Climate finance governance: Fit for purpose?

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Abstract

This article consists of a critical review of the conceptual scholarship on the governance of climate finance and includes an overview of the institutional arrangements and governance logics that provide climate finance. New decentralized, polycentric structures allow for climate finance to more effectively reach the sub- and non-state actors most directly implementing climate change governance. However, the expansion of climate finance into market-inflected forms of blended finance, as well as debt-based financing, express a neoliberal logic that shifts power to market actors. This may challenge the efficacy of climate finance. We suggest that further research is needed on polycentric systems in climate finance, since an apparent expansion in the diversity of providers is also accompanied by a counter-intuitive concentration of decision-making power with financial fund managers. We join others in suggesting that the weight of scholarship advocates for a strong return to public authored finance and governance, under the auspices of Green New Deal programs and more widely.

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1 INTRODUCTION

The Paris outcome urges developed nations to mobilize US$100 billion per year by 2020 for climate action in developing nations; yet an estimated US$95 trillion investment in infrastructure (energy, transportation, water, telecommunications) will actually be required globally by 2030 to address climate change, of which 60–70\% will be needed in developing countries (OECD, 2017). It is claimed that the volume of private finance addressing climate change is slowly rising in aggregate, particularly at the subnational level and by non-state actors, but that this still leaves a large investment gap (UNCTAD, 2020). This problem has generated a wide body of work discussing the merits of blended finance and climate congruent activities of non-state and substate actors, such as corporations and cities, in order to meet the financing challenge in a climate crisis that is multi-scalar (Osofsky, 2010). There are three concentric levels in which finance is brought into relationship with climate change: directly through products; in new market-making; and in generic market environment regulation. First and directly, market-inflected climate change governance relies on...
climate finance to materialize in various product forms, including bonds, insurance and tradable offsets, to fund decarbonization. Alongside actual products, there are also market mechanisms and experiments in market-making, such as the EU-ETS carbon market or the UN Clean Development Mechanism, which aim to mobilize climate finance to meet climate change mitigation outcomes. And finally, there are market environment policies which seek to shape markets to serve climate change governance objectives through public regulatory, voluntary codes and disclosure, and capital market and risk management techniques such as the 2015 Task Force on Climate Related Disclosure. We argue here that while governance has become polycentric and more dispersed in the latter two spaces, in a counter-intuitive sense power has also become more concentrated with market actors in the first—in the governance and operation of actual products.

From the landmark Kyoto Protocol of 1997, climate change governance has been conceptualized in a close relationship to economic and financial management of decarbonization, rather than environmental command and control management. A pro-market or neoliberal approach assumed that markets were the most efficient allocators of emission reductions’ costs within various direct emissions trading schemes, or market-inflected feed-in tariffs, subsidies and tradable credits (Bryant, 2019). Following Kyoto, neoliberal governance has also relied heavily on financial mechanisms. As Bigger and Carton point out, “climate policy was not financialized; it has always been financial” (Bigger & Canton, 2020: 649). We follow most critical authors here, who agree with the loose moniker of climate governance as “neoliberal,” where that refers to the centrality of markets and profitability considerations in the allocation of climate finance, and as “financialized” where that refers to implementation using financial products. Thus for example, Christophers noted how financial regulators have adopted a “quintessentially neoliberal modality of governance” in relation to climate change: where the rationality of investors is taken as a given; where “market discipline” is prioritized; and where climate change is understood as a financial stability risk which demands risk disclosure (Christophers, 2017: 1108). In this type of governance, institutional investors become central in steering markets to more climate inflected pathways (Christophers, 2019).

Climate change governance, therefore, has been formally cleaved to both public and private institutions from its inception. But it has also relied heavily on the allocation and disbursement of climate finance operating in market frameworks, rather than solely, or even principally on public regulation and environmental law. Thus the United Nations Framework Convention on Climate Change (UNFCCC) refers to climate finance as “local, national or transnational financing – drawn from public, private and alternative sources of financing – that seeks to support mitigation and adaptation actions that will address climate change” (UNFCCC, 2019, np). This definition is far removed from traditional ideas of climate finance as concessional loans and grants, designed similarly to public development aid in the 1980s. By the 2000s, we had a polycentric mix of public and private capital leveraged using financial technologies and institutions, governed by a range of actors in various combinations (Pattberg & Widerberg, 2015: 685). Or put more critically, a New Washington Consensus which subsidizes investors in order to leverage private capital (Mitchell & Sparke, 2016) in pursuit of climate change governance. This article assesses emerging structures of climate finance governance and their coexistence with neoliberal governance norms, such as voluntary disclosure and self-labeling, voluntary reporting standards, and profit maximization. Given current scholarship, we suggest further research is needed to ascertain whether current products and market experiments remain path dependent on their neoliberal provenance, or whether they are producing product and market experiments capable of taming profit-maximizing logics to decarbonization objectives.

This review is guided by two research questions. Our first research question is to ask what we know about how climate finance is governed? This article considers the governance of climate finance at its many sites of authorization, both multi-scalar, in supra-state (international and transnational), nation state, and substate levels, and in relation to multiple actors, within the interactions between public, private, third sector and non-state actors. We focus particularly on contemporary extant work on emergent structures of climate finance governance, and on the increasingly dominant organizational form of financialized and polycentric authorization and delivery, or “polycentric governance” (Ostrom, 2010). Specifically here, we explore the consequences of the increased participation of private financial actors to the types of governance found in particular products and markets.

Our second research question is to explore how neoliberalism affects climate finance governance, including through its extended financialization processes. We note the profit-maximizing logic of debt-based financing, which makes up the larger proportion of climate finance provision. We ask whether the linkage of private equity and debt finance to climate change, within these new arrangements, has generated predictable “neoliberal” concentrations of wealth, or new possibilities for more equitable transformation. Have conditions been created for the logics of neoliberalism to play out in predictable ways (with finance driving further polarization and inequality) or does it open the door to better alignment of public and private interests and meaningful possibilities for corporate driven transformation? We suggest that climate change governance is increasingly decentralizing its structure into polycentric systems, but that within these we
see a predominance of neoliberal, debt-based financing arrangements and products. But is the decentralized/polycentric structure directly related to that neoliberal trend? If so, then in what causal direction? We contend that further research is needed to determine whether, and to what degree, polycentric, decentralizing structures and neoliberal logics and arrangements coproduce one another, or whether these trends are merely contingent and coeval, with space for other more socially just forms of organization and delivery to emerge and coexist. What needs to change in our three concentric levels in which finance is brought into relationship with climate change – products, market-making, and regulation – to make climate finance “fit for purpose”?

This article proceeds as follows. Section 2 examines the literature on the governance of climate finance further. Section 3 explores how emerging polycentric governance structures combine public, private, and voluntary actors to generate blended finance, (mostly at national and supranational scales). Section 4 reviews non-state actors raising municipal debt financing (at subnational scale). Section 5 concludes by suggesting that financial logics both within products, and in the institutional arrangements which deliver them, are conditioning governance procedures and outcomes to effectively privatize accountability mechanisms under the authority of banks and institutional investors, leaving weak public legitimacy. We then outline a potential agenda for expanding the field of research on the governance of climate finance, with a steer toward better public accountability and alignment with its purpose of addressing climate change.

2 | THE GOVERNANCE OF CLIMATE FINANCE

The literature on global environmental governance (GEG) is vast and crosses multiple disciplines, but relatively less of it directly focuses on climate finance. A Web of Science search for climate finance governance research shows that of the 73 available articles, the first was published in 2009 and the publication count has steadily risen, peaking in 2019 with 2020 poised to exceed the previous year. This suggests that the subject is quite nascent and is in the early stages of rapid expansion. In descending order, 49% of the records appear in the discipline of Environmental Studies, followed by Political Science (26%), and so forth in Environmental Sciences (23%), Economics, and Public Administration (both 13%). Various other disciplines including urban studies, sociology and geography show 1–2 articles on the subject. Environmental studies is inherently interdisciplinary, drawing from various social and natural science fields, suggesting the future of the subject will be interdisciplinary rather than siloed by one specific field.

The literature, though vast, shares some established definitions and norms. First, that governance is broader than government and includes all actors with decision-making powers or more broadly a conditioning influence on the arrangements in place for managing an asset, people or resource. Traditionally governance scholarship has divided between a broadly liberal focus on institutions and people and how decisions are made within policy arenas, alongside a more critical Foucauldian school that focuses on power, assemblages, and the field of possibilities of action. Within work on climate change governance and global climate policymaking both schools are evident (e.g., Biermann & Pattberg, 2008; Giddens, 2009; Gupta, 2014; and Latour, 2014; Braun, 2014; Bracking, 2014 Nel, 2017; Asyanbi, 2018, respectively). Colleagues from political ecology and urban geography (Bigger & Millington, 2020; Braun, 2014), network analysis (Green, 2013a; Kim, 2013) and from the civic sector (Reyes, 2020) have contributed to the heavy lifting on climate justice considerations. The collected body of work ranges from analyzing decision-making within regulatory and financial institutions, to studying the sites of actual climate change projects and interventions and a consequential analysis of their effects on local communities.

This may be put in context by observing the existing structure of financial institutions, and we summarize in Table 1 below a review of major mechanisms facilitating climate finance. Official Development Aid is a prominent form of grant- and loan-based financial flows facilitated by and among nations to projects at multiple levels. Funded sectors include the developmental goals of health, education, commerce, infrastructure, conservation, and environmental protection, the lattermost comprising climate mitigation and adaptation projects.

Development finance institutions (DFIs) constitute the main mechanisms facilitating ODA flows including climate finance, and are housed as multilateral, bilateral, national and subnational DFIs (Griffith-Jones et al., 2020). Multilateral DFIs are established by multiple countries and allocate finance or lend regionally or globally. National DFIs are government-owned development banks or specialized Export–Import Banks, which are also licensed to join partnerships with private entities to provide equity investments and debt-based finance, and tend to allocate or lend finance only to entities within their jurisdiction. Bilateral DFIs, subnational DFIs, local, state/provincial or regional investment banks, financial corporations or development agencies and multilateral DFIs all provide finance to projects and borrowers in various jurisdictions defined by their legal status as banks within defined national and extraterritorial
jurisdictions. Xu et al. (2019) attempts to map DFIs, listing a global total of 539 DFIs, among them, 40 multilateral, 441 bilateral and national DFIs and 56 subnational DFIs.

Grants were traditionally the main financial instrument used in ODA. However, they are today a small proportion of overall ODA compared to increasing amounts of loan or debt-based climate finance (Banga, 2019). Dedicated Multilateral Climate Funds provide mainly loan finance and include the Global Environmental Facility (GEF), a funding mechanism facilitating grants and loans from the World Bank and other supranationals for climate change and other environmental issues, including through a Small Grants Programme. The GEF serves as a “financial mechanism” to five conventions, including the United Nations Framework Convention on Climate Change (UNFCCC). The GEF, the World Bank sponsored Climate Investment Funds (CIF) and the Green Climate Fund (GCF) together provide the main global pillars of multilateral public finance. At a national scale, National Climate Funds (NCFs) are nationally-driven and nationally-owned funds that help countries to collect climate finance from a variety of sources, coordinate them, blend them together and account for them (Amerasinghe et al., 2017). There also exist several, philanthropic sources of climate finance, principally from large foundations.

Green bonds are an increasingly common debt-based climate finance instrument offered within ODA flows, particularly by large DFIs such as development banks. For example, green bonds are a subset of the International Finance Corporation’s loan portfolio, funded by its Green Bond program. As shown in Table 1, other green bond issuers beyond the purview of ODA include asset-based security issuers, financial corporate issuers, government-backed entities, sovereign issuers, nonfinancial corporate issuers and local governments (CBI, 2020a, 2020b). There are also 21 GHG emissions trading schemes operating at supranational, national and subnational levels, covering 9% of GHG emissions worldwide (ICAP, 2020). These act as market-mechanisms to price emissions causing climate change, in order to reduce them.

| Type                                             | Examples                                                                                     |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Development finance institutions (DFIs)           |                                                                                              |
| Multilateral DFIs                                | World Bank, Asian Development Bank, European Bank for Reconstruction and Development, International Finance Corporation |
| Bilateral DFIs                                   | CDC Group (United Kingdom), Swedfund (Sweden), International Development Finance Corporation (United States) |
| National DFIs                                    | China Development Bank, KfW Banking Group (Germany), Export–Import Bank of India               |
| Subnational DFIs                                 | Buenos Aires Guarantee Fund, Lower Austria Guarantees and Investments, Rio de Janeiro Development Agency |
| Climate-specific funding mechanisms              |                                                                                              |
| Dedicated Multilateral Climate Funds (UNFCCC)    | UNFCCC’s Adaptation Fund, the Global Climate Fund, Least-Developed Countries Fund and Global Environmental Facility (GEF) |
| Non-UNFCCC Climate Funds                         | UNDP Low Emission Capacity Building Programme, UNEP En.lighten Energy Efficiency Initiative    |
| National Climate Funds (NCFs)                    | Indonesia Climate Change Trust Fund, UK International Climate Fund and the German IKI Initiative |
| Philanthropy                                      | Rockefeller Foundation, Bloomberg Philanthropies, Energy Foundation, Ford Foundation          |
| Green bond issuers                               |                                                                                              |
| Development Banks                                | European Bank for Reconstruction and Development, World Bank, African Development Bank, European Investment Bank |
| Asset-based security issuers                      | Fannie Mae, Credit Agricole CIB, Toyota                                                      |
| Financial corporate issuers                       | BNP Paribas, Bank of America, Bank of China, Morgan Stanley                                  |
| Government-backed entities                        | Japan Railway Construction, Transport and Technology Agency, Indian Renewable Energy Development Agency |
| Sovereign issuers                                 | Republic of Fiji, Federal Government of Nigeria                                              |
| Nonfinancial corporate issuers                    | Canadian Solar, Tesla Energy, Beijing Enterprises Water Group                                 |
| Local governments                                | Tokyo Metropolitan Government (Japan), City of Gothenburg (Sweden), New York MTA (USA), State of Connecticut (USA) |
They are joined by carbon offset providers such as those organized under the Clean Development Mechanism. Both carbon trading schemes and offset providers are part of the broader climate change governance effort, with trading schemes the “sine qua non of neoliberal, financialized climate management” (Bigger & Canton, 2020: 650), but are not generally included within the category of “climate finance” providers.

These multiple actors are often directly engaged in the governance of climate finance as “market-makers,” but are correlated together by institutions charged with environmental regulation and governance more broadly: the second in relation to the third concentric governance levels as described above. In the latter, the UNFCCC is central to the global transnational governance node of climate change, with indirect organizational powers for climate finance more specifically. It emerged from the 1990s “golden age” of growth in intergovernmental environmental regimes, including in the establishment of milestone Multilateral Environmental Agreements such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD) (Pattberg & Widerberg, 2015: 685–686).

From the 2000s, however, a stagnation of the intergovernmental sector occurred, and private and voluntary governance networks grew, incorporating substate and non-state actors as global climate change governance became multilateral in nature (Kern & Bulkeley, 2009). These non-state or substate actors operate parallel to the formal climate governance regime in a “polycentric system” (Jordan et al., 2018; Ostrom, 2010). They are sometimes implementing entities for public climate finance, often in blended initiatives which use public resources combined with private investments. Or they invest labeled funds themselves, such as municipal or green bonds. Many investors, civil society groups and third sector actors also advocate for regulatory initiatives and voluntary standards, improvements in categorization, measurement and data transparency and disclosure seeking to influence regulatory and climate policy or even make it in the absence of public regulation. These networked non-state actors are widely believed able to substitute for a lack of public finance, or at least to ameliorate governance and resource gaps (Hsu et al., 2015; Tosun & Schoenefeld, 2017). They include corporations and cities and bring an ability to fill the “emissions gap” left by national-level emissions reduction commitments (Kuramochi et al., 2019). This somewhat fragmented (Zelli, 2011), experimental (Smets & Acuto, 2018) or network model of decentralized governance (Tosun & Schoenefeld, 2017) is said to more effectively leverage public capital and increases flows of private capital globally (see Bowman, 2015; Bowman & Steenmans, 2019).

An important structural development observed in existing literature is the proliferation of new actors; with new governance mechanisms and instruments, such as partnerships and city networks; and with an intensification of interaction of governance levels (Biermann & Pattberg, 2008; summarized in Pattberg & Widerberg, 2015, 686–689). The concept of multi-stakeholder governance was used to describe the dispersal of agency beyond the state and intergovernmental organizations (Newell et al., 2012) while multilevel governance and stakeholder partnerships described the new configurations of actors interacting at multiple levels and scales of governance. Subsequent debates have concentrated on changing agency and authority, synergies and conflicts between state centric and non-state actors (see Pattberg and Widerberg (2015, 689), and on fragmentation and orchestration (Dingworth & Pattberg, 2009; Hickmann et al., 2021).

Much scholarship has focused on the soft governance of the UNFCCC as a coordinator and facilitator within this dispersed network. For example, Hickmann et al. (2021) summarize that while the UNFCCC treaty secretariat initially appeared to work in a “straight-jacket” (Busch, 2009) of a narrow intergovernmental mandate, it broadened its influence by means of “facilitative orchestration” to encourage and strengthen subnational and non-state climate actions. Hickmann et al. (2021) use the concept of orchestration, originally used by Abbott and Snidal (2009), and used by a number of other authors (Abbott & Bernstein, 2015; Bäckstrand & Kuypers, 2017; Widerberg, 2017), to describe an indirect mode of governance used to influence a target group. Using a variant called “facilitative orchestration” they describe the facilitative measures used by the UNFCCC, as a spearheading institution, a convening body and a manager and coordinator, in respect of the UNFCCC Momentum for Change Initiative, the Lima-Paris Action Agenda (LPAA) and the Non-State Actor Zone for Climate Action (NAZCA) in order to achieve progress in international climate negotiations. As an international bureaucracy, the Secretariat adopted new roles and functions in global climate policymaking by interacting with subnational governments, civil society organizations and private companies. This work resonates with others within international relations and public administration (Bauer et al., 2017; Jorgens et al., 2017; Widerberg & Van Laerhoven, 2014).

Encouraged in part by the UNFCCC as an orchestrator, and in part by profits to be made in a green economy, subnational and non-state actors, private sector organizations and civil society groups, were keen to register their projects and reporting initiatives to help fill the “emissions gap.” The Global Reporting Initiative was launched in 1997, the Carbon Disclosure Project in 2002, and then many more private organizations and institutions joined the climate finance governance network, such as CDP Global, CERES Investor Network, the Investor Network on Climate Risk (INCR),
the GHG protocol, and the Climate Bonds Initiative, contributing to over 400 different reporting standards by 2018 (Christophers et al., 2020). These organizations use soft governance technologies to exert influence, in new forms of private authority (Green, 2013b) using techniques such as voluntary standards and codes (Hickmann, 2017a), with many calculative technologies still in iterative development (Bracking, 2019). Their collective contributions have moved governance away from traditional state-based systems of rules, to more heterogeneous and polycentric structures (Abbott et al., 2016; Hickmann, 2017b; Jordan et al., 2018). This has generated a blooming of new voluntary initiatives, particularly in the private sector around green taxonomies, carbon foot-printing and climate finance disclosure (Dingwerth, 2017; Green, 2013a; Pattberg, 2012, 2017).

Pattberg’s work on “governance by disclosure” (Pattberg, 2012) described how non-state actors transform climate change into a business risk. His later work introduces “governance entrepreneurs” who act as bridge builders between the sphere of carbon disclosure and the wider international governance arena, where information is used to influence other actors (2017). However, Gupta and Mason (2014, 2016) asked how far “governance by disclosure” was improving the quality of global environmental governance, and concluded that the results of the “transparency turn” in GEG were limited and context specific. Dingwerth (2017) made the astute observation that private transnational standard-setters have justified their contribution to environmental governance differently over time, initially relying more on narratives of democratic legitimacy in relation to “governance gaps,” but more latterly focusing on their contribution to meeting internationally agreed goals which are still legitimizied by state prerogative.

Many authors now speculate on the worth and potential of the private sector climate governance regime, including in the “bottom-up” potential of climate litigation (Banda, 2018); and the “under the radar” development of a more coherent system of governance “driven by business” (Leonard, 2020). The integrity, verification and authority of standards and the efficacy of reporting and disclosure are often context specific, and require evaluation in specific case studies. Hilbrandt and Grubbauer, for example, explore the role of standards and standards-setting organizations in fostering market expansion and financial deepening in Mexico City, and show that while standards barely impacted project implementation, they did work “as vehicles through which infrastructures of markets, knowledge, and political support were built, legitimized, and secured...[which] widened and deepened financialization” (Hilbrandt & Grubbauer, 2020, 1). Reporting and disclosure, aside from their impact on specific project quality, are technologies of neoliberal, market-based climate change governance. Their increasing use illustrates the hegemony of this governance regime, and also increasingly privileges the role of financial actors and institutions in governance assessment, thereby contributing to financialization processes which influence the future profitability of climate-related assets.

More recently, disclosure-based governance has been re-energized by the joint efforts of private actors and public regulators, including central banks and financial stability boards, bringing the private sector back closer to the public regulatory architecture. Newer initiatives, such as the Task Force on Climate-Related Financial Disclosures (2015) and the Climate Disclosure Standards Board (2007) show that financiers and financial regulators retain faith in markets as facilitators of decarbonization through transparency, corporate responsibility and disclosure. However, the evidence on the efficacy of disclosure, even when mandatory, remains weak.

3 | BLENDED FINANCE AND THE SHIFT TO PRIVATE SECTOR GOVERNANCE

In the context of climate finance, the synergy between market logics and public sector policy has been generally accepted since the Kyoto Protocol through the 1990s and 2000s (Andrade & de Oliveira, 2015). But more recently this has been reaffirmed in the blended finance and green new deal narratives. The OECD Development Assistance Committee (OECD, 2020) argues that blended finance is the answer to drops in bilateral and multilateral public finance and offers clear synergies for increased efficiency, augmentation and the alignment of public and private ambition. Blended finance refers to public funds pooled with private funds, largely under private fund management, directed variously at development and environmental goals. It forms the centerpiece of the “billions to trillions” narrative (UNCTAD, 2019; World Bank, 2015) of mobilizing private finance to meet the Sustainable Development Goals (SDGs) “financing gap” of USD2.5 trillion per annum in developing countries (UNCTAD, 2014). Correspondingly, current international climate governance emphasizes partnerships, synergy with private actors, blended finance and leverage of private funds, alongside consensus-oriented governance driven by “[m]arket-oriented rationales” (Kuyper et al., 2018, 9).

Figure 1 visualizes the quantity of climate finance in circulation from public and private sector sources, as compiled by the Climate Policy Initiative for their Global Landscape of Climate Finance report (Buchner et al., 2019).
It shows the extent of the new blended universe of climate finance as described above, where mitigation far outweighs adaptation finance, with the latter constituting only 5% of total flows, and where a full 58% of funds are spent on renewable energy.

3.1  Product level governance

There is relatively little research on the efficacy of the private sector in climate governance (Andrade & de Oliveira, 2015), despite the growth of blended finance, joint initiatives with the public sector and the green bond market. However, a critical stance is discernible recently (Michaelowa & Michaelowa, 2017; UNCTAD, 2019). There is also evidence that blended finance acts very much like market investment and has little mitigating effect (Attridge & Engen, 2019). Other authors question whether the shift to green bonds and blended finance is advantageous, or merely indicates the lack of choice in respect of other options (Bigger & Millington, 2020, 3; Bracking, 2019). However, despite some critical commentary on the potential nonalignment of public sector needs with non-state actors’ outcomes, even from a liberal perspective (Chan et al., 2019), the private sector remains central to supranational climate change finance and governance.

Asiyambi analyzed governance for the green economy more broadly using Foucault’s idea of organizing actions in his account of REDD+, as one where the public and private join in spaces of mutuality, where durable processes of becoming generate new green assets (2018, 533–536). Similarly, in climate finance more specifically, the institutions
identified in Table 1 above combine publicly generated climate finance with private equity or debt finance to form a space of mutuality or codependence. In this codependence, public finance is critical to non-state actors in its contribution to aspects of climate finance governance: to the underwriting of risk and debt, the legitimizing of the mode of implementation and to the authority ascribed to the venture. In turn, private financiers contribute to climate finance governance, in that products are increasingly operated, implemented and governed by them, using market-based logics and profits-based rates of return. But even though this can be described as mutually coproduced, when climate finance is being dispersed as blended finance, aspects of its accountability, authority and legitimacy are still reframed using privatized metrics and calculations. In this sense, measuring and evaluating the public good aspect of addressing climate change is ceded to the private sector's ontological space, its mode of seeing and valuing.

The weakest area of research on climate finance governance is what happens once finance has been allocated to its product—fund or special purpose vehicle—within the private financial sector, in this space of apparent mutuality, as the influence of governments and civil society is then entirely indirect. Here, there is a lack of evaluation of efficacy rooted in a deficiency of suitable methodology. Not only is the empirical impact of climate finance calculated within the realm of commercial confidentiality, even the impact technologies are often proprietary and/or opaque. We only know that the legitimacy of the fund is built by voluntary standards, disclosure, rankings, ratings companies and ultimately by its financial performance. In terms of the accountability of blended finance, accountability ex ante relates to contracts signed between the public providers, the pooled investors and the fund managers which provide for the parameters of where, what and with whom investments will be made. Accountability ex post is decided by the outcomes of these contracts on closure and any ESG and CSR scores attached. Meanwhile, authority is inscribed by the status of the DFI, the reputation of the fund managers and of the banks and investors involved. Together these qualities make up the core aspects of governance quality, but most current research omits this governance space within the actual product.

### 3.2 Market-making governance

At the market-making level of governance the establishment of the Green Climate Fund initially promised the most innovation away from neoliberal path dependence in climate governance. The UNFCCC established the Green Climate Fund in 2010 in Copenhagen, launched in 2011 in Durban, as the new, central global institution answerable to its own public authority, to enable a $100 billion per annum leap in ambition for global climate finance by 2020. This major new node of “market-making” governance architecture promised to augment public response and appeared to run counter to the shift to private sector governance observable at the product level from the 1990s. It resulted in two incongruous consequences: a shift to more radical language in the presentation of climate governance, combined with a new Private Sector Facility to act as a global home to private sector investors. Arguably the latter has embedded private sector financial management at the core of the overall market environment, while the former has given the appearance of reform.

The establishment of the GCF was not just institutional, but brought new conceptual language to the governance discourse of climate finance, notably with “transformational change” and “paradigm shift” (Bertilsson & Thorn, 2020; Watson & Schalatek, 2019; Bruun, 2017; Bracking, 2014; Boodoo et al., 2018). These concepts have become guiding principles in technical and funding documents at the GCF and subsequently within the UNFCCC, although their effect in practice remains contested and requires further research (Bertilsson & Thorn, 2020; Winkler & Dubash, 2016). In particular how a concept such as “transformational change” affects soft law and policy change (Henriksen, 2013; Skogstad, 2011) to gain fundamental rather than incremental change (Fazey et al., 2018; Kasdan et al., 2020; Pelling, 2011; Pelling & Garschagen, 2019; Puri, 2018; Termeer et al., 2017) is attracting much attention, but arguably still remains merely a “metaphor” (Feola, 2015, 379).

The contested nature of emerging governance concepts in climate finance—such as “transformational change,” “paradigm shift,” “country ownership,” “stakeholder engagement,” and “resilience”—has been recognized by numerous academic commentators (e.g., Boodoo et al., 2018; Winkler & Dubash, 2016) and by climate finance providers. The GCF Independent Evaluation Unit and the CIF funded research in 2017 to “systematically metanalyse multi-sector evidence of the contributors to and determinants of transformational change” (Green Climate Fund, 2017, para 3.1). Kasdan et al. (2020) recently conducted an empirical review of how transformational change is understood and operationalized within multilateral funds dedicated to financing adaptation to climate change. They conclude that while transformative potential does indeed guide funds, particularly in the GCF, “a clear understanding of whether
transformational change is achievable, feasible, and desirable under all conditions has not yet emerged” (Kasdan et al., 2020: 1).

The problem of operationalizing concepts is made more complex by the north/south divide in global climate finance governance, where adaptation is largely a preserve of the global south and mitigation funds are largely spent in the north. Also, in the global south, despite promises of country ownership, supranational mechanisms still dominate implementation by volume and managerial roles. Pauw (2015) found little contribution by the private sector in developing countries when a strict definition of adaptation, in “adaptation finance” was applied. Michaelowa et al. (2021) recently underscored how climate change mitigation financing from multilateral funds in sub-Saharan Africa remains relatively small, scarce and below the scale required. Meanwhile, in terms of implementation, Sovacool et al. (2017) found four processes of political economy outcomes—enclosure, exclusion, encroachment and entrenchment—occurring in climate change adaptation projects in five countries funded by the Global Environment Facility’s Least Developed Countries Fund (LDCF). These varied patterns indicate that further political economy research is required if “transformation” is to have a more concrete meaning. In short, substantive radical connections between economic, social and ecological systems (Mapfumo et al., 2017), and their socio-technical transitions (Boodoo et al., 2018) remain elusive despite extensive advocacy by the climate justice movement, particularly at GCF and COP meetings (Cassegård & Thörn, 2017).

3.3 Market environment regulation and financialization

Figure 1 illustrated just how little contemporary climate finance is spent on adaptation as a proportion of the whole, and also the dominance of market-based delivery systems. The managers of investment and spending implementation are even further concentrated in the private sector with types of governance dominated by market mechanisms (see the “instruments” column). This has prompted many to write of a climate-related financialization (Lai, 2018; Layfield, 2013), which follows a profit-maximizing neoliberal logic (Ciplet & Timmons Roberts, 2017). For example, many see the Green Climate Fund as delivering a shift to a greater role for financial interests in climate finance, described using the concept of financialization (Bertilsson & Thorn, 2020; Bracking, 2014). This is despite its apparent “public” nesting within the UNFCCC, because it predominantly also uses these instruments and intermediaries, in blended arrangements with private actors (column 1).

Financialization can be defined as the global expansion of the financial sector in overall markets, and the expansion of financial forms of calculation into other public and private domains (Davis & Kim, 2015; Epstein, 2005; Krippner, 2005; Lai, 2018). In climate change governance this articulates as the creation of financial products such as loans and bonds that are labeled and marketed in respect of climate governance goals, but which still privilege profit shares for financial investors. This trend accompanies the general neoliberal shift in global climate change governance, in which private sector actors and market-oriented mechanisms encroach on public sector governance processes (Ciplet & Timmons Roberts, 2017). Financialization then extends this neoliberal logic into an expanded creation of assets designed to generate derivative income streams for financial investors (Bracking, 2016; Hildyard, 2016). The greater financialization of the governance of climate finance is a growing research area (Pike & Pollard, 2010; Bracking, 2014; Bäckstrand & Lövbrand, 2016; Keucheyan, 2018), also related to similar work on the financialization of development finance more generically (Mawdsley, 2018), and in urban climate policy (Long & Rice, 2019) despite the known problems with the vagueness and overuse of the financialization concept (Christophers, 2015; Ouma et al., 2018).

There are also a growing number of empirical studies critical of the use of financialized climate finance in cities and more generally at national and subnational scales. Christophers et al. (2020) argued that green bonds shift the costs of financial and environmental risk to the poor and should be rescaled to affect environmental justice. Christophers (2018) also argued that a bond raised to improve sewerage infrastructure in Washington D.C changed risk distributions to the detriment of the poor. Bigger and Millington (2020, 2) show how the New York Metropolitan Transit Authority (MTA) and City of Cape Town municipal green bonds were financialized products designed to fund adaptation to climate change—floods and drought, respectively—but instead reinscribed existing inequalities and increased risks for the poor and marginalized. Of note is that both these latter bonds were certified by the Climate Bonds Standard, which covers “use of proceeds” rather than additionality as a measure of environmental impact. Bigger and Millington concluded that the bonds reassembled racialized patterns of inequality while foreclosing on more radical or equitable futures. More specific work on race and urban austerity (McIntyre & Nast, 2011; Ranganathan, 2016; Ranganathan &
Bratman, 2019) and the relationship between financialization and race (Arestis et al., 2013) must be more deeply built on in consideration of the racialized contours of climate finance, as “it stands to reason that financial responses to urban climate crises will be shot through with racialized dynamics of risk” (Bigger & Millington, 2020, 5). Racism contributes to climate injustice at all scales, with the development binary of global south and north infused in metaphor and practice with racial inequalities and injustice.

4 | SUBSTATE CLIMATE FINANCE GOVERNANCE: DECENTRALIZING DEBT?

Climate finance governance occurring at the substate level reflects broader developments of decentralizing climate change governance. Through coordinated and individual efforts, substate actors including city governments are increasingly filling governance gaps left by nations in greenhouse gas emissions reduction efforts (Hsu et al., 2020). However, even these governance arrangements, including transnational municipal networks, are showing a neoliberal bent (Davidson and Gleeson, Davidson & Brendan Gleeson, 2015; Newell et al., 2012). For instance, environmental city networks are partnering with companies and leveraging pooled procurement power to reduce costs of low-carbon technologies (Acuto, 2013).

This encroachment of private sector interests into governance processes is expected in urban political ecology literature, which assumes that urban governance follows a neoliberal, pro-growth and free market-oriented logic (Keil, 2018). Accordingly, climate finance governance occurring at the substate level is becoming increasingly defined by the same profit-oriented financial products seen at higher scales (Lai, 2018; Layfield, 2013). This specifically includes the debt-based climate finance mechanisms of direct urban loans from multilateral banks and issuance of municipal green bonds, discussed below.

These developments hold implications for where power lies to influence urban economic and environmental destinies and suggest that the loci of power are shifting toward market actors. For instance, Peck and Whiteside (2016) argued that the advent of bond markets and other forms of debt finance have shifted the locus of urban economic power away from the urban growth machine and toward financial market actors, creating a “debt machine.” That is, financial market actors such as credit rating agencies and bond market networks gain the power to drive urban economic growth because they govern access to finance that local governments increasingly require to continue growth. In these conditions, urban policy-making hinges less on government bureaucrats than it does on the decisions of investor and financial market actors (Mayer, 2018). This also extends to urban climate change governance where financial market actors, such as institutional investors and fund managers, determine access to green bonds and climate loans needed by local governments to fund climate mitigation projects (Swyngedouw, 2018). In short, if urban environmental impacts such as GHG emissions reductions can be attributed to city-level allocations of climate debt finance, then financial market actors have new power in determining urban environmental policy outcomes. The geographies of substate climate finance, which are discussed in the next section, may further have the potential to deepen existing inequalities in substate climate governance across the global north–south divide.

4.1 | Urban climate loans and municipal green bonds

The Second Assessment Report of the Urban Climate Change Research Network notes that while relatively nascent, multilaterals can loan directly to cities, though still required is consistency with national strategies and the non-objection of the national government (Schwarze et al., 2018). The observable distribution of these direct urban loans, from such sources as the European Investment Bank, disproportionately go to recipient cities in developed or global north countries over those in less developed or global south countries (CCFLA, 2017). This geography reflects existing inequalities in the landscape of substate participation in climate governance initiatives, where the coordination and membership of environmentally-oriented transnational municipal networks tend to disproportionately be cities of the global north (Bouteligier, 2013; Davidson et al., 2019). As more direct linkages between multilateral banks and borrowing cities are made, this will advance the shift of urban climate governance power to market actors (Peck & Whiteside, 2016; Swyngedouw, 2018), An important emergent question will be if and how global south cities will be included or peripheralized, and how such market factors as creditworthiness are determined.
Within this growing municipal bond lending, the municipal green bond is emerging as a city-level climate finance mechanism which signals an ambition to contribute to climate change governance. Within the municipal green bond, the issuing local government earmarks the use of proceeds for environmental or climate mitigation purposes, as well as designates the source of funds for repayment. Subnational governments are perceived as high-risk borrowers, prompting many cities to obtain credit ratings and achieve creditworthy status, which they leverage to expand the pool of lenders they can access (Schwarze et al., 2018). While the World Bank and Swedish Bank SEB issued the first green bond in 2008, the first municipal green bond was issued by Gothenburg, Sweden in 2013 (Baker et al., 2018).

Much like other climate loans, green bonds are argued to be a viable means of achieving climate mitigation goals because they fund the immediate investment needs of mitigation projects (Flaherty et al., 2016). While it could be argued currently that negative real interest rates on much public debt finance makes these loans an alternative to the neoliberal blended finance consensus, over time interest rates could be expected to converge with private market rates for debt, leaving only debt dependence in the long-run. The more debt finance a city government uses to achieve climate action goals, the greater the future burden that repayment places on the municipal budget. This becomes a common hazard as neoliberal practices encroach further upon urban climate governance (Hodson & Marvin, 2017).

Municipal green bonds issued by local governments for climate mitigation projects, in a similar manner to urban climate loans, are more prevalent in developed than developing world cities due to differences in creditworthiness. Only a small minority of developing world cities are creditworthy enough to access municipal green bonds (CCFLA, 2017). Hence, as neoliberal instruments in substate climate finance expand, urban environmental governance outcomes will increasingly hinge on such factors as creditworthiness (Peck & Whiteside, 2016; Swyngedouw, 2018). Since global north cities tend to have the economic wherewithal to maintain high credit ratings, the existing global north–south gap in climate governance participation (Bouteligier, 2013; Davidson et al., 2019) can be expected to further widen in respect of substate climate finance governance.

As these neoliberal trends in substate climate finance governance progress, future researchers could usefully investigate how creditworthiness and other financial market factors enable and constrain urban climate governance outcomes within and across the global north–south divide. Further, researchers should explore the role of polycentric systems such as environmental transnational municipal networks (Carlisle & Gruby, 2019; Hsu et al., 2017; Van der Heijden, 2019) in facilitating flows of climate finance to participating cities, how far this finance is debt-based (public, private, or blended), and the relative costs and benefits of the financing for different stakeholders.

Last, as with the study of other environmental processes like air pollution (Weidmann & Minx, 2007), it is argued that micro-level analyses of climate finance flows are needed to explain the decarbonization investment landscape that may be missed by macro-level analyses (Sudmant et al., 2017). The OECD and United Cities Local Governments recently launched the World Observatory on Subnational Government Finance and Investment, which will create useful data on subnational financial flows. For climate finance specifically, the Cities Climate Finance Leadership Alliance (the Alliance) has accelerated efforts to achieve more granular tracking and greater mobilization of global climate finance flows to cities. In 2020, within the Leadership for Urban Climate Investment (LUCI) framework, the Alliance and CPI, together with the World Bank Group and the Atlantic Council Resilience Center, started working on a standardized methodology of subnational climate finance tracking to be used globally. This initiative will bolster efforts to mobilize climate finance to cities, with the methodology planned for publication in the second edition of the State of Cities Climate Finance Report. In sum, climate finance governance at the substate level is characterized by decentralization and differential access, because neoliberal market-based logics reward the most creditworthy cities with direct municipal access to debt finance, while excluding those cities unlikely to produce secure derivative income streams to guarantee repayment. This charts a research agenda exploring the emerging structure of substate actors in climate governance (Hsu et al., 2020) as well as navigating the risks of debt finance that is predominately intended to create profit (Layfield, 2013). If debt financing continues to shift the loci of power in governance to market actors (see Peck & Whiteside, 2016), there is a risk that climate policy will continue to diverge away from the public good and the governance principle of social welfare maximization, and toward profiteering.

5 | CONCLUSION

The argument which emerges from our review is that scholars generally agree that climate finance governance has increasingly become institutionally polycentric, multi-scalar and distributed to dispersed agents. Also, these institutional changes have the potential for climate finance governance to be increasingly “fit for purpose” in expanding at
scale with greater efficacy. However, these positive developments are partially undermined by an increasingly market-oriented logic which constrains climate finance governance at all three levels we identified: within the product, in market-making innovations, and within the overall market environment. Power has not been shared or dispersed but concentrated with financial actors, with a consequent reduction in the quality of accountability and transparency. Indeed, the mode of governance of climate finance in its direct implementation and operational context has converged and become more congruent.

This is because the growth in blended finance as a delivery mechanism entails the operational subcontracting of climate finance from the public sector to funds and fund managers, with often the same organizations, and even people, managing public, private and blended finance. The expansion of debt financing at several scales has thus shifted power to market actors. For example, Michaelowa et al. illustrate that in Ethiopia it is Ci-Dev, a technical assistance program from the World Bank, which facilitates delivery by private sector implementers (Michaelowa et al., 2021). Financialized technologies have encroached into the products that together we group as “climate finance,” and perhaps because of the ubiquity of these market-mechanisms, reflection on their governance quality has become a mute point, as alternatives to financialized forms of governance fall out of view. Instead of empirically studying what is happening at the product level, the main bulk of literature has been focused instead in discursive debates on how far relatively ephemeral terms such as paradigm shift, resilience, transformative adaptation and mitigation, and the emerging “just transition” can be ascribed to various practices.

Section 4 reviewed recent developments in substate climate finance governance, where decentralization and polycentric structures afford cities increasing direct access to debt-based finance. However, we noted that emerging governance arrangements embed neoliberal logics and financialization processes similar to those observed at the supra- and national levels. The urban political ecology and financialization literatures have observed how these arrangements have shifted power to market actors, where creditworthiness governs access to debt. This will constrain urban climate governance outcomes, particularly in the global south.

Moving forward, a systemic understanding of global climate finance flows to substate actors is needed, as properly financing urban climate mitigation will be determinant in helping nations achieve more ambitious greenhouse gas emissions reduction targets (Hsu et al., 2020). The research agenda requires both empirical and normative aspects. First, there is an empirical need to more comprehensively establish the costs and benefits of climate loans and municipal green bonds which weighs their perceived short-term cost reductions against their long-term financial sustainability and their contribution to emissions reductions. Second, further research is required on how far, and with what consequences, is urban power to determine economic growth and environmental policy outcomes shifting away from local government and businesses and toward financial market actors such as credit rating agencies and fund managers. Third, further research is required on the normative governance quality of market-based technologies used to value investment and debt products, both in unitary and comparative (opportunity cost) terms. Fourth, fulfilling this research agenda requires new, reliable and standardized tracking methodologies to explain the increasingly nebulous substate climate finance flows, such as the promising LUCI initiative noted above. In short, there remain research gaps in relation to how climate finance is governed which are more fundamental than the more traditional questions of do we have enough, who is delivering it, and how partnerships between different actors should be organized. Private sector delivery of climate finance as “blended finance” across the supranational, national and subnational scales increases indebtedness, and shifts legitimacy to financial domains and proprietary metrics, which now require further research attention.

This research agenda can usefully inform the politics of the UNFCCC which remains heavily conditioned by issues of climate finance: it remains divided between which countries have an obligation to contribute to climate finance, and which countries need it to fund their Nationally Determined Contributions. This binary divide is informed by the original Annex lists of countries which became effective in 1994, despite the middle-income countries and particularly China having loosened the boundaries of the negotiating groups. For example, Michaelowa et al. show how all sub-Saharan African (SSA) Nationally Determined Contributions (NDCs) submitted under the Paris Agreement contain conditional pledges that rely on external finance for support, which means access to official development assistance or finance from the private sector (2020, 2). Only a few contain unconditional pledges. In Ethiopia, this means raising USD 150 billion to implement their NDC (Michaelowa et al., 2021, 5).

Given this structure, conflict over finance within the UNFCCC will likely remain common, beginning with how much there is available, and from whom. Attridge and Engen (2019) summarize that there are causality and attribution problems with the methodology for counting finance mobilized from the private sector by multilateral development banks (MDBs), which gives rise to an “unsatisfactory situation” where the methodologies of the OECD and MDBs are not aligned, and transparency and public trust are adversely affected (2019, 21). The OECD’s accounting of climate finance equates loans to grants, further complicating transparency issues in reporting (Weikmans & Timmons...
Given these problems, the OECD calculation of climate finance is disregarded by many developing countries as being far too high, a problem exacerbated by a continuing lack of trust and the complexity of new DAC accounting rules for blended finance (see OECD, 2018). Indeed, what constitutes “climate-related” in “climate finance,” and more broadly “green” in green finance remain fundamentally contested between competing political interests who seek to shape how each is defined and operationalized. These problems motivate the urgent need for the UNFCCC to create a detailed definition of what climate finance is and is not (Weikmans et al., 2020).

While non-state actor engagement was initially orchestrated by the UNFCCC Secretariat in order to demonstrate more positive “action,” few private actors are willing to disclose their investments, which causes other actors to be skeptical about total flows and their additionality. This means that promises of finance and threats of its withdrawal are used to leverage broader debates in climate change governance, with normatively ambiguous consequences, with actors forced to make decisions on the type of activities to be pursued, and by whom, in nebulous financial scenarios. Further research to provide empirical data and systematic normative evaluation of different products, markets and environments for climate finance governance could contribute to easing the current stalled transition on the path to decarbonization, which is shared by all parties.

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ENDNOTES
1 The definitional literature on neoliberalism is vast and amorphous (Castree, 2006) and for issues of space impossible to cover here. We are using the concept to refer to profit-maximizing logics of calculation which are dominant in funds and investments relative to other considerations.

2 The methodology here is not to further review this literature using quantitative metrics or to summarize the body of scholarship per se, rather, we use a deductive method and describe the main themes of climate finance governance using illustrative authors which inevitably will have embedded biases. However, considering the extent of global scholarship one definitive review is not possible.

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