CHAPTER 23

Issue Control in Green Infrastructures

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Our claim in this chapter is that green financial infrastructures are spaces for professional coordination and competition to exert claims at "issue control" over how green finance is treated. What professionals want, above all else, is to determine the content of green finance to reflect their varying interests. While they may seek environmental progress or financial profits – or some combination thereof – they are primarily interested in determining how green finance works and who is permitted to work on it.

One more general strategy to achieve control is to align professional "jurisdictional" control (Abbott, 1988) with the establishment of technical infrastructures. Establishing who is allowed to diagnose and treat an issue, who is permitted to be present in the room, and who judges what is appropriate is of utmost importance. Both professional jurisdictional control – ensuring that only certain actors are permitted to work in an area and contribute to its knowledge development – and infrastructures seek a common aim: to streamline and depoliticize behavior. The study of infrastructures is often equated with the study of "boring things" (Star, 1999, p. 377). Professionals can affirm their jurisdictional prowess, which we refer to as "issue control" (Henriksen and Seabrooke, 2019; Seabrooke and Stenström, 2023), by crafting infrastructures that become unquestioned and boring.

Piecing together these infrastructures involves a few different steps, and invokes different politics, which we depict in Figure 23.1. These steps have been amply demonstrated in the extensive work on how finance is undergirded by technical infrastructure (Knorr Cetina and Bruegger, 2002; MacKenzie, 2006; Tischer, Maurer, and Leaver, 2019).

First, there is professional contestation over who is permitted to work on an issue, with rival groups, strongly or weakly tied to professional associations, seeking influence (Abbott, 1988). Second, a boundary object must be formed, including who and what is included or excluded and the creation of shared language. Once the casting has been whittled down, a boundary object can be created, which permits cooperation even in the absence of consensus (Star, 2010). Third is the forging of a governance object. This

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Figure 23.1 Linking issue control to new infrastructures.
Source: Authors' elaboration.

involves a forward step from cooperation into contestation over what can be measured and valued, a phenomenon sometimes referred to as "trials of strength" (Callon, 1980). These trials can result in a governance object with more permanence than a boundary object and which is put to task in regulating behavior (Latour, 2011; Allan, 2017). Should all of this proceed without ongoing contestation, the governance objects and the professionals controlling how to govern issues can enable technical automaticity. At that stage, the sociotechnical relations will be automated and only really visible when they malfunction or fail (Anand, Gupta, and Appel, 2018). While unpacking and unsettling infrastructures is difficult, these stages are reversible.

In this chapter, we walk through the elements linking professionals' attempts at issue control over how green finance is treated, to the establishment of boundary objects, governance objects, and fully articulated infrastructures with technical automaticity. Our examples draw on the world of green finance, where there are multiple trials of strength and contests to create and inscribe governance objects. As political economists, we hasten to add that these processes reflect power asymmetries and distribute assets and resources unevenly (Colgan, Green, and Hale, 2021; Paterson, 2021). We stress that the lens of issue control is important in revealing conflicts among those making claims to knowledge and influence. Those controlling issues have a vested interest in automating the infrastructure in their favor. In short, remaking a "black box" on how to make finance green empowers particular groups and not others (Bernards and Campbell-Verduyn, 2019), often compounding "microgeographies" of information inequality (Zook and Grote, 2016). Our empirical illustrations draw on the European Union (EU) taxonomy for green finance (Seabrooke and Stenström, 2023), as well as the "materiality" – what should be explicitly reported as material to shareholder and stakeholder interests – debate in green accounting linked to assurance services.

1 Green Transition as Professional Jurisdictional Battles

Research on professional jurisdiction battles typically focuses on how established groups, with strong professional associations, contest each other to determine who has the upper hand in deciding not only how an issue should be treated, but who is allowed to treat it. A classic example here is conflict between accountants and engineers in the early twentieth century over what should predominate for US industrial firms: knowledge over production processes or knowledge on cost allocation? Accountants won the fight over labeling with the emergence of "factory accounting," which then became known as cost accounting. They were also successful in reproducing themselves by spreading accounting training as part of general management education, in contrast to the engineers who remained as creative specialists (Abbott, 1988, pp. 230–232). The point being that whoever can best label tasks, provide staff, and educate future professionals has a strong claim over jurisdiction. Cementing a relationship with a formal authority to license only particular professionals to work in an area is a way to secure

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a professional hierarchy of who is allowed to work on what, allowing those selected to focus on how they choose to control their tasks. Prominent examples include economists (Fourcade, Ollion, and Algan, 2015), lawyers (Liu, 2013), and doctors (Freidson, 1988). Recent research has also pointed to how professionals engage in alliance formation with professionals from other groups, as well as embedding "avatars" to infiltrate their own practices (Abbott, 2005), to form "linked ecologies" that have a greater capacity to assert control over issues (Fourcade and Khurana, 2013; Seabrooke, 2014; Seabrooke and Tsingou, 2015).

Professional contestation and jostling for hierarchy can also be found in the establishment of green financial infrastructures. The establishment of carbon emissions trading systems, between 1990 and 2007, relied on multiprofessional cooperation among economists and lawyers, as well as policy analysts, directors, and consultants (Paterson et al., 2014). It is these professionals who articulated emissions trading through early policy venues from the US and United Nations (UN)-based working groups prior to the Kyoto Protocol in 1997, and then in regional operational venues (Paterson et al., 2017). Economists led this "pseudo-epistemic community dedicated to ET [emissions trading] for climate change … [and] provided intellectual foundations for a global ET system" (Paterson et al., 2017, p. 186). Differences between the US and European/intergovernmental approaches to the design of emissions trading centered around the relative presence of economists. In the USA, they dominated with a focus on pro-market efficiency, while the European/intergovernmental approach, where policy analysts dominated more than economists, favored political compromises to get more organizations involved. The professionalization of emissions trading from 2007 onwards led to the development of a carbon market profession through the formation of trading associations, expos, and expansion of graduate training programs specialized in "carbon management" and carbon finance (Paterson et al., 2017, pp. 198–200). The point here being that jurisdictional claims from the economics professions underpin the formation of the market. Thereafter the market developed its own institutional project that includes new conceptions of professionalism. This process relied on the establishment of boundary objects, what is included in carbon trading and what is excluded, which were then cemented into governance objects. At that point "carbon market professionals" could dominate the system, with the infrastructure largely unquestioned.

2 Green Transition as Boundary Object

An important aspect of issue control in green infrastructure is determining what is to be included for discussion and what is not. Within the sociology of professions, the demarcation of boundaries is an important element of maintaining a jurisdiction. The development of diagnosis, inference, and treatment – the classic conceptual triptych (Abbott, 1988) – involves boundary work from professionals as they seek to create internal and external networks to affirm their position and power (Liu, 2018). Such dynamics are essentially turf battles over who is allowed to treat an issue. Once these basic scuffles have been sorted, the boundary object is then up for debate. Boundary objects afford "interpretive flexibility" from different viewers (Star, 2010), which can lead to claims over how the same object can have multiple uses, as well as "trials of strength" over what the object should really become and how it should be measured (Callon, 1980).

An example can be found in how to determine what companies should include in environmental and social governance (ESG) disclosures within the EU regulatory space. Here the boundary object is the standard for disclosures, which reflect a financial instrument, a legal contract, and part of a chain of investments that are linked to scope 1, scope 2, and scope 3 conditions of environmental harm (from the immediate responsible entity, from input/output sources, and

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from total chain environmental costs). As a "networked product" created by actors and infrastructures (Beaverstock, Leaver, and Tischer, 2023), disclosures are a boundary object that allow multiple interpretations.

Our own research on European sustainable finance provides an example of how ESG disclosures reveal differing treatments of boundary objects and can lead to contestation between professionals (Seabrooke and Stenström, 2023). Within the European Commission's High-Level Expert Group (HLEG) and Technical Expert Group (TEG) the issue of what ESG disclosures should reflect was a point of contention. Professionals within the HLEG, which ran from 2016 to 2018 and provided content to the EU Action Plan on Sustainable Finance, and TEG, which ran until late 2020 to work on technical considerations, strongly differed.

A key difference in the treatment of the boundary object here was over whether company disclosures should favor an established "impact" policy established by an official authority, or whether a trial-and-error "process" approach that empowered companies was better. The issue here was both one of control – who is empowered, the regulator (EU) or the companies – and one of interpretation, as in what should count within ESG disclosures. From our interviews we know that the European Commission's view is that the "impact" framing for responsible finance is important and that "reporting on processes is a thing of the past" (Seabrooke and Stenström, 2023, p. 1285). Finance professionals involved in the expert groups had a different opinion; that without a reasonable boundary infrastructure that could allow flexibility in ESG

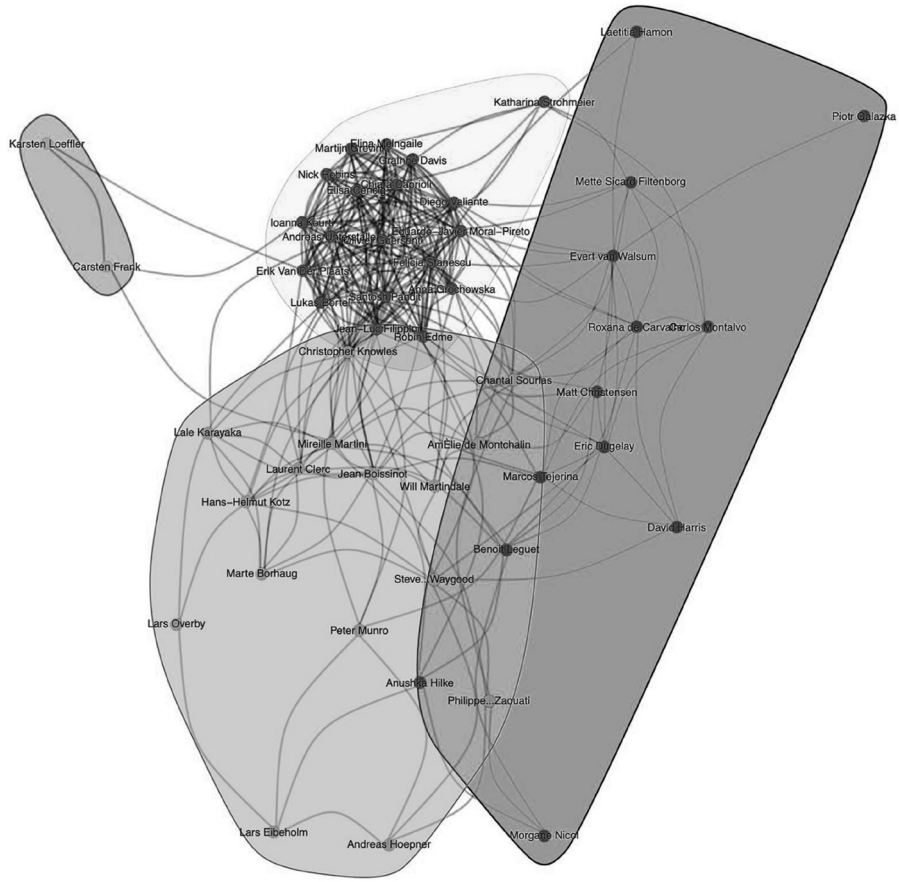

Figure 23.2 Top fifty professionals with community detection.
Source: Seabrooke and Stenström, 2023, p. 1281.

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disclosures supported by a robust accounting framework (see Section 3 on materiality as a governance object), an "impact" approach to disclosures was impractical. Rather, ESG disclosures should evolve as companies understand the system better. Rather than companies bending to an imposed external standard they should develop "best practices" (Seabrooke and Stenström, 2023, p. 1285). In the end, the HLEG recommended the approach favored by finance professionals, endorsing "trial and error by companies" and "promoting of best practices" (EU HLEG on Sustainable Finance, 2018).

ESG disclosures within the HLEG and TEG reflected a "trial of strength" between different professional interests and credible interpretations (Callon, 1980). To assess how such trials are linked to professional networks, we mapped the composition of expert networks and their professional affiliations. Figure 23.2 shows this network and applies a community detection algorithm to detect who belongs to what groups. In the figure we can see a tightly knit cluster of policymakers (the small cluster in the center), a cluster of finance professionals (the large oblong-shaped cluster to the right), and a cluster of consultants and activists (the oval cluster to the bottom-left). Importantly, we can also see some brokers who span two groups, like Christopher Knowles spanning policy and finance and Steve Waygood, who bridges finance and consultancy/activism. In our analysis such actors were especially important in defining how boundary objects like ESG disclosures should be considered by the experts, which then fed into the defining of governance objects in European sustainable finance and their relationship to infrastructure.

3 Green Transition as Governance Object

In green finance, professionals battle it out over governance objects. Governance objects are "created, designated, translated and problematized" entities or practices, which unlike fully automated technical infrastructures have not yet achieved taken-for-grantedness (Allan, 2017, p. 133). The forging of governance objects is a process of multiple trials of strengths over what can be measured and valued in green finance. Once formed, governance objects are crucial to regulating behavior and making green finance governable. Professionals have an interest in achieving issue control over what is yoked together to form the governance object. This can be illustrated by the debate in international accounting standard-setting on what should be seen as material information to include in sustainability reports. Although international accounting standard-setting often is framed as technical, prior research has pointed out that the process rather is characterized by contestation (Botzem and Quack, 2006).

Setting standards on sustainability reporting emerged as a strategy in the late 1990s to make corporate impacts visible and to connect sustainability issues to financial decision-making through accounting techniques (Thistlethwaite and Paterson, 2016). Often bringing together coalitions of non-governmental organizations (NGOs), investors, and professional accountants, a multitude of private governance initiatives setting sustainability reporting standards now exists at the transnational level. This includes the Global Reporting Initiative (GRI), Climate Disclosure Standards Board (CDSB), Sustainability Accounting Standards Board (SASB) and the International Integrated Reporting Council (IIRC). Other initiatives, such as the Carbon Disclosure Project (CDP), Accounting for Sustainability, and the Task Force on Climate-Related financial Disclosures (TCFD), have also put forward guidance, frameworks, and platforms connected to sustainability reporting, contributing to the creation of technical automaticity.

In sustainability reporting, materiality is a key concept. It guides accountants in deciding which information is to be included in the reports – and auditors in their assessment of whether or not the information included is sufficient. There is, however, no clear consensus on which

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definition of materiality should guide sustainability reporting (Eccles et al., 2012; Adams and Abhayawansa, 2022; Jørgensen, Mjøs, and Pedersen, 2022). The ambiguity has left the concept of "materiality" open for both cooperation and contestation (Cooper and Michelon, 2022) between not only standard-setters, but also accounting professionals, financial regulators, and market participants.

What is measured and valued in green finance depends on which approach to materiality is inscribed as a governance object. In sustainability reporting, a distinction can be made between financial materiality and impact materiality approaches. Financial materiality is judged based on investors being the main stakeholder in need of information. Information on sustainability issues should in this sense be included if it is deemed as financial material, that is, has an impact on corporate value. Does it hurt profit? It is sometimes described as "outside-in" materiality, in the sense that it focuses on how sustainability issues impact the organization – and not the other way around. As a contrast, impact materiality stipulates an inside-out perspective, how organizations impact people and planet in which it operates. Here, reporting should reflect the impact an organization has on the economy, the environment, and society. This builds on the idea that sustainability disclosures are of interest to a wider audience than investors only.

Among the principal standard-setters on sustainability reporting, GRI, which pioneered sustainability reporting in the late 1990s, is the only one taking an impact materiality approach. The financial materiality approach is favored by standard-setters that came later, such as CDSB, SASB, and IIRC. This has been a part of the strategy to align sustainability reporting with the logic of financial disclosures. In doing so, the initiatives have been able to decouple from the distinct civil society and market logics, which created a tension in sustainability reporting initially (Thistlethwaite and Paterson, 2016). This has primarily been driven by professional accountants, key brokers in the network, who have been able to bridge the worlds of accounting and NGOs through the strategic use of accounting expertise (Thistlethwaite, 2017).

The tension to settle the governance object of materiality in sustainability accounting has been even more pronounced as pressure on the standard-setters to harmonize the infrastructure of sustainability reporting has grown. As green finance has increased in salience, with initiatives such as the EU Sustainable Finance Action Plan, the TCFD, and the Network for Greening the Financial System, the lack of a coherent corporate reporting structure on sustainability has been pointed out. While the GRI standards have been widely used among corporations, and contributed to an institutionalization of sustainability reporting among multinational corporations (Brown, de Jong, and Lessidrenska, 2009), initiatives taking a financial materiality approach like SASB have received backing from powerful financial market actors like BlackRock (Tett, 2020). The standard-setters have sought to bring convergence to the fragmented space, arguing how their different approaches to sustainability reporting in general and materiality in particular caters to the shifting needs of stakeholders (CDP et al., 2020; see also Rowbottom, 2023).

Coalescing around materiality as a governance object is also something that new actors seeking control over the infrastructure of sustainability reporting are doing. The IFRS (International Financial Reporting Standards) Foundation, which controls the financial reporting infrastructure through its International Accounting Standards Board, announced its entry to sustainability reporting at the COP26 in 2021 with the creation of the International Sustainability Standards Board (ISSB). At the same time, it was announced that SASB, IIRC, and CDSB were to be consolidated into the ISSB. ISSB takes a financial materiality approach to sustainability reporting and models its standards on its voluntary predecessors – including the TCFD recommendations on climate-related disclosures. Also in 2021, the European Commission announced that the EU would

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develop its own mandatory sustainability reporting standards. The development of the standard was delegated to the European Financial Reporting Advisory Group, whose prior task mainly has been to advise the Commission on how to implement IFRS standards in the EU. The EU standards take a "double materiality" approach, which sees materiality from both an impact and financial perspective. This means that reporting should include information both on what sustainability impacts an organization has on its environment and disclosures on how sustainability issues impact corporate value. In 2023, both the ISSB and EU's European Sustainability Reporting Standards adopted their first couple of standards on general sustainability reporting and climate reporting. Additional standards on other sustainability issues, such as biodiversity and social reporting, are also expected to be developed. With this, the two different approaches to materiality are made operable through standardization. While it might be due to fundamentally different visions of green finance and sustainability reporting rather than jurisdictional turf wars (Maechler, 2023), these developments underscore the tension to settle the governance object of materiality in sustainability reporting to exert control over the green finance infrastructure. Thus, while materiality has been forged into a governance object, it has not yet achieved full technical automaticity. Rather, the object is still contested – leaving space for professionals to battle it out in trials of strengths over what is measured and valued in green finance.

4 Green Transition as Technical Automaticity

For professionals competing to exert greater control over green finance, making climate-related issues susceptible to audit and assurance could be a strategy to automate the sociotechnical infrastructures of the green transition in their favor. Examples of this include professional associations' efforts to position accountants as key experts in governing climate change (Lovell and Mackenzie, 2011), for example through the issuing of standards on assurance on sustainability reporting (see, e.g., International Federation of Accountants' (IFAC's) ISAE (International Standard on Assurance Engagements) 3,000 Assurance Engagements other than Audits or Reviews of Historical Financial Information and ISAE 3,410 Assurance Engagements on Greenhouse Gas Statements). In doing so, they seek to determine who is allowed to work on the issue of the green transition, while at the same time expanding the demand for their professional expertise.

Gaining greater control over green finance can be achieved by controlling the sociotechnical infrastructure that underpins it. Examples include how concepts and processes of financial audit and assurance have been extended to new areas, such as environmental audit and sustainability assurance (Power, 1997; O'Dwyer, Owen, and Unerman, 2011; Canning, O'Dwyer, and Georgakopoulos, 2019). For the Big Four accounting and professional service firms (EY, KPMG, Deloitte, and PwC), translating core expertise in financial audit to new areas such as sustainability assurance has been a strategy to expand their professional service to new markets (O'Dwyer, Owen, and Unerman, 2011). This is not unlike the role of global professional service firms – like the Big Four – in controlling the transnational infrastructure of expertise on transfer pricing (Christensen, 2022), and points to the power of private actors over sociotechnical infrastructures (Bernards and Campbell Verduyn, 2019).

However, transferring sociotechnical processes from one area to another is not free from tension. This is pertinent in the case of sustainability assurance. As a practice, assurance seeks to provide assessments on the reliability and completeness of reporting (O'Dwyer, 2011, p. 1231). Early attempts to construct the practice of sustainability assurance and make sustainability reports auditable showed that the financial assurance logic did not necessarily transfer smoothly to sustainability issues (O'Dwyer, 2011; Canning, O'Dwyer, and Georgakopoulos,

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2019). This led to professional struggles between accountants and nonaccountant assurors on how to assess the completeness and reliability of sustainability reporting. Entrenched in their own professional logic, accountants struggled with how to assure sustainability information using traditional financial audit techniques and methodologies. Nonaccountant assurors, on the other hand, had a more flexible approach to the assurance engagement (O'Dwyer, 2011). Over time, this tension between accountant and nonaccountant professional expertise on sustainability assurance has decreased (Canning, O'Dwyer, and Georgakopoulos, 2019), leading to the establishment of a sustainability assurance market underpinned by the blended professional expertise of accountants and nonaccountants. So while assurance has been translated to a new area of sustainability assurance, it has also transformed to accommodate new forms of expertise. This changes the framework of who is allowed to work on the issue and what is included in the process of sustainability assurance.

This can be illustrated by the assurance engagement undertaken by the third-party independent assurance provider Bureau Veritas on Nestlé's sustainability report "Creating Shared Value and Sustainability Report 2021." Bureau Veritas is a global professional service provider, and one of the largest assurance providers of ESG data among US S&P 500 companies. In the independent assurance statement from Bureau Veritas to the stakeholders of Nestlé, the process of the assurance engagement is outlined (Bureau Veritas, 2022). Assurance is assessed with the guidance of AccountAbility's AA1000 assurance standard on the accuracy, reliability, and objectivity of the information contained within Nestlé's report. This is done based on four principles set out by the AA1000: inclusivity, materiality, responsiveness, and impact. Depending on which assurance standard that is used, different principles would guide the assurance provider's assessment. Assurance is also provided on different levels, which determine the scope of the assurance engagement. For Nestlé's sustainability report, assurance is provided on a moderate level of assurance. As such, the assurance engagement included conducting remote interviews with Nestlé's employees at the head office, reviewing internal systems and samples of selected information, and confirming the accuracy of information with third parties and partners where relevant (Bureau Veritas, 2022). Assurance provided at a higher level of assurance would include a more extensive engagement from Bureau Veritas, meaning a more thorough review and additional steps to assess the information included in the report.

The sustainability market today is open to both accountant and nonaccountant expertise. However, while the expanding sustainability assurance market in Europe has been largely dominated by audit firms, their influence varies widely between jurisdictions. In the USA, China, and the UK for example, nonaudit firms have been successful in establishing their presence as sustainability assurance providers. Here, audit firms only account for around 15% of the sustainability assurance in the USA, 40% in China, and around 35% in the UK (IFAC, 2023). Currently, new standards on sustainability assurance are being developed at the global level by the International Auditing and Assurance Standards Board (IAASB). The IAASB has the support from the International Organization of Securities Commissions (IOSCO) in developing the International Standards on Sustainability Assurance 5000, which is planned to be in place by the end of 2024 (IAASB, 2023). At the same time, the new European directive on Corporate Sustainability Reporting (CSRD) might put audit firms under pressure from other assurance service providers. The new directive will require assurance of sustainability reports, but it also aims to open up the market to new service providers by allowing member states to authorize independent assurance service providers other than statutory auditors and audit firms to carry out the assurance of sustainability reporting. While this could open up the sustainability assurance market for new types of professional expertise, it could also lead to a

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shift of who has power over the infrastructure of sustainability assurance. This example illustrates how infrastructures, while often taken for granted, are never fully fixed. Rather, they are always in flux.

5 Conclusion

Our aim in this chapter is to illustrate the three key stages through which actors and objects interact on the creation, maintenance, and defense of green financial infrastructures. We have suggested that issue control in green infrastructures is determined by professional battles over who is allowed to work on particular issues, from varying interpretations of what something is – a boundary object, to scuffles over what should be included within governance objects, and, in some cases, systems that normalize activity through technical automaticity. Here we have a scale from expert brawling between humans with clear interests to the concretizing of those interests and asymmetries through "machines." There are various ways of interpreting issue control along this scale, including work from the sociology of professional on jurisdictional squabbles (Abbott, 1988), to trials over how to value and measure (Callon, 1980), to the creation of infrastructures that make what was once contentious "boring" (Bowker and Star, 1999). All of these stages are political and we should put in the analytical work to make struggles within them explicit. This is especially important given that they all have strong redistributive effects on who gets to define what a financial product is, what counts as environmental harm, and who benefits.

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