



Aligning financial flows with the Paris Climate Agreement: Assessing the emerging institutional architecture in global climate governance

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Reaching the Paris Climate Agreement's 1.5°C temperature limit requires rapid and far-reaching transformations in all economic sectors, including underlying investment and finance patterns. For the first time in global climate governance, the Paris Climate Agreement establishes a goal for aligning global finance flows with international climate and sustainable development objectives.

Due to continued investments in fossil fuels and inadequate finance for the net-zero economy, financial flows are far from being "consistent with pathways to low-emission and climate-resilient development" (Article 2.1(c), Paris Agreement). Aligning finance with the Paris Agreement at the necessary speed and scale is a transformational challenge that requires targeted governance by relevant international institutions to help overcome both demand- and supply-side barriers to meeting projected climate investment needs.

Based on a sectoral perspective to global climate governance, this Study provides an initial assessment of the emerging institutional architecture that aims to deliver concrete governance functions to overcome underlying barriers for the implementation of the Agreement's goal on aligning financial flows.

KEY MESSAGES

The governance landscape since the adoption of the Paris Agreement shows the emergence of a new objective in international environmental governance, namely the alignment of global finance with climate and sustainable development objectives. By targeting all 'finance flows' and other actors outside of the UN climate regime, this new objective constitutes both a challenge and an opportunity for strengthening global climate finance governance.

The emerging institutional architecture reflects a growing awareness about the role of global finance for the climate transition. However it fails to deliver critical functions for governing the alignment of global finance with the Paris Agreement, with significant gaps in the provision of guidance and signal, setting of international rules, and providing transparency and accountability.

In order to translate the Paris climate goals to public and private financial actors, international governance would need to provide credible and consistent guidance and standards on climate-aligned financial flows and systems, including a collective commitment to phase out fossil fuel financing. This points to an urgent need for enhanced inter-

national cooperation and coordination between global climate, sustainable development and financial governance to achieve more coherence.

Some of the identified gaps could be filled through the UN climate regime itself by developing a framework for the implementation of Article 2.1(c). Other barriers such as the financial system's short-term bias and non-aligned incentives for financial actors relate more directly to global financial governance. Multilateral development banks and climate funds can scale up efforts as standard-setters and knowledge providers on Paris-aligned finance.

To promote a more systemic alignment between climate and financial governance, there is scope for the G20 to facilitate a climate and sustainable finance agenda between international financial institutions and financial sector regulators and to address fragmentation within financial governance on regulatory and supervisory standards. There is potential to build on existing G20 initiatives such as the Financial Stability Board's private sector-led Task Force on Climate-Related Financial Disclosures (TCFD).

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1. INTRODUCTION

Reaching the Paris Climate Agreement's (PA) long-term goals, including the 1.5°C temperature limit, requires rapid and far-reaching transformations in all sectors of the global economy. This in turn requires transformation of underlying investments and financial flows (IPCC, 2018). The PA's establishment of a long-term financial goal that recognizes the role of global finance flows for "strengthen[ing] the global response to the threat of climate change" (Article 2.1 PA) can be seen as one of the most remarkable developments in recent global climate governance. The goal of "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development" (Article 2.1c PA), alongside the Agreement's long-term climate change mitigation and adaptation goals (Articles 2.1a and 2.1b respectively), establishes finance as an important sectoral system in urgent need of transformation and alignment with international climate objectives, with far-reaching implications.

Even short-term finance flows and investments risk locking in high-carbon infrastructure for decades. With average temperatures likely reaching 1.5°C of warming compared to pre-industrial levels between 2030 and 2052 and with warming persisting "for centuries to millennia to come" (IPCC, 2018:5), the next decade will be decisive for the necessary transformations in all sectors of the real economy and requires "a financial system aligned with the mitigation challenges" (Rogelj -1483527158 *et al.*, 2018: 82).

This *Study* explores the challenge and potential stemming from this new goal, applying the 'sectoral systems' perspective on global climate governance developed by Oberthuer *et al.* Its scope is limited to the climate change mitigation side of aligning finance with the PA's goal of reaching net-zero emissions by the middle of the century. However, it is important to note that the concept of 'Paris -alignment' applies to adaptation (or 'climate-resilient development') as well as emissions reduction (mitigation).

This challenge entails distinct needs and potential for strengthened international cooperation and global governance. However, within climate governance as typically conceived,

the focus on governing greenhouse gas (GHG) emission reductions in relevant sectors of the 'real economy', such as power, transport, buildings, agriculture and land use, industry (e.g. Kuramochi *et al.*, 2018; IPCC, 2018b) has meant that finance has not been considered a relevant sector in its own right. After all, the biggest environmental impact of financial actors is not their own direct carbon footprint, but rather the indirect effects of their capital allocation. However, since finance and investments "represent a lever that policymakers and investors can use to affect emissions" (McCollum *et al.*, 2018:595), it is crucial to take an economy-wide perspective of both finance and the real economy to assess specific systemic transformation challenges and related governance gaps.

In this context, this article explores the existing and potential contribution of international institutions to advancing the long-term financial goal of the PA. A significant increase in international initiatives by various relevant public and private financial actors since the adoption of the PA and their diverse approaches for responding to goals suggests the emergence of a quickly evolving and complex international institutional landscape. This landscape can be seen as forming an institutional 'sub-complex' in global climate governance organized around the sectoral theme and framing of aligning finance flows with the goals of the Paris Agreement or 'Paris alignment'. This concept means that entire financing and investment portfolios, beyond flows and projects that are directly beneficial for the climate and traditionally classified as climate finance, need to be made consistent with the PA and its long-term goals (IDFC, 2020).

The analytical framework adopted in this paper focuses on the specific governance functions that sub-complexes of international institutions can theoretically deliver in order to support decarbonization in different sectoral systems. (Oberthuer *et al.*). Based on social transition theory, the conceptualisation of sectoral systems acknowledges that the climate change problem takes politically and socially different forms across the various socio-technical systems that need to be transformed for the decarbonization of our economies and societies. According to Oberthuer *et al.*, a sectoral approach to the analysis of international climate governance therefore aims to heed the insight that effective governance requires institutional arrangements

that fit the structure of the problem (e.g., Young and Levy, 1999; Miles *et al.*, 2002; Young, 2009).

Hence the approach of this paper is to assess the institutional sub-complex within global climate governance that is relevant for the specific sub-problem of aligning financial flows with the PA. From this perspective, the scope includes, but goes beyond, climate finance governance in the context of the United Nations (UN) climate regime and multilateral climate funds, as it also encompasses global financial institutions, financial sector initiatives, and international financial regulators. In keeping with the scope of the sectoral governance approach, the analysis is limited to *international* institutions as the principal fora of global governance, rather than other climate-relevant levels of governance such as the national and sub-national. Relevant institutions include lasting intergovernmental and transnational institutional arrangements of various levels of formalisation that aim at realizing a relevant common purpose and possess a normative core and procedures for joint decision-making (in the following referred to as 'international institutions').

To this end, the paper proceeds as follows: it first explores the transformational challenges related to Paris alignment (Section two) and how international institutions can potentially address those by providing relevant governance functions (section three); section four then assesses the emerging institutional sub-complex and how it meets the demand for international governance, and identifies gaps. Based on this, the final section draws some preliminary conclusions with respect to enhancing governance delivery of the institutional sub-complex.

2. THE TRANSFORMATIONAL CHALLENGE OF ALIGNING FINANCIAL FLOWS WITH THE PARIS AGREEMENT

This section in a first step characterizes the transformational challenge of aligning global finance flows with the PA and the specific barriers needing to be overcome.

Despite existing knowledge gaps and uncertainties on the exact nature and scale of financing required to achieve the goals of the PA, the emerging literature indicates a gap between current investment patterns and those compatible with 1.5°C (or well below 2°C) pathways. According to the Intergovernmental Panel on Climate Change, global model pathways limiting warming to 1.5°C project annual average investment needs in the energy system alone of around USD 2.4 trillion between 2016 and 2035 (IPCC, 2018: 26). Notably, while a transformation of the global energy system does not necessarily require a major increase in total investments, a pronounced *reallocation* of the investment portfolio is inevitable (McCollum *et al.*, 2018). Under 1.5°C pathways, annual investments in low-carbon energy are required to increase by a factor of five by 2050, overtaking fossil fuel investments already by around 2025. At the same time, investment in fossil-fuel extraction and conversion need to decrease by around a quarter over two decades and investments

in unabated coal to halt by 2030. This poses large-scale financial risks to investors since fossil investments that are not in line with these pathways likely need to be retired prior to fully recovering their capital investment or before the end of their operational lifetime (Rogelj *et al.*, 2018: 82).

Since the PA, global financing of low-carbon investments has been modestly increasing with the annual average crossing the half-trillion mark for the first time in 2017 and 2018, with increases across all types of investors (Buchner *et al.*, 2019:2). However they account for only a small portion of overall finance flows (UNFCCC, 2018a). On the other hand, the International Energy Agency (IEA) has registered a slight increase in capital spending in upstream oil and gas and coal supply for the years since Paris, while investment stalled for energy efficiency and renewables. These trends signal a growing mismatch between the paths to meeting the PA and current financial flows.

Climate policies such as carbon pricing, emission standards, and clean energy subsidies usually focus on the demand side of capital for low-carbon development, affecting both capital demand and investors' risk-adjusted returns. Evidence shows that weak and inconsistent demand-side climate policy signals represent a critical barrier to directing financial flows towards climate goals (Zou *et al.*, 2015). Investors and other financial actors regularly call for certainty on climate policy to allow for long-term planning and investment decisions based on the projected value of financial assets (e.g. Investor Agenda, 2019). Existing applications of carbon pricing (*via* tax or cap-and-trade) are insufficient in terms of price levels and GHG emissions covered to encourage a substantial shift in investments (Watson and Schindler, 2017). Existing climate policy commitments by countries submitted in the form of Nationally Determined Contributions (NDCs) under the PA are insufficient to drive the required shift in investments (McCollum *et al.*, 2018). "Negative carbon pricing" continues in the form of governments' ongoing support through subsidies to fossil fuel production and consumption. This creates market distortions and inconsistent price signals (Gerasimchuk *et al.*, 2017), since climate risks and benefits of investments are not adequately captured in financial risk-return considerations (Druce *et al.*, 2016:7). As a result, even with internationally adopted long-term climate objectives, carbon-intensive investments remain financially attractive even when low-carbon alternatives become more competitive and carbon-intensive investments are projected to become 'stranded assets'¹ (Carbon Tracker, 2013).

An emerging body of research suggests that capital suppliers face other barriers that affect their capacity to invest in low-carbon projects, implying the need to go beyond demand-side climate policies. Supply-side policies, such as financial policies and regulations, can affect the incentive structures faced by financial actors to finance low- or high-carbon investments (Zou *et al.*, 2015). For example, barriers to long-term investments in general disadvantage low-carbon investments,

¹ For further discussion of the risk of stranded assets, see Rayner (this issue).

which often require high upfront investment costs and access to long-term capital, while facing higher risk perceptions and costs of capital, especially in developing countries (Schmidt, 2014). Reforms would be necessary to shift global financing patterns from funding operating costs to financing upfront investments and to 'de-risk' climate mitigation investments (de Coninck *et al.*, 2018: 378). This has been amplified by financial sector reforms in response to the global financial crisis, such as prudential regulation that focused on the primary target of financial stability, constraining the ability of banks to lend long-term and thereby undermining long-term climate investments (Zou *et al.*, 2015).

The lack of coordination between financial governance and climate policy has been a major barrier that has led to an insufficient application of specific financial regulation or policy in support of climate action. Instead of stringent financial regulation and oversight to incentivize a transformational shift of financial flows, there has been a focus on voluntary financial disclosure and reporting standards (Christophers, 2017). Similarly, previous efforts to address the barrier of the lack of transparency and accountability for the social and environmental impact of investments through socially responsible investment practices have been too isolated and non-systemic to spur significant change. As a result, financial institutions view financial performance as their only legal fiduciary obligations, excluding other interests such as climate change (Richardson, 2008:13). They also lack broad awareness and capacity to understand which investments contribute most to climate change or climate action (TFCD, 2017). These regulatory challenges contribute to limited transparency and lack of accountability for the climate impact linked to financial flows.

As a result, "current market and policy signals are not incentivizing the major reallocation of capital to low-carbon investments" (IEA, 2019: 2), undermining clarity and predictability for financial actors to align their decision-making. This overarching barrier for achieving the financial transition stems partly from the complexity and diversity of relevant actors and institutions that can be considered "central to climate but for whom climate may not be central" (Climate Transparency, 2017), such as development finance institutions, central banks, commercial banks and institutional investors. Although their core mandates traditionally have not been explicitly focused on climate change (but rather on economic and financial stability, the reduction of poverty, creation of markets or capital allocation to maximize returns), their financial decisions do contribute significantly to the achievement of climate goals.

Increasing evidence on future climate impacts and climate-related financial risk throws into question non-climate institutions' ability to fulfil their respective mandates (see Zou *et al.*, 2015; IPCC, 2018). However, long-term climate goals go beyond the traditionally short-term horizons of most financial decision- and policymakers (Carney, 2015). Coupled with inconsistent market and policy signals, and the barrier of a lack of awareness, data, and knowledge on the financial implications of climate change, this contributes to misconceptions among these actors that the climate transition does not fall within, or would conflict with,

their mandates and governance (Zou *et al.*, 2015). Global knowledge gaps on what 1.5°C-consistent or other emission pathways mean for the allocation of finance and investments and the composition of financial portfolios (Rogelj *et al.*, 2018:81) constitute a further knowledge and data barrier.

In sum, evidence suggests that both demand- and supply-side barriers contribute to a financing and investment gap for meeting projected climate investment needs (McCollum *et al.*, 2018: 595). A more detailed exploration of the underlying reasons for these barriers is beyond the scope of this paper, but is noted as an important area of further research on the intersection of climate and financial governance.²

3. GOVERNANCE NEEDS FOR ADDRESSING THE TRANSFORMATIONAL CHALLENGE

This section explores how, in principle, international institutions could contribute to addressing the barriers related to aligning global financial flows with climate objectives. As part of the sectoral systems approach to international climate governance, Oberthuer *et al.* identify five key functions that international institutions can fulfil, to facilitate international cooperation to bring about decarbonisation. This section highlights the relevance of each function to the case in question.

Derived from the literature on the functions and effects of international governance, the following functions reflect both normative and decision-making aspects: 1) providing *guidance and signal* to both public and private actors; 2) setting *rules to facilitate collective action* across borders; 3) providing *transparency and accountability* to enhance mutual trust and deter 'free riding'; 4) supporting *means of implementation*; 5) promoting *knowledge and learning* regarding problems and solutions (see Table 1).

² For an overview of different theoretical and governance debates within the financial sector climate-related policy versus regulation, see Chenet *et al.*, 2019.

TABLE 1. Overview of main functions of international governance institutions

Functions	Key features	Main added value
Guidance & Signal	• Results from overall agreement, including targets/objectives	• Aligns actors across countries
Setting Rules	• Various forms of obligations and standards	• Enables action by addressing interdependence & competitiveness concerns
Transparency & Accountability	• Reporting, review/verification, compliance	• Contributes to effective reciprocity and implementation (addressing free riding) & mutual trust
Means of Implementation	• Capacity building, technology transfer and finance (North-South)	• Facilitates pooling of donors/investors' resources and reducing transaction costs
Knowledge & Learning	• Generation and collective appraisal of information/knowledge • Science and policy learning	• Improved and shared understanding (authoritative knowledge) • Improved policies (learning)

Source: Oberthuer *et al.*

For present purposes, international institutions are understood to comprise both intergovernmental (involving only governmental actors) and transnational institutions, which also comprise non-governmental actors (Oberthür *et al.*). When identifying how international institutions can potentially deliver these functions to support the Paris alignment of finance flows, it is important to note that the transformation to a net-zero economy is driven by the interplay of financial actors and the real economy. This means that international governance can increase the real economy's demand for Paris-aligned finance *via* appropriate climate policies and incentives. On the supply side, it can facilitate the allocation of finance into these real economy activities through innovation and reforms that affect the financial system's underlying incentive structure (Watson and Schindler, 2017).

The aim of this section is not to specify all potential policies and measures for individual actors and institutions but to identify on a functional and systemic level the type of international governance required to overcome the barriers noted above, to maximize the prospects of achieving the PA's financial goal. In contrast to other analytical frameworks (e.g. Bartosch *et al.*, 2018; Jachnik *et al.*, 2019; Watson and Schindler, 2017; Whitley *et al.*, 2018) that include tools that governments or sub-groups of institutions such as development finance institutions can use for aligning with the PA, this framework focuses on what global governance could in principle do to support Paris alignment.

3.1. Guidance and signal

To address the barrier of weak demand-side climate policies, international governance can facilitate guidance to (public and private) financial actors through signalling the long-term trajectory towards a net zero, Paris-aligned economy, including

decarbonization strategies in relevant sectors in the real economy. Hence international governance in sectoral systems of the real economy is relevant for aligning financial flows, but this issue is beyond the scope of this analysis.

In addition, there is a distinct need for global governance targeted specifically at steering financing flows towards long-term climate objectives through guiding both the scaling-up of financing that actively supports climate action and the phasing-out of non-aligned financing that potentially undermines the implementation of the PA. To signal the irreversibility of the financial climate transition, the PA's long-term goals of the 1.5°C temperature limit and net zero carbon emissions in the second half of this century could be translated into related finance and investment pathways and timelines, including targets for globally phasing out non-climate aligned financing such as fossil fuel investments. International institutions can further set the course by integrating long-term climate and sustainable development objectives into their mandate and purpose of the financial system and by facilitating systemic alignment between climate and financial governance.

3.2. Setting international rules

International governance can facilitate collective action by all relevant public and private financial actors by setting global rules, norms and standards to enhance clarity on what can be considered Paris-aligned or non-aligned financial flows and related policies. On the demand side, this includes cooperation on the alignment of fiscal policies such as the reduction of fossil fuel subsidies and the use of adequate carbon pricing instruments to help incorporate climate impacts into investment decisions. Coordination of positive and negative carbon pricing through international institutions could ensure consistency across countries and help avoid possible carbon leakage and trade distortions.

On the supply side, international institutions can coordinate collective financial policy and regulation in support of climate goals. This includes the setting of common Paris-aligned investment criteria and mainstreaming standards for financial institutions³

3.3. Transparency and accountability

Providing transparency and accountability is a key function for governing the alignment of financial flows with the climate transition. Because of the all-encompassing and global nature of the PA's financial goal in Article 2.1c, there is a need for international governance institutions to put in place frameworks for the consistent and holistic tracking of all financial flows against climate objectives. The scope of such tracking would need to include information on the climate impact of all public and private flows, including those that contribute to, or undermine,

³ Examples include private bank's climate-related lending requirements and public funds and development finance institutions' investment requirements.

climate objectives, and those with no particular climate impact. For completeness, reporting would have to also cover domestic and international flows (Jachnik *et al.*, 2019). In order to effectively hold financial actors accountable for the climate impact of their decisions, the transparency regime would need to collect information on both aggregate levels of finance flows to compare against collective goals as well as levels by individual countries and actors.

3.4. Means of implementation

International governance can facilitate the joint mobilization and delivery of means of implementation, such as public finance and capacity-building, to various actors and countries to support the implementation of climate goals. This is considered "burden-sharing between high-, medium- and low-income countries" (de Coninck *et al.*, 2018:380). International institutions, including development banks and public funds, can employ public finance to address several identified supply-side barriers by providing access to long-term finance and de-risking instruments, especially in developing and emerging economies. This can reduce transaction costs for bankable climate mitigation projects. In addition to providing climate-related development financing, relevant institutions can also shift their strategies and financing patterns to align their development operations with climate objectives. International institutions can further provide capacity-building and technical assistance to support governments and other financial actors in developing policies and regulations for directing finance flows.

3.5 Knowledge and learning

There is potential for international governance to facilitate collective knowledge and learning within the sectoral system on the issue of Paris-aligned finance. The development of internationally accepted knowledge can increase awareness by public and private financial actors. It can also facilitate collective learning on specific policies, regulations and financial instruments and how they affect financial flows. There is potential to fill existing knowledge gaps, such as on the scope and structure of Paris-compatible global financial pathways and portfolios.

4. GOVERNANCE SUPPLY: LIMITS AND GAPS

4.1. The emerging institutional complex for climate-aligning finance flows

The previous section highlighted the significant potential for international institutions to address identified institutional, policy, regulatory, and knowledge barriers, in order to create an international enabling environment for aligning global finance flows with the PA. This section assesses to what extent

this potential is being leveraged by the emerging institutional complex.

In line with the sectoral framework by Oberthuer *et al.* applied in this paper, the institutional complex was identified by mapping the international institutions and initiatives (both intergovernmental and transnational) that are relevant for aligning global finance flows with the climate transition.

This perspective on global climate governance is consistent with literature on 'polycentric' climate governance (Ostrom, 2010; Jordan *et al.*, 2015; 2018), in which the key units of analysis are institutional complexes constituted by networks of three or more international institutions that relate to a common subject matter, exhibit overlapping membership, and generate interactions in rule-making or implementation (Orsini *et al.*, 2013; see also Raustiala and Victor, 2004; Oberthür and Stokke, 2011). It is important to recognize certain limitations to the sectoral system framework. In particular, some aspects of multi-level governance and details of individual institutions receive less attention than they might otherwise receive. In the context of aligning finance flows with Paris, the mapping of the institutional sub-complex includes both overarching global climate institutions such as the UN Framework Convention on Climate Change (UNFCCC) and its PA, and more finance-specific institutions and initiatives that explicitly pursue Paris alignment of financial flows or similar objectives, including multilateral climate funds, international financial institutions, financial sector and private investor initiatives, as well as by overarching global governance fora such as the UN and the G20.

Financing under the UNFCCC and Paris Agreement

Under the UNFCCC, the Paris Agreement represents a turning point in recognizing the role of finance flows for the achievement of climate objectives. For the first time, the global climate regime has set a collective finance goal that targets all financial flows in Article 2.1c rather than the more limited previously addressed 'global *climate* finance flows' (emphasis added), 'all financial flows from developed countries' or 'flows to developing countries' (see e.g. Gupta and Harnisch 2014). This goal therefore includes but goes beyond the UNFCCC's previous financial goal aimed at industrialized countries "of mobilizing jointly USD 100 billion per year by 2020 to address the need of developing countries", which "may come from a wide variety of sources, public and private, bilateral and multi-lateral, including alternative sources" (UNFCCC, 2009, para. 8). The decision accompanying the PA establishes the continued mobilization of USD 100 billion annually as a minimum level for the period of 2020 to 2025 and mandates the formulation of a higher target starting from 2025. In this context, Article 2.1c can be understood as a signal for directing all global finance flows towards the climate transition beyond the annual USD 100 billion of mobilized means of implementation.

One significant shortcoming is that the PA's rule-setting and transparency regime is limited to the Agreement's delivery of means of implementation with substantive gaps for translating the goal in Article 2.1c. into criteria, standards and targets to

facilitate collective action towards reaching broader Paris alignment of finance flows or requirements for individual action by Parties to the Agreement (e.g. as part of their Nationally Determined Contributions in accordance with Article 4 or their climate finance commitments under Article 9).

Similarly, the PA's financial transparency and accountability regime is limited mostly to the USD 100 billion goal and fails to cover the full scope of Article 2.1c. While Paris alignment requires the tracking of domestic and international flows, financial reporting under its Article 13 and the compliance regime under its Article 15 are limited to industrialized countries' individual contributions towards the collective means of implementation goal. It thus lacks reporting by all Parties on the climate-consistency of their international and domestic flows, including finance flows that undermine climate objectives (Jachnik *et al.*, 2019). Even for those flows towards the USD 10 billion, agreed definitions and accounting rules remain insufficient to facilitate the consistency and comparability of information. Finally, the translation of existing transparency norms into accountability mechanisms has been weak, and information disclosed by countries is often opaque (Ciplet *et al.*, 2018).

In addition to incomplete tracking of individual countries' flows, the PA regime partially contributes to delivering collective transparency. The 'Global Stocktake' under Article 14 is mandated to collect aggregate levels of all finance flows in order to track progress towards both the goal in Article 2.1c and the USD 100 billion means of implementation goal. However it remains unclear how any gap between assessed flows and the goal in Article 2.1c will lead to corrective actions and accountability by Parties to the Agreement and other financial actors.

The UNFCCC and PA also develop internationally shared and accepted knowledge on the climate-aligned finance flows through mandating technical bodies to synthesize existing information and produce authoritative reports, such as the UNFCCC's Standing Committee on Finance (SCF) in the context of its Biennial Assessment and Overview of Climate Finance Flows (UNFCCC, 2018a). The IPCC's fifth assessment report (2014) included for the first time information on climate mitigation investment and finance issues (Gupta and Harnisch 2014). Its 2018 *Special report on global warming of 1.5°C* broke new ground by providing messages to policymakers on projected financing and investment needs under 1.5°C pathways. Reports by both bodies will be used as sources of information in the Global Stocktake process that is set to start in 2023 and take place every five years thereafter (UNFCCC, 2018b).

Overall, the UNFCCC and PA's governance regime partially delivers on several relevant functions: overarching guidance and signal to all actors on making financial flows consistent with the Paris climate objectives (Article 2); coordinating the mobilization of means of implementation to developing countries (Article 9); enhancing individual and collective transparency and accountability mainly for means of implementation, but also to a limited extent on the collective level for broader finance flows (Articles 13 to 15); and facilitating collective knowledge and learning through the provision of information and data on the climate consistency of finance flows. Based on this assessment,

the largest gaps seem to lie in the complete lack of rule-setting for implementing Article 2.1c and the limitation of transparency and accountability to climate finance flows from a small sub-set of countries rather than global finance flows. When assessing the UNFCCC's governance delivery and gaps, it is important to note its inherent limitations for implementing the full scope of Article 2.1c. By targeting all 'finance flows', the PA sends a signal to other actors outside of the UN climate regime, which implies the need for other institutions to also provide relevant governance functions.

Multilateral climate funds inside and outside the UNFCCC

Through their dedicated role of supporting the implementation of the PA, there is high potential for multilateral climate funds within and outside the UN climate regime to provide important functions beyond their allocation of financing to climate mitigation projects in developing countries. The UNFCCC-established Green Climate Fund (GCF) and Global Environment Facility (GEF) serve as the PA's Financial Mechanism, whereas the Climate Investment Funds (CIFs) were set up outside of the UNFCCC to channel scaled-up financing for climate investments through the multilateral development banks.

Contributing to the delivery of the USD 100 billion goal is traditionally considered to be the primary purpose of these funds (Watson and Schalatek 2019). Although collectively these funds channel significant financing that actively supports climate objectives, they cannot cover total global climate investment needs and remain a fraction of global flows to be aligned with the PA. Nevertheless, as the only international financial institutions (IFIs) with core mandates of promoting climate transition, multilateral climate funds help address existing supply-side barriers to increased climate investments. They invest their mobilized public capital in projects and can leverage additional public and private capital through blended finance and through de-risking climate investments, enhancing access to finance, and providing capacity-building for partner countries and institutions.

In addition, to support the alignment of broader finance flows beyond their own financing, they can use their specialized climate mandate to set new international standards and criteria for Paris-aligned investment. The GCF most notably aims to "support the paradigm shift to low-carbon and climate-resilient development pathways" (UNFCCC, 2011, para. 3), constituting an important signal beyond its own portfolio. The fund established climate investment criteria that require projects to contribute to reaching the long-term temperature limit. Further, to address concerns about the GCF accrediting several IFIs and commercial banks with track records in fossil fuel financing, it introduced transparency and accountability requirements for its partner institutions to regularly disclose information on their overall financial portfolios' consistency with climate objectives (Fallasch and Kretschmer, 2015). This suggests that multilateral climate funds can set examples for climate aligned financial standards and incentivize their application by other financial institutions.

However, despite this promise and signal, their potential remains largely underutilized for translating this signal into consistent standard-setting policies and criteria and for enabling private investors to mobilize additional capital (Fankhauser *et al.*, 2016), as well as for coordinating with other IFIs to act as catalysts within global finance.

International financial institutions

As publicly-owned bodies, International Financial Institutions (IFIs) comprising the International Monetary Fund (IMF), the World Bank Group (WBG), and other multilateral development banks (MDBs),⁴

MDBs in particular demonstrate a track record of mobilising means of implementation for the NDCs and other climate commitments and of the joint tracking of these flows.⁵ In addition to pledging to raise their climate finance to USD 175 billion annually from 2020 and 2025 (IDB 2019), MDBs in 2017 together with the International Development Finance Club (IDFC)⁶ first announced their commitment to align their activities with the goals of the PA and to develop a joint Paris alignment approach using common methods and tools (World Bank 2018). This approach is set to present an evolution from the initial 'climate finance' paradigm (Larsen *et al.*, 2018) and to go beyond the 2015-launched IDFC's voluntary principles for mainstreaming climate action in financial institutions (World Bank Group, 2015)

While this paradigm shift is promising, the MDBs' Paris-alignment approach will not be fully developed and implemented before 2023 or 2024—years after the adoption of the PA (Sidner, Bartosch, and Kachi 2020).

Some individual MDBs show faster progress than others on Paris alignment, such as the European Investment Bank's lending policy that includes their ending of fossil fuel finance by 2021 (EIB, 2019). Several other MDBs did not support the 2020 'Finance in Common' joint declaration by public development banks⁷ that signals their collective commitment for reorienting global finance towards climate and SDGs, aligning their activities with the PA, and "applying more stringent investment criteria, such as explicit policies to exit from coal financing" (Finance in Common, 2020). From the perspective of delivering functions of global governance, utilising the full potential of their joint approach would require all MDBs to signal the collective commitment and timely target date for excluding non-aligned financing from their portfolios, to set common standards and criteria on Paris-aligned or non-aligned financing based on 1.5°C

emission pathways, as well as to develop a joint approach for reporting on both aligned and non-aligned financing (based on Ryfisch *et al.*, 2019). Research on the Paris -alignment of existing activities finds inconsistent progress among MDBs but an overall insufficient scale and speed of internal transition in terms of phasing out fossil fuel financing and increasing climate finance. Gaps remain in particular in data availability and transparency, especially on the finance ratio between climate-aligned and non-aligned due to a lack of standardized definitions, with some fossil fuel projects being in fact reported as climate finance (Wright *et al.*, 2018).

In addition to aligning their own financing with the PA, IFIs such as the WBG also use their central role to engage other public and private financial actors in mostly voluntary governance initiatives in relevant areas such as fiscal policy and carbon pricing. Notably the 'Carbon Pricing Leadership Coalition' aims for the application of Paris-aligned carbon pricing throughout the global economy. Monitoring global application of carbon pricing, it finds that in 2019 only 20% of global GHG emissions were covered and less than 5% per cent at Paris-compatible price levels (Ramstein *et al.*, 2019).

The IMF with its critical function of overseeing members' macroeconomic and financial policies, as well as the international monetary system, has since 2015 begun to consider climate change within its mandate as it "poses significant risks for macroeconomic performance and several of the appropriate policy responses lie within the fund's expertise" (IMF, 2015). Since then it has developed country-level guidance and provides research on economic policy tools such as fiscal policies to support climate strategies and updates of global fossil fuel subsidies (IMF 2019). There is further underutilized potential for the IMF and World Bank to more systematically integrate climate change and Paris-aligned financing into their operations and core mandate of developing and monitoring international standards, as well as into their macroeconomic and financial analysis for policy-making.

Financial sector and investor-led initiatives

In addition to the public financial institutions identified above, a plethora of voluntary climate initiatives has emerged within the wider financial sector, with the explicit objective to engage actors that are relevant for aligning private finance with the PA's goals, such as institutional investors, financial regulators, and commercial banks. This can be seen as evidence that the PA's partial signal has been received by relevant financial actors.

Notably, institutional investors manage assets of around USD 93 trillion and contribute little to climate objectives (OECD, 2015:15). A growing number of insurance companies, pensions funds, and sovereign wealth funds have pledged to divest their assets in part or total from fossil fuels (Arabella Advisors 2018). This global 'divestment' movement has been promoted by transnational civil society networks, which engage in "social steering" through raising awareness and forming new norms (Ayling and Gunningham, 2017).

Institutional and other investors are further targeted in a growing field of sustainable finance initiatives, which are often

⁴ The MDBs include African Development Bank (AfDB), Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), European Bank of Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development Bank (IDB), Islamic Development Bank (IsDB), and New Development Bank (NDB).

⁵ Between 2016 and 2018, MDBs mobilized over USD 100 billion in climate finance (see MDBs 2017, 2018, 2019).

⁶ In addition to MDBs, the IDFC is comprised of national and regional development bank as well as commercial banks.

⁷ The 450 signatories make up 10% of annual global investment and do not include ADB, AIIB, IDB, NDB and WBG.

hybrid of intergovernmental and transnational institutions. For example, the UN Environment Programme Finance Initiative (UNEP FI) aims to act as an interface between the UN and the financial sector and has developed 'Principles for Responsible Investment' (PRI), and the 'Portfolio Decarbonisation Coalition' and 'PRI Montreal Carbon Pledge', through which investors commit gradually to decarbonize their portfolios and to publicly disclose their portfolios' carbon footprint. Several investor groups form the transnational 'Investor Agenda' which urges governments to implement the PA in particular by aligning fiscal policies and disclosure standards (Investor Agenda, 2019). The main function of this growing field of sustainable finance lies in addressing supply-side barriers by increasing global knowledge and awareness, as well as transparency, within the financial sector on climate risks, to help create new global norms on sustainable financing. Yet the positive trend of sustainable finance practices largely remains a niche field within the financial sector.

Financial regulators and supervisors also show increasing awareness on climate risk and have started developing frameworks and sharing knowledge on climate-related financial risk management. The global 'Network of Central Banks and Supervisors for Greening the Financial System' (NGFS) has developed recommendations for integrating climate-related criteria into central banks' mandates of supervision and financial stability monitoring (NGFS, 2019), including through stress-testing against climate scenarios (NGFS, 2020). Similarly, the 'Coalition of Finance Ministers for Climate Action' mobilizes finance ministries and shares best practices on macroeconomic, fiscal, and public financial policies for Paris through its common principles (so-called 'Helsinki Principles') (World Bank, 2019). Several jurisdictions have adopted regional sustainable finance frameworks, most prominently the EU's sustainable finance taxonomy regulation (European Commission, 2020).

In parallel to these new initiatives which remain limited in terms of participating jurisdictions and their members' coverage of GHG emissions and GDP, traditional international standard-setting organizations also have started to enhance their understanding of climate-related financial risk and what it means for their mandate of financial stability and supervision. The G20 Financial Stability Board (FSB) through its task force on climate-related financial disclosures (TCFD), the Basel Committee on Banking Supervision (BCBS) through its task force on climate-related financial risk (BCPS, 2020), the International Organization of Securities Commissions (IOSCO), the International Association of Insurance Supervisors (IAIS) and the International Organization of Pension Supervisors (IOPS), as well as the IMF. Due to limited coordination among the NGFS and traditional standard setting bodies, there is a risk of regulatory and policy fragmentation resulting in inconsistent standards (Portilla, Gibbs, and Rismanchi, 2020).

In the context of global governance for aligning financial flows and related sustainable finance initiatives, it is noteworthy that the UN framework for financing sustainable development and its 'Inter-Agency Task Force on Financing for Development (IATF)' (comprising most of the identified global public financial

and regulatory institutions, including the UNFCCC, multilateral climate funds, IFIs, FSB, and UN sustainable finance initiatives) promotes the similar objective of a "sustainability transition in the financial system" (UN, 2019) to tackle underlying systemic barriers to achieving climate and sustainable developing objectives. This points to the development of internationally accepted knowledge and learning on the need for enhanced global governance on the intersection of climate change, sustainable development and the financial system.

G20 Initiatives

As a leading forum of global governance with a core economic and financial policy mandate and an increasing climate agenda, the G20 is of high relevance for Paris alignment. Its members (the 20 major economies) account for more than 80% of global GHG emissions and almost 90% of global GDP (Hansen *et al.*, 2017). Its role in global financial governance was further strengthened during the 2008 financial crisis with the creation of the G20 leaders' forum and the Financial Stability Board (FSB), which as the G20's operational arm has been tasked with coordinating the work of international standard-setting bodies in order to promote the implementation of effective regulatory, supervisory and other financial sector policies (FSB, 2012). This mandate would give the G20 a central role within global governance to potentially address demand- and supply-side barriers and enhance cooperation between global climate and financial governance.

On the demand side, climate change has moved onto the G20 agenda in the form of climate and energy policy, for example through the collective commitment of phasing out inefficient fossil fuel subsidies (G20, 2009). This important signal has been undermined through limited progress on implementation due to the ambiguous definition of 'inefficient subsidies', a lack of timeline, and limited transparency (Asmelash, 2017; Rayner, this issue). An additional gap is the lack of collective commitment and coordination on the application of carbon-pricing mechanisms, as nearly all G20 countries spend more on fossil fuel subsidies than they received in public revenues from explicit carbon pricing with several countries increasing such subsidies (Climate Transparency, 2018). Other signals and momentum have come from the G7, which in 2016 set 2025 as its deadline to phase out inefficient fossil fuel subsidies, as well as the G20's endorsement of the Sustainable Development Goals (SDGs) and PA in 2016 that widened the scope of G20 governance (Hansen *et al.* 2017).

In the area of supply-side barriers through sustainable finance and climate-related financial policy, the G20 established a 'Sustainable Finance Study Group' to promote global knowledge and learning on institutional and market barriers to mobilizing private climate finance. In addition, based on its mandate to assess and address vulnerabilities in the financial system, the FSB was tasked to consider climate risk and in 2015 established the financial industry-led task force on climate-related financial disclosures (TCFD) to address the lack of data availability. The recommendations by the TCFD aim to standardize disclosures by companies to financial actors on climate-related financial

risks to inform investments and capital allocation (TCFD, 2017). Despite increasing awareness in the financial sector and standardisation of disclosure frameworks, the voluntary framework has showed limited success in increasing data availability and transparency within the sector, as not enough companies are disclosing decision-useful information (TCFD, 2019). The FSB finds that data gaps continue to hamper actions by financial institutions to reduce climate risk, which can in turn be amplified by the financial system (FSB, 2020).

The existing G20 initiatives may provide a starting point for addressing identified demand- and supply-side barriers. While providing some signal and guidance to financial actors (which is arguably undermined by the limited implementation of their recommendations), they do not constitute holistic efforts to develop a global governance framework for Paris-aligned economic and financial policy in line with G20's and FSB's coordinating role in post-crisis global financial governance.

As of October 2020, one quarter of G20 members have dedicated shares of their COVID-19-related recovery measures such as fiscal investments into low-carbon measures, although most spending has been predominantly high-carbon and non aligned with the PA (UNEP, 2020).

4.2. Overall delivery of governance functions

This section compares the assessed governance delivery by the climate-financial institutional sub-complex to the needs and potential for global governance to address the challenge of aligning finance flows with the Paris Agreement.

Guidance & signal

The Paris Agreement itself and related commitments of reaching net zero emissions, as well as the new financial goal in Article 2.1c PA, have sent an important signal to public and private financial actors on the trajectory of the real economy. However, existing initiatives fall short in translating this into credible guidance in the form of financial policies, plans and targets with specific timelines. Within the UN climate regime, the goal in Article 2.1c PA lacks guidance for Member States to integrate the goal into their NDCs and financial commitments and its transparency regime only tracks a small sub-set of finance flows. The UNFCCC also remains focused on scaling up financing to support the PA's implementation but fails to signal commitment related to phasing out non-aligned financing.

To date there has been no collective commitment to phase out non-Paris-aligned finance such as fossil fuel finance with timelines. Not even multilateral climate funds have utilized their mandate to adopt exclusion lists and criteria for fossil fuel financing. However, some funds, such as the GCF, have partially responded to the goal by integrating the temperature limit into their investment criteria and requiring their partner institutions to disclose information on their financial portfolios' alignment with the PA. Overall there is underutilized potential to further use their role as international climate financial institutions to catalyze broader Paris alignment.

IFIs with public interest mandates, particularly MDBs, have committed to align their portfolios with the PA but their progress in developing a common framework has been insufficient. Nevertheless their evolving Paris-alignment approach and related principles for mainstreaming climate action are significant in terms of signaling a shift in paradigm “from incremental financing of climate activities to ensuring that climate change—as both a risk and an opportunity—is a fundamental consideration around which financial institutions deploy capital” (IDFC, 2018).

An increasing number of mostly voluntary initiatives targeting the financial sector and private investors signal a growing interest in and awareness of climate-related financial risk and the need to align global assets with climate objectives. Financial sector regulators and supervisors have started some coordination on the emerging discipline of climate risk assessment for monitoring financial stability. While initiatives related to climate-related financial disclosure have potential and disclosure should be made mandatory, their sole focus on disclosure cannot replace a more systemic response. Individual firms and financial institutions that reduce their individual exposure to climate risk may not reduce risks to the financial system as a whole (FSB, 2020). There is also a growing concern about regulatory and policy fragmentation between standard-setting bodies on climate risk management and sustainable finance (Portilla *et al.*, 2020). Overall, most relevant financial institutions have taken some action to respond to the PA, however the potential for these actions to address transformational barriers remains limited without fully integrating the PA goals into the financial system's mandate and purpose.

Rule-setting to facilitate collective action

Despite the increasing activity in signalling goals related to Paris alignment, the institutional complex delivers only limited international rules and standards to facilitate collective implementation through demand- and supply-side policies and regulations. The PA notably lacks international cooperation on carbon pricing, as well as on aligning fiscal policies and financial regulation with the PA. IFIs, especially the WBG and IMF, are working on generating knowledge and providing support for the implementation of Paris-aligned carbon pricing levels and fiscal policies but are not as such rule-setting institutions. The G20's commitment to phase out fossil fuel subsidies is undermined by a lack of implementation and ambiguous rules. Potential to use this commitment as a starting point for more systemic cooperation on aligning economic and fiscal policies with the PA has not been used. Similarly, opportunities to use COVID-19-related fiscal recovery measures to accelerate the low-carbon transition has largely been missed (UNEP 2020).

Initiatives by development finance institutions to develop joint frameworks on Paris alignment have not yet resulted in clear and common standards and criteria for Paris-aligned and non-aligned financing on the portfolio level. Certain jurisdictions have adopted taxonomies for sustainable finance, which is lacking at the international level. Climate funds are underusing their potential as IFIs with a specific climate mandate to

act as standard-setters for Paris-aligned investment criteria within the financial system. The emerging collective action on international disclosure rules shows some potential to enhance transparency, but they are not sufficient to address identified underlying barriers in the financial system or make up for the absence of stronger demand-side climate policies. Despite some initiatives by and coordination between global standard-setters and financial regulators on climate risk management, climate-related financial sector policy-making system remains fragmented and not yet the 'mainstream' of financial policy and governance.

Transparency & accountability

There is increasing cooperation within and outside the UNFCCC on providing transparency of global finance flows and their consistency with climate goals in part due to the Article 2.1c PA and efforts to track progress towards this goal. Despite increased recognition and research to support that this requires all flows to be tracked, the focus largely remains on accounting for international public flows to developing countries in support of the PA with gaps in capturing domestic and international flows by all countries, private finance and finance that undermines climate goals. There is great discrepancy between the scrutiny directed at climate-specific flows compared to other flows, hampering accountability of financial actors.

Means of implementation

Global climate governance has traditionally focused its financial cooperation on delivering means of implementation to developing countries. Hence a number of institutions exist to provide this function, including the UNFCCC, multilateral climate funds, and development finance institutions to address barriers towards long-term climate investments and access to finance through the use of public funds to leverage private finance. However, finance levels remain insufficient compared to the PA's investment needs and aligning private finance remains a challenge. While increasing, climate finance is only a fraction of global finance flows.

Knowledge & learning

Compared to other governance functions, the delivery by global governance institutions in the area of knowledge and learning is relatively high. A growing number of international institutions work on sharing knowledge and increasing data availability on aligning financial flows with the PA and sustainable development, including the IPCC, UNFCCC Standing Committee on Finance, UNEP Finance Initiative, UN financing for development regime, G20, OECD, IFIs as well as transnational investor initiatives. As a relatively new field, there remain gaps in internationally accepted knowledge on Paris-aligned financial pathways and portfolios.

5. CONCLUSIONS: INTEGRATING GLOBAL CLIMATE AND FINANCIAL GOVERNANCE

The governance landscape since the adoption of the Paris Agreement shows the emergence of a new objective in international environmental governance, namely the alignment of global finance with climate and sustainable development objectives. It is derived from the principles of international environmental law which require financial institutions and other actors to be accountable for the environmental and social impacts of their policies and financing (Bradlow 2011: 48). By targeting all 'finance flows' and other actors outside of the UN climate regime, this new objective constitutes both a challenge and an opportunity for strengthening global climate finance governance.

However, the preceding analysis finds that the existing institutional sub-complex fails to deliver critical functions for governing the implementation of that objective and points to an urgent and significant need for international cooperation across a range of governance functions to foster the alignment of global finance with the climate transition. While stronger climate policies and commitments to implement the PA would also support the redirecting of financial flows, this paper focuses on the governance sub-complex that has the explicit objective of affecting financial flows on the demand and supply sides.

To some extent, global climate governance post-Paris reflects a growing awareness about the role of global finance for the climate transition. However, an enhanced coordination between the governance of global climate, sustainable development and finance is required to translate the PA goals to public and private financial actors through credible and consistent guidance and standards on climate-aligned financial flows and systems, including a collective commitment to phase out fossil fuel financing.

Some of the identified gaps could theoretically be filled through the UN climate regime itself by developing a framework for the implementation of Article 2.1c PA. For example, Parties could set common standards and criteria for when finance flows can be considered aligned with the Agreement's Article 2, as well as requirements for integrating related commitments into their NDCs. This could include financial commitments such as increasing finance flows that are PA-aligned and reducing non-aligned flows, or they could focus on relevant policy commitments such as carbon pricing and mandatory climate-related financial disclosure. Similarly, the transparency-related gaps could potentially be partly addressed by the UNFCCC, by adding relevant reporting requirements for all domestic and international finance flows and how they positively or negatively affect the implementation of the PA's goals. This could be complemented by mandating the IPCC to regularly synthesize the latest research and evidence on Paris-consistent financial pathways to inform the global stocktake. However, the existing PA framework is focused on tracking the 100 billion goal and synthesizing information on aggregate global flows from external data providers. Hence the UNFCCC's role in addressing

the need for increasing the transparency and accountability of finance flows' climate impact appears limited. Similarly, other underlying barriers such as the financial system's short-term bias and other incentives for financial actors relate more directly to global financial governance and are arguably beyond the scope of what the UNFCCC can address.

Multilateral climate funds that are accountable to the UNFCCC and PA, most notably the GCF, could more fully use their potential for acting as standard-setters and knowledge providers in the area of Paris-aligned finance. For MDBs and other international financial institutions to take a similar role, their efforts to develop common Paris-alignment frameworks would need to be accelerated and enhanced by defining clear strategies and targets, increasingly strict benchmarks in line with net-zero GHG emissions around 2050, and requirements to report all other investments to ensure that they do not contradict the PA (Bartosch *et al.*, 2018).

To promote a more systemic alignment between climate and financial governance, there is scope for the G20 to facilitate a climate and sustainable finance agenda between international financial institutions and financial sector regulators and to address fragmentation within financial governance on regulatory and supervisory standards. This agenda would need to include and be coordinated with more systemic cooperation on macroeconomic and fiscal policy for Paris alignment (Portilla *et al.*, 2020). There is potential to build on existing G20 initiatives such as the FSB's private sector-led TCFD.

The legitimacy and transformative potential of a G20 agenda for aligning global finance with climate and sustainable development goals could be enhanced through strengthened cooperation and partnerships with climate-vulnerable non-G20 countries and other affected actors, as is illustrated by initiatives such as the Vulnerable Twenty Group (V20) of finance ministers from climate-vulnerable non-G20 countries. The V20 (2018) pursue collaboration with the G20 for "stronger international economic and financial cooperation" on climate to redirect finance flows towards the PA. Cooperation with international scientific bodies such as the IPCC could further enhance the evidence base of such an agenda, which should also coordinate with the UN's sustainable finance agenda.

Overall, there are also important limits to the potential of existing global financial governance and the G20 to address underlying transformational barriers, especially on the supply side. While the G20 and its FSB took on a coordination role in post-crisis global financial governance, its reforms turned out less transformative than initially anticipated. The establishment of the FSB, while significant, did little to alter the soft-law character of the international financial standards regime (Helleiner 2014).⁸ While a more detailed discussion is beyond the scope of this paper, it points to the need for reforms within the financial governance system that go beyond climate change and sustainable development objectives but will be critical for their success. It also suggests further research needs on gaps in global financial governance as well as on conflicts and synergies between global climate and financial governance. In addition, the potential for international governance to address existing misalignments can be identified in other policy areas, including investment and trade (OECD 2017).

⁸ For a number of explanations put forward for the prevalence of network-based, soft-law forms of governance of international financial standards since 1970, see Helleiner (2014).

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Aligning financial flows with the Paris Climate Agreement: Assessing the emerging institutional architecture in global climate governance

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Citation : Kretschmer, B. (2021). Aligning Financial Flows with the Paris Agreement: Assessing the Emerging Institutional Architecture in Global Climate Governance. IDDRI, *Study N°03/21*, based on COP21 RIPPLES Project.

ISSN: 2258-7535

The author would like to thank Sebastian Oberthür (Vrije Universiteit Brussel), Lukas Hermwille (Wuppertal institute for Climate), and Tim Rayner (University of East Anglia) for their inputs on this article. It has benefited from the research undertaken in the COP21 RIPPLES project, which received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730427. This paper has also received financial support from the French government in the framework of the programme "Investissements d'avenir", managed by ANR (the French National Research Agency) under the reference ANR-10-LABX-14-01.

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