; and (direct) emissions from various practices in agriculture, land use, and forestry
Manufacturing	Bosch*, Huawei*, ZF Friedrichshafen*, IKEA	energy-related (indirect) emissions from the production of machinery, wood products, transport equipment, etc.

Table 1: Major private companies in climate-relevant sectors

* Included in the 2021 Fortune Global 500 list

A few data sources further indicate that private companies impose substantial environmental externalities that would not justify an exclusive focus on public companies on the path to net zero. According to a report by the Carbon Disclosure Project (CDP) from 2017, nine out of 100 (9 per cent) active fossil fuel producers that

are linked to 71 per cent of industrial GHG since 1988 are private companies.¹⁷ This number increases to 11 per cent when 224 fossil fuel extraction companies are taken into account for the year of 2015.¹⁸ Furthermore, based on an MSCI report, the carbon intensities of a private company set and a public company set in *carbon-intensive* sectors (utilities, energy, and materials) are quite close.¹⁹

Some private companies are relatively large and among the largest emitters in their sector/industry. For example, MSC Mediterranean Shipping Company, currently the world's second-largest container shipping group,²⁰ is a private company. According to the European Federation for Transport and Environment, however, it tops the emissions ranking among its peers in the industry, and would be sixth in the EU's top polluters in 2020.²¹ In the energy & commodity trading industry that specialises in the brokerage of oil, gas, and petroleum, apart from Glencore, the largest players are all held privately, namely, Vitol, Trafigura, Gunvor, Mercuria.²² In the

¹⁷ Carbon Majors Report 2017, n 5 above, 8. A CDP database of 100 extant fossil fuel producers ('carbon majors') include 16 privately-owned companies. *ibid*, 5.

¹⁸ *ibid*, 10. Cf 'Global 500 Greenhouse Gases Performance 2010-2015 - 2016 Report On Trends' at https://www.aiag.org/docs/default-source/corporate-responsibility/global-500-greenhouse-gases-performance-2010-2015.pdf?sfvrsn=2422429d_0 (featuring no private company in the top 100 companies ranked in order of size of GHG footprint).

¹⁹ See M. Shakhdwipee (Head of Climate Change Research in ESG research at MSCI), 'Understanding Carbon Exposure in Private Assets' (14 October 2021) at <https://www.msci.com/www/blog-posts/understanding-carbon-exposure/02796011861> (explaining and providing the methodology and data). The overall private company set has much lower carbon intensity compared to the public company set, ~172.8 of CO₂e per USD million of revenue and ~249.1 CO₂e per USD million revenue respectively, because of the lower exposure of the private company set to carbon-intensive sectors. See *ibid*. We calculated the carbon intensity of two different sets for *only* carbon-intensive sectors by multiplying this ratio (GHG to revenue) by the percentage of emissions and revenues incurred only in carbon-intensive sectors, resulting in the carbon intensities of ~955.3 of CO₂e per USD million of revenue and ~996.4 of CO₂e per USD million of revenue for the private and public company set respectively.

²⁰ It is poised to become the largest in the industry by vessel capacity. See H. Dempsey, 'MSC Poised to Overtake Maersk as Biggest Shipping Group' *Financial Times* 7 July 2021 at <https://www.ft.com/content/d06dff17-05f5-4698-aa7b-7cf7a919ebdc>.

²¹ See Transport & Environment, 'Shipping company climbs ranking of Europe's top climate polluters' (6 July 2021) at <https://www.transportenvironment.org/discover/shipping-company-climbs-ranking-of-europes-top-climate-polluters/>; 'Biggest polluters in the European Union in 2020' (Statista) at <https://www.statista.com/statistics/1130785/biggest-polluters-european-union/>. See also Harry Dempsey, 'MSC commits to net zero by 2050' *Financial Times* 15 September 2021 at <https://www.ft.com/content/91a27f7e-3d3c-4161-a5f5-a67517a64c2e> (reporting that the CEO of MSC declined to specify a net-zero target, calling it a 'nice thing' but then MSC also committed to net zero by 2050 like its public peers).

²² See also D. Gordon, *No Standard Oil: Managing Abundant Petroleum in A Warming World* (Oxford: OUP, 2022) 145 (stating that '[g]lobal oil and gas commodity traders are some of the most mysterious corporations in the world [...] Addressing climate change is not their stated priority, although a couple acknowledge the importance of the issue.').

agricultural industry where the top five meat and dairy companies combined emit more GHG than carbon majors such as ExxonMobil, Shell, and BP, the third- and fourth-highest emitters are privately-held: Cargill and Dairy Farmers of America, Inc.²³ One of the top 10 electric power producers in the US, Energy Capital Partners, is a private company and also among the top 10 in CO2 emissions.²⁴

Some private companies may also be small in size and operations in comparison to their public counterparts, but this does not mean that they emit less GHG. For example, Hilcorp Energy Co., a *private* oil and gas company in the US, is the largest methane²⁵ emitter in the country, reporting almost 50 per cent more methane emissions than the largest public counterpart, ExxonMobil.²⁶ For the other GHG emissions, Hilcorp is only slightly edged out by ExxonMobil, with this pair taking second and first place respectively.²⁷ Hilcorp is not an outlier though. In the top 10 methane emitters in the US, there are in total five private companies: Hilcorp (1st), Terra Energy Partners (4th), Flywheel Energy (7th), Blackbeard Operating (8th), and Scout Energy (9th).²⁸ A cursory look at the website of these companies reveals that they neither report their environmental impact nor do they have any climate strategy and targets. Remaining with other GHG emissions, there are six private companies in the top 20: Hilcorp (2nd), Terra Energy Partners (12th), Bruin E&P Partners (15th), WPX Energy (17th),²⁹ Blackbeard Operating (18th), and Scout Energy (19th).³⁰

²³ See Institute for Agriculture & Trade Policy and GRAIN, 'Emissions Impossible: How Big Meat and Dairy Are Heating Up the Planet' (18 July 2018), 5 and 22 at <https://www.iatp.org/emissions-impossible>. The top 20 meat and dairy companies combined emit more GHG than Germany, Canada, Australia, the UK, or France. *ibid*, 6 and 22. There are 9 private companies in this top 20.

²⁴ See C. Van Atten et al, 'Benchmarking Air Emissions: of the 100 Largest Electric Power Producers in the United States' (July 2021), 9 and 14 at <https://www.ceres.org/resources/reports/benchmarking-air-emissions-100-largest-electric-power-producers-united-states-2021>.

²⁵ Methane is one of the greenhouse gases. Although it remains in the atmosphere for a shorter time, it has a 100-year global warming potential 28-34 times that of CO2. See <https://unece.org/challenge>.

²⁶ See H. Tabuchi, 'Here Are America's Top Methane Emitters. Some Will Surprise You' *The New York Times* 2 June 2021 at <https://www.nytimes.com/2021/06/02/climate/biggest-methane-emitters.html>. See also Clean Air Task Force and Ceres, 'Benchmarking Methane and Other GHG Emissions of Oil & Natural Gas Production in the United States' (June 2021), 23 at <https://www.catf.us/resource/benchmarking-methane-emissions/> (hereinafter 'Benchmarking Methane and Other GHG Emissions Report').

²⁷ Benchmarking Methane and Other GHG Emissions Report, n 26 above, 23.

²⁸ *ibid*.

²⁹ Although in the reporting year this company was private, in 2021, it merged with Devon Energy, which is a public company. See <https://www.devonenergy.com/news/2021/Devon-Energy-and-WPX-Energy-Complete-Merger-of-Equals-Transaction>.

³⁰ Benchmarking Methane and Other GHG Emissions Report, n 26 above, 23.

In Europe, a recent report by the German Emissions Trading Authority shows that a private company (LEAG) owns four of the highest-emitting power plants in Germany,³¹ which in national terms is the highest emitter in the EU itself (three of these four installations are also the highest emitters in the EU).³² Its half-owner, a Czech private company (EPH), has been among the top three emitters under the EU emissions trading scheme since 2016.³³

Furthermore, relatively small private companies are becoming larger by increasingly buying up high-polluting assets from public big players which come under mounting pressure to decrease their GHG emissions – a phenomenon we closely examine below.

b. The phenomenon of brown-spinning

Another cause of concern with regard to private companies' environmental footprint and performance is the phenomenon of brown-spinning. This refers to the trend whereby public companies divest their carbon-intensive assets by selling them to private players. This represents a convenient way of reducing GHG emissions and achieving emissions reduction targets for public companies, which are subject to increasing scrutiny from various stakeholders including investors, regulators, and the public.

Although divestment of carbon-intensive assets helps public companies to reduce emissions attributable to them, it brings no overall reduction in the GHG emissions related to these assets. This can create a false sense of security when listed carbon majors under the spotlight appear to reduce their emissions, but the divested assets operate in the same way under the ownership of private companies, including private-equity-backed firms. Increasingly, this phenomenon of brown-spinning is catching the attention of media, investors, and other stakeholders.³⁴ As *The Economist*

³¹ For the report, see Deutsche Emissionshandelsstelle, 'Greenhouse Gas Emissions in 2020: Stationary Installations and Aviation Subject to Emissions Trading in Germany (2020 VET report)' (May 2021), 7 at https://www.dehst.de/SharedDocs/downloads/EN/publications/2020_VET-Report_summary.pdf?__blob=publicationFile&v=3 (Lausitz Energie Kraftwerke AG (LEAG) owns the second, third, sixth and seventh highest emitting power plants, which is in turn owned by EPH, a Czech private utility company, and PPF Investments, a private equity firm; on the ownership, see <https://www.leag.de/de/unternehmen/>).

³² 'Biggest polluters in the European Union in 2020', n 21 above. On the EU Member States' GHG emissions, see EEA greenhouse gases – data viewer (13 April 2021) at <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>.

³³ See Carbon Market Data Press Releases on the EU ETS Company Rankings at <https://carbonmarketdata.com/en/news>.

³⁴ See, eg, H. Tabuchi, 'Private Equity Funds, Sensing Profit in Tumult, Are Propping Up Oil' *The New York Times* 13 October 2021 at <https://www.nytimes.com/2021/10/13/climate/private-equity-funds-oil-gas-fossil-fuels.html>; C. Taraporevala (Chief Executive of State Street Global Advisors), 'The Other Climate Risk Investors Need to Talk About' *Financial Times* 14 May 2021 at

put it in a recent issue: ‘The first law of thermodynamics states that energy cannot be created or destroyed, just transferred from one place to another. The same seems to apply to the energy industry itself.’³⁵

There are a few illustrative examples worth referring to here. ConocoPhillips, one of the carbon majors located in the US, reported a decrease of about 22 per cent in its emissions in 2017.³⁶ What was largely behind this decrease was that ConocoPhillips had sold-off some of its oil and gas assets to Hilcorp Energy,³⁷ the private company (backed by the private equity giant, Carlyle) which is the highest methane emitter in the US.³⁸ Hilcorp recently also acquired Alaskan oil and gas assets from BP, a carbon major based in the UK.³⁹ In that year, BP also reported a substantial decrease in its GHG emissions, especially methane emissions.⁴⁰ This divestment accounted for a drop in emissions of more than five times the reduction BP achieved through operational improvements.⁴¹ It is doubtful whether there has been any absolute

<https://www.ft.com/content/c586e4cd-9fb7-47a3-8b43-3839e668fe3a>; A. Raval, ‘A \$140bn Asset Sale: The Investors Cashing In On Big Oil’s Push To Net Zero’ *Financial Times* 6 July 2021 at <https://www.ft.com/content/4dee7080-3a1b-479f-a50c-c3641c82c142>; R. Adams-Heard, ‘What Happens When An Oil Giant Walks Away’ *Bloomberg* 15 April 2021 at <https://www.bloomberg.com/graphics/2021-tracking-carbon-emissions-BP-hilcorp/>; Catherine Boudreau, ‘When Companies Go Green, The Planet Doesn’t Always Win’ *Politico* 30 March 2021 at <https://www.politico.com/news/2021/03/30/companies-green-planet-doesnt-always-win-478460>; V. Monga, ‘One of the World’s Dirtiest Oil Patches Is Pumping More than Ever’ *Wall Street Journal* 13 January 2022 at <https://www.wsj.com/articles/oil-sands-canada-dirty-carbon-environment-11642085980>; ‘Green Investors’ Filthy Secret: The Truth about Dirty Assets’ *The Economist* 12 February 2022 at <https://www.economist.com/leaders/2022/02/12/the-truth-about-dirty-assets>; Sustainable Fitch, ‘Shifting Ownership Patterns of Fossil Fuel Assets and Decarbonisation’ 25 May 2021 at <https://www.sustainablefitch.com/insights/shifting-ownership-patterns-of-fossil-fuel-assets-decarbonisation/>.

³⁵ See ‘Who Buys the Dirty Energy Assets Public Companies No Longer Want?’ *The Economist* 12 February 2022 at <https://www.economist.com/finance-and-economics/who-buys-the-dirty-energy-assets-public-companies-no-longer-want/21807594>.

³⁶ ConocoPhillips, ‘Sustainability Report’ (2017), 13 at <http://static.conocophillips.com/files/resources/18-0231-2017-sustainable-report.pdf>

³⁷ ‘Hilcorp Affiliate Finalizes San Juan Basin Assets Acquisition from ConocoPhillips’ *Business Wire* 31 July 2017 at <https://www.businesswire.com/news/home/20170731005947/en/Hilcorp-Affiliate-Finalizes-San-Juan-Basin-Assets-Acquisition-from-ConocoPhillips>. ConocoPhillips’ 2017 sustainability report concedes that ‘[a]sset dispositions had a large impact on our emissions in 2017.’ See n 36 above.

³⁸ See notes 26–27 above and text thereto.

³⁹ ‘BP completes sale of Alaskan oil and gas producing properties to Hilcorp Energy’ *Reuters* 1 July 2020 at <https://www.reuters.com/article/us-bp-divestiture-alaska-idUSKBN2426PP>.

⁴⁰ BP Sustainability Report 2020, 34 at <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/sustainability/group-reports/bp-sustainability-report-2020.pdf> (also conceding that that was due to the divestment of Alaskan assets).

⁴¹ *ibid.* See also Adams-Heard, n 34 above.

reduction of emissions in the atmosphere although these divestments have clearly helped the seller companies. Statements from Hilcorp around the sale suggest that the aim is future production and development of the bought assets.⁴² Hilcorp does not report on its GHG emissions and does not have any net-zero target or strategy.⁴³

On the other side of the Atlantic, similar deals can be observed. For example, Neo Energy, a UK private oil and gas company backed by the Norwegian private equity firm HitecVision, recently acquired some North Sea assets from public giants, ExxonMobil and TotalEnergies.⁴⁴ Neo Energy's CEO reacted as follows: 'NEO is well placed, together with its operating partners, to extract value from this and other opportunities, while at the same time focusing on improved environmental performance.'⁴⁵ Neo Energy seems to have an ESG sub-committee in place but has very weak disclosure of its emissions and no apparent net-zero target or strategy.⁴⁶ Further examples include the UK-based Ineos which is a private company and the fourth-largest chemical company in the world.⁴⁷ It recently acquired Hess Corporation's oil and gas assets in Denmark.⁴⁸ Ineos also recently bought the global petrochemical business of BP.⁴⁹ Encouragingly, Ineos reports on its GHG emissions (but only scope 1 and 2) and recently also engaged with the CDP.⁵⁰ It also committed to net-zero emissions by 2050 but has no substantial interim targets yet.⁵¹ Its net-zero

⁴² See n 37 above ('Hilcorp sees decades of future production and development in the basin.') and n 39 above ('We look forward to continuing to drive economic growth, create Alaskan jobs and contribute to local economies for decades to come').

⁴³ See <https://www.hilcorp.com/sustainability/environmental-climate-policy/>.

⁴⁴ See respectively, 'ExxonMobil Sells Bulk of UK North Sea Assets to Fast-Growing NEO Energy' *S&P Global* 24 February 2021 at <https://www.spglobal.com/platts/en/market-insights/latest-news/oil/022421-exxonmobil-sells-bulk-of-uk-north-sea-assets-to-fast-growing-neo-energy> and TotalEnergies Press Release, 'Total Closes the Sale of Non-Core UK Assets to NEO Energy' (6 August 2020) at <https://totalenergies.com/media/news>.

⁴⁵ 'ExxonMobil Sells Bulk of UK North Sea Assets to Fast-Growing NEO Energy', n 44 above.

⁴⁶ See <https://www.neweuropeanoffshore.com/esg/>.

⁴⁷ See A. H. Tullo, 'C&EN's Global Top 50 Chemical Firms for 2021' (26 July 2021) at <https://cen.acs.org/business/finance/CENs-Global-Top-50-2021/99/i27>.

⁴⁸ Ineos Press Release, 'INEOS Energy completes the acquisition of all oil and gas interests from HESS Corporation in Denmark' (30 August 2021) at <https://www.ineos.com/news/ineos-group/ineos-energy-completes-the-acquisition-of-all-oil-and-gas-interests-from-hess-corporation-in-denmark/>.

⁴⁹ Ineos Press Release, 'INEOS completes the acquisition of BP's global Aromatics & Acetyls business' (1 January 2021) at <https://www.ineos.com/news/shared-news/ineos-completes-the-acquisition-of-bps-global-aromatics--acetyls-business/>.

⁵⁰ See respectively Ineos, 2021 Sustainability Report, 37 at <https://www.ineos.com/sustainability/sustainability-reports/> and <https://www.cdp.net/en/responses?utf8=%E2%9C%93&queries%5Bname%5D=Ineos> (for the years of 2016, 2017, 2018, 2019 and 2020, Ineos did not participate in the CDP disclosure despite being called for).

⁵¹ *ibid*, 38 (stating targets of GHG emissions reduction over 10% by 2025 and over 33% by 2030).

strategy also depends significantly on carbon offsetting including carbon capture.⁵² The credibility of climate strategy and targets is therefore a concern which is further aggravated by the lack of oversight from institutional investors as shareholders, unlike in their seller counterparts.⁵³

Private – Public Transactions		Value (\$)	Private-equity-backed	Year
Hilcorp Energy Co.	ConocoPhillips	3 billion	Yes	2017
Hilcorp Energy Co.	BP Plc	5.6 billion	Yes	2020
Neo Energy	ExxonMobil	1.3 billion	Yes	2021
Neo Energy	TotalEnergies	635 million	Yes	2019
Ineos	Hess Corporation	150 million	No	2021
Ineos	BP Plc	5 billion	No	2021
Ineos	Ørsted A/S	1.3 billion	No	2017
Sabinal Energy LLC	Chevron Corp.	400 million	Yes	2017
Waldorf Production	Cairn Energy	460 million	Yes	2021
Siccar Point Energy	OMV	1 billion	Yes	2016
Lightstone Generation LLC	American Electric Power	2.1 billion	Yes	2017
Triton Power	Engie	270 million	Yes	2017
Onyx Strategic	Engie	Unclear	Yes	2019

Table 2 (notable private-public deals on carbon-intensive assets from financial press)

This phenomenon of brown-spinning is clearly driven by the backing of private equity firms, which have shown a demand and an appetite for the assets offloaded by public companies, which are still highly profitable.⁵⁴ According to a recent report,

⁵² *ibid.*

⁵³ See also Carbon Tracker Initiative, ‘Absolute Impact 2021: Why oil and gas ‘net zero’ ambitions are not enough’ (27 May 2021) at <https://carbontracker.org/reports/absolute-impact-2021/> (stating that ‘[t]o drive real change, it’s critical that companies have interim goals’ and ‘[f]or company goals to be credible, they should not rely heavily on unproven technologies’).

⁵⁴ See Raval, n 34, above (citing a clean energy investment banker who states that ‘[t]hese operational assets will mint money like you have no idea over the next three to five years. Hedge funds, private equity, companies you have never heard of, will pick these assets off.’); Sustainable Fitch, n 34

about 80 per cent of energy investments made by the top 10 private equity firms (including Blackstone, KKR, and Carlyle) are in oil, gas, and coal.⁵⁵ On the supply side, a recent report found that in the future '[e]nergy transition could push oil majors to sell or swap oil and gas assets of more than \$100 billion.'⁵⁶ Another source reported that 'ExxonMobil and Chevron in the US and BP, Royal Dutch Shell, Total and Eni in Europe have sold \$28.1bn in assets since 2018 alone' and are now targeting further disposals of more than \$30bn in the coming years.⁵⁷ There is increasing pressure on the oil and gas majors to accelerate their net-zero transition and make good on their pledges, which may mean more disposals to private companies that have so far remained immune to such pressure.⁵⁸ Activist shareholders also push public companies to divest their burdensome assets for which they see no future.⁵⁹

These deals between public and private parties are not *per se* harmful.⁶⁰ What is socially desirable is that GHG-intensive assets end up in the hands of the most efficient

above (stating that '[p]rivate equity firms have increasingly been buying fossil fuel assets as others have looked to divest.');

'Who Buys the Dirty Energy Assets', n 35 above (noting that '[i]n the past two years alone [private-equity firms] bought \$60 bn-worth of oil, gas and coal assets, through 500 transactions – a third more than they invested in renewables.'). Cf D. Fickling, 'Why Private Equity Won't Be the Savior of Fossil Fuels' *Bloomberg* 5 January 2022 at <https://www.bloomberg.com/opinion/articles/2022-01-05/why-private-equity-won-t-be-the-savior-of-fossil-fuels>.

⁵⁵ See Private Equity Stakeholder Project, 'Private Equity Propels the Climate Crisis: The Risks of A Shadowy Industry's Massive Exposure to Oil, Gas and Coal' (October 2021), 6 at <https://pestakeholder.org/report/climate-crisis/>.

⁵⁶ Rystad Energy Press Release (22 September 2020) at [https://www.rystadenergy.com/newsevents/news/press-releases/energy-transition-could-push-oil-majors-to-sell-or-swap-oil-and-gas-assets-of-more-than-\\$100-billion/](https://www.rystadenergy.com/newsevents/news/press-releases/energy-transition-could-push-oil-majors-to-sell-or-swap-oil-and-gas-assets-of-more-than-$100-billion/). Cf Raval, n 34 above (citing another energy consultancy, Wood Mackenzie, that puts the number at more than \$140bn).

⁵⁷ Raval, n 34 above (citing energy consultancy, Wood Mackenzie).

⁵⁸ See, eg, M. Levine, 'A Good Reputation Is Expensive' *Bloomberg* 20 January 2022 at <https://www.bloomberg.com/opinion/articles/2022-01-20/a-good-reputation-is-expensive> (noting that 'there is a lot of shareholder and political pressure on big public energy companies to divest their dirtiest assets [...] If you are immune from that pressure – if you are a private firm whose investors are not very ESG-conscious [...] – then you can buy those assets cheap and make a lot of money digging up dirty coal.');

Monga, n 34 above (citing the CEO of a private equity firm that invests in oil who says that 'his company has more freedom to increase production, while investing in technologies to reduce carbon emissions, because it doesn't have to answer to public shareholders.');

'Who Buys the Dirty Energy Assets', n 35 above (stating that 'discounts imposed on "brown" assets by the stockmarket, linked to sustainability factors rather than financial ones, are causing a lot of mispricing on which private funds thrive.').

⁵⁹ See, eg, N. Hume, 'Activist Calls on Glencore to Spin Off Coal Assets' *Financial Times* 30 November 2021 at <https://www.ft.com/content/6f5a8c43-76d4-4843-a15e-47bc767ec6d8>.

⁶⁰ We would note that divested assets also pass to national oil companies controlled by the relevant state. These deals would pose the same problems we indicate in relation to public-private deals. See also Raval, n 34 above (covering these deals as well); N. Ferris, 'Deals Data Shows Early Signs of A Fossil Fuel Asset Exodus' *Energy Monitor* 9 December 2021 at

decarbonisers which can obviously include private companies (also backed by private equity). One thing is however certain: these high-polluting assets are subject to less or no disclosure and little or no external market discipline which can shield private owners from scrutiny and pressure.⁶¹ Furthermore, to be able to divest these assets at a profit, current owners (public companies) may leave them on a growth trajectory (for example, applying for new permissions or licenses for mining before divesting).⁶²

The phenomenon of brown-spinning should also serve as a note of caution for those investors who are committed to mitigating climate change, whether for financial reasons or green preferences. Divestments by investee companies will reduce emissions at the entity level and make the fund look 'greener' but, overall, the climate impacts resulting from those assets remain the same.⁶³ Recent reports suggest that

<https://www.energymonitor.ai/finance/investment-management/deals-data-shows-early-signs-of-a-fossil-fuel-asset-exodus> ('[a]sset sales from oil majors risk a greater share of future oil supply being under the control of national oil companies, which [...] typically do not have net-zero pledges and are based in countries with undiversified economies [...]').

⁶¹ Obviously, the acquirers of these assets can go public after a while (for example, Chrysaor, a previously private equity-backed oil & gas firm with significant asset acquisitions from listed carbon majors, reverse-merged later with Premier Oil to become listed, see <https://www.harbourenergy.com/about-us/our-history/chrysaor/>). Listing may provide a suitable exit strategy for the private owners, but this is not necessarily the case. Indeed, in the case of Chrysaor, it is noted that this might have been a golden opportunity for Chrysaor to go public as it was able to 'avoid an initial public offering at a time when oil and gas companies are out of favour with investors.' See D. Sheppard and H. Dempsey, 'Chrysaor agrees reverse takeover of Premier Oil' *Financial Times* (6 October 2020 at <https://www.ft.com/content/5289be40-7a45-4598-b16b-8357775aa6dc>). See further, <https://www.linkedin.com/feed/update/urn:li:activity:6883150109136224256/> (Luciano Siani Pires, Executive Vice President at Vale S.A., one of the largest public mining companies in the world, notes that private owners buying these assets may not need an exit strategy to profit), and 'Who Buys the Dirty Energy Assets', n 35 above (stating that buyout funds produce returns from the operating cash flows rather than from reselling assets).

⁶² See T. Biesheuvel, 'Investors Pushed Mining Giants to Quit Coal. Now It's Backfiring' *Bloomberg* 9 November 2021 at <https://www.bloomberg.com/news/articles/2021-11-09/investors-pushed-mining-giants-to-quit-coal-now-it-s-backfiring> ('[w]hen [...] BHP Group was struggling to sell an Australian colliery this year, the company surprised investors by applying to extend mining at the site by another two decades — an apparent attempt to sweeten its appeal to potential buyers.').

⁶³ Blackrock's CEO Larry Fink recently pointed out this issue in a public event. See 'Climate Change and Financial Market Regulations: Insights from BlackRock CEO Larry Fink and former SEC Chair Mary Schapiro' (2 February 2021), at <https://www.brookings.edu/events/climate-change-and-financial-market-regulations-insights-from-blackrock-ceo-larry-fink-and-former-sec-chair-mary-schapiro/> ('if a corporate sells the dirtiest stuff to some private enterprise somewhere in the world and then the private enterprise is doing exactly, or even worse offenses to the environment. How do you define that? The company looks better. They're not doing greenwashing. They actually, but all of the standards, they look better, but the world is probable worse off.'). See also Biesheuvel, n 62 above ('after years of lobbying blue-chip companies to stop mining the most-polluting fuel, there's a growing unease among climate activists and some investors that the policy many of them championed could lead to more coal being produced for longer.')

those investors started to adopt a nuanced approach calling on companies to abandon selling-out of fossil fuels and instead to responsibly phase out operations, or to divest to responsible parties.⁶⁴ Remarkably, in its 2022 letter to CEOs, Larry Fink of Blackrock noted that '[...] simply passing carbon-intensive assets from public markets to private markets will not get the world to net zero.'⁶⁵ Divestments of highly-polluting assets by investee companies, however, may look especially appealing for those investors who consider those assets a burden on the share price or desire to polish 'green' credentials at the fund level to attract capital flows.⁶⁶

c. Climate-related risks and their relevance to private companies

As well as the externalities imposed by private companies, their exposure to climate-change-related (financial) risks is also important. Climate-related risks are generally grouped into two categories: (i) physical risks; and (ii) transition risks.⁶⁷ Physical risks indicate exposure to increasing extreme weather events or gradual climate shifts. Moreover, transition risks emanate from the societal response (policy action, litigation, market, reputational etc.) to transition to a low carbon economy.⁶⁸ Monitoring and managing these risks has been important for public companies, partly as a result of disclosure demands from financial markets to be able to identify and measure self-exposure.⁶⁹ Market mispricing of such risks due to the lack of sufficient

⁶⁴ Biesheuvel, n 62 above (explaining changing investor approach to divestment by investee companies); N. Hume, 'Glencore Defends Coal Rundown Strategy as Right for The World' *Financial Times* 2 December 2021 at <https://www.ft.com/content/81696e63-38c5-4454-8a03-8a92fdc4ca5a> (noting that '[m]any big investors now think spinning off fossil fuel assets is the wrong thing to do because new owners might seek to increase production and therefore carbon emissions.'). See also J. C. Coffee, Jr., 'Climate-Risk Disclosures and "Dirty Energy" Transfers: "Progress" Through Evasion' The CLS Blue Sky Blog, 25 January 2022 at <https://clsbluesky.law.columbia.edu/2022/01/25/climate-risk-disclosures-and-dirty-energy-transfers-progress-through-evasion/> (suggesting that large institutional investors should make sure that '[p]ublic companies should not sell significant emissions-creating assets unless the buyer agrees to observe a "net zero" emissions pledge roughly comparable to its seller's.').

⁶⁵ See 'Larry Fink's 2022 Letter to CEOs: The Power of Capitalism' at <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.

⁶⁶ See, eg, Hume, n 59 above (reporting on Bluebell targeting Glencore to spin off its coal assets because '[a] clear separation between carbonized and decarbonized assets is needed to increase shareholder value.').

⁶⁷ On this classification, see Task Force on Climate-Related Financial Disclosures (TCFD), 'Recommendations of the Task Force on Climate-related Financial Disclosures' (June 2017) 5-6.

⁶⁸ *ibid.*

⁶⁹ TCFD recommendations have become industry standards for companies to monitor, manage and disclose climate risk, which an increasing number of companies have been voluntarily following. Disclosures in line with these recommendations have been also made mandatory in many countries. See 'Task Force on Climate-related Financial Disclosures 2021 Status Report' (October 2021) at <https://www.fsb.org/wp-content/uploads/P141021-1.pdf> (noting that in Brazil, European Union,

information can cause capital misallocation, as well as inadequate resilience building and adaptation.⁷⁰

Private companies are subject to the same risks, which are systematic in nature.⁷¹ For example, according to an MSCI report, the difference between the overall carbon intensities of private and public companies in countries or regions with high emissions reduction targets is quite small, suggesting that ‘both private and public companies are similarly vulnerable to regulations and policies aimed at reducing companies’ direct emissions.’⁷²

Financial markets should not be very concerned with private companies as they have limited or no exposure to climate risks in private companies (unless substantial spill-overs exist).⁷³ Still, climate-related risks are relevant for private companies, which should monitor and manage them for their own benefit.⁷⁴ More importantly, there is also a public interest in climate change adaptation by private companies. Unmitigated risk exposure and the materialisation of such risks can cause macroeconomic effects as these companies shrink, go bankrupt and suffer significant damages. Macroeconomic effects stem from less tax revenue, fewer employment opportunities and damaged infrastructure. In brief, it would be socially desirable for private companies to identify, measure, and mitigate climate-related risks despite limited interaction with financial markets where the build-up of risks can create a climate-driven Minsky moment⁷⁵ and cause adverse impacts on a macroeconomic scale. But financial stability concerns are still relevant in the case of private companies

Hong Kong, Japan, New Zealand, Singapore, Switzerland, and United Kingdom, there are TCFD-aligned official reporting requirements).

⁷⁰ See, eg, M. Condon, ‘Market Myopia’s Climate Bubble’ (2022) *Utah Law Review* 63, 104-108.

⁷¹ IIGCC and PRI, ‘A Guide on Climate Change for Private Equity Investors’ (31 May 2016) 17 at <https://www.unpri.org/download?ac=274> ([c]limate change impacts will differ according to sector and geographical location but they have the potential to impact businesses of all sizes, locations and markets.’). See also A. H. Lee (SEC Commissioner), ‘Going Dark: The Growth of Private Markets and the Impact on Investors and the Economy’, Remarks at The SEC Speaks in 2021 (12 October 2021) at https://www.sec.gov/news/speech/lee-sec-speaks-2021-10-12#_ftn31 (noting that the rise of opaque private markets could operate to obscure systemic risks such as those posed by climate change).

⁷² Shakedwippee, n 19 above.

⁷³ See however L. Cahen-Fourot, ‘Capital Stranding Cascades: The Impact of Decarbonisation on Productive Asset Utilisation’ (2021) 103 *Energy Economics* 1 (capturing ‘the propagation of stranding risks via international production networks’).

⁷⁴ It may be within company directors’ duty to monitor and manage these risks. See CCLI and Climate Governance Initiative, ‘Primer on Climate Change: Directors’ Duties and Disclosure Obligations’ (June 2021) at <https://www.tcfddhub.org/resource/primer-on-climate-change-directors-duties-and-disclosure-obligations>.

⁷⁵ M. Carney et al, ‘The Financial Sector Must Be at The Heart of Tackling Climate Change’ *Guardian* 17 April 2019 at <https://www.theguardian.com/commentisfree/2019/apr/17/the-financial-sector-must-be-at-the-heart-of-tackling-climate-change>.

as the realisation of climate risks for private companies can affect the loan books of banks, triggering huge write-downs across many financial players and sectors.⁷⁶

III. CONTRAST WITH PUBLIC COMPANIES

Having demonstrated how heavily private companies are presently contributing to GHG emissions, we now show how they lack most of the disciplining mechanisms available to public companies that can play an important role in reducing emissions and addressing climate-related risks.

a. Lack of institutional shareholder stewardship or activism

Recent scholarship and examples show that institutional shareholders can drive change in companies with a major carbon footprint. In particular, index funds which are subject to climate change as a systematic risk are lauded as suitable candidates to put investee companies on a sustainable path.⁷⁷ Empirical evidence also broadly suggests that large institutional investors make some sort of positive impact to this end.⁷⁸

In general terms, institutional investors wishing to engage with the policy choices of their investee companies make use of either the ‘exit’ (divestment of investment) or the ‘voice’ option (direct or indirect engagement with the corporate

⁷⁶ See, eg, F. Lamperti et al, ‘The Public Costs of Climate-Induced Financial Instability’ (2019) 9 *Nature Climate Change* 829 ([o]ur results indicate that climate change will increase the frequency of banking crises.’). Cf C.P. Skinner, ‘Central Banks and Climate Change’ (2021) 74 *Vanderbilt Law Review* 1301, 1317 (‘it appears that banks may not presently hold sufficient concentration of carbon-intensive credit assets for physical or transition risks to threaten their solvency.’).

⁷⁷ M. Condon, ‘Externalities and the Common Owner’ (2020) 95 *Washington Law Review* 1; J.C. Coffee, Jr., ‘The Future of Disclosure: ESG, Common Ownership, and Systematic Risk’ (2021) *Columbia Business Law Review* 602; J.N. Gordon, ‘Systematic Stewardship’ *Journal of Corporation Law* (2022, forthcoming). Cf A. Christie, ‘The Agency Costs of Sustainable Capitalism’ (2021) 55 *UC Davis Law Review* 875 (arguing that institutional investors, especially ‘Big Three’, suffer under ‘rational reticence’ and ‘rational hypocrisy’ in their sustainability efforts in investee companies); R. Tallarita, ‘The Limits of Portfolio Primacy’ Working Paper (2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3912977 (claiming that index funds internalize global climate externalities in a very limited and imperfect way.).

⁷⁸ See, eg, J. Azar et al, ‘The Big Three and Corporate Carbon Emissions Around the World’ (2021) 142 *Journal of Financial Economics* 674 (observing ‘a strong and robust negative association between Big Three ownership and subsequent carbon emissions among MSCI index constituents’); A. Dyck et al, ‘Do Institutional Investors Drive Corporate Social Responsibility? International Evidence’ (2019) 131 *Journal of Financial Economics* 693 (finding that ‘institutional ownership is positively associated with E&S performance with additional tests suggesting this relation is causal.’); S.L. Naaraayanan, K. Sachdeva and V. Sharma, ‘The Real Effects of Environmental Activist Investing’ (ECGI Finance Working Paper No. 743/2021, March 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3483692 (suggesting that ‘engagements are an effective tool for long-term shareholders to address climate change risks.’).

management).⁷⁹ The former option is exemplified by the recent trends in ESG investing where ‘socially responsible’ investors shun industries and companies where the GHG emissions remain high and the management does not put in place a plan to transition to a net-zero carbon economy.⁸⁰ Meanwhile, the use of the ‘exit’ option depresses the share price of divested companies, which may have a number of implications for corporate management, and attracts public attention.⁸¹

The use of voice is widely deemed a better option,⁸² and can be made possible through several means, such as: behind-the-scenes engagement with corporate management;⁸³ shareholder proposals including ‘say on climate’⁸⁴ or ‘say on pay’⁸⁵; and proxy fights to replace board members. Notably, ‘say on climate’ is increasingly prevalent on the agenda of large public companies.⁸⁶

⁷⁹ See also E. Broccardo, O. Hart and L. Zingales, ‘Exit vs. Voice’ (ECGI Finance Working Paper No. 694/2000, November 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3671918 (arguing that ‘voice’ is a better strategy in promoting socially desirable outcomes in companies).

⁸⁰ See generally R. Baron and D. Fischer, ‘Divestment and Stranded Assets in the Low-carbon Transition’ (Background Paper for the 32nd OECD Round Table on Sustainable Development 28 October 2015) at <https://www.oecd.org/sd-roundtable/papersandpublications/bydate/3/>.

⁸¹ On ‘exit’ as an engagement mechanism, see A. Edmans, ‘Trading as a Stewardship Mechanism’ at <https://alexedmans.com/wp-content/uploads/2015/03/Trading.pdf>. See further A. Edmans, ‘Blockholder Trading, Market Efficiency, and Managerial Myopia’ (2009) 64 *The Journal of Finance* 2481; M. Rohleder, M. Wilkens and J. Zink, ‘The Effects of Mutual Fund Decarbonization on Stock Prices and Carbon Emissions’ (2022) 134 *Journal of Banking & Finance*.

⁸² See, eg, P. Krueger, Z. Sautner and L.T. Starks, ‘The Importance of Climate Risks for Institutional Investors’ (2020) 33 *The Review of Financial Studies* 1067 (stating that ‘[m]any of the investors [...] consider risk management and engagement, rather than divestment, to be the better approach for addressing climate risks.’).

⁸³ See, eg, J.A. McCahery, Z. Sautner and L.T. Starks, ‘Behind the Scenes: The Corporate Governance Preferences of Institutional Investors’ (2016) 71 *The Journal of Finance* 2905.

⁸⁴ ‘Say on climate’ indicates shareholder vote on the strategies of companies to deal with their greenhouse gas emissions. See C. Horn and A. Behar, ‘Say On Climate: Net-Zero with Annual Shareholder Votes – A Global Movement’ (16 March 2021) at <https://www.proxypreview.org/2021/contributor-articles-blog/say-on-climate-net-zero-with-annual-shareholder-votes-a-global-movement>; C. Keatinge, ‘Say on Climate Votes: Glass Lewis Overview’ (27 April 2021) at <https://www.glasslewis.com/say-on-climate-votes-glass-lewis-overview/>.

⁸⁵ Say on pay votes give shareholders an important influence on executive remuneration, which can then be used to incorporate sustainability performance of the company into compensation of corporate management. See R.A. Ritz, ‘Climate Targets, Executive Compensation, and Corporate Strategy’ (Cambridge Working Papers in Economics No. 2098, 29 October 2020) at <https://www.econ.cam.ac.uk/cwpe> (examining the use to date of climate-linked management incentives at the world’s largest energy companies).

⁸⁶ A recent example is the significant shareholder support for various climate change related shareholder proposals at a carbon major, Chevron. These included a proposal to cut the so-called ‘Scope 3’ emissions (61 per cent support), a proposal to prepare a report on the impact Chevron’s business would have from the net zero 2050 scenario (48 per cent support), a proposal demanding more

Activist shareholders can play an important role as well. Indeed, hedge funds increasingly target companies where they believe that corporate management does not sufficiently address climate-related risks.⁸⁷ When supported by other institutional shareholders, especially by the 'Big Three' (Blackrock, Vanguard, and State Street), they can be a formidable opponent,⁸⁸ as a recent example demonstrates. Specifically, a small activist shareholder, called Engine No. 1, with the support of large investment funds such as Blackrock, was able to oust three board members from the board of another carbon major, ExxonMobil, and elect its own members with the experience of transitioning to a green economy.⁸⁹

In private companies, simply because these companies are privately owned, there will be a limited disciplining effect from institutional investors as shareholders who can otherwise spur socially desirable change in public companies to some extent.⁹⁰ First, although institutional investors increasingly invest in private companies, the investments currently seem to involve a small number of companies (especially venture-capital-backed firms or unicorns).⁹¹ Second, these privately-owned firms will usually have controlling shareholders that would mitigate any influence of institutional shareholders.⁹² Furthermore, institutional investors' major

information on Chevron's lobbying activities (48 per cent support). See 'Chevron investors back proposal for more emissions cuts' *Reuters* 26 May 2021 at <https://www.reuters.com/business/energy/chevron-shareholders-approve-proposal-cut-customer-emissions-2021-05-26/>.

⁸⁷ See, eg, T. Barko, M. Cremers and L. Renneboog, 'Shareholder Engagement on Environmental, Social, and Governance Performance' (2021) *Journal of Business Ethics*.

⁸⁸ See, eg, W.-G. Ringe, 'Investor-Led Sustainability in Corporate Governance' (ECGI Law Working Paper No. 615/2021, November 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3958960.

⁸⁹ D. Brower, 'ExxonMobil Shareholders Hand Board Seats to Activist Nominees' *Financial Times* 26 May 2021 at <https://www.ft.com/content/da6dec6a-6c58-427f-a012-9c1efb71fddf>. Another example is the recent intervention of the activist fund Third Point calling for the break-up of Shell. See O. Aliaj et al, 'Activist Fund Third Point Calls for Break-Up of Shell' *Financial Times* 27 October 2021 at <https://www.ft.com/content/b4fc6926-e991-43ca-9ac8-3b1478c23dd5>.

⁹⁰ See also Tallarita, n 77 above, 48–49 ('if private firms represent an increasingly larger part of the economy, the sphere of influence of climate stewardship is destined to get smaller and less relevant over time.').

⁹¹ See, eg, S. Kwon, M. Lowry and Y. Qian, 'Mutual Fund Investments in Private Firms' (2020) 136 *Journal of Financial Economics* 407 (documenting that across a sample of 14 mutual fund families, 149 mutual funds invested in 270 venture-backed private firms during 1995–2016).

⁹² See, eg, S. Claessens and K. Tzioumis, 'Ownership and Financing Structures of Listed and Large Non-listed Corporations' (2006) 14 *Corporate Governance: An International Review* 266 (finding that the substantial majority of non-listed companies in 19 European countries have either a large or medium blockholder). On the institutional shareholders' stewardship in controlled companies, see A.A. Gözlügöl, 'Controlling Shareholders: Missing Link in The Sustainability Debate?' Oxford Business Law Blog, 16 July 2021 at <https://www.law.ox.ac.uk/business-law-blog/blog/2021/07/controlling-shareholders-missing-link-sustainability-debate>; D. Dharmapala and V.S. Khanna, 'Controlling

networks or organizations such as Climate Action 100+ and Transition Pathway Initiative that encourage and facilitate institutional investors' (environmental) engagement currently focus entirely on public companies.⁹³

On the other hand, one should note the (potential) role of private equity firms as institutional shareholders in private companies. A private equity firm as a 'general partner' invests funds of 'limited partners' which include, among others, public/private pension funds, mutual funds, sovereign wealth funds, and high-net-worth individuals. If these ultimate investors (which can also be shareholders in public companies) allocate their capital according to their sustainability preferences (which should ideally reflect those of beneficiaries) or push general partners for increased sustainability performance in the investee companies, then private equity can be quite forceful in spurring sustainability in private companies where they invest (especially if they are in the position of controlling shareholders). Yet, real-life evidence is sobering.⁹⁴ According to a recent report, currently only one out of the ten largest private equity funds (including publicly-traded ones) monitors and discloses portfolio company emissions.⁹⁵ However, there have been some recent signs of positive change.⁹⁶

Lastly, one should note that when private companies tap into capital markets via bond issuance, the same institutional investors may have bought some of these bonds.⁹⁷ But, as bondholders, their willingness and ability to steward the debtor companies towards sustainability will be limited.⁹⁸

Externalities: Ownership Structure and Cross-Firm Externalities' (ECGI Law Working Paper No. 603/2021, August 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3904316.

⁹³ See respectively <https://www.climateaction100.org/whos-involved/companies/> and <https://www.transitionpathwayinitiative.org/data-background>.

⁹⁴ See, eg, 'Who Buys the Dirty Energy Assets', n 35 above (stating that from many limited partners involving pension funds, universities and other investors that pledged to divest fossil fuels, few are 'ready to leave juicy returns on the table' and 'in no rush to tighten the taps.').

⁹⁵ 'MSCI 2022 ESG Trends to Watch' (December 2021) 10 at <https://www.msci.com/documents/10199/9d2eece-c2db-3d86-873f-faaac8cd62ef>. See also text to notes 54–55 above; and A. Bellon, 'Does Private Equity Ownership Make Firms Cleaner? The Role of Environmental Liability Risks' (ECGI Finance Working Paper No. 799/2021, November 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3604360 (finding that being highly incentivized to maximize shareholder value, private equity leads to positive environmental outcomes only when the risk of environmental regulation and liability is high).

⁹⁶ Sustainable Fitch, n 34 above (noting that '[p]rivate equity energy investments have focused heavily over the past decade on fossil fuel assets [...] but there are signs that this is beginning to shift').

⁹⁷ On the bond issuance by private companies, see n 109 below.

⁹⁸ See generally C.K. Whitehead, 'The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance' (2009) 34 *Journal of Corporation Law* 641, 651; G.G. Triantis and R.J. Daniels, 'The Role of Debt in Interactive Corporate Governance' (1995) 83 *California Law Review* 1073, 1088–89.

b. Lack of other corporate governance mechanisms

Certain corporate governance mechanisms can also play an important role in pushing companies to a more sustainable path. These mechanisms, however, are more likely to occur and be effective in public companies. For example, executive compensation tied to sustainability measures (ie the company's climate-related performance) is prevalent in most carbon majors.⁹⁹ There is no *a priori* reason why such arrangements could not be possible in private companies as well. However, in public companies, institutional investors that are growingly concerned with the transition to a net-zero carbon economy, can influence and increase such arrangements via 'say on pay' votes that are common across jurisdictions.¹⁰⁰

Another factor that can be influential in overseeing and nudging companies in their transition to a net-zero carbon economy is the presence of independent directors on the board. These board members with necessary climate-related expertise can initiate needed discussions and oversee related measures to navigate companies in addressing climate-related risks. Special board-level 'sustainability' committees or 'carbon steering groups' are examples of such mechanisms.¹⁰¹ Indeed, similar measures can also be adopted in private companies. However, opaque board structures and minimal application of corporate governance codes in private companies render this less likely.¹⁰² In private companies, generally, insiders dominate the board without any input from independent board members with both the necessary expertise, and oversight and risk management responsibility.¹⁰³

To be sure, private companies try to turn this into a virtue. Private firms, and in particular family-owned firms, according to a common argument, are inherently 'sustainable' and long-term-oriented by their very nature. Similarly, private firms are

⁹⁹ See n 85 above.

¹⁰⁰ See, eg, R.S. Thomas and C. Van der Elst, 'Say on Pay Around the World' (2015) 92 *Washington University Law Review* 653.

¹⁰¹ See in this regard F. Otto et al, 'The Sustainability Report 2021', Harvard Law School Forum on Corporate Governance 23 November 2021 at <https://corpgov.law.harvard.edu/2021/11/23/the-sustainability-board-report-2021/>; International Finance Corporation (IFC), 'Focus 15: Sustainability Committees: Structures and Practices' (2021) at https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+cg/resources/focus_case+studies/focus+15+sustainability+committees.

¹⁰² Corporate governance codes are generally applicable for listed companies or drafted for the benefit of such companies. See also H. Fleischer, 'Comparative Corporate Governance in Closely Held Corporations' in J.N. Gordon and W.-G. Ringe (eds), *The Oxford Handbook of Corporate Law and Governance* (Oxford: OUP, 2018) 679–80. An exemption is the recent Wates Corporate Governance Principles in the UK, see n 167 below.

¹⁰³ See, eg, J.A. McCahery and E.P.M. Vermeulen, *Corporate Governance of Non-Listed Companies* (Oxford: OUP, 2008) 205 (stating that in private family-owned firms, the board members are typically family members); Fleischer, n 102 above, 681–82 (noting that in closely-held companies, shareholders regularly play a double role as director or employee).

frequently organised in a more intimate, personal context that necessitates neither far-reaching legal intervention nor market-gearred disclosure requirements. These have been some common arguments put forward by interest groups representing family firms. They intend to fend-off pressure for more interventionist legislation, picturing a more self-regulatory and private ecosystem in these firms that would make regulatory intervention redundant. While this may hold true for certain (very) small firms and family-owned firms, it certainly does not apply to the global players that we discuss in this paper.¹⁰⁴ Nevertheless, we shall come back to tailoring disclosure obligations to firms' size in our discussion of policy implications in Section V below.

c. Lack of transparency and disclosure

The third aspect where private and public companies differ is the transparency framework. Private companies lack comparable transparency and disclosure requirements with regard to their contribution to climate change, the impacts that their business operations may have on the environment generally, and climate-related risks for their businesses as well as steps taken to address these concerns.

For example, in the EU, the Non-Financial Reporting Directive (NFRD) requires companies to disclose, *inter alia*, the principal risks related to the environment that may be caused by the company's operations and how these risks are managed by the company on a 'comply or explain' basis.¹⁰⁵ Furthermore, the guidelines promulgated by the European Commission provide a (non-binding) framework for the disclosure of climate-related risks (based on the recommendations of the TCFD) as a supplement to the NFRD.¹⁰⁶ However, the main addressees of the disclosure regime remain large 'public-interest entities' with more than 500 employees.¹⁰⁷ Public-interest entities are defined under the Accounting Directive as those entities 'governed by the law of a Member State and whose transferable securities are admitted to trading on a regulated market of any Member State [...]' (as well as credit institutions and insurance undertakings).¹⁰⁸ Clearly, these undertakings will typically be listed (public)

¹⁰⁴ See the examples that we list above in Table 1.

¹⁰⁵ Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups [2014] OJ L 330 (The Non-Financial Reporting Directive).

¹⁰⁶ European Commission, *Guidelines on non-financial reporting: Supplement on reporting climate-related information* C/2019/4490, OJ C 209, 20 June 2019.

¹⁰⁷ The Non-Financial Reporting Directive, n 105 above. Few Member States required relevant disclosures by private companies in the implementation of the Directive. See GRI, CSR Europe and Accountancy Europe, 'Member State Implementation of Directive 2014/95/EU: A Comprehensive Overview of How Member States Are Implementing the EU Directive on Non-Financial and Diversity Information' (2017) at <https://www.accountancyeurope.eu/wp-content/uploads/1711-NFRpublication-GRI-CSR-Europe.pdf>.

¹⁰⁸ Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of

companies rather than private companies unless they have issued tradable bonds on a regulated market in the EU.¹⁰⁹ In other words, disclosure requirements in the EU may miss most, if not all, large private companies.

Furthermore, the Taxonomy Regulation that has recently come into force requires disclosure on how and to what extent an undertaking is associated with economic activities that qualify as environmentally sustainable under this Regulation.¹¹⁰ More specifically, it requires the disclosure of the proportion of the turnover derived from products or services associated with environmentally-sustainable economic activities, and of the proportion of the capital expenditure and the operating expenditure related to assets or processes associated with environmentally-sustainable economic activities.¹¹¹ However, the companies subject to this disclosure requirement are those that are required to publish non-financial information under the NFRD.¹¹² This implies, again, that (most) private companies are not subject to this disclosure requirement under the Taxonomy Regulation.

In the US, climate-related disclosure has so far been generally framed within an investor protection framework, requiring disclosure from the SEC registrants as far as (financially) material.¹¹³ While this can satisfy the need for sustainability disclosures

undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC OJ L 182 (Accounting Directive), Art 2(1).

¹⁰⁹ This is not a high occurrence. See, eg, O. Darmouni and M. Papoutsis, 'The Rise of Bond Financing in Europe' (9 February 2022) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3748002 (despite likely underestimating the number of private issuers in the Euro Area, they provide a sample of private firms that contains 278,030 firms, only 1,900 of which had a bond outstanding some time in 2010–2018). The cost of public debt is high for private companies due to information asymmetries. See, eg, A. Kovner and C. Wei, 'The Private Premium in Public Bonds' (Federal Reserve Bank of New York Staff Reports No. 553, March 2014) at https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr553.html; B.A. Badertscher et al, 'Private Ownership and the Cost of Public Debt: Evidence from the Bond Market' (2019) 65 *Management Science* 301.

¹¹⁰ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 [2020] OJ L 198, Art 8.

¹¹¹ *ibid.*

¹¹² *ibid.*

¹¹³ See Guidance Regarding Disclosure Related to Climate Change, Release Nos. 33-9106; 34-61469 (8 February 2010) (companies should 'focus on material information and eliminate immaterial information that does not promote understanding of registrants' financial condition, liquidity and capital resources, changes in financial condition and results of operations.'). Following a 'Statement of Review' issued by the Acting Chair Allison Herren Lee, directing the SEC staff to review climate-related disclosures in filings (see <https://www.sec.gov/news/public-statement/lee-statement-review-climate-related-disclosure>), the Corporate Finance division provided a sample letter companies may receive regarding climate change (non-)disclosures, reminding companies that it selectively reviews SEC filings for climate-related disclosures, see <https://www.sec.gov/corpfin/sample-letter-climate-change-disclosures>.

and transparency to a certain (but limited) extent, the current regime ultimately covers only public companies. Recent consultation documents from the SEC suggest that this framework is likely to persist in the upcoming reform agenda.¹¹⁴

Private companies can obviously divulge information voluntarily, and public pressure and media influence may push them to do so. But voluntary sustainability disclosure is not subject to the demands of rigorous mandatory disclosure requirements, which leads to a lack of consistency, accuracy, and completeness.¹¹⁵ Furthermore, studies suggest that voluntary sustainability disclosure by private companies remains rare.¹¹⁶ Where it happens, the firm has an obvious incentive to overrepresent favourable information and to omit unappealing details. This opacity leaves us in the dark as to the impact that private companies may have on the environment and renders them less accountable as relevant stakeholders, governments, and the public remain unaware. Lack of transparency about climate risks for their operations also leaves room for doubt as to whether and to what extent private companies monitor and manage these risks which can be important from a macro perspective.¹¹⁷ Noting this discrepancy between public and private companies, some players like Blackrock, MSCI, and CDP have recently engaged in climate-related data collection and provision regarding private companies.¹¹⁸

¹¹⁴ See 'Recommendation from the Investor-as-Owner Subcommittee of the SEC Investor Advisory Committee Relating to ESG Disclosure' (14 May 2020), 7-9 at <https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-of-the-investor-as-owner-subcommittee-on-esg-disclosure.pdf> and Discussion Draft, SEC Asset Management Advisory Committee, 'Potential Recommendations of ESG Subcommittee' (1 December 2020), 5-6 at <https://www.sec.gov/files/potential-recommendations-of-the-esg-subcommittee-12012020.pdf>.

¹¹⁵ See, eg, J.E. Fisch, 'Making Sustainability Disclosure Sustainable' (2019) 107 *Georgetown Law Journal* 923, 947-52 (stating that in a voluntary regime, 'sustainability disclosures are fragmented, of inconsistent quality, and often unreliable.');

V.H. Ho and S.K. Park, 'ESG Disclosure in Comparative Perspective: Optimizing Private Ordering in Public Reporting' (2019) 41 *University of Pennsylvania Journal of International Law* 249, 266 (noting that 'current ESG disclosure practices do not generate the level or quality of ESG information needed for investment analysis and efficient risk pricing and capital allocation.').

¹¹⁶ See, eg, D. de Waard et al, 'Transparent Carbon Disclosures: Depth in Carbon-Reporting of Dutch Listed and Non-Listed Companies' (2020) 94 *Maandblad voor Accountancy en Bedrijfseconomie* 275 (finding that '[...] on average listed companies are far more transparent than non-listed companies' in terms of 'their strategies, implementation and performance regarding carbon emissions and reduction.').

¹¹⁷ See however notes 196-221 and text thereto below.

¹¹⁸ See 'BlackRock adds ESG risk data on thousands of private companies to eFront with RepRisk partnership' (4 February 2021) at <https://www.efront.com/news-press-releases/blackrock-adds-esg-risk-data-on-thousands-of-private-companies-to-efront-with-reprisk-partnership/>; 'MSCI and Burgiss launch Carbon Footprinting of Private Equity and Debt Funds to assess impact of climate change on private asset portfolios' (19 October 2021) at <https://www.msci.com/documents/10199/dd786a40-dbb6-4218-da01-3d2e3d0a5907>; CDP, 'Investors with US\$2.3 trillion of assets demand standardized environmental data from private companies' (8 September 2021) at

IV. CURRENT DISCIPLINING MECHANISMS FOR PRIVATE COMPANIES

Despite the sobering account in the above section, private companies are not free from constraints in terms of the externalities they impose on the environment, and are subject to external pressure to take account of climate-related risks. In this regard, there are some indirect and direct disciplining mechanisms.

a. Carbon pricing

The primary way of reducing carbon externalities is pricing carbon emissions, which has been lauded as the most effective method in climate action while being politically contentious.¹¹⁹ There are two main ways of pricing carbon: (i) emissions trading systems; and (ii) carbon taxes.¹²⁰ This direct regulation of externalities does not differentiate between public and private companies.

For example, in the EU, the Emissions Trading System brings a 'cap and trade' principle.¹²¹ A 'cap' limits the total amount of certain GHG emissions by the installations covered by the system while 'trade' allows the covered installations to exchange the emissions allowances that they bought or received within the 'cap.' Installations that cannot surrender enough allowances to cover their emissions are heavily fined. By putting a 'price' on GHG, this system leads companies to internalise the externalities caused by their emissions, and ultimately to reduce them.¹²² The system currently covers certain gases and certain sectors (that correspond to around 40 per cent of the EU' GHG emissions) with an expansion of the system's scope on the horizon.¹²³ But, as it does not differentiate between private and public companies, it

<https://www.cdp.net/en/articles/investor/investors-with-us23-trillion-of-assets-demand-standardized-environmental-data-from-private-companies>.

¹¹⁹ See, eg, I. Parry, 'Putting a Price on Pollution' (2019) 56(4) *IMF Finance & Development* 16 at <https://www.imf.org/external/pubs/ft/fandd/2019/12/the-case-for-carbon-taxation-and-putting-a-price-on-pollution-parry.htm>.

¹²⁰ See, the World Bank, 'Pricing Carbon' at <https://www.worldbank.org/en/programs/pricing-carbon>.

¹²¹ On how this system works, see https://ec.europa.eu/clima/policies/ets_en.

¹²² See, eg, P. Bayer and M. Aklin, 'The European Union Emissions Trading System Reduced CO₂ Emissions Despite Low Prices' (2020) 117 *PNAS* 8804 (finding that the EU Emissions Trading System led to reductions of 3.8 per cent of total EU-wide emissions compared to a world without this system); A. Dechezleprêtre, D. Nachtigall and F. Venmans, 'The Joint Impact of The European Union Emissions Trading System on Carbon Emissions and Economic Performance' (OECD Economics Department Working Papers No. 1515, 14 December 2018) at https://www.oecd-ilibrary.org/economics/the-joint-impact-of-the-european-union-emissions-trading-system-on-carbon-emissions-and-economic-performance_4819b016-en (finding that 'the EU ETS has induced carbon emission reductions in the order of -10% between 2005 and 2012 [...]').

¹²³ The system currently covers (i) carbon dioxide (CO₂) from power and heat generation; energy-intensive industry sectors including oil refineries, steel works and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals; commercial aviation; (ii) nitrous oxide (N₂O) from production of nitric, adipic and glyoxylic acids and

forms an important disciplining mechanism for private companies operating in the covered sectors.

The regulatory approach towards pricing carbon emissions certainly has strong appeal. However, it may not always achieve its intentions, mostly due to implementation issues. For example, as is well known, in a period of economic stagnation (such as a global recession), industrial output will drop, and emission certificates are cheap to obtain, not reflecting the full price of environmental externalities that they seek to curb.¹²⁴ Generally, estimating the social cost of carbon remains a challenge.¹²⁵

An additional downside in any approach towards direct regulation is the potential lack of international coordination and harmonization, as well as the lack of enforcement in a global environment. As a result, legal arbitrage and carbon leakage have been persistent problems.¹²⁶ After all, the imperfectness of such direct regulation of carbon pricing is the very reason why certain regulators and legislatures are turning to explore other options as well (such as regulating the finance industry).¹²⁷

glyoxal; (iii) perfluorocarbons (PFCs) from aluminium production. The Commission is currently proposing to revise and possibly expand the scope of the EU ETS. See https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12660-Climate-change-updating-the-EU-emissions-trading-system-ETS_en.

¹²⁴ See, eg, J.E. Aldy and R.N. Stavins, 'The Promise and Problems of Pricing Carbon: Theory and Experience' (2012) 21(2) *Journal of Environment and Development* 152, 164 (describing how the allowance prices in the EU ETS fell to very low levels 'as the economic recession brought decreased demand for allowances due to reduced output in the energy-intensive sectors and lower energy consumption.'). See also N. Koch et al, 'Causes of the EU ETS price drop: Recession, CDM, renewable policies or a bit of everything? - new evidence' (2014) 73 *Energy Policy* 676, 677-78 (finding that 'variations in economic activity are indeed the most important abatement-related determinant' for the price dynamics of EU allowances.).

¹²⁵ See, eg, R.S. Pindyck, 'Climate Change Policy: What Do the Models Tell Us?' (2013) 51 *Journal of Economic Literature* 860.

¹²⁶ See, eg, I. Ben-David et al, 'Exporting Pollution: Where Do Multinational Firms Emit CO₂?' (2021) 36 *Economic Policy* 377 (documenting that 'firms headquartered in countries with strict environmental policies perform their polluting activities abroad in countries with relatively weaker policies.'). S.M. Bartram, K. Hou and S. Kim, 'Real Effects of Climate Policy: Financial Constraints and Spillovers' (2022) 143(2) *Journal of Financial Economics* 668 (showing that under the California cap-and-trade program, 'financially constrained firms shift emissions and output from California to other states where they have similar plants that are underutilized.'). A potential response to the problem of carbon leakage is the 'carbon border adjustment mechanism'. See generally M. Condon and A. Ignaciuk, 'Border Carbon Adjustment and International Trade: A Literature Review' (OECD Trade and Environment Working Papers 2013/06, 31 October 2013) at https://www.oecd-ilibrary.org/trade/border-carbon-adjustment-and-international-trade_5k3xn25b386c-en.

¹²⁷ P. Bolton et al, 'The Green Swan: Central Banking and Financial Stability in the Age of Climate Change' (January 2020) 8 at <https://www.bis.org/publ/othp31.pdf> ('even if a significant increase in carbon pricing globally remains an essential step to fight climate change, other (second-, third- or

b. Environmental duties & liabilities from miscellaneous legal fields

Apart from carbon-pricing mechanisms, companies may be subject to direct regulation in terms of imposing or reducing environmental externalities. This may stem from environmental law, human rights protections, and related fields. Similarly, they may be held liable for the environmental damage caused by their operations or be ordered to improve their environmental performance by the courts based on tort law and other provisions. There can also be some disclosure duties where companies are required to report their emissions to an environmental agency.¹²⁸ Lastly, laws may require companies to put in place due diligence systems and plans containing adequate measures to identify risks and to prevent severe impacts on environment.¹²⁹ Again, these environmental duties and liabilities generally do not differentiate between public and private companies, and therefore may discipline the latter as well.

There is increasing litigation against companies for their contribution to climate change or for their failure to transition to net zero based on the abovementioned legal areas.¹³⁰ For example, recently, Royal Dutch Shell – a carbon major – was ordered by a court to reduce its GHG emissions by 45 per cent until 2030, compared to 2019 levels based on tort law and human rights protections.¹³¹ In another example, a Peruvian farmer sued RWE, a German energy company, for compensation of the costs incurred

fourth-best from a textbook perspective) options must be explored, including with regard to the financial system.’).

¹²⁸ Under an emissions trading system, companies would need to track and report on the emissions of their installations within the scope of the system. In the US, oil and gas companies are required to report production and GHG emissions data under the GHG Reporting Program of the Environmental Protection Agency for any basin in which their annual GHG emissions exceed 25,000 metric tons of CO₂e. See https://cfpub.epa.gov/ghgdata/inventoryexplorer/data_explorer_flight.html.

¹²⁹ France pioneered such a law by adopting ‘the duty of due vigilance’ in 2017. See E. Savourey and S. Brabant, ‘The French Law on the Duty of Vigilance: Theoretical and Practical Challenges Since its Adoption’ (2021) 6 *Business and Human Rights Journal* 141. In the EU, the European Commission has very recently adopted a Proposal for a Directive on corporate sustainability due diligence. See Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 COM(2022) 71 final (Proposal for A Directive on CSDD).

¹³⁰ See, eg, G. Ganguly, J. Setzer and V. Heyvaert, ‘If at First You Don’t Succeed: Suing Corporations for Climate Change’ (2018) 38 *Oxford Journal of Legal Studies* 841; J. Setzer and C. Higham, ‘Global Trends in Climate Change Litigation: 2021 Snapshot’ (July 2021) at <https://www.lse.ac.uk/granthaminstitute/publication/global-trends-in-climate-litigation-2021-snapshot/>.

¹³¹ See further *Milieudefensie et al. v. Royal Dutch Shell plc.* at <http://climatecasechart.com/climate-change-litigation/non-us-case/milieudefensie-et-al-v-royal-dutch-shell-plc/>.

due to climate change to which RWE was a contributor.¹³² A plethora of other private litigation is currently pending, having been encouraged by these headline-making stories.

There is no *a priori* reason why private companies cannot be subject to the same litigation, which should have *ex ante* and *ex post* disciplining effects. They are subject to the same provisions, and thus to the same duties and liabilities. In particular, developments in attribution science would enable singling out a company's contribution to climate change, point out cases where private companies have a large carbon footprint.¹³³ A likely problem here is the relative lack of transparency. A potential plaintiff would not know the (full) environmental impact of a private company unless they voluntarily divulge it, or unless an egregious and obvious case occurs. The success of lawsuits will also depend on litigation rules, the availability of collective redress, and the deterring effect of high litigation costs, depending on the jurisdiction in question. Finally, environmental liability may ultimately suffer from the same deficiencies as the global regulatory efforts with respect to pricing carbon.

c. The disciplining effect of bank financing

Although private companies are not listed on the capital market (at least on the equity market) and thus are not generally subject to 'sustainability' pressure from institutional investors, they can still be subject to similar indirect control from their financiers, namely banks.¹³⁴ Banks are the conventional financing source for private companies.¹³⁵

Banks themselves are coming increasingly under scrutiny or are being disincentivised in terms of financing assets or projects with negative environmental impacts. The voluntary Equator Principles have long provided 'a common baseline and risk management framework for financial institutions to identify, assess and manage environmental and social risks when financing projects' such as dams, mines,

¹³² See further Luciano Lliuya v. RWE AG at <http://climatecasechart.com/climate-change-litigation/non-us-case/liuya-v-rwe-ag/>.

¹³³ See, eg, R.F. Stuart-Smith et al, 'Filling the Evidentiary Gap in Climate Litigation' (2021) 11 *Nature Climate Change* 651.

¹³⁴ See, eg, Raval, n 34 above (citing Brian Gilvary, the head of Ineos Energy, who states that '[w]e're a private company with private shareholders, but we still have to operate in a way that is in line with what governments, banks and investors want to achieve.') (emphasis added); A. Hoffman and V. Dezem, 'Oil Trader CFOs Say Banks Are Demanding Green Targets for Loans' *Bloomberg* 16 June 2021 at <https://www.bloomberg.com/news/articles/2021-06-16/oil-trader-cfos-say-banks-are-demanding-green-targets-for-loans> ('[...] the world's biggest oil trading houses said banks are increasingly demanding they meet environmental, social and governance targets to access loans critical to their business.').

¹³⁵ See, eg, O.-K. Hope and D. Vyas, 'Private Company Finance and Financial Reporting' (2017) 47 *Accounting and Business Research* 506 (providing a comprehensive assessment of private firms' financing sources and their relation with financial reporting practices).

and factories.¹³⁶ Overall, 126 financial institutions in 38 countries have officially adopted the Principles, formulated by the banking industry under the auspices of the World Bank's International Finance Corporation.¹³⁷ Signatories pledge to provide loans only to borrowers who conform to the Principles which '[...] ensure that the projects they finance are developed in a socially responsible manner and reflect sound environmental management practices.'¹³⁸

Sustainability-linked loans are another example of how banks incorporate sustainability into their financing of companies. Prominent associations such as the Loan Market Association (LMA), the Loan Syndications & Trading Association (LSTA), and the Asia Pacific Loan Market Association (APLMA) have developed 'Sustainability Linked Loan Principles' to facilitate and support this loan market,¹³⁹ which is increasingly growing.¹⁴⁰ In this type of loan, the cost of capital (through interest payable) and restrictions on the debtor company are tied to certain sustainability scores and actions.¹⁴¹

As banks orient themselves towards sustainability, policymakers aim to achieve transparency and verifiability in this regard. The Taxonomy Regulation is a landmark achievement here. According to Article 8, banks need to disclose the extent to which their activities are associated with economic activities that qualify as environmentally sustainable according to this Regulation.¹⁴² In a delegated act, the European Commission further specified this disclosure obligation and adopted the so-called 'green asset ratio (GAR)' as the key performance indicator to be disclosed, in accordance with the recommendations of the European Banking Authority (EBA).¹⁴³

¹³⁶ See <https://equator-principles.com/about-the-equator-principles/>. On these principles, see further J.M. Conley and C.A. Williams, 'Global Banks as Global Sustainability Regulators?: The Equator Principles' (2011) 33 *Law & Policy* 542.

¹³⁷ See <https://equator-principles.com/members-reporting/>.

¹³⁸ See <https://equator-principles.com/about-the-equator-principles/>.

¹³⁹ See APLMA, LMA and LSTA, 'Sustainability Linked Loan Principles: Supporting Environmentally and Socially Sustainable Economic Activity' (May 2021) at <https://www.lsta.org/content/sustainability-linked-loan-principles-sllp/>.

¹⁴⁰ See, eg, J. Poh and P. Seligson, 'U.S. Sustainability-Linked Loans are 292% More Than All of 2020' *Bloomberg* 24 May 2021 at <https://www.bloomberg.com/news/articles/2021-05-24/u-s-sustainability-linked-loans-are-292-more-than-all-of-2020> (stating that 'U.S. loans with terms tied to environmental, social and governance targets have jumped to about \$52 billion in volume this year through May 21, a 292% increase compared with all of 2020, according to Bloomberg data.').

¹⁴¹ See also M. Driessen, 'Sustainable Finance: An Overview of ESG in the Financial Markets' in D. Busch, G. Ferrarini and S. Grünewald (eds), *Sustainable Finance in Europe: Corporate Governance, Financial Stability and Financial Markets* (Springer, 2021) 331.

¹⁴² See n 110 above.

¹⁴³ COMMISSION DELEGATED REGULATION (EU) .../... supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to

This ratio indicates ‘the proportion of exposures related to Taxonomy-aligned activities compared to the total assets of those credit institutions.’¹⁴⁴ Effectively, this disclosure requirement provides transparency on the extent to which the financing activities in a credit institution’s banking book (including loans and advances, debt securities, and equity instruments)¹⁴⁵ are associated with economic activities aligned with the Taxonomy Regulation. It also limits banks’ discretion on the term ‘sustainability’ as the EU taxonomy system defines what counts as ‘environmentally sustainable’.¹⁴⁶ Overall, this disclosure would provide a single metric on the green credentials of a bank’s balance sheet, improving comparability and mitigating the risk of greenwashing.¹⁴⁷

Banks would also be concerned with the climate risk exposure of the debtor companies out of their own intrinsic motivations. High exposure to transition risks and/or physical risks should increase the default risk of the debtor company.¹⁴⁸ Those risks mean that company operations may shrink or become less profitable, or companies may be subject to significant liabilities and damages.¹⁴⁹ Accordingly, banks should be carrying out detailed due diligence on these factors when lending to private companies unless moral hazard problems intervene.¹⁵⁰ However, it is also well known

comply with that disclosure obligation C/2021/4987 final (to be adopted by co-legislators). For the EBA’s recommendation, its opinion and report on the GAR, see <https://www.eba.europa.eu/eba-advises-commission-kpis-transparency-institutions%E2%80%99environmentally-sustainable-activities>.

¹⁴⁴ See Commission Delegated Act, n 143 above, recital (5).

¹⁴⁵ *ibid.*

¹⁴⁶ Activities will be deemed environmentally sustainable if they fulfil the conditions enumerated under Article 3 of the Taxonomy Regulation. The European Commission has further developed a Taxonomy compass to help identify such activities. See <https://ec.europa.eu/sustainable-finance-taxonomy/>.

¹⁴⁷ Yet, a side effect similar to the brown-spinning by companies can arise: banks may simply sell their ‘brown’ loans to private-debt funds, which would not affect the financing of underlying operations. See, eg, ‘Who Buys the Dirty Energy Assets’, n 35 above (stating that ‘[p]rivate-debt funds snap up oil and gas loans from banks’ and giving the example of Brookfield acquiring the entire portfolio of North American oil and gas loans of ABN AMRO, a Dutch bank).

¹⁴⁸ See, eg, Basel Committee on Banking Supervision, ‘Climate-related Risk Drivers and Their Transmission Channels’ (April 2021) 1 at <https://www.bis.org/bcbs/publ/d517.pdf> (‘[c]redit risk increases if climate risk drivers reduce borrowers’ ability to repay and service debt (income effect) or banks’ ability to fully recover the value of a loan in the event of default (wealth effect).’).

¹⁴⁹ *ibid.*, 12–15.

¹⁵⁰ Banks’ expectations of bail out in the case of realizing climate risks may create moral hazard, which can diminish their incentives to discipline or monitor the client on the climate change-related issues. See, eg, G. Steele, ‘Confronting the ‘Climate Lehman Moment’: The Case for Macroprudential Climate Regulation’ (2020) 30 *Cornell Journal of Law and Public Policy* 109, 137–140; Bolton et al, n 127 above, 9 (‘central banks may have to confront a situation where they are called upon [...] to intervene as climate rescuers of last resort [...] forc[ing] them to [...] buy a large set of carbon-intensive assets and/or assets stricken by physical impacts.’).

that ‘brown’ activities are expected to remain very profitable during the ongoing transition period. In fact, oil majors have recently announced a surprising return to significant profits.¹⁵¹

Still, banks should expect to feel growing regulatory pressure in this regard. Prudential regulatory tools increasingly target banks’ climate risk management. First, supervisory authorities have launched climate stress tests for banks.¹⁵² For example, the European Central Bank (ECB) will carry out a stress test exercise on climate risk as its annual supervisory stress test for 2022.¹⁵³ Second, supervisory authorities assess whether to include requirements specific to climate risk in the capital adequacy framework for banks.¹⁵⁴ In the EU, under the Capital Requirements Regulation (art 449a), large listed banks are already required to disclose information on ESG risks, including physical risks and transition risks.¹⁵⁵ Moreover, the recent Banking Package 2021 aims to extend and expand requirements related to banks’ climate risk management.¹⁵⁶

¹⁵¹ S. Mellor, ‘You’d think \$90 oil and record electricity prices would mean more green investment. You’d be wrong’ *Fortune* 10 February 2022 at <https://fortune.com/2022/02/10/big-oil-exxonmobil-chevron-shell-bp-total-green-investment-energy-transition-dividends-buybacks/>.

¹⁵² See, eg, P. Baudino and J.-P. Svoronos, ‘Stress-testing Banks for Climate Change – A Comparison of Practices’ (FSI Insights on Policy Implementation No. 34, July 2021) at <https://www.bis.org/fsi/publ/insights34.pdf>.

¹⁵³ ECB, ‘In the Spotlight: 2022 Supervisory Climate Stress Test’ (16 November 2021) at https://www.bankingsupervision.europa.eu/press/publications/newsletter/2021/html/ssm.nl211116_2.en.html. See also N. Comfort and F. Schwartzkopff, ‘ECB Has Banks Bracing for Capital Hit as Climate Risk Tested’ *Bloomberg* 8 February 2022 at <https://www.bloomberg.com/news/articles/2022-02-08/ecb-has-banks-bracing-for-capital-hit-as-climate-risk-is-tested>.

¹⁵⁴ See, eg, Deloitte, ‘Climate-related Financial Risk in Banking: The State of Play on Capital Requirements’ (23 July 2021) at <https://ukfinancialservicesinsights.deloitte.com/post/102h3pj/climate-related-financial-risk-in-banking-the-state-of-play-on-capital-requirem>; Ivana Baranović et al, ‘The Challenge of Capturing Climate Risks in the Banking Regulatory Framework: Is There A Need for A Macroprudential Response?’ (ECB Macroprudential Bulletin, Issue 15, October 2021) at <https://www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/html/index.en.html> (‘[c]apital-based macroprudential measures could increase banks’ resilience to climate risks and affect incentives and prices in the allocation of funding, but would require careful calibration.’); Bank of England Prudential Regulation Authority, ‘Climate-related Financial Risk Management and The Role of Capital Requirements’ (28 October 2021) at <https://www.bankofengland.co.uk/prudential-regulation/publication/2021/october/climate-change-adaptation-report-2021> (stating that the PRA has undertaken an initial review on the linkages between climate-related financial risks and regulatory capital).

¹⁵⁵ See the consolidated version of Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and amending Regulation (EU) No 648/2012.

¹⁵⁶ See ‘Questions and Answers on the Banking Package 2021’ (27 October 2021) at https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_5386.

All in all, if banks reduce their financing for assets or projects with non-sustainable credentials, then private companies will not be able to undertake such projects unless they can internally finance them. This will lead to private companies transforming their activities to become more sustainable. Similarly, if banks raise the cost of capital for private companies with high exposure to transition and physical risks, companies should better monitor and manage such risks (to a socially desirable extent). Evidence suggests that relevant developments are already afoot.¹⁵⁷

d. Other factors

There are some additional factors that may discipline private companies in terms of their environmental performance. An important one here is reputation. In particular, large private companies whose activities attract media attention may be susceptible to reputational effects and thus restrain from engaging in operations that could potentially trigger a public backlash or negative consumer behaviour. Furthermore, family-owned private companies cultivate the long-term 'brand' of the company, again providing incentives to curb externalities.¹⁵⁸

Another important factor is that private companies may be a part of the same ecosystem as public companies. Indeed, private companies are on the supply chain of public companies. In terms of net-zero strategies and targets, an increasing spotlight is being put on scope 3 emissions, which occur in a company's value chain. If public companies attempt to reduce their scope 3 emissions, they encourage private companies in their supply chain to reduce their emissions too. Alternatively, private companies that provide 'greener' products or services will have a competitive advantage on the global product market.

¹⁵⁷ On the environmental performance, see, eg, S. Chava, 'Environmental Externalities and Cost of Capital' (2014) 60 *Management Science* 2223 ('[I]nders [...] charge a significantly higher interest rate on the bank loans issued to firms with [...] environmental concerns [such as hazardous chemical, substantial emissions, and climate change concerns]'); N.H. Wellalage and V. Kumar, 'Environmental Performance and Bank Lending: Evidence From Unlisted Firms' (2021) 30 *Business Strategy and the Environment* 3309 ('[unlisted] firms with better environmental performance received approximately 6.4% higher loans (as a ratio of total sales) [...]'). On the climate risk, see, eg, G. Capasso, G. Gianfrate and M. Spinelli, 'Climate Change and Credit Risk' (2020) 266 *Journal of Cleaner Production* 1 ('companies with high carbon footprint are perceived by the market as more likely to default, *ceteris paribus*.'); E. Ginglinger and Q. Moreau, 'Climate Risk and Capital Structure' (ECGI Finance Working Paper No 737/2021, March 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3327185 ('lenders increase the spreads when lending to firms with the greatest risk').

¹⁵⁸ See, eg, J. Dekker and T. Hasso, 'Environmental Performance Focus in Private Family Firms: The Role of Social Embeddedness' (2016) 136 *Journal of Business Ethics* 293 (finding that 'in cases where the firm is highly embedded in the social community [...] family firms have a higher environmental performance focus').

V. POLICY IMPLICATIONS

As seen above, in the fight against climate change to achieve the Paris Agreement goals, private companies also need to do their part and reduce their externalities, especially GHG emissions. Where operational, direct regulation (or pricing) of carbon externalities and environmental duties are reasonably the best option to achieve this intended result (even though it may not always be successful). The regulatory framework on public disclosure, however, mostly does not apply to private companies, opening up a significant lacuna. Likewise, other disciplinary mechanisms such as institutional shareholder stewardship or activism, do not apply equally to private firms as they do to listed companies.

In sum, the regulatory framework encouraging private firms to mitigate their GHG emissions and other externalities remains incomplete. In discussing regulatory responses to this problem, it is apt to consider both changes to (i) the corporate governance arrangements and (ii) the disclosure framework. We will argue below that the latter should be expanded to include private firms.

(i) First, we are concerned that corporate governance arrangements cannot be a complementary mechanism let alone a proper substitute for bringing about 'sustainable' private companies.

To start with, there is now an extensive debate on how to shape directors' duties in companies going forward. Some scholars see 'the shareholder value maximisation' mantra in corporate management as being responsible for the global environmental problems we currently face and argue for a reform of directors' duties to care for more interests than shareholder value.¹⁵⁹ In its 'sustainable corporate governance' initiative, the European Commission had also picked up on this issue, considering reforming directors' duties 'to take into account all stakeholders' interests which are relevant for the long-term sustainability of the firm [...] as part of their duty of care [...]'¹⁶⁰ While the soundness of this reform and the evidence on which it is based were highly disputed,¹⁶¹ it is even more questionable whether reforming directors' duties to push

¹⁵⁹ See, eg, L.E. Strine Jr., 'Restoration: The Role Stakeholder Governance Must Play in Recreating a Fair and Sustainable American Economy A Reply to Professor Rock' (2021) 76 *The Business Lawyer* 397.

¹⁶⁰ European Commission, 'Inception Impact Assessment – Ares(2020)4034032' (30 July 2020) 3 at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance_en (Inception Impact Assessment).

¹⁶¹ The initiative and the underlying study from Ernst & Young have attracted substantial criticism for various shortcomings. See, eg, A. Edmans et al, 'Call for Reflection on Sustainable Corporate Governance' (7 April 2021) at <https://ecgi.global/news/call-reflection-sustainable-corporate-governance>; M. Roe et al, 'The Sustainable Corporate Governance Initiative in Europe' (2021) 38 *Yale Journal on Regulation Bulletin* 133; A. Bassen, K. Lopatta and W.-G. Ringe, 'The EU Sustainable Corporate Governance Initiative – room for improvement' Oxford Business Law Blog, 15 October 2020

them to take environmental issues into account would be effective in private companies. Crucially, private companies are commonly characterised by large blockholders who control the operations and strategy of the company alone or collectively.¹⁶² These controlling shareholders also have the power to nominate, elect, and remove company directors, and, usually, they, their relatives and associates sit on the board.¹⁶³ In such an environment, directors of private companies are beholden to the controlling shareholders even if it is their duty to consider other interests. Combined with minimal enforcement of directors' duties and hurdles in the way of a substantial liability of directors in the continental European jurisdictions,¹⁶⁴ directors may still rather prioritize the interests of the controlling shareholder, which might not align with environmental interests.¹⁶⁵ We therefore welcome that in its 'Proposal for a Directive on corporate sustainability due diligence (CSDD)' that follows the abovementioned 'sustainable corporate governance' initiative, the European Commission did not undertake any far-reaching reform of directors' duties, as previously signalled.¹⁶⁶

Corporate governance codes can also affect how the directors of companies approach their duties. These codes are generally directed at listed companies, but some jurisdictions have corporate governance codes for (large) private companies as well. For example, the UK introduced the 'Wates Corporate Governance Principles' to be applied by private companies on a 'comply or explain' basis.¹⁶⁷ One principle exhorts boards to consider the impact of the company's activities on the environment.¹⁶⁸ Given its soft nature, it is at least doubtful whether such counsel has any traction at all. Furthermore, as stated above, executive remuneration tied to

at <https://www.law.ox.ac.uk/business-law-blog/blog/2020/10/ec-corporate-governance-initiative-series-eu-sustainable-corporate>.

¹⁶² See n 92 above.

¹⁶³ See n 103 above.

¹⁶⁴ See in this regard M. Gelter, 'Why Do Shareholder Derivative Suits Remain Rare in Continental Europe?' (2012) 37 *Brooklyn Journal of International Law* 844, and B.R. Cheffins and B.S. Black, 'Outside Director Liability Across Countries' (2006) 84 *Texas Law Review* 1385.

¹⁶⁵ See also Gözlügöl, n 92 above.

¹⁶⁶ For a brief discussion, see W.-G. Ringe and A.A. Gözlügöl, 'The EU Sustainable Corporate Governance Initiative: where are we and where are we headed?' *Harvard Law Forum on Corporate Governance*, *forthcoming*.

¹⁶⁷ For these principles, see <https://www.frc.org.uk/getattachment/31dfb844-6d4b-4093-9bfe-19cee2c29cda/Wates-Corporate-Governance-Principles-for-LPC-Dec-2018.pdf>. This initiative was 'driven by evidence that private companies constitute a vast (and increasing) portion of the UK economy and its recent experience that their actions (including several recent large-scale failures) can have a significant impact on their employees, suppliers and other stakeholders.' See <https://www.clearmawatch.com/2018/06/uk-proposes-new-corporate-governance-code-large-private-companies/>.

¹⁶⁸ Wates Principles, n 167 above, 21.

sustainability metrics or independent directors with sustainability (or net-zero transition) expertise are rare commodities in private companies.

(ii) We certainly think that indirect effects resulting from financial, reputational, or other factors could constitute a significant push for sustainability in private companies or could exert a certain discipline. Nevertheless, we see a need for further reform, namely extending climate-related disclosures to private companies. We submit that there should be transparency on both the externalities private companies impose and whether they take steps to reduce their adverse impact on the environment and climate.

In the traditional securities regulation paradigm, the disclosure of ‘financial’ information is necessary to overcome information asymmetries and preserve market integrity.¹⁶⁹ These needs are particularly acute in big, anonymous public markets where investors lack verifiable information or would face prohibitive costs to obtain them. Thus, it makes sense to require periodic and *ad hoc* disclosure of financial information only for companies that are public or issued securities traded on a regulated market. However, *non-financial* information in terms of sustainability disclosures should not be considered as a tool to overcome pricing issues for investors on public markets. Rather, transparency about non-financial information serves as an instrument to encourage firms to improve their record on carbon emissions (or other desirable activity). Therefore, the recipient of non-financial information should not be limited to investors but should be extended to a broader audience that includes stakeholders, media, NGOs, and the general public.¹⁷⁰ In brief, the primary regulatory objective of non-financial information disclosure is to promote the transition to a greener economy rather than to overcome (only) the investors’ information gaps. Therefore, it would be consequential to decouple this from public firm-oriented securities regulation and to require disclosures also from private companies that may be relevant from a sustainability perspective.

To be sure, disclosure of sustainability information would be costly for private companies but there are substantial benefits to weigh up as well.¹⁷¹ First, there can be

¹⁶⁹ See generally L. Enriques and S. Gilotta, ‘Disclosure and Financial Market Regulation’, N. Moloney, E. Ferran and J. Payne (eds), *The Oxford Handbook of Financial Market Regulation* (Oxford: OUP, 2015) 512–35 (examining the debate over mandatory disclosure to the public as a regulatory technique for financial markets, with emphasis on issuers of securities).

¹⁷⁰ See also A.M. Lipton, ‘Not Everything Is About Investors: The Case for Mandatory Stakeholder Disclosure’ (2020) 37 *Yale Journal on Regulation* 499 (highlighting the importance of company disclosure for *non-investor* audience).

¹⁷¹ Costs are to some extent eliminated for private firms that need to track and report emissions for their installations under environmental regulation or emissions trading system, or for banks and public companies that demand such information in their dealings with them. Overall, it is difficult to ascertain the costs and benefits of a mandatory disclosure regime to a full extent. See C. Leuz and P.

a nudge effect: it will stimulate large private companies to review, evaluate, and benchmark their environmental impact.¹⁷²

Secondly, as sunlight is the ‘best disinfectant’,¹⁷³ disclosure should increase compliance with relevant laws and regulations, because otherwise opacity lends itself to abuse, as well as decreasing socially undesirable behaviour. Disclosure has long been used as a regulatory tool instead of, or coupled with, a command-and-control regulation.¹⁷⁴ Most importantly, it facilitates social/stakeholder pressure over the company to a certain extent.¹⁷⁵ It would lower, for example, search and information processing costs for NGOs, employees, corporate and individual customers,¹⁷⁶ and affected parties to exert influence via naming and shaming, boycotting, protesting,

Wysocki, ‘The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research’ (2016) 54 *Journal of Accounting Research* 525, 529 (‘we are still far from being able to perform quantitative cost-benefit analyses [of disclosure regulation]’).

¹⁷² Cf S.M. Bainbridge, ‘Dodd-Frank: Quack Federal Corporate Governance Round II’ (2011) 95 *Minnesota Law Review* 1779 (referring to such disclosures as ‘therapeutic disclosures’). On the benchmarking, see H.B. Christensen, L. Hail and C. Leuz, ‘Mandatory CSR and Sustainability Reporting: Economic Analysis and Literature Review’ (2021) 26 *Review of Accounting Studies* 1176, 1213 (‘better CSR reporting could facilitate inter-firm learning [by] lower[ing] the costs of peer benchmarking, especially within the same industry.’) and 1215 (‘firms want to avoid the public backlash associated with looking worse than their peers [and] could also learn from their peers.’). See also S. Tomar, ‘Greenhouse Gas Disclosure and Emissions Benchmarking’ (SMU Cox School of Business Research Paper No. 19-17, October 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3448904 (‘granular disclosure can curb GHG emissions, and that benchmarking plays an important role in this process’).

¹⁷³ L.D. Brandeis, *Other People’s Money and How the Bankers Use It* (New York: F.A. Stokes, 1914) 92 (‘[p]ublicity is justly commended as a remedy for social and industrial diseases. Sunlight is said to be the best of disinfectants; electric light the most efficient policeman.’).

¹⁷⁴ Relevant examples are mandatory disclosure of extraction payments in the EU and the disclosure of the use of conflict minerals in the US. See respectively, European Commission, ‘New disclosure requirements for the extractive industry and loggers of primary forests in the Accounting (and Transparency) Directives (Country by Country Reporting) – frequently asked questions’ (12 June 2013) at https://ec.europa.eu/commission/presscorner/detail/en/MEMO_13_541 and SEC, ‘Fact Sheet: Disclosing the Use of Conflict Minerals’ at <https://www.sec.gov/opa/Article/2012-2012-163htm---related-materials.html>.

¹⁷⁵ Lipton, n 170 above, 506 (‘[c]orporate stakeholders cannot pressure managers to change behaviors of which they are unaware.’). An extreme case of information asymmetry between stakeholders and a company unless the latter divulges information is the DuPont case. See R. Shapira and L. Zingales, ‘Is Pollution Value-Maximizing? The DuPont Case’ (NBER Working Paper 23866, September 2017) at https://www.nber.org/system/files/working_papers/w23866/w23866.pdf.

¹⁷⁶ Christensen et al, n 172 above, 1207 (‘[s]tandardized CSR reports might serve as a starting point for consumers who are typically less informed and sophisticated than investors [...] and could help them with peer comparisons.’). Admittedly, stakeholder pressure via consumers is limited to consumer-facing businesses. But corporate customers on the supply chain can be also important. See, eg, R. Dai, H. Liang and L. Ng, ‘Socially Responsible Corporate Customers’ (2021) 142 *Journal of Financial Economics* 598.

and litigation, among other methods.¹⁷⁷ In particular, disclosure should increase the liability risk by making it easier to sue and establish causation.¹⁷⁸ Given the recent rise in climate change litigation, NGOs including grassroots movements and activist groups would be more likely to target private companies with large externalities as a result of disclosure. Media is also an important channel via which sustainability disclosures could have real effects.¹⁷⁹ Disclosures should additionally make it easier for the media to compare and rank companies as well as reducing information-gathering costs.¹⁸⁰ Furthermore, with more transparency on the externalities, affected groups and more generally the public can use their political clout to provide politicians with the seemingly necessary impetus to act on socially undesirable behaviour.¹⁸¹ Finally, transparency can amplify other constraints on the private companies' behaviour such as fear of reputational damage.¹⁸²

Empirical evidence also largely shows that sustainability disclosure leads to better environmental performance for various reasons. This evidence partly relates to public companies, reflecting a problem we have indicated, namely that private companies operate mostly in the dark. Some evidence outlines the positive effects of disclosure at the level of plants, which are also owned by private companies. The relevant studies have shown that investor pressure, which is most prominent in public companies, albeit useful, is not necessarily crucial for the disclosure mandates to create a disciplining effect.¹⁸³ Other evidence directly relates to public companies'

¹⁷⁷ Christensen et al, n 172 above, 1213 and 1217.

¹⁷⁸ See, eg, S. Olmstead and N. Richardson, 'Managing the Risks of Shale Gas Development Using Innovative Legal and Regulatory Approaches' (2014) 38 *William & Mary Environmental Law and Policy Review* 177.

¹⁷⁹ Christensen et al, n 172 above, 1204.

¹⁸⁰ *ibid*, 1205.

¹⁸¹ Lipton, n 170 above, 519.

¹⁸² See K. Hombach and T. Sellhorn, 'Firm Value Effects of Targeted Disclosure Regulation: The Role of Reputational Costs' (TRR 266 Accounting for Transparency Working Paper Series No. 18, 2018) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3204505 (studying 'the reputational costs of targeted disclosure regulation' and finding that '[c]onsistent with reputational costs imposed on affected firms, [...] the rule's negative effect on firm value is stronger where greater reputational risk makes firms more vulnerable to public pressure.');

Thomas Rauter, 'The Effect of Mandatory Extraction Payment Disclosures on Corporate Payment and Investment Policies Abroad' (2020) 58 *Journal of Accounting Research* 1075 (findings suggest that mandatory extraction payment disclosures increase the reputational cost of corporate behaviour). See also C.A. Hill, 'Marshalling Reputation to Minimize Problematic Business Conduct' (2019) 99 *Boston University Law Review* 1193.

¹⁸³ See Tomar, n 172 above, 'Online Appendix', 22 ('unclear whether facilities face pressure from investors[...]'); L. Yang, N.Z. Muller and P.J. Liang, 'The Real Effects of Mandatory CSR Disclosure on Emissions: Evidence from the Greenhouse Gas Reporting Program' (NBER Working Paper No. 28984, July 2021) at <https://www.nber.org/papers/w28984> (finding that power plants that are subject to emissions reporting reduced emission rates by seven per cent although this rate increases to 10 per cent for plants owned by publicly traded firms.).

disclosures.¹⁸⁴ This could also be relevant if the identified forces driving the desirable result could be replicated in the private companies context. One study posited that mandatory ESG disclosure reduces the occurrence of negative firm-level ESG events because it makes it less likely that firms can hide ESG incidents *ex post*,¹⁸⁵ which is also applicable in the private companies context. Another study postulated that firms reduce their emissions after disclosure because of potential future GHG-emissions-related regulation and higher reputational costs associated with high levels of GHG emissions as a result of transparent and standardized disclosure.¹⁸⁶ This is also pertinent for private companies. Lastly, some evidence relating to public companies shows that after sustainability disclosures, firms perform better environmentally at the shareholders' expense, showing the effect of stakeholder pressure, which should not be largely different for private companies.¹⁸⁷

Finally, the disclosure mandate will provide information about the environmental impact of private companies that have hitherto been in the dark in a standardised and comprehensive way. In doing so, the uneven playing field between public and private companies would be levelled, thus removing the no-longer-rational public/private divide in terms of societal impact¹⁸⁸ as well as eliminating incentives to remain private longer to avoid sustainability disclosures.¹⁸⁹ It will also

¹⁸⁴ See, eg, P. Krueger, Z. Sautner, D. Yongjun Tang and R. Zhong, 'The Effects of Mandatory ESG Disclosure Around the World' (ECGI Finance Working Paper No. 754/2021, December 2021) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3832745 ('mandatory ESG disclosure has beneficial informational and real effects.');

V. Jouvenot and P. Krueger, 'Mandatory Corporate Carbon Disclosure: Evidence from a Natural Experiment' at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3434490 ('[f]irms respond to [disclosure requirements] by reducing GHG emissions by about 16 percent.').

¹⁸⁵ Krueger et al, n 184 above, 4 ('[m]andatory ESG regulation should make it less likely that firms can hide ESG incidents *ex post*, which in turn should have *ex ante* disciplinary effects on firm management and should reduce the likelihood of ESG incidents.').

¹⁸⁶ Jouvenot and Krueger, n 184 above, 5 ('the introduction of mandatory carbon disclosure could be seen as signalling future GHG emissions related regulatory action [...] In addition, there is the possibility that high levels of GHG emissions are associated with higher future reputational costs [...]').

¹⁸⁷ Y.-C. Chen, M. Hung and Y. Wang, 'The Effect of Mandatory CSR Disclosure on Firm Profitability and Social Externalities: Evidence from China' (2018) 65 *Journal of Accounting and Economics* 169, 170 ('our findings indicate that mandatory CSR disclosure changes firm behavior and generates positive externalities at shareholders' expense.').

¹⁸⁸ Lipton, n 170 above, 520 ('there is a growing divergence between companies that are defined as public under the securities laws, and companies that are sufficiently large and impactful that the general public may have a legitimate need for disclosure about their operations.'). Similarly, some 'public' companies in the traditional securities regulation sense may have little societal relevance although they would be subject to broader disclosure regime if sticking to the classical public/private divide. See also D.C. Langevoort and R.B. Thompson, "'Publicness" in Contemporary Securities Regulation After the JOBS Act' (2013) 101 *The Georgetown Law Journal* 337.

¹⁸⁹ J. Armour, L. Enriques and T. Wetzter, 'Mandatory Corporate Climate Disclosures: Now, but How?' (ECGI Law Working Paper No. 614/2021, November 2021) at

help to illuminate the extent to which the brown-spinning phenomenon is prevalent and the degree of its social harm. As argued above, although the transfer of carbon-intensive assets from public to private companies is not *per se* harmful, there can be a certain loss of transparency in terms of the disclosure of emissions related to those assets, and of the discipline provided by public markets.¹⁹⁰ Transparency requirements on private companies that would hence cover the private acquirer of those assets can shed light on the issue of the extent to which those assets continue polluting, which can be important in order to understand the overall impact on the world ecosystem. This is why, in his 2022 letter to portfolio companies, State Street CEO Cyrus Taraporevala calls for a ‘universal disclosure requirement for all companies of a certain size in their portfolios – irrespective of whether they are publicly-traded or privately-held, to avoid the pernicious effects of “brown-spinning”’.¹⁹¹ Furthermore, there would be no risk of an inefficient reallocation of polluting assets from disclosing to non-disclosing firms because of uneven disclosure regulation and related effects.¹⁹² In other words, a sort of regulatory and reputational arbitrage would be alleviated. Absent disclosure and accompanying disciplinary effects, private companies will have lower costs of bad sustainability performance as well as lower reputational costs, giving them incentives to acquire polluting assets from public counterparts (and *vice versa*).

An important question here is how to calibrate the scope of private companies that would fall under the sustainability disclosure requirement in order to not inflict substantial costs. Ideally, companies that impose the largest externalities (eg the high-emitters) should be subject to the disclosure requirements. A good proxy here can be

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3958819 (‘if the footprint of climate disclosure obligations were limited only to public firms, this would create an incentive for firms to “go dark” by delisting in order to avoid having to make such disclosure.’). See also Partick Bolton et al, ‘Mandatory Corporate Carbon Disclosures and The Path to Net Zero’ (CEPR Policy Insight No 111, October 2021), 6 at https://cepr.org/active/publications/policy_insights/viewpi.php?pino=111.

¹⁹⁰ See notes 60–62 above and text thereto. See also ‘The Truth about Dirty Assets’, n 34 above (‘as dirty assets pass into private hands, it becomes harder to tell if their owners plan to reduce their output over time, or expand it.’).

¹⁹¹ C. Taraporevala, ‘CEO’s Letter on Our 2022 Proxy Voting Agenda’ (12 January 2022) at <https://www.ssga.com/us/en/individual/mf/insights/ceo-letter-2022-proxy-voting-agenda>.

¹⁹² See Rauter, n 182 above (showing that uneven disclosure regulation distorts capital allocation). See also Christensen et al, n 172 above, 1216 (‘if mandatory CSR standards apply only to [public] firms, we could observe a shift of such activities from regulated to unregulated (private) firms.’); Coffee, Jr., n 64 above (‘[a]s ESG disclosure becomes more costly (and it will), we may see the ratio between public and private firms owning “dirty energy” assets shift significantly towards a higher percentage of private companies.’). See further H.B. Christensen, E. Floyd, L.Y. Liu, and M. Maffett, ‘The Real Effects of Mandated Information on Social Responsibility in Financial Reports: Evidence from Mine-Safety Records’ (2017) 64 *Journal of Accounting and Economics* 284, 292 (showing that public firms subject to mine-safety disclosures required by the SEC are more likely to close dangerous mines than unregulated (private) firms).

company size (according to assets or revenue, for example) because, as the company gets larger, its emissions are likely to increase.¹⁹³ However, in certain sectors, even relatively small companies can be important. These sectors are carbon-intensive sectors such as utilities, energy, and materials.¹⁹⁴ Therefore, we would recommend a two-pronged approach where, for companies operating in carbon-intensive sectors, the threshold for the disclosure requirements to apply is lower.

In terms of emissions(-related) reporting, an alternative regulatory design could entail forcing firms that emit higher than a certain threshold to disclose. Such a framework would require companies to track their emissions and disclose them if they surpass the given threshold. Obviously, they can cheat by under-reporting, but verification requirements such as auditing (or assurance) can provide a certain safety net. Furthermore, to understand whether they are under the threshold or not, (almost) all companies need to track their emissions, which can impose disproportionate costs on them. Therefore, this framework should also include a size criterion so that some companies do not need to track and report at all. It should be noted however that whether it be tied to emissions or size, any threshold which is necessary not to inflict disproportionate costs would be open to arbitrage by the firms¹⁹⁵ and would need to be dynamically calibrated.

Another issue is whether private companies should also be required to disclose the impacts of climate change on their business, namely the climate-related *financial* risks (along with disclosing their environmental impacts). These disclosures, which are generally demanded of public companies, are financially relevant and thus investor-oriented. From the investor protection perspective, in private companies, information asymmetries are less acute and significantly less costly to eliminate for investors absent public disclosure. However, as the management of such risks can be

¹⁹³ See S. Alogoskoufis et al, 'ECB Economy-Wide Climate Stress Test: Methodology and Results' (ECB Occasional Paper Series 281, September 2021), 27 at <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281~05a7735b1c.en.pdf> (showing that in the euro area, 'large companies seem to be the biggest polluters given that they contribute almost 90% of the overall emissions'). The report further states that '[f]irms are categorised as large, medium, small and micro based on the size of their total assets. The thresholds for this categorisation are based on the European Commission's definition of SMEs.' *ibid.* See also Bolton et al, n 189 above, 3 ('[p]rivate firms beyond a certain minimum size [...] [should] report their global greenhouse gas emissions [...]').

¹⁹⁴ See note 19 above and text thereto (citing a study showing that especially in those sectors, private companies have similar carbon intensity as public companies). See also text to notes 25–33 above (explaining how relatively small private companies in those sectors have still large carbon footprints).

¹⁹⁵ See, eg, Darren Bernard et al, 'Size Management by European Private Firms To Minimize Proprietary Costs of Disclosure' (2018) 66 *Journal of Accounting and Economics* 94 ('at least 8% of firms near thresholds that impose income statement disclosure manage size downward, and the average firm that manages size sacrifices more than 6% of its assets.').

socially desirable,¹⁹⁶ one broader benefit of disclosure by large private companies would be a nudge towards identifying and assessing those climate-related risks (which are not reflected and revealed in the public markets).¹⁹⁷ Yet, as argued above, banks, as financiers, and controlling shareholders (including private equity firms) may already move forward private companies to this end without any (public) disclosure.¹⁹⁸ Therefore, overall, the case for disclosure here is not strong. Furthermore, in the financial reporting requirements, private companies may already address such risks relevant to their operations. For example, in the EU, private companies, in their management reports, need to provide a description of the principal risks and uncertainties faced by the undertaking as well as non-financial key performance indicators, including information relating to environmental matters (to the extent necessary for an understanding of the undertaking's development, performance, or position).¹⁹⁹ But, to provide for more guidance and clarity, relevant requirements for private companies could be extended to more detailed and standardised disclosures on climate-related risks (for example, in alignment with the TCFD recommendations).²⁰⁰ Size thresholds should again be applied to ensure the costs imposed on private companies are not too severe.

Disclosure requirements pertaining to non-financial information (as well as climate-related risks) for private companies are not entirely new. In the UK, under the recently-launched Streamlined Energy and Carbon Reporting (SECR) framework, large private companies and limited liability partnerships²⁰¹ need to report as a minimum their UK energy use from electricity, gas, and transport fuel, as well as the associated GHG emissions (with at least one intensity metric).²⁰² This requirement is however still quite limited in comparison to listed companies which need to report annual global GHG emissions (scope 1 and 2) and at least one accompanying

¹⁹⁶ See Section II Part C.

¹⁹⁷ Information production that is relevant for other parties such as the public authorities can be another positive externality. See also Armour et al, n 189 above, 22.

¹⁹⁸ In widely-held companies, managers may fail to address climate-related risks due to agency problems. See Condon, n 70 above, 22–26. However, with their large economic stakes in the company, controlling shareholders would have incentives to address climate-related financial risks.

¹⁹⁹ See Accounting Directive, n 108 above, Art 19 (small and medium-sized undertakings can be exempted from certain requirements).

²⁰⁰ See Armour et al, n 189 above, 27 (arguing that 'climate-related disclosures should be imposed on not only listed but also non-listed entities that meet relevant size thresholds.').

²⁰¹ They are large if they meet at least two of the following three criteria in a reporting year: (i) a turnover of £36 million or more; a balance sheet of £18 million or more; or 250 employees or more.

²⁰² See The Large and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008, Schedule 7, Part 7A (amended by the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 and The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018) at <https://www.legislation.gov.uk/uksi/2008/410/schedule/7>.

emissions intensity ratio as well as underlying global energy use.²⁰³ Climate-related financial disclosures (in line with the TCFD requirements) are required (on a 'comply or explain' basis) by the FCA only for premium- or standard-listed companies.²⁰⁴ But such requirements will be mandatory for very large private companies from April 2022.²⁰⁵

In the EU, the newly-proposed Corporate Sustainability Reporting Directive (CSRD), which revises the NFRD, is a welcome development.²⁰⁶ This directive mandates a number of disclosure requirements with respect to sustainability, requiring, among other things, the disclosure of 'the plans of the undertaking [or the group] to ensure that its business model and strategy are compatible with the transition to a sustainable economy and with the limiting of global warming to 1.5°C in line with the Paris Agreement', 'the principal actual or potential adverse impacts connected with the undertaking's [or the group's] value chain, including its own operations, its products and services, its business relationships and its supply chain', and 'any actions taken, and the result of such actions, to prevent, mitigate or remediate actual or potential adverse impacts'.²⁰⁷ Unlike the NFRD, which applies simply to large public entities, the proposed Directive applies to all large companies and groups²⁰⁸ as well as all listed companies (except micro-companies).²⁰⁹ Furthermore, the proposal introduces an audit (assurance) requirement for the reported sustainability information to ensure that it is accurate and reliable.²¹⁰ While the legislative process is still ongoing, it is hoped that the extended scope of application of the sustainability disclosure requirements persists until the final version of the

²⁰³ *ibid*, Part 7.

²⁰⁴ See <https://www.fca.org.uk/firms/climate-change-sustainable-finance/reporting-requirements>.

²⁰⁵ The Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2022, SI 2022/31. Under this regime, UK public interest entities and companies with more than 500 employees and a turnover of more than £500m per year will be required to report climate-related financial information in a 'sustainability information statement' (NFSI). Note that private companies within the scope are much larger than those under the SECR framework.

²⁰⁶ Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting COM/2021/189 final (CSRD Proposal)

²⁰⁷ *ibid*, Art 1(3).

²⁰⁸ 'Large' is defined according to the Accounting Directive. Large undertakings need to satisfy two of the following criteria: (a) balance sheet total: EUR 20 000 000; (b) net turnover: EUR 40 000 000; (c) average number of employees during the financial year: 250. See Accounting Directive, n 108 above, Art 3.

²⁰⁹ CSRD Proposal, n 206 above, Art 1(3).

²¹⁰ *ibid*, Art 3(12).

directive during the legislative process.²¹¹ Furthermore, the CSRD, like its predecessor, involves some disclosure requirements regarding climate-related risks, which would then also be applicable to large private companies within its scope.²¹² However, unless more detailed and standardised disclosures are required, this would not constitute a significant change for those companies.²¹³ Supplementing the disclosure requirements under the CSRD, the recently proposed Directive on CSDD requires a certain group of companies, under some conditions, to adopt net-zero transition plans and targets as well as mandating due diligence systems and plans.²¹⁴ Although there are question marks on the effectiveness of these requirements, it is certainly commendable that this Directive, too, drops the usual public/private divide and uses size-related indicators to determine the scope of addressee companies.²¹⁵

On the other side of the Atlantic, as we write, the SEC is preparing for mandatory climate-related disclosures.²¹⁶ Although there are questions surrounding the mandate of the SEC to require companies to disclose climate-related data, the SEC has so far framed the disclosures as financially material and thus relevant for investor protection purposes.²¹⁷ However, the SEC also consulted on the following questions: ‘[w]hat climate-related information is available with respect to private companies, and how should the Commission’s rules address private companies’ climate disclosures, such

²¹¹ From a political economy perspective, we would expect EU Member States where a significant number of private companies would be affected from the expanded scope in the proposed Directive to water down the proposed rules. In a separate project, we examine these issues.

²¹² CSRD Proposal, n 206 above, Art 1(3) (requiring the disclosure of information necessary to understand how environmental matters affect the undertaking’s development, performance, and position; in particular, regarding the resilience of the undertaking’s business model and strategy to risks related to environmental matters, as well as a description of the principal risks to the undertaking related to environmental matters, and how the undertaking manages those risks).

²¹³ According to the proposed Directive (*ibid*, Art 3(4)), the European Commission will adopt delegated acts to provide for sustainability reporting standards which shall specify the information that undertakings are to report. The Commission sought technical advice from the European Financial Reporting Advisory Group (EFRAG). For the preparatory work, see EFRAG, ‘Final Report: Proposals for A Relevant And Dynamic EU Sustainability Reporting Standard-setting’ (February 2021) at <https://www.efrag.org/Activities/2010051123028442/Sustainability-reporting-standards-roadmap#>. It states that ‘continuing progress in the adoption of the TCFD recommendations is still urgently needed and [...] the EU standards are a means to achieve widespread adoption in the EU.’ See *ibid*, 61.

²¹⁴ Proposal for a Directive on CSDD, n 129 above, Art 15 and Arts 5-11.

²¹⁵ *ibid*, Art 2.

²¹⁶ See D.A. Katz and L.A. McIntosh, ‘SEC Regulation of ESG Disclosures’ Harvard Law School Forum on Corporate Governance, 28 May 2021 at <https://corpgov.law.harvard.edu/2021/05/28/sec-regulation-of-esg-disclosures/>.

²¹⁷ See sources cited in n 114 above. Cf Katz and McIntosh, n 216 above. On the SEC’s mandate, see ‘What We Do’, U.S. Securities and Exchange Commission at <https://www.sec.gov/about/what-we-do> (putting out the SEC’s mission as ‘protect[ing] investors, maintain[ing] fair, orderly, and efficient market, and facilitat[ing] capital formation’).

as through exempt offerings, or its oversight of certain investment advisers and funds?’²¹⁸

We would deem climate-related disclosures by certain private companies necessary,²¹⁹ but it may indeed be outside the mandate of the SEC, which actually shows that these disclosures are for a broader audience and for a broader purpose than solely investor protection.²²⁰ Increasing exposure of investors to private markets may provide leeway for the SEC to mandate a sort of climate-related disclosure for certain private companies as well.²²¹ However, first, in private companies, it is questionable whether there are large information asymmetries for investors as in public markets that would be prohibitively costly to avoid in the absence of disclosure. Second, any disclosure framework oriented around investor protection would be limited to financially material information (financial risk).²²² This would not fulfil the

²¹⁸ See <https://www.sec.gov/news/public-statement/lee-climate-change-disclosures>.

²¹⁹ See also L.E. Strine, Jr., ‘Toward Fair and Sustainable Capitalism’ (University of Pennsylvania Institute for Law & Economics Research Paper No 19-39, August 2020) at <https://ssrn.com/abstract=3461924> (arguing for ESG disclosures from companies, whether public or private, with more than \$1 billion in annual sales); G.S. Georgiev, ‘The Breakdown of the Public-Private Divide in Securities Law: Causes, Consequences, and Reforms’ (2021) 18 *NYU Journal of Law & Business* 221, 284–85 (stating that climate-related disclosure that only applies to public companies (as in the case of an SEC mandate) ‘fails to capture a significant segment of entities across the economy.’).

²²⁰ See, eg, P.G. Mahoney and J.D. Mahoney, ‘The New Separation of Ownership and Control Institutional Investors and ESG’ (2021) *Columbia Business Law Review* 840 ([t]he adoption of ESG disclosure mandates in order to serve environmental or social goals is not well-aligned with the SEC’s stated mission’); J.M. Karpoff et al, ‘What ESG-related disclosures should the SEC mandate?’ *Financial Analysts Journal* (2022, forthcoming) (the SEC’s mandate does not cover ‘understanding how the firm’s activities affect society, including E&S-related outcomes’); Lipton, n 170 above, 566 ([t]he SEC is not equipped to manage disclosures intended for noninvestors [...]).

²²¹ See, eg, A. Lipton, ‘Climate Change Disclosures and Private Companies’ Business Law Prof Blog, 19 June 2021 at https://lawprofessors.typepad.com/business_law/2021/06/climate-change-disclosures-and-private-companies.html (highlighting some comments by institutional investors in response to the SEC consultation that demand expanding climate-related disclosure to private companies). The SEC may also require private companies to count some indirect/beneficial shareholders (such as those shareholders in private equity funds), rather than only shareholders of record, for the purposes of when it must become a ‘reporting’ company. This would cast the net wider in terms of sustainability disclosures. See Coffee, Jr., n 64 above.

²²² Cf D. Lopez, J. Gerber, and J. Povilonis, ‘The Materiality Debate and ESG Disclosure: Investors May Have the Last Word’ Harvard Law School Forum on Corporate Governance, 31 January 2022 at <https://corpgov.law.harvard.edu/2022/01/31/the-materiality-debate-and-esg-disclosure-investors-may-have-the-last-word/#more-142901>. See also R. Schmidt and B. Bain, ‘SEC Bogs Down on Climate Rule, Handing White House Fresh Setback’ *Bloomberg* 8 February 2022 at <https://www.bloomberg.com/news/articles/2022-02-08/sec-bogs-down-on-climate-rule-saddling-biden-team-with-new-woe> (discussing the rift among the SEC commissioners on what is ‘material’).

needs of the sustainability disclosure framework we envision. Ultimately, this seems to be a job for Congress.²²³

VI. CONCLUSION

This article has argued that private companies are highly relevant to climate change mitigation and adaptation. They impose similar environmental externalities to those of their public counterparts. They are also increasingly buying carbon-intensive assets divested by public carbon majors – the so-called ‘brown-spinning’ phenomenon. Private companies are also subject to climate-related risks as they are systematic risks, which is important for macro-economic and financial stability concerns.

However, private companies lack disciplining mechanisms available to public companies to a significant extent. Institutional investor engagement and activism, and other corporate governance mechanisms (such as executive remuneration tied to environmental performance and independent board members with climate expertise) are largely absent in private companies. Importantly, there is also currently a lack of transparency and climate-related disclosure requirements for private companies.

Private companies are obviously subject to generic regulatory instruments and may be constrained by their financiers (banks) and other factors such as reputation. We are seeing however a need for further reform, namely extending sustainability disclosure requirements to private companies. The public/private divide that has its roots in the securities regulation paradigm does not reflect the (potential) environmental impact of companies and thus should not be consequential in terms of sustainability disclosures. These disclosures are not primarily aimed at overcoming the information gap concerning investors on public markets, but rather promoting the transition to a green economy. Moreover, they serve a wider audience. Therefore, they should also cover those private companies that are relevant from the societal impact perspective. Disclosure requirements, if imposed, would exert a certain discipline on private companies to improve their record as well as illuminating the brown-spinning phenomenon and addressing related concerns. Otherwise, an uneven disclosure regime between private and public firms could spawn regulatory and reputational arbitrage opportunities.

²²³ See similarly D.A. Katz, ‘The SEC Takes Aim at the Public-Private Disclosure Gap’ Harvard Law School Forum on Corporate Governance, 28 January 2022 at <https://corpgov.law.harvard.edu/2022/01/28/the-sec-takes-aim-at-the-public-private-disclosure-gap/> (favouring Congressional action to establish a mandate for interagency coordination and implementation and stating that ‘[i]n the absence of Congressional action to provide the SEC with a mandate to require EESG disclosures for broad public purposes, the SEC is limited in its statutory authority to the protection of investors.’).

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