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A Critical Examination of Corporate Environmental and Social Impact Measurement and Valuation

Judith Stroehle[1], Ali Aslan Gümüşay[2,3], Laura Marie Edinger-Schons[4], Amyn Vogel[2], Alnoor Ebrahim[5], Andreas Rasche[6], Andrew King[7], Ken Pucker[5], Richard Barker[8], Juliane Reinecke[8], Giovanna Michelon[9], Stuart Cooper[10], Dror Etzion[11], Karim Harji[8], Marya Besharov[8], Colin Mayer[8], Nien-hê Hsieh[12] and Emma van den Terrell[13]

Abstract

Can measuring and valuing the impact of business on society and the planet lead to a more environmentally and socially oriented style of capitalism? This is the main hope and assertion of corporate environmental and social impact measurement and valuation (IMV), which calls on organizations to measure their positive and negative impacts on their stakeholders and the environment and to subsequently translate them into monetary units. This curated dialog critically examines the components of this concept—environmental and social impact, its measurement, and its monetary valuation—by bringing together leading experts in the field who discuss the opportunities and risks of IMV. The purpose of this article is to place IMV under deep investigation and envision new ways that work with, complement, or replace organizations' desire for management via quantification and financialization.

Keywords

business and society, corporate social responsibility, sustainability

Introduction

Judith C. Stroehle, Ali Aslan Gümüşay, and Laura Marie Edinger-Schons

Humanity is facing existential sustainability challenges such as the climate or the biodiversity crisis, human rights issues, or geopolitical instability. Companies play a central role in causing and tackling these problems and many face increasing societal and regulatory pressures to provide transparency around their own positive and negative environmental and social impacts (i.e., their externalities). This transparency is seen as key to assess corporate sustainability—that is the firms' systemic relationship with the natural environment and society, and its management in the long term (Bansal & Song, 2017). It can also hint at the credibility of firms' proclamations to pursue a higher purpose beyond profit (e.g., Gartenberg et al., 2019; Mayer, 2021, 2024; Rock, 2020), and thus the signaling of corporate responsibility

[1]Hochschule für Wirtschafts- Rechts- und Sozialwissenschaften Internationale Beziehungen und Informatik, Universität St Gallen, St Gallen, Switzerland
[2]School of Management, LMU, München, Germany
[3]HIIG, Berlin, Germany
[4]Universität Hamburg, Hamburg, Germany
[5]Fletcher School of Law and Diplomacy, Tufts University, Medford MA, USA
[6]Copenhagen Business School, Frederiksberg, Denmark
[7]Boston University, Boston, MA, USA
[8]Saïd Business School, University of Oxford, Oxford, UK
[9]Department of Economics and Management, Università degli Studi di Padova, Padova, Italy
[10]University of Bristol Business School, University of Bristol, Bristol, UK
[11]University of Vermont, Burlington, VT, USA
[12]Harvard Business School, Boston, MA, USA
[13]Universität Mannheim, Mannheim, Germany

Corresponding author:
Ali Aslan Gümüşay, School of Management, LMU Munich, Giselastr 10, München 80802, Germany.
Email: guemuesay@lmu.de

(Bansal & Song, 2017). Yet, on both accounts, recent analyses show that most companies are still behind the curve on the transformation toward sustainable business (e.g., Haffar & Searcy, 2018; IPCC, 2023; Siemens, 2023). In relation to climate change, for instance, many companies lack specific transition plans and interim targets to decarbonize their operations and even despite ambitious climate pledges of organizations and countries, overall CO_2 emissions worldwide are still on the rise (Liu et al., 2024). As a consequence, we are far from meeting the 1.5°C target formulated in the Paris Agreement. Also, with regards to social topics, companies face exceeding difficulties to grasp their impacts on, for instance, human rights in their supply chains. Attempts to manage these are often superficial, and don't address the root causes of negative impacts, such as structural inequalities in producing countries (Bartley, 2018).

To address these issues, many regulators, managers, investors, and scholars have now put their hope in the transformative power of increased transparency and accountability through impact measurement and monetary valuation (IMV). These measurement approaches not only seek to better quantify corporate environmental and social impacts, but also to allocate financial values to externalities, usually through methods such as shadow pricing or willingness-to-pay assessments. In doing so, this approach seeks to widen the toolbox of corporate sustainability-related measurement, which, in the last decade, has depended heavily on investor-focused environment, social, and governance (ESG) ratings and rankings. Recently, research has, however, called into question the ability of such ESG data to deliver complete and reliable assessments of corporate sustainability—pointing to problems such as self-selection, low data quality, or "ESG divergence," meaning that a company can have a high score in one rating and a low score in another (Berg et al., 2022; Chatterji et al., 2016). Additionally, efforts of sustainability disclosure regulation and standardization have emerged with tremendous speed. Especially with the introduction of the Corporate Sustainability Reporting Directive (CSRD) in the EU and the new global International Sustainability Standards Board (ISSB) standards, increased availability and comparability of corporate sustainability information is meant to heighten stakeholder pressure, helping to hold companies accountable for their impacts and incentivize and accelerate a sustainable transformation. Whether such standards and increased transparency can deliver on this promise, however, remains to be seen.

These developments highlight just how dependent we, in society and markets, are on measurements and numbers in our assessment of corporate sustainability (see, e.g., Arjàlies & Bansal, 2018; Giamporcaro & Gond, 2016; Power, 2004). Yet, the quantification of topics so complex as corporate environmental and social impacts often has a Janus face. While it may very well enable managers and companies to better internalize externalities, it can also be a dangerous tool of abstraction and commodification, potentially hindering instead of enabling real sustainability transformation (Brennan & Jaworski, 2015; McGraw & Tetlock, 2005; Satz, 2012). Yet as ecological destruction and social instability intensify, people will rightfully seek and ultimately demand alternate paths to restore balance to our natural, social, political, and economic systems. Questions of alternative performance, impact definition, and measurement, even monetization therefore must be critically discussed. In this context, our curated dialog is meant to take a step back and critically reflect on the latest sustainability quantification movement—that of IMV. We do so by posing the following questions: *What are the potential merits and pitfalls of defining, measuring, and monetizing corporate environmental and social impact?* And *what are potential modifications and alternatives to ensure a balanced management of companies' "impact" on the world?*

We invited fifteen distinguished colleagues, who are experts in the field, to reflect on these questions. The colleagues we chose have all previously worked and published on the topic of corporate environmental and social impact and its measurement or valuation. It was also important to us to invite authors from different fields (notably management, entrepreneurship, accounting, and business ethics), to shed light on the problem from various angles. Readers will find that not all individual pieces of this dialog are in agreement. Instead, we offer a broader perspective on how impact, as well as its measurement and valuation can be viewed distinctively through different lenses. To structure this dialog, we split the essays into three sections along the three core components of IMV and the challenges that are associated with these elements. Concretely, we ask: (a). What do we mean by "impact," and how do we assess it (the "I")? (b). How do we account for companies' environmental and social impacts (the "M"), ensuring that we do not only manage what is easily measured, but also capture that which is implicit, intangible, and thus in principle unmeasurable? (c). When and how is it (in)appropriate to use monetary valuation for impact assessment, and what are the (un)intended consequences that go hand in hand with monetizing and thus commodifying environmental and social impacts (the "V")? In the following, our curated dialog offers responses and reflections on these questions.

In the 'Challenge 1: Defining Impact' section, the challenge of defining "impact" is at the core of our dialog. The discussion delves into the problem that various stakeholders have varying understandings and interpretations of what corporate "impact" means. Common to most impact definitions are open questions of additionality (would a certain impact have occurred without the company?) and intentionality (did the company mean to create this impact?). Furthermore, insights into the performativity of varying impact definitions (Beunza & Ferraro, 2018), that is, how such nuances of impact and its definition affect the views

of management about sustainability, are largely absent from the discourse.

Linking to this in the opening essay, *Amyn Vogel and Alnoor Ebrahim* highlight how the consideration of organizational ecosystems and the understanding of "collective impact" is important. They identify four pillars essential to addressing the complexities of "ecosystem strategies." In the following essay, *Andreas Rasche* reflects on this question in the context of recent regulatory developments, and the concept of double materiality which is a cornerstone of the EU's understanding of corporate sustainability. Rasche outlines why this concept is important and how both financial and impact perspectives are needed and complementary—but also how they require separate logics to prevail. Finally, *Andrew King and Kenneth Pucker* take a provocative stance by arguing that the attempt to capture corporate impacts may be a futile exercise. Still, recognizing the importance of the transformation task, King and Pucker argue for a focus on systemic, financial incentives rather than the imperfect assessment of impact.

In the 'Challenge 2: The Translation into Measurement, Accounting and Reporting' section, we zoom in on the challenge of translating impact into measurement, accounting and reporting. Most are intimately familiar with the saying "what gets measured gets managed." Yet, scholarship in the past has also extensively reflected on the downside of reducing facts to simple numbers without recognizing the social construction that underlies their creation and the potential dominant logics that they may carry into systems (e.g., Bermiss et al., 2014; Eccles et al., 2019; Espeland & Sauder, 2007; Porter, 1995). This brings out the tensions we face when making things "countable," which doesn't automatically translate into making them "count." To appreciate this further, it is helpful to consider measurement in the context of narratives (Burchell et al., 1980). Take regulation as an example: backlashes against ESG in the United States face off against an agenda to "level the playing field" in the context of swooping new reporting regulations in the EU. In both cases, the (dis-) appreciation for corporate sustainability related numbers is deeply embedded in political narratives. Understanding impact measurement in each context is thus only possible in combination with these narratives.

Reflecting on this, *Juliane Reinecke and Richard Barker* open this section by discussing how sustainability and "impact" considerations create an entirely new temporality for reporting and management, which is often not fully appreciated yet. They underline that this requires new tools and logics, which may have to shift away from tools, logics, and capabilities of existing systems, such as financial reporting. Picking up on this, *Giovanna Michelon and Stuart Cooper* further expand on the challenges of "accounting" for impact. They outline how traditional systems run into challenges with (a) combining stakeholder views, (b) incorporating uncertainty in substance and measurement, and (c) the corporate culture that a focus on financial measures has created. The authors thus highlight important systemic contingencies that underlie the missing integration of impact considerations at the firm-level. *Dror Etzion* closes this section with another provocative thought: Is the problem perhaps data itself? By focusing on what he calls the "data treadmill," Etzion invites us to think about the imperfectness of quantitative assessments and their potential detriment from a more fundamental perspective.

Finally, the 'Challenge 3: Monetary Valuation and "Financialization"' section focuses on the challenge of assigning monetary values to corporate environmental and social impacts, and the associated "financialization." Many have discussed the implications of expanding market norms into social norm-based exchanges (Sandel, 2012; Satz, 2012), but few have considered this in relation to corporate impact and its measurement. Related fields of study include research on "taboo tradeoffs" (McGraw & Tetlock, 2005), commodification (Brennan & Jaworski, 2015; Satz, 2012), and conflicts between social and market norms (Heyman & Ariely, 2004). Regarding emerging methods, there is a critique with regard to the political elements of valuation (Thomson, 2021), and lack of transparency, peer review, and validity of methods (Bebbington & Antheaume, 2021). Furthermore, method development often lacks participation and, thus, legitimation, leading to criticisms of new forms of colonialism (Darian-Smith, 2016; Frenkel & Shenhav, 2003), where a group of (usually Western) experts is developing views of impact which affect people worldwide. Finally, aggregating and "netting" of positive and negative monetary impacts—practiced by industry alliances such as the Value Balancing Alliances—has been criticized extensively due to the known moral limits of cost-benefit analyses and utilitarianism (Lowry & Peterson, 2012; MacIntyre, 1992; Nussbaum, 2000).

Reflections on the challenges of impact valuation are particularly pertinent considering the remaining questions that exist around impact definitions (challenge 1: defining impact section) and impact measurement (challenge 2: the translation into measurement, accounting and reporting section). In other words: How can we value that which we not fully understand? In their contribution, *Marya Besharov* and *Karim Harji* argue that assessments of financialization should go beyond simple pros and cons. Using examples from impact investing, they illustrate how financialization has advanced comparability and adoption, while also prompting alternative approaches that better account for context and stakeholder perspectives. Taking a more decided stance, *Colin Mayer* follows with a critical essay, highlighting that we should include values in existing financial valuation rather than attempting to financialize values. He brings forth the idea of a "just profit," springing from values in financial assessments. To round up this section and our curated dialog, *Nien-hê Hsieh and Emma van den Terrell* take on the ethical perspective in relation to monetary

valuation of impacts. Building on considerations of morality and responsibility, the authors highlight how commodification often breaches ethical boundaries—particularly where "netting" of impacts is involved. With this, they close the dialog by reminding us that numbers are never neutral concepts, but that they inadvertently carry ideas of morality and normativity, which we must critically consider.

In summary, we offer three observations to the readers of this curated dialog before setting them off on their journey through the nine contributions. First, corporate impact—although on everyone's mind these days—remains a multifaceted concept, also in this dialog. We argue that there is value in such (structured) diversity. By pulling together perspectives from management, entrepreneurship, accounting, and business ethics, one naturally invites alternative views on what "corporate impact" means, and what end its assessment should serve. Some see it as an opportunity for investors to better assess social enterprises, others reminisce about its value for transparency, and yet again others consider its relevance as a guiding element to responsible decision making. Recognizing and critically reflecting on this diversity of impact thinking can do much for us in helping to understand the nature and difficulty of the dialog around assessment in this space and should also guide the reader through the following contributions.

Second, while environmental and social impact debates are naturally linked—particularly if perceived through a system's lens—we suggest that there is merit in also recognizing these spaces separately given the unique challenges. By default, many examples that are chosen for impact measurement focus on the environmental impact dimension, since measurement is oftentimes easier and practical applications are more widely spread. Yet, the social dimension is where assessments often become more normative, and where ethical issues and tradeoffs become more obvious. Examples range from human rights issues in supply chains (e.g., monetary valuation of child labor) to assigning monetary values to fatal accidents and, thus, putting a price tag on human lives. The practice of impact measurement and valuation in such areas is facing issues that relate to, for example, the moral limits of markets, commodification, and incommensurability. The "social" is thus where even more insights and reflections are needed. For each contribution, we invite the reader to reflect on both the (environmental and social) applications and limits of impact measurement and valuation.

Finally, we invite the reader to take this dialog as an invitation to identify and recognize the need and many opportunities for new research in this area. The following contributions give us a holistic picture of important considerations of context, regulation, stakeholders, time, values, and ethical boundaries in impact measurement and valuation, highlighting just how broad the concern and debate in this field is. Each of these areas links to a rich tradition of critical academic thinking, but also offers insights into (research) paths not (yet) taken. For example, we need empirical evidence to outline the desired need as well as the potential undesired effects of corporate decisions that rely on monetary impact values. There is also ample need for case studies and a deeper understanding of the mechanisms on ethical tradeoffs and how they are managed, or the questions of global (in)justices that may arise. We hope this curation will inspire some new questions and work in this area, so that the dialog continues in a well-informed manner.

Challenge 1: Defining Impact

Ecosystem Impact: Four Pillars

Amyn Vogel and Alnoor Ebrahim

At the heart of the grand societal challenges of our time—from climate change and global health pandemics to disinformation and the risks of generative artificial intelligence—is the question of how to deliver and assess "impact." What do we mean by "impact" and how can managers of organizations be strategic about creating and measuring it?

While these questions are relatively new in the context of corporations and markets, they have long been foundational to the work of nonprofit and public sector organizations. Drawing on this adjacent literature, we adopt a simple definition of impact: the "difference made" by organizations on society and the environment. While diverse stakeholders often have varying perspectives on what impacts matter, a crucial task of leadership is to be intentional in setting specific impact goals, and thereby to integrate those goals into business strategy. A vast literature on impact offers managers tools for clarifying their models of cause and effect (theory of change), developing indicators along that causal path (logic models), and methods for conducting rigorous evaluations (Benjamin et al., 2023).

There are two especially fraught challenges confronting any organization that seeks to deliver impact: the *causal complexity* of change, where the pathways to impact are often nonlinear, multidirectional, and poorly understood; and *limited control* over all the factors necessary for producing impact, even when the causal pathways are well understood. In practical terms, this means that impact, aiming at overcoming grand societal challenges, cannot be achieved by organizations acting in isolation from one another. These challenges are glaringly apparent in global efforts to combat climate change and zoonotic diseases.

What, then, is a manager to do? Addressing complex societal challenges requires an "ecosystem strategy" that brings together the fragmented actions of disparate actors into a coherent whole. Thereby, we refer to the interactive and cooperative participation of different organizational entities with the purpose of tackling societal and ecological challenges (Adner, 2017; Kania & Kramer, 2011; Sadri et al., 2025).

To achieve this, we identify four main pillars of an ecosystem strategy (Ebrahim, 2019). The first is developing a

"system framing" which requires mapping the larger organizational ecosystem and identifying levers for intervening in it (Meadows, 2008). Who are the key players that are likely to affect outcomes? What are their relationships with one another? What are the negative and positive impacts produced by this system? Where is the system fragmented, and where are the opportunities for better integration?

Building on this system framing, the second key pillar is the creation of a strategy that enables collaboration among actors with complementary skills and capabilities. What might a more coherent ecosystem look like, where single organizations (or "niches") act in concert to address a problem? How can the relationships between key players—corporations, nonprofits, or government—be restructured to deliver better impacts for society? Cross-sector partnerships offer promise for tackling problems as wide-ranging as water management and artificial intelligence (Sadri et al., 2025), as do integrated models of healthcare that address social determinants such as isolation, literacy, and psychological constraints (Vogel et al., 2023). In a similar spirit, blended forms of finance offer ways of funding impact that take advantage of the varying risk appetites of investors.

This brings us to the third pillar of ecosystem impact: clear and measurable system-level outcomes. What are the core impact goals that bind various players together—and which cannot be achieved alone? A prominent example is the rise in global surface temperature goal of 1.5–2°C negotiated under the Paris Agreement by 196 parties. Such a system-level goal is not only a powerful expression of shared values among diverse actors, but it also provides a focus on results that actually matter for society. At a smaller scale, many communities across the United States have set a target of zero chronic homelessness, which can only be achieved through cross-sector collaboration among for-profit housing developers, nonprofit service providers, and municipal governments that set zoning rules and budgets for housing.

But such outcomes are unlikely to be sustained without accountability for results, the fourth pillar. Absent a means of rewarding or enforcing both collective and firm-level targets—through auditing and ratings systems that value social and environmental performance on par with financial results, systemic financial incentives that reward long-term strategy, and regulatory and legal regimes that align private with collective benefits—there will be few incentives for managers to prioritize, create, and measure ecosystem impact.

Financial and Impact Materiality—Two Sides of the Same Coin

Andreas Rasche

The discussion of ESG-related impact measurement is intertwined with the debate around how firms should assess the significance ("materiality") of ESG topics (Garst et al., 2022). Advocates of *financial materiality* believe that firms should focus on those ESG issues that affect a company's financial bottom line. Financial materiality aims at meeting investors' information needs by focusing on economically relevant ESG risks. This perspective became a key pillar of the ISSB reporting standards. Advocates of *impact materiality* suggest that firms should also select ESG topics based on the effects that a firm creates on people and planet. The determination of impact materiality involves stakeholder feedback and can thus significantly help to define the social impact of firms. It is a key pillar underlying the EU's CSRD. While the CSRD considers financial materiality it also requires firms to disclose their societal impacts (resulting in a "double materiality" approach that combines financial and impact perspectives).

In 2023, ISSB Chairperson Emmanuel Faber called the EU's double materiality approach "simplistic" as well as an "ambitious choice" (Faber, 2023). He voiced three criticisms, which we want to put into perspective. First, he argued that impact materiality lacks a common denominator, as impact on people and planet cannot always be expressed in economic terms. It is indeed true that not all social and environmental impacts can (and should) be valued in monetary terms (Fourcade, 2011). One limitation is that the salience of such impacts depends on stakeholders' preferences. The salience of a labor rights violation is experienced differently by the affected worker, the company committing the harm, and the regulator trying to find a solution. However, this does not imply that we end up with a "myriad of piecemeal uses of information" (Faber, 2023). A labor rights violation remains a labor rights violation even when we cannot express its effects objectively in monetary terms. This is why the European Sustainability Reporting Standards do not ask firms for economic valuations of impacts but instead require assessing the scale, scope, and irremediability of these impacts. Another limitation of Faber's argument relates to the role of economic valuation of ESG impacts. After all, there is also a business case for corporate unsustainability. So, valuing ESG impacts purely from a monetary perspective may allow companies to justify unethical or unsustainable impacts on ESG issues.

Faber's second critique focused on his belief that it is too much work to account for all ESG impacts due to measurement problems (e.g., local impacts on biodiversity). His argument is that measuring all ESG impacts (i.e., the positive and negative impacts that a firm has on ESG issues) in a precise way is unrealistic. Some ESG impacts are indeed difficult to measure, especially because standardized metrics are lacking. But how much precision is necessary to judge whether an impact is material? Many ESG impacts are measured through narrative disclosures which entail discretionary decisions. Such discretionary decisions also exist in financial accounting, just think of the rich debate around fair value accounting (Black et al., 2022). Neither financial nor impact measurement represent an objective reality.

Finally, Faber suggests that impact disclosures are not the same as real-world impact. Focusing on double materiality could therefore "obscure the need for political ambition" (Faber, 2023) as politicians may believe that regulating the *disclosure* of ESG impacts is sufficient to trigger actual *performance*. In other words, the disclosure of ESG impacts will force companies into action and hence undermine future political ambitions to effectively regulate sustainability. Of course, we can expect politicians and other stakeholders to know that more ESG disclosures do not ipso facto lead to more sustainability actions (see e.g., Michelon et al., 2015). There is even room for arguing the opposite: impact disclosures can trigger political ambitions because they create transparency around how firms affect people and planet. Such transparency is badly needed and can pave the way for politicians to regulate corporate activities in more fine-grained ways (see also *Barker* and *Reinecke* below).

We should not fall into the trap of arguing for either financial or impact materiality. The problem is that there is no common standard for comparison. Both types of materiality reflect two sides of the same coin. A firm's societal impact has financially material effects, while financially material information also shapes long-term ESG impact (e.g., by steering capital allocation). To put it simply: we need a both/and approach to materiality, not an either/or one. In practice, such a both/and approach requires that companies truly assign equal importance to ESG risks and impacts when designing their sustainability strategies. Above all, this requires deep and honest stakeholder engagement so that actual and potential impacts as well as stakeholder preferences can be adequately judged, and materiality thresholds determined. Such a stakeholder-centric approach to materiality helps companies to frame and understand the economic, social, and ecological systems with which they interact over longer time horizons (see also the contribution by *Vogel* and *Ebrahim* above). Adopting such a perspective blurs the distinction between financial and impact materiality because it links companies' effects on social and ecological systems with potential economic consequences (Grewatsch et al., 2023). A reductionist view, which is exclusively focused on financial materiality, does not capture that in the long run companies' ESG impacts will have direct or indirect financial consequences (e.g., because of reputational effects).

Valuing the Environmental and Social Impact of a Company

Andrew King and Kenneth Pucker

In June of 2021, activist investor Engine No. 1 forced ExxonMobil to replace three members of its board with three directors more attuned to issues of sustainability. Environmentalists hailed the change and projected the transformation of Exxon as a more sustainable corporation (Reguly, 2021). They expected that ExxonMobil, and other oil producers, would increase their investments in renewable energy and better manage their existing contributions to climate change. But four years later, ExxonMobil seemed to reverse course by buying Pioneer Natural Resources—a large producer of natural gas. Now, some environmentalists decry the merger as a cynical retrenchment (Colgan, 2023), while others are more sanguine: Eccles (2024) argues that the merger might even be good for the environment because it would put Pioneer under ExxonMobil's stricter schedule for carbon reductions.

How should we judge the impact of ExxonMobil's near $60 billion acquisition? Measuring its financial impact is relatively straightforward. It involves estimating how the valuation of ExxonMobil changes because of the acquisition. But what about the social and environmental impact of the merger? Without a market measure, that is more difficult to determine. It requires estimating how social-environmental impacts will change in response to the acquisition, and such estimates require many assumptions, tradeoffs, and judgments. For example, if the acquisition makes natural gas more readily available, that could reduce human suffering, but also increase pollution. How should impacts of these be calculated and compared? Extraction and pumping of gas may create needed jobs, but also increase inequality. How can the net effect be gauged?

Analysts seeking to value impacts also must consider that systems may respond in unexpected ways. Adding more solar to an energy system may seem like an environmental no-brainer, but it can, in some instances, increase pollution by shifting dispatchable electricity production from gas to coal, because coal plants may be more cost-effective for bridging periods of low solar output. Banning suppliers from employing children to harvest Cacao may seem to advance social welfare, but not if it worsens food insecurity, or if those children end up working in more dangerous occupations, or if the children are replaced by trafficked individuals. Sometimes doing "the right thing" can lead to unintended consequences (see also argument of *Hsieh* and *van den Terell*, or *Etzion* below). The eminent biologist Holling (1978) showed that fire prevention can sometimes endanger forests by creating conditions, such as more forests with dry connected branches, that facilitate hotter and more damaging conflagrations.

So, how can corporate nonfinancial impacts be measured? There are a range of imperfect ways.

The most popular current way is to count each company's seemingly good and bad impacts, assign values to these positives and negatives, and sum them up in an impact valuation (Serafeim & Zochowski, 2020). This approach is supported

by powerful institutions and people, but it has evident problems. Consider a corporation making the material "carbon black." The production process is dangerous and polluting, and the product itself is a possible carcinogen. Intuitively, companies producing carbon black should receive a negative impact valuation. But the material is needed to produce tires and lithium-ion batteries. Close down production of carbon black producers and human welfare would fall. Does that mean they should be judged to have a positive impact? Where does one draw the boundary?

A second method for measuring corporate impact is better. It tries to estimate the net effect of a company on the entire system (Allcott et al., 2023). Remove the carbon black producer and simulate what happens. This means considering how all stakeholders are influenced by the firm, making the net impact of the firm apparent. But there are limitations to this approach, since it requires complex and uncertain modeling. The potential for innovation is particularly difficult to capture. Shortages can increase innovation, setting the entire system into a new state.

A third approach tries to estimate the efficiency of the various impacts. Thus, it assumes that carbon black is needed and valued and asks only: how well did each firm produce carbon black? Did it use a lot of energy resources of a little? Were a lot of workers injured or a few? How good was the product quality? Relative to other firms doing the same thing, is it better or worse? This approach has the advantage of practicality, but it ignores the baseline, and vital system impacts of the company.

We argue that firm impact is, in fact, the wrong level for sustainability measurement. It is akin to measuring the sustainability of an ecosystem by looking at the health of a single species. Ecosystems and economics systems are too complex to evaluate in this way. They must be understood by making system-level interventions, such as a carbon tax or emission limits, and then observing how the system responds. Both economists and ecologists have learned how to manage systems adaptively—making governing changes and then adjusting inputs in response to system-level changes. For example, economic analysis is used to govern rates and supply of money available to banks, and these rates are adjusted as the economy accelerates or slows. In ecology, managers have learned to use inputs of resources to control the health of forests, adjusting as the health of the system varies over time. The sustainability of any single bank, or tree, is immaterial. What matters is the sustainability of the system (see also *Vogel* and *Ibrahim* above).

If corporate impact is to be measured, it should be with regard to the support of these system interventions. Does a company advocate for needed policy changes—such as interventions to reduce carbon emissions (through a tax or permit system)? Is it engaged in precompetitive collaboration with other industry actors? What it does to bring about better system-level control best captures its impact.

Challenge 2: The Translation into Measurement, Accounting and Reporting

Temporality and Sustainability Reporting: The Changing World of Accounting From a Verified Past to an Unanticipated Future

Richard Barker and Juliane Reinecke

The disclosure of sustainability-related risks and opportunities, as required by the ISSB, and the extension to impact reporting, as required by the EU's CSRD, heralds a profound transformation in the temporal orientation of corporate accounting practices (Barker, 2025). This shift moves away from the traditional emphasis on verifying historical data to a proactive engagement with an unpredictable, resource-constrained future. Companies are compelled to confront a new reality shaped by climate change-induced uncertainties and systemic resource constraints. In this essay, we explore this transformation by examining three interconnected temporal shifts.

First, it induces a shift in perspective from operating in an infinite world to a finite world. Financial accounting has historically been designed for individual entities in a context of seemingly infinite resources, with an implicit assumption of perpetual growth. This paradigm, however, is proving increasingly inadequate in the face of mounting systemic constraints and environmental limits. Businesses now face direct implications, such as the availability of raw materials and the resilience of supply chains, and indirect implications, such as shifting technology pathways, changes in consumer behavior, and evolving government regulation. Sustainability reporting requires companies to consider critical biophysical thresholds, such as the planetary boundaries framework that defines the Earth's system limits for a safe operating space for humanity (Rockström et al., 2009). This framework highlights the finite nature of resources and the associated issues of rivalry and potential depletion, emphasizing that business operations are embedded within a broader ecosystem (see also *Vogel* and *Ebrahim* above). This forces critical reflection on the dynamics of systemic behavior, including the challenges of collective action and interdependencies. Addressing resource depletion thus requires coordinated efforts that extend beyond individual actions to encompass the (future) actions of others within a global, interconnected system.

Second, in that context, we cannot rely on financial accounting's traditional focus on past performance. In traditional financial accounting, past *profit and loss* statements have been central to assessing a company's performance. However, in the face of incipient discontinuity and transition, past performance loses some its predictive value, and therefore its relevance to investment decision making. Sustainability reporting instead looks forward and is largely focused on anticipating the financial impact (see also

Rasche above) of *future risks and opportunities.* While financial accounting's retrospective perspective may obscure the risks associated with depleting resources, sustainability reporting's future-orientation actively assesses whether and how a company is adapting to the challenges posed by a looming climate crisis. For instance, companies might evaluate how operations could be disrupted by potential risks of water scarcity, or how green technology could create business opportunity. This shift is vital as it acknowledges that the future cannot be assumed to mirror the past, especially in the face of climate crisis-related disruptions, which confronts companies with tipping points, nonlinear dynamics, unpredictable events or changing opportunity sets and unforeseen potentialities. The Taskforce on Climate-Related Financial Disclosures has therefore recommended the use of tools like scenario analysis. As opposed to forecasting, scenario analysis stimulates imagining "contrasting and divergent frames of the future to help address deep uncertainty" (Lang & Ramirez, 2021). By identifying a reasonable diversity of potential future climate scenarios, such as a 2 °C versus 3 °C scenario, scenario analysis promotes future orientation; companies are not evaluated against the past but in terms of resiliency to a range of plausible climate-related risks and opportunities in the *future*.

Third, sustainability reporting fundamentally reconfigures the temporal flow in corporate accounting. Traditionally, accounting practices have operated on the premise that time flows linearly from the present into the future, projecting cash flows based on past and present performance. This approach has implicitly assumed a stable and predictable environment. However, resource depletion, critical thresholds, and planetary boundaries means that the future exerts a reverse influence on the present, hence changing the arrow of the flow of time (Lord et al., 2015). Thus, sustainability reporting envisions a future that influences the present, altering the temporal perspective. This requires looking ahead into a potential future by setting long-term future targets that align with desired future states, and then working backwards from it to define the necessary steps to achieve those goals, including governance, strategy, risk management and pathways. This approach contrasts with financial accounting, which feeds a valuation approach that relies primarily on future cash flows projected from past and present performance, discounted to adjust for risks of the same. For instance, companies may pledge to achieve net-zero emissions by a specific future date, such as 2040. To meet this target, they create a detailed Transition Plan that outlines actionable steps and interim targets, such as specific reduction milestones for each year, thereby effectively working backward from the future goal to ensure progress is on track. Performance is no longer evaluated solely in terms of past achievements but is instead measured against these future targets.

In sum, sustainability reporting represents a paradigmatic shift in corporate accounting, driven by the recognition of finite resources and a climate crisis-driven world. It departs from the past-oriented temporal assumptions that are implicit in traditional financial accounting, adopting instead a future-oriented corporate perspective that recognizes the constraints of finite resources and systemic interdependencies. It looks forwards to risk and opportunity rather than backwards to historical performance. Finally, it positions corporate reporting as a process of evaluating current performance in relation to future goals rather than documenting incremental improvements to historical performance.

The Challenges of Accounting for Impact

Giovanna Michelon and Stuart Cooper

Accounting aims to provide information that is relevant for decision making, whether the decisions are those of investors assessing the value of corporations or of managers deciding on investments. Yet, there is an extensive literature suggesting that accounting can contribute to significant negative impacts on people and the environment through what it counts for and what it leaves as invisible (Bebbington & Larrinaga, 2014). The new European reporting framework adopting a double materiality perspective (see *Rasche* above) represents a step forward in embedding sustainability impacts into accounting and therefore decision-making. However, whether this will improve the future well-being of the planet and its people will very much depend on how practice will tackle some challenges related to the determination of "material" impacts and their measurement, and the extent to which sustainability impacts will be embedded in key internal decision-making processes.

First, to determine which impacts to report, one challenge relates to how to combine different stakeholder views that may deem as significant certain impacts but not others, and whether some of the highly significant impacts for certain stakeholders may be left out in the process of quantifying and averaging various views. This is why, for example, it is important to engage a broad range of stakeholders that are impacted upon in the phase of identification of material impacts, not just in the prioritization phase. Such engagement will need to mix inclusive dialog techniques with data collection methods and offer transparency as to how divergent stakeholder views are reconciled. More innovatively, and building on *Vogel* and *Ebrahim* (above), stakeholder mapping could adopt a system framing to identify the levers for intervention. Similarly, determination of material impacts relies on the expertise of the stakeholders involved in the process, and one may question whether such stakeholders would be knowledgeable with, for example, the biodiversity implications on aquatic life of hospitality facilities in proximity of a water body. Science and public–private partnerships could have a key role in determining materiality thresholds, although the extent to which businesses engage with experts is not clear.

Other challenges relate to the nature of some sustainability impacts themselves. There is uncertainty about the time horizon in which specific impacts may materialize. For some, such as climate change, science supplies trajectories models and simulations, but not for others, so estimating the likelihood and severity of an impact is highly subjective, even when knowledgeable stakeholders are involved in the process. The narrative component in accounting for material impacts can enhance transparency around such subjectivity. Second, the significance of impacts may be "local"—affecting the context in which they happen, yet when scaled up to an organization's boundaries, they may be deemed as irrelevant. The impact of a new incinerator in an area with high concentrations of particulate matters may be discounted as not material at the organization's level, yet the local impact on people's health will be significant. Whereas traditionally accounting has been conceived for individual entities (see also *Barker* and *Reinecke* above), accounting for material impacts needs explicit consideration of the sustainability context in which those entities operate. In this sense, the sustainability context principle proposed by the GRI standards is useful to assist decisions about which impacts need to be accounted for, given they are contributing to the cumulative impacts of all actors in that local context. Lastly, impacts on ecosystem conditions have a cumulative nature, that is, they cumulate across different actors and over time. Such a problem is for example widely tackled by science on the health of our oceans, and there is some encouraging evidence that sustainable commercial fishing initiatives have decreased anthropological stressors (Halpern et al., 2015), but this is less clear for other ecosystems, for example, in relation to agricultural nitrogen pollution (Schulte-Uebbing et al., 2022).

Notwithstanding the problems of assessing whether a certain impact is material, the measuring of the impact itself is problematic. Even in presence of mature standards and technical protocols, such as in the case of greenhouse emissions, it is recognized that measurement will always embed a degree of uncertainty (Milne & Grubnic, 2011). Uncertainty, and therefore potentially inaccuracy of GHG emissions data, may stem from the model being used or the parameters on which the model is calibrated. So, any measurement of impacts should at the minimum be acknowledged as inherently uncertain (Bebbington & Larrinaga, 2014) and be transparent on the key assumptions being made (Michelon et al., 2020), in an effort to foster learning about the new challenge highlighted by *Barker* and *Reinecke* of "looking ahead" and "working backwards." However, if the underlying data is inherently uncertain, any further step to monetizing such data would simply give the illusion of providing a simple comparable number, whereas the number would be highly subjective, and we caution about advocating monetization in every instance. Furthermore, accounting for impact should happen with a sufficient degree of granularity to provide information about the severity and likelihood of the impacts and the reasons for their occurrence.

Finally, there is still a cultural challenge of embedding sustainability considerations in daily business decisions and accounting tools (Michelon et al., 2024). Sustainability issues are not always considered to be at the core of the business, and are often, from an organizational perspective, siloed and disconnected. Further action is required in developing corporate governance arrangements to enable businesses to navigate complex sustainability issues and foster integration of impact concerns in the business model. Also, we highlight the key role that management accounting has in addressing the possibility of internal, substantive change and that incorporation of sustainability impacts in management control systems and internal decision making is indicative of authentic commitment (Garcia-Torea et al., 2022). Whether and how firms embed considerations of sustainability impacts in the decision making of managers are at present open questions.

The Data Treadmill

Dror Etzion

Discomfort with data on business sustainability is nearly as old as the data itself. No small amount of effort has been expended on understanding and describing data deficiencies, and on devising ways to fix them. As shortcomings come to light, new data sources arise, with the goal of being better calibrated, more comprehensive, more up-to-date. Inevitably, each endeavor is revealed after some time to be imperfect, flawed, limited, not up to the task. Every attempt to improve data quality and quantity is met with an equal and opposite critique demolishing its credibility and utility. One can predict, perhaps not too rashly, that future data collection initiatives—supercharged with smart devices and artificial intelligence?—will garner excitement, followed not much later by a sober reassessment. This ceaseless cycle of tweaks and refinements constitutes a data treadmill: constant movement but no arrival at a destination.

Curiously enough, decades of this dynamic have led data providers and reporting organizations not to deep reflection and reconsideration, but rather to a doubling down. Organizations don't seem to be able to stop collecting and reporting data. Too many processes have been built upon generating, analyzing, and reporting it. Too many people have learned how to organize their lives around it, game it, withhold and provide incentives based upon it. Businesses can modify and rejigger their sustainability data, laboriously, but it is not easy to jettison, in whole or in part.

It may be time to concede that business sustainability data are inevitably error-prone, incomplete, poorly weighted and aggregated, subject to manipulation, and hard to verify (Callery & Perkins, 2021; Chatterji et al., 2016). Systemic,

ripple and spillover effects of corporate sustainability efforts —critical information, in my mind—remains impervious to measurement. As *King* and *Pucker* conclude in their essay above, accurately and comprehensively measuring the impact of every firm is an "impossible task."

But are these imperfect efforts better than nothing? I would assert that the data treadmill is not innocuous or a mere distraction. It creates resistance and breeds disenchantment. Sustainability data serves few (primarily consultants and analysts), pleases fewer, and outrages many. The critiques come from all directions. Antigreenwashing activists are as indignant as the anti-ESG crusaders. The former are sure that the data belies the truth; the latter that the data reveals underlying intentions all too well.

Yet, these outcries haven't impeded advocates from trying to do better, based on the belief that data are essential for motivating and spurring desirable action. There are several pathways through which this might be plausible. Data may generate awareness that will orient organizational efforts (Porter & van der Linde, 1995). Data may factor into market decisions that will discipline corporate behavior and orient future action (Slager & Chapple, 2016). Data may stoke umbrage, thence shame, and thereby self-correction (Bartley & Child, 2014). Or perhaps the opposite—data may spur a race to the top, and thereby secure customer loyalty. Underlying these theories of change are big assumptions about how data works in the world. Some pathways are founded on an information deficit model of change (Suldovsky, 2017). Others adulate the action of markets. All assume that knowledge precedes and directs action. A lot of ifs.

A disconcerting reality is that transforming sustainability into data, through quantification, is the essential first step of considering sustainability to be an economic good. Once data are available, the move to valuation and monetization is not even a leap—it is a clear path on well-trodden ground. I have increasing admiration for indigenous cultures that simply cannot and therefore will not assign numbers to natural systems. My own brain does this all too easily alas, and I suspect I am not alone. I am skeptical that indigenous worldviews will gain much traction outside their communities, even though in North American institutions of higher learning we invoke their names and traditions regularly. But I think the world would be impoverished if their data-deficient way of engaging with sustainability were to vanish.

Here in the modern West, Schendler and Jones (2018) write eloquently about the sources of motivation for working on climate change; it "endow[s] our lives with some of the oldest and most numinous aspirations of humankind: leading a good life; treating our neighbors well; imbuing our short existence with timeless ideas like grace, dignity, respect, tolerance and love." No mention of data.

Numbers—these bloodless symbols—tend to push values and ideals into the background. But I am not certain that this serves us. Are we prepared to bet that sustainability data is a path to salvation? That we can avoid difficult conversations around messy topics like justice, and fairness, and harm, about life and death? These are disquieting and delicate topics, often uncomfortable to dwell upon. They require introspection, discussion, and debate. Thinking and conversing about them is not easy, but it is necessary. On their own, without ideological and cultural grounding, sustainability data won't cure what ails us.

Challenge 3: Monetary Valuation and "Financialization"

(En)countering the Financialization of Impact Measurement

Karim Harji and Marya Besharov

Amid diverse attempts to measure the benefits and costs of social impact initiatives (Benjamin et al., 2023; Ormiston, 2019; Michelon and Cooper, above), recent developments have emphatically advanced financialization—the use of principles, tools, and mindsets associated with a market logic that emphasizes efficiency and quantification (Chiapello, 2023; Mau, 2019). Existing assessments of financialization tend to either laud its direct benefits or emphasize its shortcomings. For example, some analysts have concluded that standardization and comparability of impact metrics, a core motivation of financialization, is necessary to attract interest and capital from mainstream investors (Zochowski et al., 2022). Others have argued that by simplifying complex social changes into comparable metrics, standardization produces an overly reductive approach that often fails to capture holistic social and environmental impact (King & Pucker, 2021; see also the essay of Michelon and Cooper above). Yet by adopting a relatively narrow, either/or lens, both types of assessments only focus on part of the picture. To fully understand the implications of financialization, we need to widen the aperture and view it in the context of a broader ecology of approaches to impact measurement (Olsen et al., 2019).

The field of impact investing (Hehenberger et al., 2019) provides an illustration. Impact investing includes a diverse range of investment strategies, structures, and investor types that are intentionally seeking both financial returns and measurable social impact (similar to impact materiality, see *Rasche* above). The field is now estimated to involve over one trillion dollars globally. Early impact investing measurement initiatives such as the Impact Reporting and Investment Standards (IRIS), a metrics taxonomy, and the Global Impact Investing Rating Systems (GIIRS), a ratings service, were explicitly designed to mimic measurement approaches in the financial sector (Brandenburg, 2012). Over time, both IRIS and GIIRS gained visibility and adoption by promoting standardization and comparability (Hand

et al., 2020). Yet they also spurred alternatives including some that challenge the dominant financial paradigm.

Initiated in 2008 as a metrics catalog drawing on a range of different sectors, IRIS was housed at the Global Impact Investing Network, and eventually became perceived as a set of standards. Adoption of these standardized metrics grew significantly over the following decade, but investors also continued to use customized metrics alongside them, particularly to capture social impact in context-specific ways. Then, in 2016, a new multistakeholder approach emerged—the Impact Management Project (IMP). Unlike prior efforts, the IMP engaged in a multiyear process of convening stakeholders and securing buy-in for a standard language for describing "impact" across both investors and enterprises—what became known as the "Five Dimensions of Impact" or "Impact Norms." The dimensions were explicitly not presented or imposed as standards. Rather, the dimensions offered fundamental "building blocks" for a common language of impact, while retaining flexibility in how each dimension could be used to describe impact in a context-specific way and to inform impact measurement. The dimensions were also designed to be generalizable—so that they would be accessible to a range of users—and to be interoperable with other standards—meaning that they could work together in a systematic way. Over time, in fact, they became an integrated component of other leading standards, including the upgraded version of IRIS, called IRIS+.

GIIRS was launched in 2011 as a rating system designed to enable standardized and comparative assessments of the impact performance of funds and organizations. While GIIRS developed some momentum among impact fund managers, the approach faced challenges related to difficulty of simplifying the complexity of social and environmental impact ratings and the lack of a sustainable business model, and it was discontinued in 2019 (Barman, 2015). Around the same time, an alternative, bottom-up approach to impact ratings and benchmarking was initiated by the firm 60 Decibels, which leveraged technology to gather data directly at scale from end customers and stakeholders most directly affected by the social problems being addressed (Adams et al., 2017). Compared to GIIRS, which assessed and compared impact performance in a top-down manner, 60 Decibels benchmarks were designed to directly reflect people's lived experiences and accounted for regional, organizational, and sectoral variation.

These examples from impact investing indicate that while the financialization of impact measurement has advanced metric comparability and investor adoption, these are necessary but insufficient conditions to address the range of users and uses of impact measurement. This is particularly the case in the field of impact investing, but it also extends to ecosystem impact (see *Vogel* and *Ebrahim* above). As a result, aggressive financialization has spawned alternative responses that account for context and stakeholder perspectives by design. By prompting the emergence of new initiatives, financialization has indirectly contributed to a more diverse ecology of impact measurement approaches. In some cases, such as IMP and IRIS+, this more diverse ecology may emerge from a collective effort of stakeholder-informed entities that have evolved with some degree of interoperability. In other cases, such as the 60 Decibels stakeholder-derived benchmarks, it may come from the development of standalone approaches that provide compelling and credible alternatives. We should be celebrating these developments and encouraging more of them, because in order to accommodate the complexity of measuring social impact across diverse organizations and multiple stakeholders, we need a plurality of impact measurement approaches.

Value and Values

Colin Mayer

The IMV framework seeks to include financial valuations of environmental and social impacts in corporate profits and valuations. It estimates financial values of human, social and natural world impacts that yield "impact valuations" comparable to financial valuations. This article argues that not only does this raise well-rehearsed objections of creating incommensurable, subjective, and unverifiable measures, netting positive and negative impacts, and risking commoditizing everything, but more fundamentally it is seeking to do precisely the opposite of what is required (see *King* and *Pucker* above*).* Instead of incorporating financial valuation in values, we should be including values in financial valuation (see *Hsieh* and *van den Terell* below*).*

We should not be creating a large, complex, imperfect valuation machinery that fails to address the problem we are trying to solve. The problem is not that there are different measures and targets of human, social, and environmental impacts but that companies are not prioritizing them. They are not avoiding imposing detriments by paying their employees below living wages or their suppliers below fair-trade prices, polluting the environment, emitting global warming gases, depleting species, or damaging communities.

They are not doing this because they are not required to. So long as they create financial value over the long- as well as the short-term, they are under pressure, not only from financial markets but also their fiduciary duties to their shareholders, to avoid the associated costs.

At the heart of the problem is what we mean by a profit or financial value. At present, we measure the profit of a company as simply the revenue earned on its outputs minus the costs of its inputs. Companies are not required to incur the costs of avoiding causing harms for others.

This does not involve valuing nonfinancial impacts. It is a matter of providing qualitative and quantitative measures of the changes brought about by companies' activities, the impact that these are having on those affected and then

measuring the costs of avoiding negative impacts or rectifying or remedying them where they occur. The accounting approach is simply traditional cost accounting, and the costs are not hypothetical or estimated but actual ones of avoiding or mitigating detriments.

While companies can and should be incurring the costs associated with their negative impacts, they cannot magically conjure up the positive ones. They have to identify commercially viable ways of earning income from the benefits they confer on others. They need initiative, innovation and inspiration to do this for what would otherwise remain as "positive externalities." This frequently requires companies to partner with other organizations in the public and not-for-profit as well as the corporate sector. For instance, Novo Nordisk, the Danish pharmaceutical company which produces insulin used in the treatment of diabetes, partnered with companies in the public, private, and not-for-profit sectors in delivering its purpose of "defeating diabetes."

This demonstrates that measurement and valuation are derivative of legal frameworks and business models in which companies and investors recognize that their profitability and financial returns are related to their outcomes and impacts as well as their inputs and outputs. Measurement and accounting for impact come from incorporation of nonmonetary values in valuation, not from inclusion of financial valuation in values.

In the process, attempts to make incommensurable measures comparable are avoided. In place of subjective valuations of human, social, and natural assets are measures of actual costs incurred in preventing detriments and revenues earned from conferring benefits on others. Instead of unverifiable estimates are actual expenditures and revenues that can be audited in traditional cost accounts, and profit and loss statements.

This also reveals the inappropriateness of netting positive and negative impacts. Costs of avoiding negative detriments are fundamentally different from revenues earned from positive benefits. The former are within the powers of companies to realize; the latter are frequently dependent on support from public and philanthropic as well as other commercial enterprises.

Above all, this is not promoting the commoditization of everything or the introduction of markets everywhere. It recognizes that most impacts of companies come within the context of environments and societies where prices are not available, and markets are neither feasible nor desirable. It recognizes the benefits that nonmarket relations confer and the desirability of preserving and enhancing not commoditizing them.

In summary, instead of an IMV framework that seeks to value nonfinancial and material assets and liabilities, we should establish a legal, business and accounting framework that ensures that companies profit from conferring benefits not detriments on others. That is precisely what Danish Enterprise Foundation Law, which underpins the success of Novo Nordisk and other Danish enterprise foundations, does in imposing obligations on foundations to uphold the purposes of enterprise founders, and ensuring that foundations do not abuse their privileged position (see Sanders & Thomsen, 2023).

Companies should determine the outcomes they bring about and the impacts that they have on others. They should ensure that they incur the costs of avoiding detriments and cleaning up the mess they create. They should find ways of commercializing the benefits they confer and earning revenue streams from them (see Mayer, 2024 for details on implementation).

They should then measure their profits and financial valuations in traditional ways based on standard cost accounting and projected cash flows. In the process they will derive "true costs" of preventing detriments for others and "just profits" that reflect their true costs and revenues earned from what would otherwise remain as externalities.

Ethical Issues for Impact Measurement and Valuation: Responsibility, Relevance, and Reform

Nien-hê Hsieh and Emma van den Terell

In the pursuit of a socially responsible and environmentally sustainable economy, great promise has been attached to IMV. The assignment of monetary values to a company's impact on society and the natural environment promises much, including more informed decision making on the part of managers and greater accountability on the part of business. At the same time, questions have been raised—many of them in this issue—about the conceptualization, implementation and utility of this task. In this concluding piece, we make explicit three practical ethical issues that connect to the sorts of questions raised about IMV.

A key challenge for IMV is determining the impact of a company's activities on society and the natural environment. In their essay above, for example, *King* and *Pucker* ask how far out to attribute impact for a company's activities—does the impact of a company that pollutes also include the benefits users derive from using its products? As an alternative, rather than try to isolate the resulting causal chain of each company's activities, *Vogel* and *Ebrahim*, also above, propose assessing the societal-level impact of business activity taken together as a whole.

We argue that the impact of a company's activities cannot be fully specified without making explicit an ethical theory that specifies the responsibilities of companies (see also *Mayer* above). Consider, for example, GHG emissions from automobiles. Although these emissions are part of the causal chain resulting from the activities of oil companies, there is debate about how much to hold oil companies responsible for what users of their products do. If the aim

of IMV is to hold companies accountable for the impact of their activities, some may argue that these emissions should not be counted against an oil company's impact even though they are part of the causal chain resulting from the company's activities. Even under *Vogel* and *Ebrahim's* proposal, there remains the question of how to determine the responsibility of any one company. Determining impact is not only an empirical issue (see *Michelon* and *Cooper* above on uncertainty and the need for scientific expertise), but also an ethical one. Assigning *responsibility* is the first practical ethical issue we raise for IMV.

Another challenge raised for IMV is the need to assign a monetary value to that which is considered intrinsically valuable and unquantifiable (on commodification more generally, see for example, Sandel, 2012; Satz, 2012). Consider a practice widely regarded as objectionable and one for which a company should be held accountable—the use of child labor in an apparel company's supply chain. In assessing the impact of child labor, it is possible to estimate the loss in GDP owing to children deprived of education—for example, as done by the Value Balancing Alliance—but how should we measure in monetary terms the loss of other important values such as childhood or freedom from abuse? This leads some authors to caution that numbers implicitly prioritize certain types of values (Islam, 2022) and push away value judgments altogether (see *Etzion* above).

We make explicit a second practical ethical issue, which concerns the *relevance* of assigning monetary values altogether for certain impacts in the first place. In defending the EU's double materiality approach, *Rasche* argues that lacking monetary valuation for certain impacts is not a problem—"a labor rights violation remains a labor rights violation even when we cannot express its effects objectively in monetary terms." Building on this, we ask what about the relevance of assigning a monetary value to a labor rights violation like the use of child labor. Assigning a monetary value to child labor in a company's supply chain does not appear to be required for a company to undertake action. The reason for including child labor among potential impacts in the first place is that the company views it as a harm or a wrong, something to be avoided. This is not to say that the children do not deserve some form of monetary compensation, but this is distinct from assigning a monetary value to child labor from the standpoint of society. In addition, while the overall valuation of the company may improve by avoiding suppliers that use child labor, this does not inform what else the company should do to address child labor (Merry, 2016). At a minimum, a process of corporate moral repair may be required before stating that harm will be reduced in the future (Vives-Gabriel et al., 2022).

The third ethical issue we raise is whether the focus on IMV and corporate impact assessment more generally diverts attention from difficult ethical debates about broader institutional *reform* that may be needed for a socially responsible and environmentally sustainable economy. Corporate impact assessment occurs within the context of contemporary capitalism, and even the more far-ranging proposals put forward—for example, using financial incentives (*King* and *Pucker* above) and incorporating "true costs" into the corporate balance sheet (*Mayer* above)—appear to take as given its basic contours. Many scholars and practitioners, however, argue that more fundamental changes are needed, including reductions in global consumption and economic growth. How these transitions are managed and how the benefits and burdens are distributed raise challenging ethical questions, including questions about justice, colonialism, governance, and individual autonomy.

A Curated Dialog for *Journal of Management Inquiry*

Judith C. Stroehle, Ali Aslan Gümüşay, Laura Marie Edinger-Schons, Amyn Vogel, Alnoor Ebrahim, Andreas Rasche, Andrew King, Ken Pucker, Richard Barker, Juliane Reinecke, Giovanna Michelon, Stuart Cooper, Dror Etzion, Karim Harji, Marya Besharov, Colin Mayer, Nien-hê Hsieh, and Emma van den Terell.

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ORCID iDs

Judith Stroehle https://orcid.org/0000-0003-1142-9315
Ali Aslan Gümüşay https://orcid.org/0000-0003-3252-7600
Amyn Vogel https://orcid.org/0000-0003-4756-4252
Andrew King https://orcid.org/0000-0003-4153-0326
Juliane Reinecke https://orcid.org/0000-0001-5674-4218
Giovanna Michelon https://orcid.org/0000-0003-0107-9809
Stuart Cooper https://orcid.org/0000-0002-7049-8292
Dror Etzion https://orcid.org/0000-0002-5885-5031
Marya Besharov https://orcid.org/0000-0003-4868-6251
Emma van den Terrell https://orcid.org/0000-0001-5782-0657

References

Adams, T., Ripley, M., & Speyer, A. (2017). *At the heart of impact measurement, listening to customers*. *Stanford Social Innovation Review*.

Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management*, *43*(1), 39–58. https://doi.org/10.1177/0149206316678451

Allcott, H., Montanari, G., Ozaltun, B., & Tan, B. (2023). An economic view of corporate social impact (No. w31803). *National Bureau of Economic Research*.

Arjaliès, D. L., & Bansal, P. (2018). Beyond numbers: How investment managers accommodate societal issues in financial decisions. *Organization Studies*, *39*(5–6), 691–719. https://doi.org/10.1177/0170840618765028

Bansal, P., & Song, H. C. (2017). Similar but not the same: Differentiating corporate sustainability from corporate responsibility. *Academy of Management Annals*, *11*(1), 105–149. https://doi.org/10.5465/annals.2015.0095

Barker, R. (2025). Corporate sustainability reporting. *Journal of Accounting and Public Policy*, *49*, Article 107280. https://doi.org/10.1016/j.jaccpubpol.2024.107280

Barman, E. (2015). Of principle and principal: Value plurality in the market of impact investing. *Valuation Studies*, *3*(1), 9–44. https://doi.org/10.3384/VS.2001-5592.15319

Bartley, T. (2018). *Rules without rights – Land, labor and private authority in the global economy*. Oxford University Press.

Bartley, T., & Child, C. (2014). Shaming the corporation: The social production of targets and the anti-sweatshop movement. *American Sociological Review*, *79*(4), 653–679. https://doi.org/10.1177/0003122414540653

Bebbington, J., & Antheaume, N. (2021). Externalities and decision-making. In *Routledge handbook of environmental accounting* (pp. 224–235). Routledge.

Bebbington, J., & Larrinaga, C. (2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*, *39*(6), 395–413. https://doi.org/10.1016/j.aos.2014.01.003

Benjamin, L., Ebrahim, A., & Gugerty, M. K. (2023). Nonprofit organizations and the evaluation of social impact: A research program to advance theory and practice. *Nonprofit and Voluntary Sector Quarterly*, *52*(1S), 313S–352S. https://doi.org/10.1177/08997640221123590

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315–1344. https://doi.org/10.1093/rof/rfac033

Bermiss, Y. S., Zajac, E. J., & King, B. G. (2014). Under construction: How commensuration and management fashion affect corporate reputation rankings. *Organization Science*, *25*(2), 591–608. https://doi.org/10.1287/orsc.2013.0852

Beunza, D., & Ferraro, F. (2018). Performative work: Bridging performativity and institutional theory in the responsible investment field. *Organization Studies*, *40*, 515–543. https://doi.org/10.1177/0170840617747917

Black, J., Chen, J. Z., & Cussatt, M. (2022). Managerial discretion and the comparability of fair value estimates. *Journal of Accounting and Public Policy*, *41*(1), Article 106878. https://doi.org/10.1016/j.jaccpubpol.2021.106878

Brandenburg, M. (2012). Impact investing's three measurement tools. *Impact Investing's Three Measurement Tools*. https://ssir.org/articles/entry/impact_investings_three_measurement_tools

Brennan, J., & Jaworski, P. M. (2015). Markets without symbolic limits. *Ethics*, *125*(4), 1053–1077. https://doi.org/10.1086/680907

Burchell, S., Clubb, C., Hopwood, A., Hughes, J., & Nahapiet, J. (1980). The roles of accounting in organizations and society. *Accounting, Organizations and Society*, *5*, 5–27. https://doi.org/10.1016/0361-3682(80)90017-3

Callery, P. J., & Perkins, J. (2021). Detecting false accounts in intermediated voluntary disclosure. *Academy of Management Discoveries*, *7*(1), 40–56. https://doi.org/10.5465/amd.2018.0229

Chatterji, A. K., Durand, R., Levine, D. I., & Touboul, S. (2016). Do ratings of firms converge? Implications for managers, investors and strategy researchers. *Strategic Management Journal*, *37*(8), 1597–1614. https://doi.org/10.1002/smj.2407

Chiapello, E. (2023). Impact finance: How social and environmental questions are addressed in times of financialized capitalism. *Review of Evolutionary Political Economy*, *4*, 199–220. https://doi.org/10.1007/s43253-023-00104-y

Colgan, J. D. (2023). *Exxon Mobil's pioneer acquisition is a direct threat to democracy*. *New York Times*. October 18, 2023.

Darian-Smith, E. (2016). Mismeasuring humanity: Examining indicators through a critical global studies perspective. *New Global Studies*, *10*(1), 73–99. https://doi.org/10.1515/ngs-2015-0018

Ebrahim, A. (2019). *Measuring social change: Performance and accountability in a complex world*. Stanford University Press.

Eccles, R. (2024). *Is ExxonMobil's acquisition of pioneer good news or bad news for climate change? Forbes*. January 20, 2024.

Eccles, R. G., Lee, L.-E., & Ströhle, J. C. (2019). The social origins of ESG: An analysis of innovest and KLD. *Organization & Environment*, *33*(4), 575–596. https://doi.org/10.1177/1086026619888994

Espeland, W. N., & Sauder, M. (2007). Rankings and reactivity: How public measures recreate social worlds. *American Journal of Sociology*, *113*(1), 1–40. https://doi.org/10.1086/517897

Faber, E. (2023). Comptabilité d'entreprise: Exiger que la matérialité s'étende au-delà du domaine économique est en réalité simpliste. *Le Monde*. https://www.lemonde.fr/idees/article/2023/10/10/comptabilite-d-entreprise-exiger-que-la-materialite-s-etende-au-dela-du-domaine-economique-est-en-realite-simpliste_6193607_3232.html

Fourcade, M. (2011). Cents and sensibility: Economic valuation and the nature of "nature". *American Journal of Sociology*, *116*(6), 1721–1777. https://doi.org/10.1086/659640

Frenkel, M., & Shenhav, Y. (2003). From Americanization to colonization: The diffusion of productivity models revisited. *Organization Studies*, *24*(9), 1537–1561. https://doi.org/10.1177/0170840603249006

Garcia-Torea, N., Larrinaga, C., & Luque-Vílchez, M. (2022). Bridging the understanding of sustainability accounting and organizational change. *Organization & Environment*, *36*(1), 17–38. https://doi.org/10.1177/10860266221083339

Garst, J., Maas, K., & Suijs, J. (2022). Materiality assessment is an art, not a science: Selecting ESG topics for sustainability reports. *California Management Review*, *65*(1), 64–90. https://doi.org/10.1177/00081256221120692

Gartenberg, C., Prat, A., & Serafeim, G. (2019). Corporate purpose and financial performance. *Organization Science*, *30*(1), 1–18. https://doi.org/10.1287/orsc.2018.1230

Giamporcaro, S., & Gond, J. P. (2016). Calculability as politics in the construction of markets: The case of socially responsible investment in France. *Organization Studies*, *37*(4), 465–495. https://doi.org/10.1177/0170840615604498

Grewatsch, S., Kennedy, S., & Bansal, P. (2023). Tackling wicked problems in strategic management with systems thinking. *Strategic Organization*, *21*(3), 721–732. https://doi.org/10.1177/14761270211038635

Haffar, M., & Searcy, C. (2018). Target-setting for ecological resilience: Are companies setting environmental sustainability targets in line with planetary thresholds? *Business Strategy & the Environment*, *27*, 1079–1092. https://doi.org/10.1002/bse.2053

Halpern, B., Frazier, M., Potapenko, J., Casey, K. S., Koenig, K., Longo, C., Lowndes, J. S., Rockwood, R. C., Selig, E. R., Selkoe, K. A., & Walbridge, S. (2015). Spatial and temporal changes in cumulative human impacts on the world's ocean. *Nature Communications*, *6*(1), Article 7615. https://doi.org/10.1038/ncomms8615

Hand, D., Dithrich, H., Sunderji, S., & Nova, N. (2020). 2020 annual impact investor survey. The Global Impact Investing Network. https://thegiin.org/research/publication/impinv-survey-2020/

Hehenberger, L., Mair, J., & Metz, A. (2019). The assembly of a field ideology: An idea-centric perspective on systemic power in impact investing. *Academy of Management Journal*, *62*(6), 1672–1704. https://doi.org/10.5465/amj.2017.1402

Heyman, J., & Ariely, D. (2004). Effort for payment: A tale of two markets. *Psychological Science*, *15*(11), 787–793. https://doi.org/10.1111/j.0956-7976.2004.00757.x

Holling, C. S. (1978). *Adaptive environmental assessment and management*. Blackburn Press.

IPCC. (2023). Intergovernmental panel on climate change, AR6 synthesis report: climate change 2023. https://www.ipcc.ch/report/sixth-assessment-report-cycle/

Islam, G. (2022). Business ethics and quantification: Towards an ethics of numbers. *Journal of Business Ethics*, *176*(2), 195–211. https://doi.org/10.1007/s10551-020-04694-z

Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*, Winter, pp. 36–41.

King, A., & Pucker, K. (2021). Heroic accounting. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/heroic_accounting

Lang, T., & Ramirez, R. (2021). Getting the most from publicly available scenarios: 5 ways to avoid costly mistakes. *California Management Review Insights*.

Liu, Z., Deng, Z., Davis, S. J., & Ciais, P. (2024). Global carbon emissions in 2023. *Nature Reviews Earth & Environment*, *5*, 253–254. https://doi.org/10.1038/s43017-024-00532-2

Lord, R. G., Dinh, J. E., & Hoffman, E. L. (2015). A quantum approach to time and organizational change. *Academy of Management Review*, *40*(2), 263–290. https://doi.org/10.5465/amr.2013.0273

Lowry, R., & Peterson, M. (2012). Cost-benefit analysis and non-utilitarian ethics. *Politics, Philosophy & Economics*, *11*(3), 258–279. https://doi.org/10.1177/1470594X11416767

MacIntyre, A. (1992). Utilitarianism and cost-benefit analysis: An essay on the relevance of moral philosophy to bureaucratic theory. In J. M. Gilroy & M. Wade (Eds.), *The moral dimensions of public policy choice* (pp. 179–194). University of Pittsburg Press.

Mau, S. (2019). *The metric society: On the quantification of the social*. Polity Press.

Mayer, C. (2021). The future of the corporation and the economics of purpose. *Journal of Management Studies*, *58*(3), 888–905. https://doi.org/10.1111/joms.12660

Mayer, C. (2024). *Capitalism and crises: How to fix them*. Oxford University Press.

McGraw, A. P., & Tetlock, P. E. (2005). Taboo trade-offs, relational framing, and the acceptability of exchanges. *Journal of Consumer Psychology*, *15*(1), 2–15. https://doi.org/10.1207/s15327663jcp1501_2

Meadows, D. H. (2008). *Thinking in systems: A primer*. Sustainability Insititute and Chelsea Green Publishing.

Merry, S. E. (2016). *The seductions of quantification: Measuring human rights, gender violence, and sex trafficking*. Chicago Series in Law and Society. The University of Chicago Press.

Michelon, G., Cooper, S., Garcia-Torea, N., Chen, X., & Guo, Z. (2024). Materiality assessments in corporate sustainability and financial reporting: Connectivity, practices, processes, and challenges. ICAS Research Report.

Michelon, G., Paananen, M., & Schneider, T. (2020). Black box accounting: Discounting of decommissioning liabilities. ICAS Research Report.

Michelon, G., Pilonato, S., & Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspectives on Accounting*, *33*, 59–78. https://doi.org/10.1016/j.cpa.2014.10.003

Milne, M. J., & Grubnic, S. (2011). Climate change accounting research: Keeping it interesting and different. *Accounting, Auditing & Accountability Journal*, *24*(8), 948–977. https://doi.org/10.1108/09513571111184715

Nussbaum, M. C. (2000). The costs of tragedy: Some moral limits of cost-benefit analysis. *The Journal of Legal Studies*, *29*(S2), 1005–1036. https://doi.org/10.1086/468103

Olsen, S., Miller, C., Carpenter, B., Pritchard, D., Beachkofski, B., Kelly, W., Harji, K., Reisman, J., Byrnes, J., Emerson, J., Israel, E., Shi, Y., Olazabal, V., Woelfel, T., Harnar, M., & Kumar, S. (2019). A new accounting system is possible. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/the_free_market_must_account_for_environmental_and_social_impact#

Ormiston, J. (2019). Blending practice worlds: Impact assessment as a transdisciplinary practice. *Business Ethics: A European Review*, *28*(4), 423–440. https://doi.org/10.1111/beer.12230

Porter, T. (1995). *Trust in numbers. The pursuit of objectivity in science and public life*. Princeton University Press.

Porter, M. E., & van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, *73*(5), 120–134.

Power, M. (2004). Counting, control and calculation: Reflections on measuring and management. *Human Relations*, *57*(6), 765–783. https://doi.org/10.1177/0018726704044955

Reguly, E. (2021). *The little Engine No. 1 that could: How the fund that shook up Exxon might inspire a wave of shareholder activism*. *The Globe and Mail*. June 4, 2021.

Rock, E. B. (2020). For whom is the corporation managed in 2020? The debate over corporate purpose. *The Business Lawyer*, *76*(2), 363–396.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., III, Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., & Svedin, U., … J. A. Foley (2009). A safe operating space for humanity. https://www.nature.com/articles/461472a

Sadri, M., Aristidou, A., & Ravasi, D. (2025). Cross-sector partnership research at theoretical interstices: Integrating and

advancing theory across phases. *Journal of Management Studies*, *62*(1), 484–517. https://doi.org/10.1111/joms.13046

Sandel, M. J. (2012). *What money can't buy: The moral limits of markets* (1st ed.). Farrar, Straus and Giroux.

Sanders, A., & Thomsen, S. (2023). *Enterprise foundation law in a comparative perspective*. Larcier-Intersentia.

Satz, D. (2012). *Why some things should not be for sale: The moral limits of markets* (1. paperback ed.). Oxford Univ. Press.

Schendler, A., & Jones, A. P. (2018). *Stopping climate change is hopeless. Let's do it*. *The New York Times*.

Schulte-Uebbing, L. F., Beusen, A. H. W., Bouwman, A. F., & de Vries, W. (2022). From planetary to regional boundaries for agricultural nitrogen pollution. *Nature*, *610*, 507–512. https://doi.org/10.1038/s41586-022-05158-2

Serafeim, G., & Zochowski, T. R. (2020). Corporate environmental impact: Measurement, data, and information. In *The Routledge handbook of green finance* (pp. 103–128). Routledge.

Siemens. (2023). Siemens infrastructure transition monitor 2023. https://www.siemens.com/global/en/company/insights/infrastructure-transition-monitor.html

Slager, R., & Chapple, W. (2016). Carrot and stick? The role of financial market intermediaries in corporate social performance. *Business & Society*, *55*(3), 398–426. https://doi.org/10.1177/0007650315575291

Suldovsky, B. (2017). The information deficit model and climate change communication. In *Oxford Research Encyclopedia of Climate Science*.

Thomson, I. (2021). Designing environmental impact-valuation assemblages for sustainable decision-making. In *Routledge handbook of environmental accounting* (pp. 236–250). Routledge.

Vives-Gabriel, J., Van Lent, W., & Wettstein, F. (2023). Moral repair: Toward a two-level conceptualization. *Business Ethics Quarterly*, *33*(4), 732–762. https://doi.org/10.1017/beq.2022.6

Vogel, A., Guinemer, C., & Fürstenau, D. (2023). Patients' and healthcare professionals' perceived facilitators and barriers for shared decision-making for frail and elderly patients in perioperative care: A scoping review. *BMC Health Services Research*, *23*(1), Article 197. https://doi.org/10.1186/s12913-023-09120-4

Zochowski, T. R., Panella, K., & Carpenter, B. (2022). Fair accounting. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/fair_accounting