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A socio-ecological approach to corporate governance

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Abstract

Scientific understandings of the nature and extent of global environmental change has identified that we are living through a time of unprecedented inter-connected changes in earth systems: including climate, water and biological systems. These changes have implications for how we organise our economies and affect the way in which humans live. The term used to describe this situation is 'the Anthropocene' and this refers to the situation where human activity drives global environmental change. We use this Anthropocene framing to characterize the interdependent relationship between the social and the ecological systems and to locate the role of corporate governance in this context. We describe this as a socio-ecological approach and use this to reflect upon both the owner-manager interface might change as well as how a company interacts with a wider stakeholder community. We propose three elements underpinning a socio-ecological form of corporate governance: biosphere stewardship, adaptive and transformative governance routines and global/regional governance infrastructure linked to corporate scale levels.

1. Framing the corporate governance landscape

Corporate governance traditionally focuses on the requirements that shape the relationship between company shareholders and boards of directors (Parkinson, 1994; Shleifer and Vishny, 1997). Boards are responsible for governing corporations as well as for providing information about their activities that discharges accountability to owners. The relationship between owners and boards is most usually

framed within the context of moral hazard and information asymmetries which require owners to ensure that directors are operating according to a maximising of profits purpose in a way that accords with the legal standards that are expected of them. This description begs the question of how the requirements at the heart of the corporate governance relationship change over time and in response to evolving external pressures. Indeed, this chapter focuses on how socio-ecological matters alter how we understand the function of corporate governance. By socio-ecological matters this chapter means matters of concern within the biophysical system (e.g., climate, terrestrial biodiversity, or healthy oceans), but always bearing in mind that biophysical systems are intertwined with social systems (e.g., actors, institutions such as corporations, regulation or culture), in such a way that any consideration of sustainability needs to pay attention to the dynamic interactions between both sets of systems. In this respect, we move beyond the agency theory framing of corporate governance in neo-classical economics to one that incorporates social, environmental and sustainability factors. Moreover, the agency relationship at the heart of broader conceptions of corporate governance include extending managers' responsibility beyond duties to owners (shareholders) to those owed to other stakeholder groups and society at large. Social and environmental accounting scholars have considered this broader landscape for several decades. Yet, we will also move beyond the realms of stakeholder theory or enlightened corporate governance (Jensen, 2001) in that we attempt to develop a conceptualisation of corporate governance that is not constrained within a framing of the fiduciary duties towards shareholders or the company itself. In short, we will argue that there are new forms of moral hazard emerging (such as failing to address corporate impacts on earth systems functioning) as well as new information asymmetries to be overcome.

Since the 1970s, concerns have crystallised that corporate activities create negative social and environmental impacts because of companies' pursuit of profit (for a historical overview, see Agudelo et al., (2019) and for an accounting-focused review Bebbington (2021)). The types of impacts include damaging workers health, lack of equality in employment, loss of community wellbeing (from operations and in the face of plant closures), the effects of local and global pollution and failures to

protect consumers from damaging products. These concerns have been addressed substantively: that is, remedying perceived negative effects through corporate design (such as workers' representation and union recognition) as well as legally mandated requirements to take account of these externalities (Unerman et al., 2018). Alongside, numerous governance requirements have emerged that require the provision of information about social and environmental effects, both from 'voluntary' initiatives (such as the Global Reporting Initiative) and through mandated disclosures (such as the European Union's Non-Financial Reporting Directive). However, the extension of perceived or implied corporate responsibility for social and environmental effects has not affected the heart of corporate governance: the relationship between owners and managers. Yet, the context in which the owners-managers relationship exists has evolved to include broader responsibilities.

At the same time, there are some signs that the owner-manager relationship may be evolving. For example, the innovations in corporate forms engendered by the Benefit Corporation create a corporate governance relationship that is beyond a profit maximisation approach. In this respect, the Benefit Corporation form is a model for a "for-profit, socially obligated, corporate form of business, with all of the transnational corporate characteristics but with required societal responsibilities" (Hiller, 2013). Another example is the rise of 'responsible investors' of various forms (see Rodrigue and Michelon (2021), for a review of shareholder activism and von Wallis and Klein (2015), for a systematic review on socially responsible investment field) who require corporations to be more 'responsible' through their role as investors. Yet, as highlighted in Chapter 1, despite the increased prevalence of responsible investors and a mainstreaming of ESG considerations into investment decisions, it is not clear that this has translated into changed corporate governance relationships.

While noting the above trends, namely: that expectations of corporate behavior arising from society have broadened to include more social and environmental matters; and that there is some evolution in the owner-managers relationship, the focus of this chapter is on slightly different ground. Specifically, we propose that the nature of the global socio-ecological system in which corporate

actions take place has moved substantially and that this requires a novel consideration of corporate governance. We use the Anthropocene framing to characterize the socio-ecological system (that is, the inter-dependent relationship between the social and the ecological system) and consider how this might radically reform the owner-manager interface as well as how this would extend to how a company interacts with a wider stakeholder community.

The Anthropocene is a way of characterising the changing nature of social and ecological problems (see Malhi (2017), for an introduction and Bebbington et al., (2020)) as well as describing the functionality of the earth system itself. Before the 21st century, environmental problems were most often characterised as arising from human populations pursuing their social and economic needs (with corporations often serving the delivery of those needs). If this was the nature of the problem, then modifying regulatory systems to address negative ‘side-effects’ were thought to be a sufficient remedy: the underlying economic system was not central to debates. In addition, there was a sense that the earth system itself was relatively stable and that despite specific pressures it would continue to function to support human flourishing. This is a Holocene understanding of planetary functions and not present in the Anthropocene.

More recently, scientific understandings have evolved considerably and the systemic nature of environmental change, involving not only biophysical but also the socioeconomic systems, is now more fully appreciated (Nyström et al., 2019; Folke et al., 2021). This has led to a consensus that we are living in the Anthropocene: a time where human activity drives global environmental change. This includes, now scientifically mainstream, concerns that global climate change will create a tipping point in earth system functioning that will severely disrupt (for example) growing patterns and create disruption in the form of droughts, storms, floods and wildfires. Likewise, it is accepted that we are living through a global ‘mass extinction’ event that undermines global food production and broader ecosystem functions. These concerns have also been captured in the notion of breaching ‘planetary boundaries’ (see Rockström et al., 2009) which has proven influential in corporate social responsibility work

(Whiteman et al., 2013). This characterisation of the problem facing humanity strikes at the heart of how we conceive of the function and contribution of corporations (that is: the wider responsibility of organisations to stakeholders) as well as the relationship between owners and managers (a narrower corporate governance focus). Indeed, two questions arise for corporate governance in the Anthropocene. First, what kind of institutions will support corporations (in partnership with their owners) to address the broader negative consequences of their actions. Second, what scientific and ethical capabilities are required for corporations to be well governed in the Anthropocene. Answering these questions requires some further elaboration of Anthropocene-related dynamics. The next section will draw on this material to return to the task of imagining what a socio-ecological approach to corporate governance would entail.

2. A socio-ecological approach to corporate governance

The material in this section is premised on the need for extensive capacity building among corporate managers, owners, and wider stakeholders to understand the demands of the Anthropocene. To navigate this new environment, we suggest that there are at least three elements that need to come together to underpin a socio-ecological form of corporate governance. First, if corporations are to have a meaningful role to play in biosphere stewardship (see below), purposeful business strategies that are ecologically based are necessary. Second, adaptive and transformative governance routines will have to be developed: we outline the design principles for these forms of governance. Third, we highlight some governing devices that can translate global/regional imperatives to corporate scale levels and argue that there are some extant (and rapidly emerging) institutions that seek to do exactly this, and it may be that from this basis that a socio-ecological informed approach will emerge.

2.1 Corporate biosphere stewardship

The idea of corporate biosphere stewardship is premised on three interlocking and reflexive capabilities. First, there is a need for a conscious reconnection of corporate activities to the biosphere. This has two elements, namely: a conceptual acceptance that corporations are embedded in and not

separate from the biosphere, and the development of traceability systems such that corporations have data that make clear where their activities create biosphere interactions. Second, there is a need for a new values-based orientation for corporate managers (in partnership with owners) to be biosphere stewards. This is premised on an understanding of how corporations are enmeshed in the biosphere as well as a normative orientation to extend notions of responsibilities corporations owe with respect to the biosphere. The notion of biosphere stewardship propounds that corporations have the capability to exercise their agency and leverage their power toward minimizing and harmonizing their interactions with the biosphere. The third element relates to the reformation of various 'markets for responsibility' that impact upon corporations' abilities to become stewards. Critically this involves capital markets that are needed to shift their trajectory towards becoming biosphere stewards through their investing and financing activities.

The seminal paper by Folke et al., (2019) identified several elements through which corporate biosphere stewardship might come together:

- alignment of the vision of corporations and society towards a common goal (such as stewardship);
- frameworks that support corporations in their pursuit of sustainability (such as the Sustainable Development Goals, see also Bebbington and Rubin, 2022);
- a transformation in the terms of a 'licence to operate' through changes in regulatory frameworks as well as consumer preferences (to the extent that these change markets);
- the support of the finance sector to fund transformation (such as the Equator Principles and the Principles of Responsible Investment as well as, inter-governmental programmes such as the EU Action Plan on Sustainable Finance);
- radical transparency, that includes data on what is happening where in the world as well as corporate data provision such as that pre-figured in the CDP and, more generally, via the Global Reporting Initiative and the International Sustainability Standards Board, (although we would argue that these are not as radical as it. would be required by the notion of corporate biosphere stewardship); and
- evidence-based knowledge for action (such as the science-business collaboration, Seafood Business for Ocean Stewardshipⁱ).

Some of these elements that might shape corporate biosphere stewardship exist already, even if the extent and reach of those fall short of what may be required and would, in any event, require significant broader public policy interventions as well.

In addition, knowledge of which corporations might become biosphere stewards is also emerging, often linked to the notion of ‘keystone actors’ that was introduced to the literature by Österblom et al. (2015). This framing has resulted in the Seafood Business for Ocean Stewardship practice-based work (Österblom et al., 2022) as well as the identification of 100 transnational corporations that will shape the future of the ocean (Virdin et al., 2021). In addition, Folke et al., (2019) outline 189 companies across agriculture and forestry; seafood; aquaculture; animal pharmaceuticals; fossil fuels; and the mining sector that dominate their respective sectors (as measured by levels of concentration in each industry). Concentration was variously approximated by a proportion of profits/sales, market share, exports, production, trade volumes or access to resource reserves: that is, they used a materials flow basis for their calculations. Finally, Hileman et al., (2020) examine the dynamics of how keystone actors interact in the global clothing industry. What these kinds of papers highlight is that some corporations ‘matter’ more than others and offer greater possibilities for biosphere stewardship.

Corporate biosphere stewardship encompasses distinct types of stewardship responsibilities that arise from how corporate actors affect the biosphere and which might also imply different ways in which stewardship could be played out. Central to this idea is that different biosphere effects give rise to different ways of articulating responsible actors. Relatedly how one might act as a steward would also differ depending on how responsibility is articulated. For example, where the biosphere effect creates global level impacts, responsibility for impacts might be assigned to those organisations/industries that create the largest effect. An example of this type of impact would be global climate change where greenhouse gas emissions *in total* create the biosphere effect. Hence, responsible actions need to reduce emissions across all activities. Exactly where emissions are reduced is not as important as the fact that they reduce overall. Acting as a steward might involve seeking alignment of regulatory

arrangements across the globe by supporting international agreements that drive emissions reductions, while also considering issues of climate justice. In addition, acting in a proactive manner to reduce your own emissions regardless of the presence of regulatory processes would constitute a stewardship action. Corporate governance information in this context could be the extent to which emissions reductions are in line with scientific requirements (through, for example, the Science-Based Targets initiative).

Where the cumulative actions of several corporations give rise to global and/or regional biosphere effects, responsibility might be assigned to all those organisations who have an impact upon any specific biosphere effect. A clear example of this approach is the Seafood Business for Ocean Stewardship initiative. In this initiative, the cumulative effects of seafood production create biosphere effects (loss of fish stocks/species diversity/resilience of ocean systems). While the definition of what would entail responsible actions might differ by fishery, adhering to sustainable harvesting techniques and yields would be a generic example of how to be a steward in this context (a national and regional regulatory response). At the level of a corporation, information intermediaries such as the Ocean Disclosure Project translate fish stock biological information into a form that suits a corporate based information provision and stakeholder evaluation of corporate performance.

A different form of biosphere stewardship might involve stewarding a particular eco-system. For example, biosphere stewards might be all the entities that impact a river system (either by extracting or discharging water from that system). In this context, the stewards would be a group of corporate and public organisations (depending on national institutional arrangements). Each actor in this setting might have different actions that would constitute stewardship (for example, not extracting too much water or not discharging into a river). Likewise, a stewardship cohort is likely to include very different organisations that have the challenge of working together to meet common goals that they differentially benefit from and resolving problems that they contribute to in different ways.

Alongside this idea of a typology of effects that implies different stewardship actions and different ways of determining who is the responsible party, the discussion might be framed from the point of view of how a corporate entity provides an account of its biosphere effect. In general, it is recognized that there is often a mismatch between the nature of a corporate account of effects and the biosphere nature of these effects (this point is well developed in the literature – but not resolved). What should be apparent is that a ‘typical’ corporate account of impacts that does not include any sense of the biosphere context of impacts cannot really tell us much about stewardship behaviour. This implies that if we are to champion corporate biosphere stewardship the form of accounts of stewardship will have to evolve considerably. Critical to this process is how corporate governance approaches might mirror the idea of biosphere stewardship and attention now returns to this question.

2.2 Adaptive and transformative sustainability governance

The scope of the changes that are taking place (and will take place) in the Anthropocene, together with a conceptualization of how to deal with those changes from a socio-ecological perspective prompts us to explore the new directions that corporate governance might take to deal with the dynamics and complexity of sustainability. Enlightened or inclusive models of corporate governance are falling short of the degree of reform required to deal with the broader considerations of sustainability governance (Dahlmann, Stubbs, Griggs, & Morrell, 2019; Larrinaga, 2021), including the possibility of deliberate or inadvertent systemic transformations involving the potential unfeasibility of specific economic activities (Nelson, Adger, & Brown, 2007), as is likely to happen in carbon-intensive or nature-dependent industries, for example.

Alternative frameworks to that of corporate governance have been proposed in Larrinaga (2021), drawing on socio-ecological governance studies, which draw a distinction between adaptive and transformative governance. Although originally developed to characterize socio-ecological systems, these categories can provide insights for corporate governance that are discussed sequentially, starting with adaptive governance and following with transformative governance.

Adaptive governance concerns collective rules, norms and decision-making processes and systems seeking to regulate socio-ecological systems and manage their resilience. Resilient socio-ecological systems have the capacity to cope with future perturbations “without undergoing significant changes in function, structural identity, or feedbacks of that system” (Nelson et al., 2007, p. 397). By managing and increasing resilience, adaptive governance seeks to build the capacity to live with change, unpredictability, and surprise, within the current trajectory, without degrading the system or reversing it into undesirable states (Cleaver & Whaley, 2018; Folke et al., 2010; Folke et al., 2005). The origin and inspiration for adaptive governance can be traced back to the self-organized institutions governing the commons and studied by Ostrom (1990), although it pragmatically does not exclude market and command-and-control forms of governance. Adaptive governance creates the conditions for collective action and coordination across multiple levels, seeking to sustain the capacity of socio-ecological systems to produce a broad range of ecosystem services (Cleaver & Whaley, 2018).

Adaptive governance provides different insights that are important to consider for the transition of corporate governance in the Anthropocene. First, adaptive governance is unfolding at multiple levels, including, among others, national command-and-control regulations, supranational agreements creating soft regulation regimes for companies (e.g., U.N. climate change conferences), voluntary multi-stakeholder international initiatives (e.g., Global Reporting Initiative), markets (e.g., carbon markets and offsetting mechanisms) and industrial initiatives (Österblom et al., 2017). In that regard, corporate governance’s focus on the owner-manager agency relationship seems obsolete when facing the multiple levels of sustainability challenges, albeit corporate adherence to and participation in these initiatives supports adaptive capacity.

Second, and related to the previous aspect, the intensity of change and the level of uncertainty that the Anthropocene involves suggest that adaptability would require diverse and flexible institutions to cope with unforeseen changes and surprise (Folke et al., 2005). The existence of redundant systems enlarges the number of design archetypes that can be deployed to craft new institutions dealing with

uncertainty and increases the capacity to deal with the unforeseeable (Folke et al., 2005). However, redundancy can be seen as inefficient and irrational in the short run, especially so in a corporate governance context focused on short-term value creation for investors (Lazonick & O'Sullivan, 2000).

Together with archetypal variability, ecological knowledge is central for adaptability. This is the third insight into adaptive governance addressed here. As expressed by Folke et al. (2005), it is better to allow "the disturbance enter at smaller scales instead of accumulating to large scales, thereby precluding large-scale collapse" (p. 446). Given that change is a defining characteristic of socio-ecological systems, it has been suggested that systems can gain from co-existing with change, rather than insulating themselves from change and insulating themselves from their environment through impermeable boundaries. A central tenet of adaptability is that as change will occur, systems need to be designed and managed for flexibility, rather than for stability (Nelson et al., 2007). Organizational theory has suggested that by decoupling from their environments, in the short run organizations can maintain stability without responding to environmental changes; however, this dissociation from their environments precludes the flow of information and, in the long run, can lead to the collapse of the organization for its lack of adaptability to the environment (Weick, 1976). Different corporate governance devices that seek to create this connectivity exist (see next section), although most of them focus on climate change and other urgent sustainability issues (e.g., biodiversity) are still receiving insufficient attention.

The fourth insight arising from adaptive governance relates to the need for ecological knowledge. The socio-ecological approach is founded on a paradigm shift, noting the impossibility of conceiving social and ecological systems separately. Adaptive governance calls attention to the need to combine local knowledge with scientific input to nurture the understanding of socio-ecological systems (Folke et al., 2005). On the one hand, ecological knowledge requires post-normal and sustainability approaches to science (Bebbington & Larrinaga, 2014), including ancestral knowledge. On the other hand, business-science collaborations (Österblom et al., 2017) and initiatives around science-based targets (Walenta,

2020) provide examples of how scientific knowledge is being translated into business information systems. Following those ideas, corporate governance will need to create rules and decision-making systems that foster the connection between action with robust scientific structures and local knowledge (Folke et al., 2019).

In sum, corporate governance can mobilize those ideas to conceive how organizations and other socio-ecological arrangements can build the capacities to adapt to a changing environment by modifying conceptions of efficiency and by developing ecological knowledge. However, the magnitude of environmental change might reduce the prospects of adaptability, requiring more substantial transformations (Chaffin et al., 2016; Nelson et al., 2007). The current trajectory of global environmental change—considering focal issues such as feeding humanity, land and ocean biodiversity, freshwater availability, climate change and the cities (Chan et al., 2020)—is likely to compromise the ability of humanity to preserve socio-ecological systems in a desirable state (Chaffin et al., 2016). Therefore, the question is not whether transformations will occur (or are occurring), but rather whether this transformation is inadvertent (e.g., ecosystems' collapses) or deliberate, to maintain a safe space for humanity. In fact, Nyström et al., (2019) conclude that the actual transformation of ecosystems into simplified and global production ecosystems might reduce their resilience, needing a deliberate transformation towards a sustainable trajectory.

While adaptation refers to the management of resilience within a socio-ecological system, transformation involves a system-wide reorganization, including values and goals, when ecological, economic and social conditions make the current system untenable (Chan et al., 2020; Folke et al., 2005). Within this framework, it could be argued that adaptation is an optimistic and reformist endeavour that will not involve dramatic social changes. In this regard, transformations might not always be desirable and might involve radical and systemic shifts in values and the “transformation of the institutions that shape our cultural, political, and economic transactions (...) [to] reconnect to the biosphere and respect interacting planetary boundaries” (Westley et al., 2011, p. 775). In any case,

transformative governance requires norms, rules, and decision-making processes and systems that go beyond those required for adaptive governance (Chaffin et al., 2016).

Chan et al. (2020) provides a framework that supports conceptualization of transformative governance. They distinguish between focal issues (i.e., pressing socio-ecological issues), leverage points (i.e., points of intervention to transform socio-ecological systems) and levers (i.e., governance approaches to effect the leverage points). Implicit in this approach is the centrality of social systems (indirect drivers in their terminology) “which structure economic activities and propel direct drivers” (p. 695). Direct drivers, such as deforestation and fossil fuels “resist intervention because they underpin our current economies and governance institutions” (p. 695). They identified eight leverage points, including decoupling consumption from notions of well-being, *mobilizing latent values of responsibility*, and reducing inequalities, and five levers, including having the *right incentives or pre-emptive decision making*. For some of these levers (in italics above) are those that address the heart of corporate governance. At the same time, a key concern for corporate governance in periods of transformation will be how to deal with polarization and conflicting interests stemming from transformations, as the nature of the shifts involved will have effects on the distribution of power in society, producing resistance and, potentially, the capture of the governance systems.

Summarizing, both these imagined but necessary states have a common basis in terms of taking a socio-ecological framing and concentrating on the relations between society and the biosphere. Yet, they differ according to the degree of system change we need to face the ecological crisis, in that transformative governance requires tackling ecological change with radical, new models. If adaptive governance attempts to connect and mediate, transformative governance requires new visibilities and information and alternative accountabilities. The following figure summarises the key features of the two sustainability governance systems.

Figure 1. Key features of adaptive and transformative sustainability governance

Adaptive Sustainability Governance

Mitigating and adapting to change

Collective action for enlightened self-interest

Integration of new information and fiduciary duties modified

Transformative Sustainability Governance

Regime shift to safe operating space for humanity

Focus on the common good

Radical and systemic changes with social transformation

2.3 Evolving governance infrastructure

Corporate governance models and forms do not strictly encompass only internal mechanisms with which decision-making processes are undertaken within organisations, but more broadly they encompass a wider infrastructure that governs corporate behaviour (Gillan, 2006). For example, traditional corporate governance studies have focused on understanding how the legal and regulatory infrastructure, together with market-related mechanisms (such as the behaviour of agents in the debt and equity markets as well as information processing and distribution by infomediaries), influence the owner-manager relationship and the overall objective of achieving profit maximization. When attempting to conceive of alternative forms of governance for a just and ecological transition, it is therefore important to consider how the wider infrastructure can provide governance levers (Chan et al., 2020) as this is what an ecologically informed global governance system may entail.

There are already several initiatives ('pockets of future in the present') that go in the direction of creating more systematic change, via the creation of global/regional institutions that will support corporations (in partnership with their owners and financial institutions) to address the just and safe transition. Such initiatives attempt to influence incentives (thereby reducing moral hazard) and enhance capacity building in terms of coordinating sectors and strengthening the regulatory environment (thereby addressing information asymmetries). For example, the Science Based Target initiative (SBTi) is a partnership between the Carbon Disclosure Project, the UN Global Compact, the World Resource Institute and the World Wild Fund, that supports companies and wider financial services to set targets within scientifically robust timeframes to reduce their greenhouse gas emissions

in alignment with a 1.5°C scenario. Other initiatives attempt to link the financial structures of corporations to the achievement of specific sustainability-related objectives, although not without skepticism over whether such targets are ambitious enoughⁱⁱ: Enel, an Italian power utility company, issued a Sustainable-Development-Goal-linked bond in September 2019, targeting a 55% share of renewables in its capacity by the end of 2021, with a 25 basis point step-up in case of failure and with an explicit link to executive remunerationⁱⁱⁱ.

Similarly, several translational mechanisms making ecological factors financially evident and relevant are likely to increasingly push corporations and their owners to embed ecological transition into their business or investment-related decisions. An example of such a mechanism is the Taskforce for Climate-related Financial Disclosures. Created by the Financial Stability Board in 2015, the Taskforce developed a set of recommendations about which information companies should be disclosing to support capital providers (investors and lenders but also insurance underwriters) in assessing and pricing risks related to climate change. More recently, a similar effort has been created to develop a disclosure framework on nature-related risks. The ambition of disclosures under these projects is to support a shift in financial flows with the hope of shaping nature-positive, rather than nature-negative, outcomes. Although the emphasis of both taskforces is to develop disclosure frameworks for external reporting to investors, the shift in perspective can be realized via prompting companies to consider how the organization manages external dependencies on functional ecosystems in terms of corporate governance, strategy, risk management systems and operations. Similar initiatives also exist within industries that are more exposed to nature-related dependencies, attempting to link corporations to biosphere functioning. The example noted previously, the Ocean Disclosure Project, was launched in 2015 by the Sustainable Fisheries Partnership to encourage seafood companies (including retailers such as Asda, Morrison, and Tesco) to enhance their transparency on wild-caught seafood sourcing.

The World Benchmarking Alliance represents a wider attempt taking an ecological frame as the basis and draws from the keystone actor framing introduced earlier in this section. Recognising that the

private sector has a pivotal role in supporting the Sustainable Development Goals, it identifies seven systems transformations which will be critical for the future (including: social, urban, digital, nature, food and agriculture, decarbonisation and energy, and financial system transformation). Within this framing, they identified 2,000 keystone companies – that is companies within the seven transformations domains as relevant industries that are likely to be influential in achieving the SDGs. They then benchmark the progress of companies across the seven transformations using public rankings and performance data.

Finally, and in relation to benchmarking, it is worth mentioning that the corporate social responsibility literature has conceptually identified shareholder activism as a driver of change for corporate practices (Reid and Toffler, 2009). However, there is still scepticism about the wider social implications of shareholder active engagement with investees. Although research has documented that investors' pressure over social and environmental concerns pushes firms to report more information, thereby providing a greater basis to assess corporate impacts, the extent to which such increased transparency leads to better management of corporate externalities is somewhat limited (Michelon et al., 2020). Yet, recent years have witnessed the formation of a globally coordinated, investor-led initiative that not only attempts to pressure companies for change, but that also supports change through the development of sectoral decarbonisation strategies. The Climate Action 100+ coalition has developed four Global Sector Strategies (electric utilities, steel, food and beverage, aviation) that identify priority actions for companies, industries and investors and track the company implementation progress through engagement. The coordination of a sector-wide engagement is led by regional investor networks, and cascades down specific industry-wide but regional actions to focus on companies operating in each region. More broadly, the initiative also attempts to push companies to implement corporate governance that articulates how the Board of Directors is accountable for overseeing climate change risks and opportunities and Paris-aligned remuneration packages, implementing plans and targets to reduce greenhouse gas emissions across the value chain and improved reporting practices. While these initiatives are adaptive more than transformative, and the extent of progress they can

achieve somewhat anecdotal, they are suggestive of how climate mitigation (for example) is becoming more embedded in the functioning of corporate governance.

3. Concluding observations

Since the 1970s, concerns have been expressed that corporate activities create negative social and environmental impacts because of companies' pursuit of profit. These concerns have been addressed substantively: that is, remedying perceived negative effects through corporate design as well as legally mandated performance requirements. Alongside this, numerous governance requirements have emerged that require the provision of information about social and environmental effects, framed around notions of corporate social responsibility.

This chapter has developed propositions about how corporate governance might evolve in this context. In the 1970s social and environmental problems were perceived as being side-effects of corporate activities, rather than global and systemic issues. Hence, the search for ways to remedy these externalities did not address the system itself. More recent scientific evidence has highlighted that the scale and nature of problems (such as biodiversity loss, global climate change and worker exploitation) are systemic effects of a particular economic approach and corporate design: in a colloquial sense, these adverse impacts are a feature of the system, not a 'bug' to be designed out through incremental changes. If this is the case, then corporate governance requires more systemic change that recognizes that we now live in the Anthropocene and are up against systems limits. The type of governance that would be fit for purpose in this context therefore changes.

The chapter has attempted to lay out a socio-ecological approach to governance. In the first instance, capacity building is required for corporate managers and stakeholders to embrace this form of governance, namely: to radically increase ecological and social literacy alongside a system science understanding of how the risks facing corporations have emerged. The second shift is for a wider appreciation of the impact that purposeful business strategies have on governance routines: the age of a Friedman framing of corporate purpose is over (Bebbington and Rubin, 2022). Third, twenty first

century corporate governance in an Anthropocene biosphere must find ways to locate corporate actions and effects within planetary limits and simultaneously inform local actions. This requires governing devices as mediating instruments that can translate global/regional imperatives to corporate scale corporate governance activities.

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ⁱ SeaBOS – Connecting science with industry leaders for biosphere stewardship: <https://seabos.org/>

ⁱⁱ <https://capitalmonitor.ai/asset-class/fixed-income/sustainability-linked-bonds-face-key-tests/>

ⁱⁱⁱ <https://www.environmental-finance.com/content/analysis/why-enel-turned-to-sustainability-linked-bonds.html>