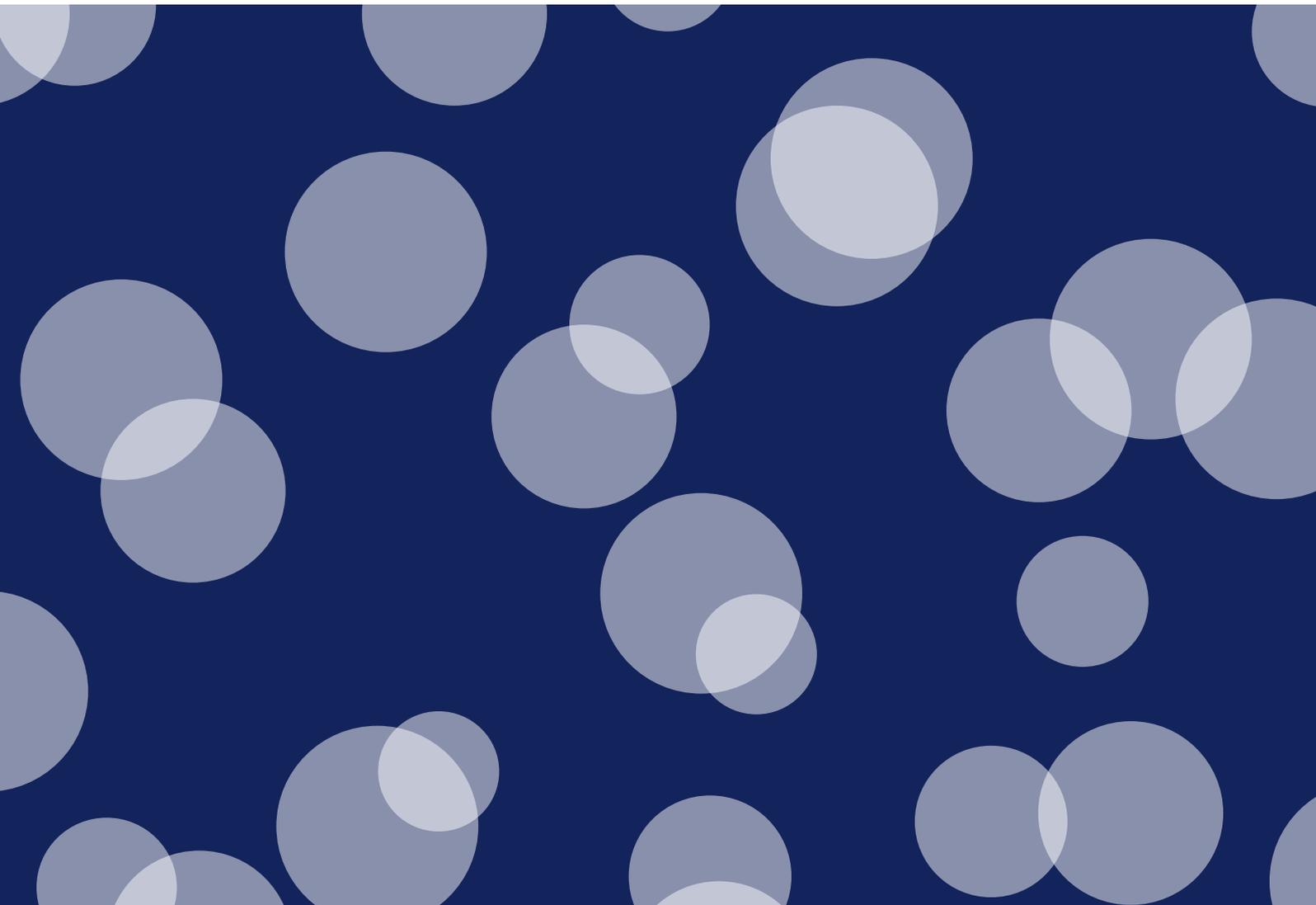




2018 GLOBAL OBSERVATORY
**ON NON-STATE
CLIMATE ACTION**



BOOK 3

REPORT ON CLIMATE ACTION IN THE FINANCIAL SECTOR

**Bringing Finance
on Board**



PUBLISHED BY CLIMATE CHANCE ASSOCIATION & FINANCE FOR TOMORROW, NOVEMBER 2018

Citation

CLIMATE CHANCE & FINANCE FOR TOMORROW (2018), « BRINGING FINANCE ON BOARD - REPORT ON CLIMATE ACTION IN THE FINANCIAL SECTOR »

BOOK 3 OF THE ANNUAL REPORT OF THE GLOBAL OBSERVATORY ON NON-STATE CLIMATE ACTION

1ST EDITION

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• It illustrates a real dynamic, without concealing the weakness of current flows or the fact that existing fundings clearly are in contradiction with the climate objectives •



RONAN DANTEC

.....
Chair of
Climate Chance
Association

● On the way to build a collective response to deliver on challenges, the issue of financial mobilizations has become progressively unavoidable. No one imagines today, as the disruption of climate worsens, that it will be possible to lead and accelerate the necessary transitions without the reinforcement of financial flows and tools, existing or to be created.

From the first Climate Finance Day, in Paris in May 2015, to the One Planet Summit in New York, in September 2018, several major events have shown that the challenge was no longer foreign to the world of finance, that many of the actors of the finance believe that climate change is challenging the very frameworks of the global economy to the point of threatening their own business models.

Thus, for three years, beyond the famous promise of Copenhagen of 100 billion dollars of transfer to the developing countries, the engagements of the financial actors has multiplied, by billions and millions. Yet, it is not always easy to find one's way through a confusing avalanche of numbers and promises.

The Observatory of Non-State Climate Action set up by the Climate Chance Association, aims to observe the state of implementation of the actions announced. We are indeed convinced that the mobilization against climate change today needs to be based on the most objective

analyzes possible, to show the evolution of these mobilizations, to highlight the most effective actions and to give credibility in the long run to tangible scenarios of climate stabilization. This is particularly true in the field of finance, hardly understandable for a non-expert.

The work of Maria Scolan and Pierre Ducret, as part of Finance for Tomorrow, is unique to our knowledge. It allows to present in a comprehensive way the various initiatives taken by actors, themselves very diverse. It illustrates a real dynamic, without concealing the weakness of current flows or the fact that existing fundings clearly are in contradiction with the climate objectives.

This report and its dashboard are a first step to better understand the various financial tools available and their recent developments and that will then allow us, in the annual editions of the report, to measure the progress of this mobilization, to respond gradually to the question: do these funds match and meet the needs? Because, without sufficient flows and the possibility of an easier access to these different financing for the actors, companies, communities, NGOs, who carry the concrete answers, we will not be able to answer to this major challenge of the 21st century involved in the stabilization of the climate.

• **Financial actors have the capacity to redirect capital toward an economic model aligned with the 2015 Paris Agreement. For this reason, responsibility for the successful transition toward a low-carbon economy rests heavily on these players** •



PHILIPPE ZAOUATI

.....
Chair of
Finance for
Tomorrow

Financing the struggle against climate change and shifting the orientation of financial flows is a challenge both enormous and complex. Not only that, the defining feature of this challenge is its urgency. Financial actors have the capacity to redirect capital toward an economic model aligned with the 2015 Paris Agreement. For this reason, responsibility for the successful transition toward a low-carbon economy rests heavily on these players, and the transparency of their efforts is a key issue. Such is the focus of the first review conducted by Climate Chance, whom Finance for Tomorrow, the Paris green and sustainable finance initiative, is proud to have partnered with. Providing an account of the financial community's climate-positive efforts, while essential, is no easy matter. What this initial review does is make it possible to assess progress going forward.

The second question this report attempts to address is to what degree the actions of finance are consistent with climate issues. Are we on the right course? Is there sufficient momentum? The study has the merit of not only considering 'green' finance, but also gauging the persistence of 'brown' finance that increases the difficulty of achieving international climate goals. While NGOs remain the primary sources of information in this area, the work recently undertaken by regulators should also improve our

understanding and management of the risks associated with climate change.

The present review must be renewed, deepened and focused in successive iterations, year after year, to assess the progress achieved and measure the task remaining. It also seeks to identify the drivers of change. Market forces are one powerful impetus, as can be seen in the rise of green bonds, low-carbon investment funds and, more recently, the emergence of green loans. Regulation is also crucial. Likewise, the main schools of economic research must incorporate climate as a key variable. And lastly, the time has come to make expertise in climate issues a required component of professional competence. This is what Finance for Tomorrow seeks to promote at the level of the Paris Financial Centre. These efforts have earned Paris a place at the forefront of green finance as a financial centre that offers the world the expertise and innovation needed to allow green and sustainable finance to grow and increase on a new scale.

CLIMATE CHANCE ASSOCIATION



CLIMATE
CHANCE

• THE CLIMATE CHANCE ASSOCIATION •

Since 2016, the Climate Chance Association is participating in the mobilization against climate change. It is the only international organisation that aims to bring together all the non-state actors recognized by the UN (the 9 groups of actors: local authorities, companies, NGOs, trade unions, scientific community, agricultural, youth, indigenous peoples and women organisations), to develop common priorities and proposals and to strengthen stakeholders dynamics through networking (thematic coalitions, summits, action portal).

The Climate Chance Association supports the central role of territories in climate action and the inseparable link between the climate agenda and the Sustainable Development Goals. The messages carried by the Climate Chance Association in its advocacy documents and the main themes addressed in the summits, are collectively discussed with the constant concern for the search for consensus, in an orientation council where the most representative structures of non-state actors are invited, in particular the focal points of the 9 major groups recognized by the United Nations Framework Convention on Climate Change (UNFCCC).

• THE CLIMATE CHANCE OBSERVATORY •

In order to strengthen the action of non-state actors and give credibility to climate stabilisation scenarios, the Climate Chance Association launched in 2018 a Global Observatory of Non-State Climate Action, which aims to explain the evolution of greenhouse gas emissions, by crossing national public policies, sectoral dynamics, the implementation of the commitments and the non-state actors' best practices at the local level. First-of-its-kind, published in French and English, this report will provide decision-makers, journalists, researchers, students and newcomers with a detailed framework for understanding major program areas and a first level of information and action analysis, particularly at the local level, in order to achieve the Paris Agreement and the Sustainable Development Goals.

• THE CLIMATE CHANCE ASSOCIATION AND ITS OBSERVATORY ARE SUPPORTED BY •



FINANCE FOR TOMORROW



FINANCE FOR TOMORROW

Launched in June 2017 as part of Paris EUROPLACE, Finance for Tomorrow is an initiative whose aim is to make green and sustainable finance a driving force in developing the Paris Financial Centre and positioning Paris as the leading financial centre on these issues. Members of Finance for Tomorrow are signatories of a shared charter with the goal of redirecting financial flows of capital toward a low-carbon and inclusive economy, in line with the Paris Agreement and the United Nations' Sustainable Development Goals (SDGs). The initiative brings together more than 60 members and international observers representing the entire financial ecosystem (banks, investors, insurers, companies, professional bodies, extra-financial rating agencies, consultancies, think tanks, NGOs...), as well as municipalities (the City Paris and the Paris Region) and public authorities (the Ministries for the Economy & Finance and of the Ecological & Inclusive Transition, as well as the French Central Bank).

In addition to its role as an ambassador internationally, Finance for Tomorrow provides members of the Paris Financial Centre a stage for ongoing work and dialogue to promote greater momentum. Two main working streams structure the strategy of the initiative: policy and international promotion. Finance for Tomorrow also supports its members in developing projects and contributing to a number of themes: research, education/training, FinTech, innovative financing instruments, climate risk, green & social bonds and biodiversity/natural capital.

Finance for Tomorrow also contributes to progress on these issues at the international level via the FC4S network of Financial Centers for Sustainability, which F4T co-chairs alongside Shanghai for the 2018-2020 tenure. This network brings together close to 20 financial centres committed to establishing a sustainable financial system, and is placed under the aegis of the United Nations Environment Programme, which maintains its secretariat.

CLIMATE FINANCE DAY

Climate Finance Day, the flagship event by Finance for Tomorrow, is a major annual gathering that, since COP21, has undertaken to mobilise the world's financial industry to make further commitments to combat climate change. CFD also attempts to survey and review the main achievements to date and showcase the most innovative solutions implemented by public and private actors to reach the goals set in the Paris Agreement.

Each year, a number of side events are organised around Climate Finance Day, grouped under the label 'Finance for Tomorrow WEEK'. More than just a 'Climate Week', the week-long series of events explores issues related to both financing climate objectives and to achieving the Sustainable Development Goals (SDGs), helping to make Paris a key meet-up on these issues.

#ShiftTheTrillions #GetUpScaleUp

EXECUTIVE SUMMARY

FINANCIAL SERVICES PROVIDERS HAVE MADE GREAT STRIDES IN CLIMATE ACTION OVER THE LAST FEW YEARS

The 2015 Paris Agreement on Climate Change, which aims to align the flows of capital with climate objectives, followed in 2017 by the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), focused on risks and opportunities associated with climate change, have been crucial to mobilising the finance industry.

Across the entire financial sector—investment, banking and insurance—the incorporation of climate risk as financial risk, a desire for greener portfolios and shareholder engagement with companies, particularly on the topic of fossil fuels, have risen to become strategic priorities for actors.

While managing long-term risks associated with climate change is currently a concern most obvious amongst investors and asset managers, banks appear better positioned to seize opportunities associated with the transition to a low carbon economy.

Public banking institutions, the share of whose loans are climate-dedicated is steadily climbing, are also increasingly aware of their capacity to create opportunities for private-sector investment and financing using innovative tools.

The insurance industry, which is involved as an investor, still has a way to go if it is to contribute to resilience in the face of climate change, particularly via risk prevention.

There is a clear proliferation of efforts to address methodological questions that must be fostered by ever more forceful pressure from regulators. To date, the most advanced applications of financial regulations on behalf of the climate are those of Europe and China.

The progress of green finance is especially noticeable in Europe, where the most successful players are to be found, and where practices are gaining traction. In contrast, North America, Asia and Oceania all have a number of major players, but also a great many laggards.

The framework for thinking about these issues and the means of action are now sufficiently established to enhance and generalize the degree to which climate is taken into account by financial actors.

- **The framework for thinking about these issues and the means of action are now sufficiently established to enhance and generalize the degree to which climate is taken into account by financial actors •**

THERE IS A WAY TO GO BEFORE CAPITAL FLOWS ARE ALIGNED WITH THE OBJECTIVES SET OUT IN THE PARIS AGREEMENT

Green financing remains weak, making up less than 1% of investor portfolios, less than 1% of the overall bond market, and just 15% of syndicated loans. These volumes are probably underestimated, however, due to a dearth of tools for measuring green financing, an area where progress would be welcome.¹ These advances can be accelerated for debt instruments (loans and bonds), if it becomes an industry standard to include information, not only about the creditworthiness of a borrower, but also that of the loan's destination.

Meanwhile, new financing for sectors and industries incompatible with the Paris Agreement continues apace. The risks posed by the energy transition—meaning a sudden, brutal loss of value not limited to the problem of 'stranded assets' confronted by the fossil fuel industry—remain little-known and probably undervalued, much like the physical risks.

The work currently being done to analyse prospective scenarios should provide a better grasp of these risks, considered from the perspective of Financial Supervisory Authorities. Does their entry into the fray prefigure more stringent regulations that seek to redirect the flow of capital?

These forward-looking perspectives must also try to align the strategies of companies in the financial industry with the goals of the Paris Agreement, namely achieving the 'Net-Zero'² target during the second half of the century and focusing on adaptation, as stipulated in the Agreement.

¹ For instance, according to the CBI, the total volume of bonds that contribute to climate targets (*de facto* green bonds) is four times greater than that described as green by issuers.

² The Paris Agreement on Climate Change stipulates in Article 4 that to meet 2°C target, anthropogenic GHG emissions must be reduced to net zero in the second half of the 21st century.

Green Finance dashboard 2018

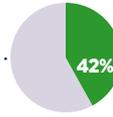
TCFD SUPPORTERS

(Taskforce on Climate related Financial Disclosure)

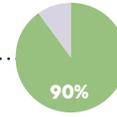
287
FINANCIAL INSTITUTIONS

1 INVESTORS

Climate strategy

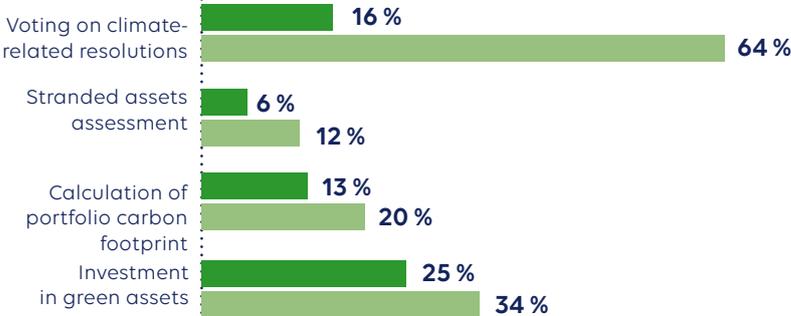


ASSET OWNERS



ASSET MANAGERS

Implementation policies



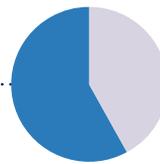
0,5%
ASSET OWNERS

0,2%
ASSET MANAGERS

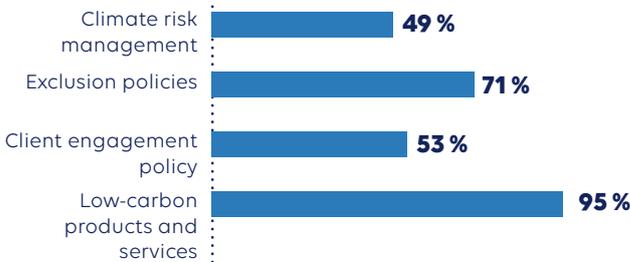
Share of low carbon investments in portfolios

2 BANKING

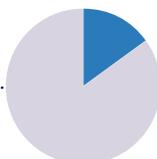
Climate strategy



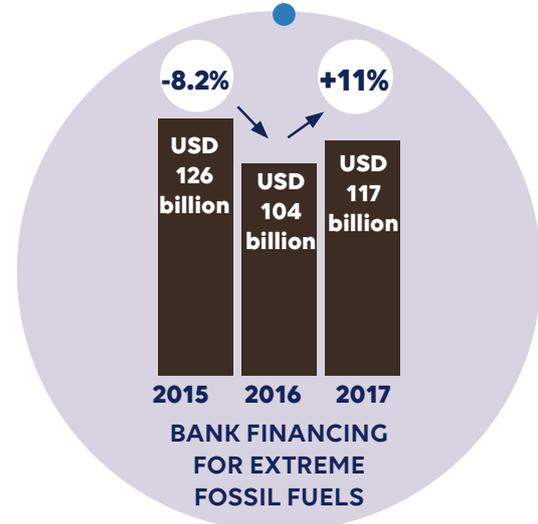
Implementation policies



Green financing



15%
OF ALL SYNDICATED LOANS



3 DEVELOPMENT BANKS



4 THE GREEN CLIMAT FUND

- USD **4.6** billion in direct investment (Oct 2018)
- USD **158** million of disbursements (Feb 2018)
- **93** projects approved (Oct 2018)

5 GREEN BONDS



6 CLIMATE FINANCING FLOWS

- USD **510-530** billions estimated in 2017

FOREWORD

Maria Scolan and Pierre Ducret are the authors of this report. The views expressed in this report do not necessarily reflect those of the Climate Chance Association and of Finance for tomorrow (F4T).

Thanks for their helpful comments to Michel Cardona, Ian Cochran, Julie Evain, Benoît Leguet, Morgane Nicol (I4CE), to Philippe Zaouati (F4T), to Morgan Després (Banque de France) and to Sonia Hierzig and Peter Uhlenbruch (ShareAction)

This document assesses climate action conducted worldwide by the financial industry and the private as well as public agents it comprises, all of whom play a role in financing the economy: investors, financial intermediaries such as asset managers and banks, insurance companies and, lastly, financial regulators.

It seeks to estimate the consistency of actions undertaken by these various categories of financial entities with respect to climate change. It thus provides a review of the strategies and policies established, the tools put in place, and within the limits of currently available data, both the volume of financing favourable to the transition toward a low-carbon economy and that of the most detrimental, which slows down this transition.

It does not, however, claim to measure the annual flows of financing to climate-positive investments. That task is undertaken at the global level by two bodies:

- The Standing Committee on Finance (SCF) of the UNFCCC, whose next biennial report will be published in December 2018 to coincide with COP24,³
- The Climate Policy Initiative, in its world survey of climate finance.⁴

A summary of these studies of capital flows is provided in the Appendix to this document.

Due to its focus on the financial industry, this report does not include direct financing by non-financial actors (companies, States, local authorities and households).

It is likewise important to bear in mind that financial players are not unilaterally in a position to steer capital towards a low-carbon economy. Much also depends on:

- demand for capital by various economic players, reflecting the transformation underway within the real economy,
- favourable economic policies: elimination of subsidies for fossil fuels, carbon pricing, planning, regulation and other types of incentives.

Nonetheless, the capacity of financial industry players to redirect financing is tremendous, because very few investments are financed without recourse to loans or appeal to the capital markets.

This report therefore presents a review of the capital offerings by the financial industry, identifying three mutually reinforcing trends currently underway:

- **STRATEGIES OF ACTORS IN THE FINANCIAL INDUSTRY (PART 1),**
- **MARKET OPPORTUNITIES (PART 2),**
- **ADVANCES IN FINANCIAL POLICY (PART 3).**

The qualitative information and quantitative estimates contained in this report are drawn from a variety of sources and utilise differing measurement criteria, whose limits are clearly stated in the documents we refer to and cite. These data have not been recalculated and as a result cannot be aggregated, among other things.

³ <https://unfccc.int/topics/climate-finance/resources/biennial-assessment-of-climate-finance>

⁴ <https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2017/>

INTRODUCTION



A brief history of climate finance



For the last twenty years or so, the responsible investment policies of certain financial players have featured an environmental component, and therefore address climate issues. Much more recent developments have led climate change to assume a very particular place in the financial sphere.

To review a few key milestones:

• 2014: VOLUNTARY COMMITMENTS •

In the months leading up to COP21, then Secretary-General of the United Nations, Ban Ki-moon, invited economic actors to make climate-positive commitments through an initiative known as the Lima-Paris Action Agenda. Pioneering financial players, including investors, banks and insurance companies, published voluntary commitments to the struggle against climate change, either individually or as members of a coalition. These commitments were also a response to increasing pressure on financial actors by environmental NGOs.

• 2015: CLIMATE RISKS ARE FINANCIAL RISKS •

Meanwhile, in 2015, recognition by the chairman of the G20's Financial Stability Board (FSB), Mark Carney, of the risks⁶ that climate change poses for the financial system radically transformed the perspective of financial actors. Once an acknowledged financial risk, climate change became a key question that could potentially drive all participants, environmentally committed or not, to better understand, quantify and integrate climate in the context of financial management. This recognition also prompted various financial supervisors to address the question. The FSB's first response was to seek improved transparency from companies as regards these risks. The Taskforce on Climate-related Financial Disclosure (TCFD) was created in early 2016 to make suggestions for achieving this. Their recommendations, published in 2017, have already become the frame of reference for climate action in the financial industry.

• 2015: CAPITAL FLOWS MUST DRAW IN LINE WITH THE 2°C SCENARIO •

In December 2015, the Paris Agreement set out the scope and centrality of finance to limiting global warming to less than 2°C and addressing the consequences of climate change as specified in its Article 2, by 'making Finance flows consistent' with a pathway towards low greenhouse gas emissions and climate-resilient development.

The Agreement further specifies that in order to maintain temperatures below the 2°C threshold, it is necessary to achieve a net zero level of anthropogenic GHG emissions in the second half of the 21st century (Article 4).

A number of countries established variously specific regulatory frameworks to accelerate the redirection of capital, in keeping with national commitments undertaken as part of COP21 and the domestic policies designed to honour these commitments.

⁶ The typology of financial risks he established is now generally adopted: physical risks (consequences of events such as storms, flooding, drought...), transition risks (associated with more stringent regulation and technological changes) and liability risks.

• **2015: CLIMATE FINANCE, GREEN FINANCE AND SUSTAINABLE FINANCE** •

Following international adoption of the UNDP's 17 Sustainable Development Goals (SDGs), financial actors increasingly begin to recognise the interdependence of climate change and other environmental and social issues. For instance, climate targets depend on the use of land, which has an impact on biodiversity. Similarly, the transition to low-carbon has implications for the future of employment, access to resources and social inequalities. Financial actors began using the SDGs as a framework for analysing the broader impact of their decisions, or to create products and services that contribute to specific SDGs.

• **2017: THE RECOMMENDATIONS OF THE TASKFORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURE (TCFD)** •

The TCFD, comprised of market participants and chaired by Michael Bloomberg, submitted its results in 2017.⁶ It recommended that companies, including financial services, from banks, investors and asset managers to insurance companies, increase transparency concerning the ways climate risks and opportunities are taken into account in four main areas:

- strategy,
- governance,
- risk managements,
- goal-setting and performance measurement



Lastly, it suggested that they improve the resilience and flexibility of their strategies by adopting a forward-looking vision, analysing their business models in terms of multiple transition scenarios, including at least one in line with 2°C targets.

⁶ <https://www.fsb-tcfid.org/publications/>

TCFD 2018 Status Report:

Climate transparency efforts such as CDP for corporations, and the PRI or AODP for the financial industry, have already revised their reporting guidelines in line with the TCFD's recommendations. There are two ways that financial actors can put these recommendations into practice:

- As users of such data, they can encourage companies to increase their transparency,
- They can improve their own reporting practices by electing to voluntarily apply the taskforce recommendations.

More than 500 companies, of which 287 financial institutions that include the major players of finance, have pledged their support for the recommendations. In September 2018,⁷ the TCFD published a status report reviewing 1,700 companies. The results, which it describes as 'encouraging', highlight that:

- a majority of companies publish information that meets at least one of its recommendations;
- very little data concerns the financial impact of climate change on companies;
- only a minority adopt a forward-looking attitude that analyses climate scenarios, which the TCFD considers a key recommendation.

The taskforce's recommendations deserve to be better known and more widely applied. Compulsory disclosure of how climate change is taken into account would facilitate this. France has already taken measures; the European Union and United Kingdom are preparing similar regulations.

There remains considerable progress to be made, and the TCFD believes that five years will be needed to hone the application of its recommendations before reaping the full benefits of disclosure on the management of climate risks within the financial system.

Financial actors thus have two reasons for taking action:

- concern for the impact of climate change on their own activities (risk/opportunities approaches),
- concern for the impact of their activities on the climate (approach favouring an alignment of strategy with 2°C targets).

The first is a potential incentive for all financial players and helps to explain the recent expansion of climate action. While the two are not mutually exclusive, the latter is more stringent, and it alone can ensure that capital is redirected as fully and quickly as needed.

⁷ <https://www.fsb-tcfid.org/publications/tcfid-2018-status-report/>



Strategies pursued by Financial Actors



Investors and asset managers

In 2016, institutional investors (pension funds, retirement schemes, insurance companies, sovereign wealth funds and the like) represented assets under management of USD 85 trillion worldwide, of which over half in the United States, a quarter in Europe and 20% in Asia, according to PwC.⁸

Like individual investors, institutional investors (asset owners) may turn to asset managers to handle their investments.

Levers investors can put into action

The following levers are aimed both at reducing the climate-related risks of investment portfolios and financing a greener economy:

- partial or total **exclusion** from portfolios of high-risk investments (activities that are very damaging to the climate, dependant on carbon-intensive industries or likely to suffer the consequences of climate change),
- establishment of targets for gradual reduction of **carbon footprint or carbon-intensity of portfolios**, meaning of the carbon emissions so financed,
- management of portfolios' **exposure to climate risks**,
- **shareholder engagement**, that is to say, exerting pressure on companies to define and implement a climate strategy through dialogue with company management and/or voting at Annual General Meetings on resolutions related to this topic,
- Definition of target **volumes of investment in assets contributing to the low-carbon transition**, notably in industries belonging to the green economy.

An initial phase of commitment to climate issues

Several climate-focused investor coalitions spearheaded by networks of responsible investors⁹ appeared in 2014 and 2015 in the context of COP21. These initiatives mobilised committed investors to deploy the various levers described above in their investment policies:

- The **Divest-Invest**¹⁰ **movement** urged investors to relinquish their holdings in the fossil fuel sector and reinvest in green technologies. Initially appealing to small-scale investors (foundations, family offices etc.), the movement has grown to include major cities;
- Sponsored by the PRI, the **Montreal Carbon Pledge**¹¹ committed signatories to measuring and annually publishing a carbon footprint—meaning the volume of carbon emissions financed by their investments;
- The **Portfolio Decarbonization Coalition (PDC)**,¹² under the aegis of the United Nations Environment Program Financial Initiative (UNEP FI), encourages members to gradually reduce the carbon footprint of their investment portfolios.

⁸ <https://www.pwc.com/gx/en/asset-management/asset-management-insights/assets/awm-revolution-full-report-final.pdf>

⁹ PRI, IIGCC (Europe), AIGCC (Asia), Ceres (North America) and IGCC (Australia).

¹⁰ <https://www.arabellaadvisors.com/wp-content/uploads/2018/09/Global-Divestment-Report-2018.pdf>

¹¹ <http://montrealpledge.org/>

¹² <http://unepfi.org/pdc/>

• INVESTOR COALITIONS AND NETWORKS: A DRIVING FORCE •

- Most of the most successful climate investors were parties to the coalitions launched in 2014/2015. Indeed, according to a ranking of the top 500 largest climate investors worldwide conducted for the last five years by the Asset Owner Disclosure Project (AODP)¹³ the 20 best-ranked investors include 8 members of the PDC and 11 signatories of the Montreal Pledge.
- These coalitions and the international networks of investors that support them contribute to a process of sharing knowledge and skills that holds valuable lessons for all investors.

Initially, however, investor commitments did not cover the full range of asset classes, but were restricted to listed equities in limited volumes with a fairly short horizon (usually 2020, and at most 2025).

2015 as a paradigm shift

- Following the signature of the Paris Agreement, a number of the most committed investors sought to bring their portfolio management in line with 2°C targets.
- In theory at least, a recognition of the financial nature of risks associated with climate change was expected to prompt widespread action amongst long-term investors and asset managers.

All this required the creation of new tools for modelling based on forward-looking scenarios and for risk analysis at the portfolio level, tools which are just beginning to take shape. To foster this process, the TCFD created a Knowledge Hub¹⁴ in 2018 that inventories the tools and methodologies currently available.

Since 2015, we have witnessed a diversification of approaches and tools in this field:

- Concern for climate risk across a wider range of asset classes beyond listed equities, particularly in the realm of corporate bonds
- A diversification of investments in green assets exceeding the field of renewables, thanks to specialised vehicles and services (green bonds and investment funds, low-carbon indexes...).
- Climate policies combining the various levers available: exclusion, engagement, green financing and so on...

Assessing the progress of investors' climate action according to the AODP

• BY ASSET OWNERS •

According to the AODP's 2017 report,¹⁵ 40% of asset owners are completely ignorant of climate issues, however, their commitment level, while progressing as a whole, remains uneven:

- 42% affirm that they have incorporated climate issues into their policies (twice as many as in 2016).
- 15% pursue a policy of shareholder engagement, versus 12% in 2016.
- 16% exercise their voting rights on climate-related resolutions. This practice is most widespread in Oceania, followed by Europe and the United States.
- 13% calculate their carbon footprint (+27% or almost a third more than in 2016) and 6% have set reduction targets.
- 6% of investors measure their portfolios' exposure to high-risk assets, known as stranded assets,

¹³ https://aodproject.net/wp-content/uploads/2017/04/AODP-GLOBAL-INDEX-REPORT-2017_FINAL_VIEW.pdf

The AODP's ranking is based on governance and strategy, risk management and performance metrics. It is calculated based on publicly available data and answers to a questionnaire.

¹⁴ <https://www.tcfidhub.org/>

¹⁵ https://aodproject.net/wp-content/uploads/2017/04/AODP-GLOBAL-INDEX-REPORT-2017_FINAL_VIEW.pdf

meaning those at risk of losing their value in the transition toward a low-carbon economy due to tighter regulation and/or technological progress (this largely concerns the fossil fuel industry).

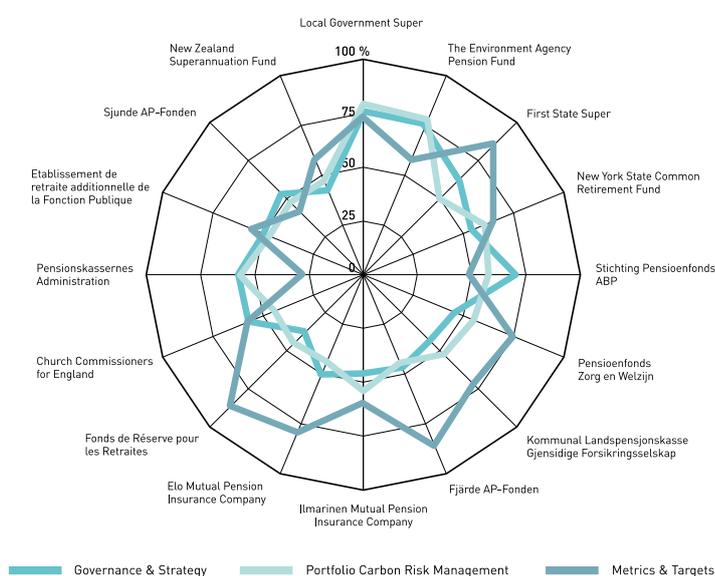
Investment in green assets is practiced by 25% of asset owners and is estimated to comprise 0.5% of portfolios on average, however, this remains difficult to quantify, due to the lack of precise and widely shared definitions on the one hand, and a lack of tracking as regards capital flows on the other.¹⁶ The United Kingdom’s Environment Agency pension fund emerges as a champion, with 26% of its portfolios dedicated to green investments.

According to a more recent report focused on the world’s 100 largest pension funds,¹⁷ AODP finds that climate related risks remain largely unidentified and unassessed by this type of investors. But the industry is making progress as 18% of pension funds have already performed scenario analysis and a further 10% are considering doing so. To date, scenario analysis is considered a challenge, in the terms of both how to undertake it and how to use it in asset allocation and investment decisions.

Just 10% of pension funds have a policy to align their investment portfolio to the 2°C goal.

Asset owners AAA leaders capabilities

Source : AODP 2017



• BY REGION •

The AODP noted **progress in every region of the world for 2017**. Investors in Europe, Australia and New-Zealand appear to be the most advanced. The United States, which represents 25% of all asset volume covered by the study, lags behind, with 60% of asset owners ignoring climate change; however, the country also has very advanced investors. China also has considerable room for improvement. Those most behind are in oil-producing countries and in Asia, particularly sovereign wealth funds (see the panel on sovereign wealth funds).

The rankings show that taking climate into account is not a matter

of size where investors are concerned: large and small are represented amongst the outstanding. Nor is it a matter of type (pension schemes, sovereign wealth funds, insurers).

• ASSET MANAGERS ARE AHEAD OF INVESTORS •

The AODP 2017 study covers the 50 largest asset management companies worldwide, which together make up of 70% of this market, which is highly concentrated across some 10 countries. Its conclusion was that asset managers are considerably ahead of their asset-owner clients.¹⁸

On this market, which is dominated by US players, European managers are significantly more advanced. Australian asset managers, however, are behind relative to investors in their country.

¹⁶ Green assets and activities may be defined as those having a positive effect on climate change mitigation and/or adaptation, and more broadly on the environment. For this definition to be operational, it is necessary to undertake the task of classifying activities.

¹⁷ <https://aodproject.net/changing-climate-part-3/>

¹⁸ This difference is due to:

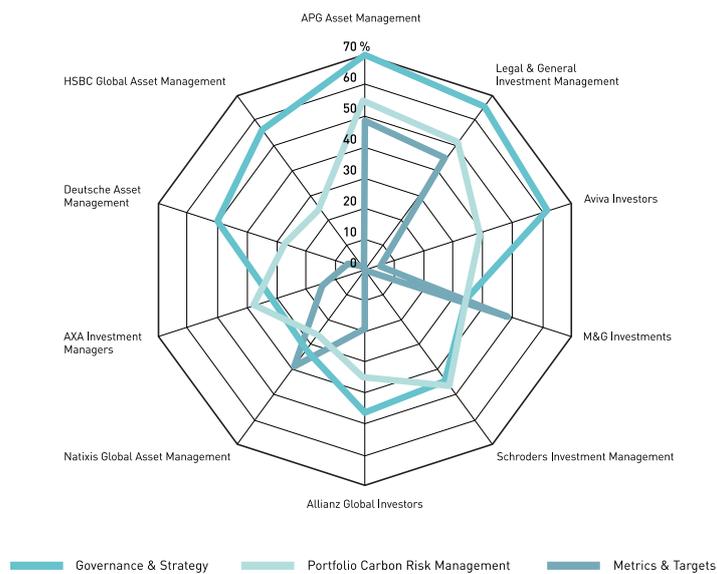
- the fact that not all asset owners rely on asset managers, on the one hand, and,
- that requests on the part of asset owners for management that takes into account climate change remains limited, despite a well-developed range of offerings.

- **90% of asset managers have a climate policy.**

- 70% have a policy of exercising voting rights at General Meetings on environmental topics.
- 12% measure their exposure to fossil fuels.
- 20% measure the carbon footprint of their portfolios.
- 4% only measure risks associated with climate change.
- green investments represented 0.2% of assets under management,¹⁹ but constitute as much as 9.4% in the case of APG in the Netherlands, and 3.4% at BNP Paribas IP.

TOP 10 Asset managers capabilities

Source : AODP 2017



The AODP considers that the policy building blocks are sufficiently established to permit more ambitious strategies and advises learning investors to adopt a step by step strategy.²⁰

2018: The Investor Agenda, a field guide for investors

The major networks of responsible investors launched a new initiative in September 2018 to keep up current momentum and acknowledge the variety of possible levers. The Investor Agenda identifies different types of individual and collective action that investors may take in four different domains, and will measure their progress going forward.

Supporters of the Investor Agenda commit to act in at least one of the following areas:

- **Investment**

- Incorporating climate change into portfolio analysis and decisionmaking
- Making investments that are low-carbon and resilient to climate change
- Divesting from coal

- **Corporate engagement**

- Signing the Climate Action 100 + Sign-on Statement (*see below*)

¹⁹ Numbers subject to the same reservations as estimations for asset owners.

²⁰ <https://aodproject.net/wp-content/uploads/2018/06/AODP-WinningStrategiesReport.pdf>

- Supporting the CDP (ex: science-based targets**) ²¹

• **Investor disclosure**

- Reporting in compliance with TCFD recommendations

• **Policy advocacy**

- Signing the 2018 Global Investor Statement to Governments on climate change

When it launched, the Investor Agenda²² brought together some 400 investors (USD 32 billion of assets under management). Of these, 120 incorporate climate issues in their investment policies; 296 participate in Climate Action 100+ and 60 have committed to implementing the TCFD recommendations.

By structuring the climate-positive mechanisms available to investors, the Investor Agenda provides a path to action and will assess their progress over time in terms of numbers of investors and volume of assets covered.

Impacts on the real economy are difficult to assess

In theory, the broad application of exclusion policies by investors would exert downward pressure on the stock price of targeted companies. To achieve this, however, would require massive and across-the-board divestment on the part of the investment community. The withdrawal of a few major investors could also create a strong market signal and lead to a sharp drop in stock prices.

Likewise, the gradual decarbonisation of portfolios and increasing investment in green assets should, over time, rebalance companies' valuations.

At this time, there is no indication that portfolio decarbonisation has any impact on companies' access to capital.

In practice, investors possess a more direct means of exerting economic influence, at the level of companies in which they hold equity, via shareholder engagement policies.

Is bringing pressure to bear on companies effective?

As shareholders, investors possess multi-level, iterative means of affecting corporate policies: dialogue with management, voting at Annual General Meetings, and divestment, should dialogue prove fruitless. Once divested, however, an investor loses all ability to influence the company, and risks seeing their shares taken over by other, less demanding investors.

Since 2015, a number of collective investor initiatives, such as Aiming for A, have undertaken campaigns to pressure companies with high carbon emissions, submitting climate-related resolutions at general shareholder meetings. The year 2017 proved a turning point, both in terms of the total number of climate-related resolutions submitted and their increasing rate of success, notably in the United States: many investors decided to support these resolutions against the wishes of management at the companies in question. The most spectacular was perhaps the majority passage of a resolution at the 2017 Ordinary and Extraordinary General Meeting of ExxonMobil which demanded that the company publish assessments of the consequences for its businesses of the 2°C climate goal. The company resolved to do so, and in February 2018 published a report on its vulnerability to the energy transition²³ based on an in-house model that affirms Exxon's capability to adapt to a variety of energy scenarios.

²¹ <https://sciencebasedtargets.org/>

²² https://theinvestoragenda.org/wp-content/uploads/2018/09/The-Investor-Agenda_Global-Press-Notice.pdf

²³ <https://cdn.exxonmobil.com/-/media/global/files/energy-and-environment/2018-energy-and-carbon-summary.pdf>

In a letter to CEOs in January 2018, Larry Fink, Chairman & CEO of BlackRock, the world's largest asset manager with USD 6 trillion in assets under management, called on companies to consider their contribution to society. He specified that BlackRock would be strengthening its ESG team to pursue a more forceful shareholder engagement policy.

To be effective, engagement must have clearly defined objectives and targets; it must be sustained, in order to exert its effects and achieve progress over time; it should comprise an escalation strategy in case of engagement failure; and it must bring together a large number of shareholders in order to bring to bear the greatest possible pressure on companies. Such is the goal of the Climate Action 100+ initiative.

Climate Action 100+

Collective shareholder engagement activities have changed scale with the launch, sponsored by the main networks of climate-positive investors, of the 'Climate Action 100+',²⁴ coalition at the One Planet Summit held on 12 December 2017. Climate Action 100+ seeks to change the policies of the world's 100 most carbon-intensive companies, to which was added a list of 61 companies that are especially vulnerable to climate disruptions or significant on a regional level. The initiative brings together 296 investors from 29 countries that collectively represent USD 31 trillion in assets. Its corporate engagement is focused on three requests made of target companies: improving their governance on climate change, reducing their GHG emissions and increasing their financial disclosures with respect to climate change.

The initiative, which has a five-year horizon, must be deployed consistently over time to bear fruit.

What effects does portfolio decarbonisation have on financial performance?

No broad metric for this is currently available. Nonetheless, multiple studies have found that divestment from a sector, fossil fuels for instance, does not result in financial underperformance of a portfolio over an extended period.^{25 26} According to the PDC, "a number of its members that seek to track the major investment indices are clear that they can achieve the same investment performance but with significantly lower carbon footprints".²⁷

To take just two examples from among the many low-carbon and green indexes currently on the market:

- a study by FTSE Russell²⁸ presents the outperformance of the company's green indexes relative to their benchmarks:

²⁴ <http://www.climateaction100.org/>

²⁵ <http://www.lse.ac.uk/GranthamInstitute/news/the-mythical-peril-of-divesting-from-fossil-fuels/>

²⁶ <https://www.aperiogroup.com/resource/138/node/download>

²⁷ <http://www.unepfi.org/wordpress/wp-content/uploads/2016/11/PDCreport2016.pdf>

²⁸ «Investing in the global green economy : busting common myths»

Outperformance of green indexes

Source : FSTE Russel 2018

* Performance of FTSE Russell's most significant green indexes from March 2013 to March 2018, USD except where otherwise noted.

INDEX (USD)	5 YEAR PERFORMANCE TOTAL RETURNS%	OUTPERFORMANCE%
FTSE Environmental Opportunities All Share®	74.5	+14.3
FTSE Environmental Technology 100 (ET100)	69.4	+9.2
Benchmark: FTSE Global All Cap	60.2	0.0
FTSE All-World ex Fossil Fuels	65.6	+5.5
FTSE All-World ex Coal	61.0	+0.9
Benchmark: FTSE All-World®	60.1	0.0
FTSE All-World ex CW Climate*	75.1	+1.8
Benchmark: FTSE All-World®*	73.3	0.0
FTSE Divest-Invest Developed 200*	90.3	+13.0
Benchmark: FTSE Developed All Cap*	77.3	0.0

Annual performance (%)

Source : MSCI 2018

YEAR	MSCI ACWI ex fossil fuels	MSCI ACWI
2017	14.59	13.84
2016	27.84	29.40
2015	5.82	3.84
2014	13.23	11.22
2013	22.68	21.15
2012	13.47	11.67
2011	-6.32	-6.17

Likewise, the MSCI World index that excludes fossil fuels (MSCI ACWI ex Fossil Fuels Index)²⁹ outperforms its benchmark, the MSCI ACWI Index, over the long term.

These results corroborate calculations by Mercer, which, using its own model for prospective analysis, predicts that a Divest-Invest portfolio would outperform a Base Portfolio in a 2°C scenario, and would not underperform in a less ambitious scenario.³⁰

²⁹ The MSCI ACWI ex Fossil Fuels Index is based on the MSCI ACWI Index, its parent index, and includes large and mid-cap stocks across 23 Developed Markets (DM) and 24 Emerging Markets (EM) countries. The index represents the performance of the broad market while excluding companies that own oil, gas and coal reserves.

³⁰ <https://www.mercer.com/our-thinking/assessing-the-prospective-investment-impacts-of-a-low-carbon-economic-transition.html>

What purpose do divestment policies serve?

• COAL •

Withdrawing from the coal industry is among the favourite and most widespread levers for climate action among institutional investors.

It rests on two observations:

- According to current coal scenarios,³¹ success of the Paris Agreement requires that we swiftly and completely halt the creation of new capacity for producing electricity from coal on the one hand, and, on the other, that we gradually eliminate existing capacity.
- The rise of competitive renewable sources of energy, both cleaner and less costly, and the introduction of tighter regulations that increase the financial risks associated with companies involved in the coal industry.

A majority of coal exclusion policies currently in place among investors consist of assigning a threshold for the coal-related activities—generally 30% to 50% of turnover—of mining companies or energy producers (electricity, heat). Beyond this threshold the company is divested of. As it happens, a large number of such divestments took place in 2015-2016, a time when highly specialised mining and energy companies were experiencing economic difficulties. **While it is not clear that divestment contributed to this loss of value, it served at least to reduce the risks associated with coal in investor portfolios.**

Several NGOs, led by Urgewald via **the Coalexit³² initiative, have highlighted the weakness of these threshold policies.**

Coalexit has compiled a list of the 120 companies worldwide that develop new coal-fired power plants. Many of these are diversified groups for whom coal represents a minor share of their business, below the divestment threshold fixed by investors. Close to 1,500 institutional investors are shareholders or bondholders in coal plant developers.³³

Coalexit therefore advises investors to establish restrictive policies with respect to these companies.

The Norwegian insurance company Storebrand decided in late 2017 to cease investing in these companies, followed by Axa, which now employs the Coalexit list of 120 companies as the basis for its coal exclusion policy.

• OTHER FOSSIL FUELS AND STRANDED ASSETS •

Few investors have thus far chosen to divest from the oil & gas sector. There are likely several reasons this is the case:

- The decline of these sectors under a 2°C scenarios is more gradual than it is for coal,
- A number of energy companies have begun diversifying their activities and energy mix.

This is why shareholder engagement is currently the lever of choice.

Sectoral scenarios for the fossil fuel and automobile industries, and the case-by-case quantification of potential stranded assets produced by Carbon Tracker are precious resources for this purpose.³⁴

The Irish sovereign wealth fund, which manages 8.9 billion euros, is the only sovereign to have announced complete divestment from fossil fuels in 2018. The Norwegian sovereign wealth fund, GPFG, is also considering such a move. The commission convened by the Norwegian government on this topic advised not to divest, concluding that the risk of volatility in oil prices posed few risks for the fund, whereas a complete exit would reduce the investment universe and therefore increase risks while limiting the funds returns.

31 https://climateanalytics.org/media/climateanalytics-coalreport_nov2016_1.pdf

32 <https://coalexit.org/>

33 https://coalexit.org/sites/default/files/download_public/Investors%20vs.%20Paris.pdf

34 [Http://2degreeseperation.com/](http://2degreeseperation.com/)

A conclusion subject to debate in the context of a low-carbon transition. A decision is expected sometime in late 2018.³⁵

When the sovereigns wake up...

There are approximately 70 sovereign wealth funds³⁶ worldwide, which managed a total of USD 8 trillion in 2018, around 10% of global institutional investments.³⁷ Owned by their respective States, more than half are funded by oil & gas revenues. The largest funds are those of Norway, China, Abu Dhabi, Kuwait and Saudi Arabia. It thus comes as no surprise that the AODP's category of investors lagging in terms of climate action includes a number of large sovereign wealth funds.

The functions of sovereign wealth funds are various; however, such funds are most notable for their lack of short-term liabilities (contrary to pension funds, which disburse benefits, or insurance companies, which must pay out for damages), making them strictly long-term financial players, able to invest heavily in illiquid assets such as real estate, infrastructure and private equity funds. Given the volume of assets they manage and their long-term horizon, their commitment to transitioning towards a low-carbon economy is both decisive from a climate perspective and in their own interest. But to be engaged, they must overcome their inherent contradiction and use the resources of the past to benefit tomorrow's economy.

As part of the One Planet Summit held in December 2017, 6 sovereign wealth funds,³⁸ representing USD 3 trillion in assets under management, established a working group to *'accelerate efforts to integrate financial risks and opportunities related to climate change [...] through commitments to developing an environmental, social and governance framework [...] including methods and indicators.'*³⁹

The ESG framework, published in July of 2018,⁴⁰ is built around voluntary, non-binding principles that should make it possible for members to integrate climate change as part of strategic planning and risk management. In September 2018, member SWFs asked the 120 asset managers holding one or more of their mandates to apply these principles and provide regular reports.

35 <https://www.regjeringen.no/en/whatsnew/Ministries/fin/press-releases/2018/energiaksjer-i-statens-pensjonsfond-utland/the-government-pension-fund-global-should-still-be-invested-in-energy-stocks/id2609203/>

36 Including Social Security reserves funds and subnational investment funds in the United States.

37 <https://www.swfinstitute.org/sovereign-wealth-fund-rankings/>

38 Abu Dhabi Investment Authority, Kuwait Investment Authority, Norges Bank Investment Management, the Public Investment Fund of the Kingdom of Saudi Arabia, the Qatar Investment Authority and the New Zealand Superannuation Fund.

39 <http://www.ifswf.org/general-news/joint-communicu%C3%A9-one-planet-sovereign-wealth-fund-working-group>

40 <http://oneplanetwfs.org/>

Are investors' climate policies up to the challenge?

- Despite the progress observed, 60% of asset owners still have no climate policy.
- European asset management companies are the best equipped to implement policies that incorporate climate change and address the risks it entails.
- Investors could do more to raise the issue of climate when entrusting managers with mandates.
- Investors in the United States and in Asia are, on average, behind the curve.
- It would be appropriate for comparative studies to include investors from Africa, whose financial clout is likely to significantly increase.
- Scenario analysis methodology must improve to measure risk on the one hand, and prepare portfolio alignment with a 2°C target on the other.
- The efficacy of the levers employed by investors (exclusion, corporate engagement) could also be increased.
- Investment in green assets is contingent on the creation of suitable assets and investment products.

Banks

In the wake of the COP21, a number of banks made commitments to combat climate change, primarily by reducing their financing of climate-threatening assets and/or increasing their green financing activities.

Commitments by banks were made on a case-by-case basis, rather than channelled by coalitions like those mobilising investors. This is likely due to the competition among banking institutions and the diversity of their activities, which range from personal and commercial loans to investment banking services for multinationals and institutionals, by way of investment services and asset management.

Publication of the TCFD's recommendations prompted an increased focus on the management of risks and opportunities in the banking sector. The financial risks associated with climate issues that banks are vulnerable to largely involve their lending activities in the form of credit risks.

Given the broad variety of bank loans (duration, industries financed etc.) the materiality of climate risks to their balance sheets is currently difficult to estimate, and may be undervalued. It remains to be seen whether the risk-based framework will prove sufficiently responsive and comprehensive to redirect financing to the extent required.

Heterogeneous banking systems

In certain emerging economies, such as China's, or developing nations, financial regulation is employed to directly channel the economy's financing activities in keeping with the country's climate and environmental policies.

In contrast, public authorities in developed economies rarely attempt to shape lending activities, except by providing incentives for priorities, such as the thermal renovation of housing stock. In particular, these countries eschew the lever of monetary policy.

Banks know little about the end-assets they finance

Banks tend to be concerned primarily with the creditworthiness of borrowers, and are generally ignorant of how most of the financing they provide in the form of loans is actually used.

Measuring the climate risks associated with the assets and activities financed by banks calls for improvements in identifying assets.⁴¹ A taxonomy of green assets commanding broad international acceptance would make such identification possible.

To this end, banks are waiting for the taxonomy of green assets currently being prepared by the European Commission as part of its Action Plan on sustainable finance (see *below*).⁴²

China has already adopted a taxonomy and, in 2012, established a system of compulsory metrics and reporting for green loans granted by its 21 largest banks.⁴³

Without waiting for a classification system, one method open to banks consists of incorporating the green labels of assets they finance into their loan-management system. Known as green tagging, this would permit simple tracking of certain types of specialised loans, notably real estate⁴⁴ and auto loans. Estimating the green portion of less precisely identified loans, such as general business loans, calls for additional study.

A first estimate of green assets as a portion of bank financing

In 2017, the International Finance Corporation, (World Bank Group), made an initial attempt to track the capital flows of green bank financing.⁴⁵ The effort focused on the loans for which there exists the greatest visibility, namely syndicated loans.⁴⁶ According to its preliminary findings, based on data from 2014, **15% of the value of syndicated loans qualifies as green.**

15% of the value of all syndicated loans issued in 2014 went to green finance

Source : IFC 2018

Loan volume, USD billions



41 Three notes on the management of climate-related risks by financial actors <https://www.ifc.org/download/three-notes-on-the-management-of-climate-related-risks-by-financial-actors/>

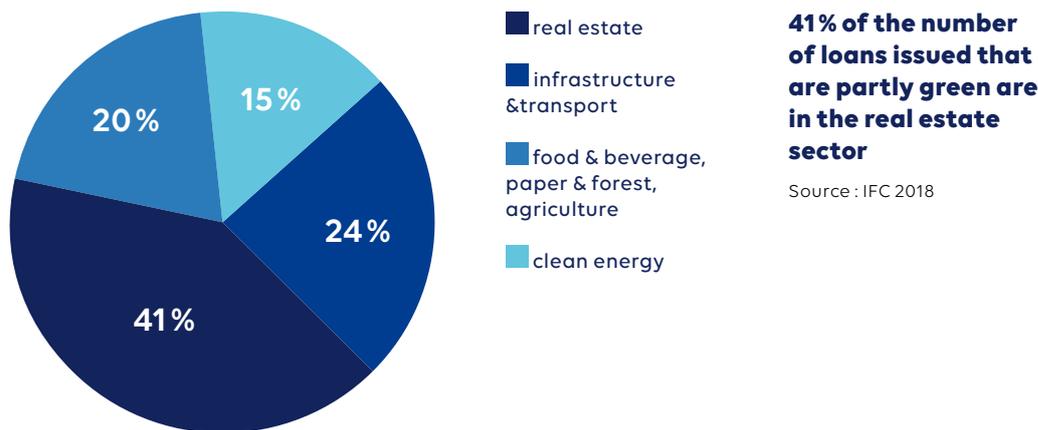
42 https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth_en

43 <http://www.cbrc.gov.cn/EngdocView.do?docID=3CE646AB629B46B9B533B1D8D9FF8C4A>

44 http://unepinquiry.org/wp-content/uploads/2017/12/Green_Tagging_Mobilising_Bank_Finance_for_Energy_Efficiency_in_Real_Estate.pdf

45 https://www.ifc.org/wps/wcm/connect/bcd1ecd-c-a4ee-4b0b-8561-250789cf5150/Executive+Summary+-+IFC_Green+Finance+-+A+Bottom-up+Approach+to+Track+Existing+Flows+2017.pdf?MOD=AJPERES

46 A syndicated loan is a loan granted by multiple lenders via a structured arrangement (syndicate). This instrument is used for large sums.



The proportion of green loans to total loans in the United States is 14%, in the United Kingdom it is 20%, in Australia and France it is 19%, in Japan and China 12%, and in India 30%.

The IFC acknowledges the limits of these initial results, which exceed estimates based on surveys of its own clients (6%), as well as the official figure of 10% in China published by Chinese banking regulation authorities (China Banking Regulatory Commission).

Improvements to this metric would make it possible to compare the volume of loans granted to estimates of the financing required to meet climate targets.

The policies of major global and European banks are improving

Two entirely qualitative and non-exhaustive studies have examined banks' application of the TCFD recommendations. The first of these, published in early 2018 by the asset management firm, Boston Common AM,⁴⁷ considered 59 of the world's largest banks, while the other, which was made available in December 2017 by ShareAction,⁴⁸ looks at 15 major European banks.⁴⁹

Both studies concluded that significant progress had been made year-over-year.

ShareAction accorded first place in Europe to BNP Paribas, followed by UBS, HSBC, Crédit Agricole, Société Générale and ING.

• STRATEGY •

All the major banks have implemented climate-related policies. Most banks, particularly those in emerging economies—China, India, Indonesia and Brazil—work hand in hand with public authorities to create regulatory and market conditions favourable to the transition to a low-carbon economy. Nevertheless, banks in developed economies appear more advanced.

47 <http://news.bostoncommonasset.com/wp-content/uploads/2018/02/Banking-on-a-Low-Carbon-Future-2018-02.pdf>

48 <https://shareaction.org/wp-content/uploads/2017/12/BankingRanking2017.pdf>

49 Individual scorecards of banks : <https://shareaction.org/wp-content/uploads/2017/12/BankingRanking2017-AccompanyingDoc.pdf>

• RISK MANAGEMENT •

It is certainly worth noting the contribution of the TCFD's recommendations to progress in the realm of risk management.

Less than half of banks, however, have attempted to analyse transition scenarios. European banks are ahead in this regard, but in most cases their analysis is limited to just a few sectors, particularly energy. The United States also boasts a few pioneers (Citigroup) as do Australia (Westpac) and China (ICBC).

• EXCLUSION OF HIGH-RISK SECTORS •

According to Boston Common, **71% of banks apply total or partial exclusion criteria that are climate related.** In developed economies, these exclusions or limits are voluntary, covering the fossil fuels industry and deforestation. In some emerging economies, exclusions and limits are regulatory issues: this is the case for deforestation in Brazil as well as Indonesia.

The year 2017 saw several European banks expand their exclusion policies to include additional climate-damaging and costly activities: extraction of shale gas or oil sands, Arctic and deep-water drilling, pipelines transporting liquified natural gas.⁵⁰ Beyond the energy sector, the protection of natural resources, which is also a lever in the struggle against climate change, remains the poor relation as concerns actions by banks, although a number have set out policies related to deforestation, land usage and protection of biodiversity. According to Boston Common, HSBC (UK), BNP Paribas (France) and Standard Chartered (UK) have the strongest policies in these areas.

• MEASURING AND ANALYSING PORTFOLIOS •

In general, banks provide only partial information as to the carbon content of their portfolios, meaning the amounts of GHG emissions they finance. Some institutions have made it a goal to reduce this amount.

No bank is capable of reliably measuring the climate-related risks of their portfolio. Measuring the green and brown portions of portfolios, however, is making headway, particularly the volume of financing granted in sectors that are considered green, such as renewables or green technology.

• GREEN INSTRUMENTS •

the low carbon transition is seen by banks as an opportunity. Green activities, for banks, consist primarily of green loans and green bonds (*see below*). On this segment, banks can serve as arrangers on behalf of client issuers, or issue securities themselves to refinance loans they have already made. These products have appeared on all continents. Third-party verification confirming the green nature of these products is practiced mostly in Europe. In 2017, a set of principles for green loans was published, comparable to those which have existed for a few years in the realm of green bonds (*see below*).

Fewer than half of all banks (46%) have established specific targets for developing green products or series. In emerging economies, this number shrinks further (17%).

⁵⁰ Including: BNP Paribas, Crédit Agricole, Société Générale and Natixis.

• THE CLIMATE-RELATED POLICIES OF THE WORLD'S GLOBAL BANKING INSTITUTIONS •

CLIMATE STRATEGY						
	Banks	Adopted a Group-wide Climate Strategy	Governance (Board-Level Oversight, KPIs, Incentives)	Public Policy Engagement & Disclosure on Progressive Climate Legislation	Trade Association or Industry Association Engagement on Progressive Climate Policies	Industry & Multi-Stakeholder Collaboration on Climate Risk and Solutions
Developed Asia	9	56%	89%	67%	44%	100%
Emerging Markets	12	25%	92%	58%	33%	92%
Europe	20	80%	100%	100%	50%	100%
North America	18	56	94%	67%	33%	94%
Total	59	58%	95%	76%	41%	95%

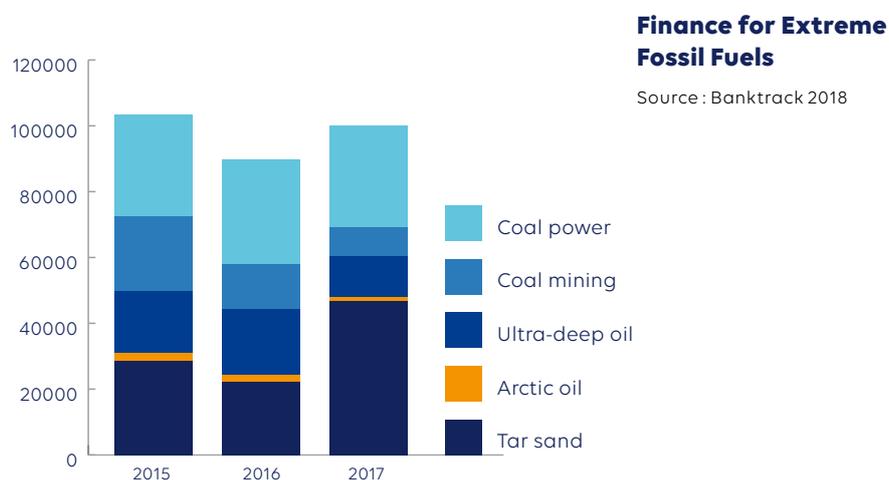
RISK MANAGEMENT				
	Implement Risk Assessment or 2°C Scenario Analysis	Implement Exclusion Policies (i.e. Fossil Fuels and Deforestation)	High-Carbon Sector Client Engagement on 2°C Scenario/ Low-Carbon Transition Strategies	Ask High-Carbon Sector Clients to Adopt TCFD Guidance
Developed Asia	33%	33%	33%	0%
Emerging Markets	17%	83%	8%	0%
Europe	80%	90%	85%	10%
North America	44%	61%	56%	0%
Total	49%	71%	53%	3%

OPPORTUNITIES			
	Low-Carbon Products and Services Disclosure	Set Objectives and Targets to Increase and Promote	Due Diligence and/or Third Party Assessments (i.e. Green Bond Principles)
Developed Asia	100%	44%	67%
Emerging Markets	92%	17%	42%
Europe	100%	65%	95%
North America	89%	44%	50%
Total	95%	46%	66%

Source : Boston Common AM 2018

Financing for fossil fuels is on the rise again

Each year, a consortium of environmental NGOs publishes 'Banking on climate change, the 'Fossil fuel finance report card',⁵¹ which describes contributions by 36 of the world's largest banks to extreme fossil fuels, those most dangerous for the climate and the environment: tar sands, ultra-deepwater and Arctic drilling, exports of liquefied natural gas (LNG), coal mining and coal-fired power plants.



Whereas financing for extreme fossil fuels declined 8.2% in 2016 relative to 2015, it expanded 11% in 2017. This increase is most striking in the area of tar sands and pipelines, but also concerns coal.

What is the purpose of excluding coal from access to bank loans?

Banks may finance projects, or they may finance companies that undertake to develop projects on their own balance sheets.

As at June 2018, 19 banks had ceased to provide direct financing for coal mining projects, and 16 banks⁵² had halted financing for new projects to build coal-fired power plants.

Only ABN Amro has also stopped financing companies that develop coal-based projects.

Because they are generally not comprehensive, policies to exclude coal do not currently have a determining effect on the overall volume of bank financing in the sector. Meanwhile, in 2017 a large number of global banks increased their financing for coal, in some cases substantially.

The exclusion policies of some banking institutions are thus more than compensated for by increased financing on the part of other banks.

One may also note that 10 of the 36 banks in the Report Card's ranking can also be found among the top 20 published by Bloomberg New Energy Finance⁵³ of banks (outside China) that finance projects in the renewables and green-tech sectors. No less than 14 also appear in the top 20 of

51 https://www.banktrack.org/campaign/banking_on_climate_change_2018_fossil_fuel_finance_report_card

52 https://www.banktrack.org/campaign/coal_banks_policies

53 <https://about.bnef.com/blog/2017-league-tables-clean-energy-smart-technologies/>

green bond arrangers⁵⁴ and advise corporate and key account clients on strategies for greening their activities (see *below*).

By and large, banks appear better equipped to identify the opportunities associated with climate change than the attendant risks.

Cooperation among banks is increasing

Several international initiatives in the general interest have recently been established in the banking industry:

- 16 banks cooperated in 2018 to develop and test a framework for managing transition-related risks⁵⁵ and physical climate risks⁵⁶ as part of a UNEP FI working group.
- UNEP FI is also preparing to publish its Principles for Responsible Banking in November 2018.
- A group of 42 development banks, public banks and private banking institutions share their experiences and best practices via the 'Climate action in financial institutions' network, launched in 2015. Each member has signed the 'Five Voluntary Principles for Mainstreaming Climate Change'.⁵⁷

Conclusions

Banks possess considerable power to orient the economy towards a model consistent with climate targets. As of 2018, these institutions remain self-contradictory:

- Banks see the low-carbon transition primarily in terms of opportunities for creating lending and financial services.
- By contrast, they are less conscious of the risks associated with climate change: 'brown' financing, dedicated to high emitting activities, shows no sign of decline.
- At the institutional level, many banks continue to finance brown assets while simultaneously developing green financing activities.
- European banks are the most advanced, with French banks in the lead.
- **The inauguration of policies for aligning on 2°C targets with a long-term view and covering all sectors of the economy ought to resolve current contradictions.**
- Banks could also further their dialogue with clients on climate-related topics, both to assist them in transitioning their business models and to collect more specific information.
- The major global banks, which constitute the industry's most scrutinised area, have begun to take partial action on climate issues. There exist, however, some 25,000 banks worldwide. What is the best way to get them involved? Oversight by central banks, which have begun expressing concern about climate change (see *below*), could serve as a critical multiplier.

Public banks also have a role to play as leadership examples to catalyse action in the banking sector.

54 <https://www.climatebonds.net/resources/league-table>

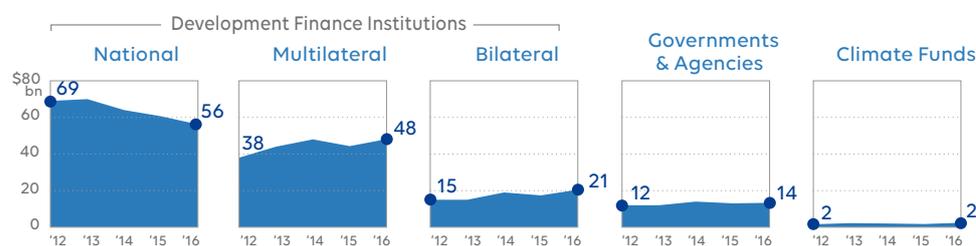
55 Report on transition risks: <http://www.unepfi.org/publications/banking-publications/extending-our-horizons/>

56 Report on physical risks: <http://www.unepfi.org/publications/banking-publications/navigating-a-new-climate-assessing-credit-risk-and-opportunity-in-a-changing-climate/>

57 <https://www.mainstreamingclimate.org/>

Development Banks

Public development banks (national, multilateral, and bilateral) are major players in climate finance. In 2015-2016 they cumulatively represented 30% of all climate-related loans worldwide, public and private (USD 123 billion of 400 billion total), according to an overview compiled by the Climate Policy Initiative.⁵⁸ Given their role as consultants and providers of technical support in countries where they operate, in addition to financing projects, and also their ability to galvanize private financing, these bodies should also facilitate a more intensive flow of capital into climate-favourable financing.



Public sources & intermediaries

Source : Climate Policy Initiative 2017

Multilateral development banks

The six multilateral development banks (MDBs) represent a third of all financing provided by development finance institutions. They are: the African Development Bank (AfDB), the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Interamerican Development Bank (IDB) and the World Bank Group (WBG).

• COMMITMENTS •

• **In 2015**, during the COP21, these institutions made a joint statement of commitment to increasing their climate finance.⁵⁹ The 2020 targets they fixed for climate loans as a portion of annual activity range from 28% for the World Bank to 40% for the African Development Bank and European Bank for Reconstruction and Development.

• **In late 2017**, during the One Planet Summit, these institutions, alongside other development banks members of the International Development Finance Club (IDFC), committed to aligning their financial flows with the Paris Agreement,⁶⁰ and more specifically to:

- increase the integration of climate in their strategies and activities.
- mobilise and channel the flow of public and private capital toward the low-carbon and climate-resilient transitions,

⁵⁸ <https://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2017/>

⁵⁹ http://www.eib.org/attachments/press/joint-mdb-statement-climate_nov-28_final.pdf

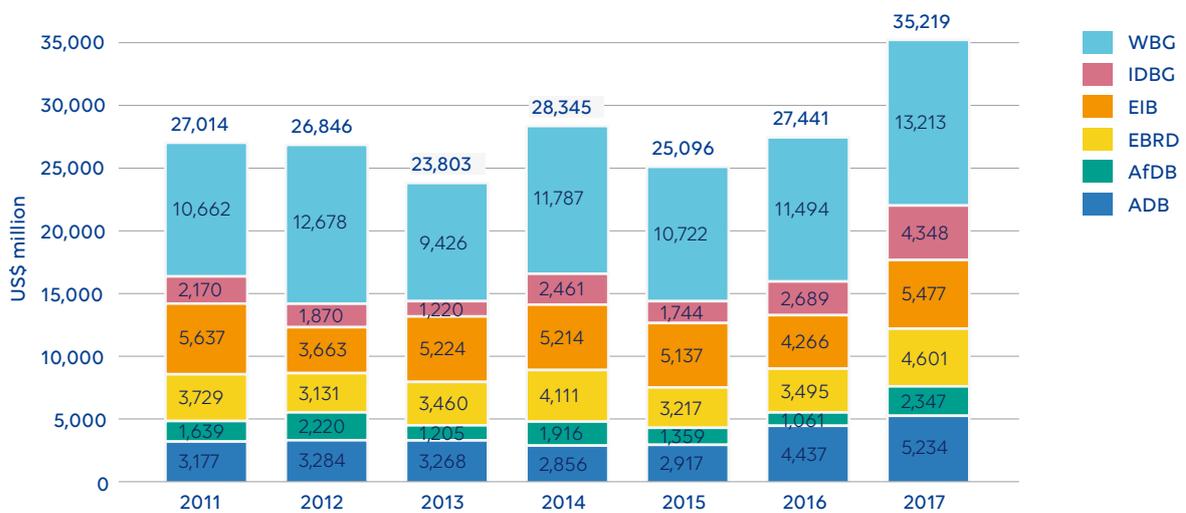
⁶⁰ <https://www.afdb.fr/en/together-major-development-finance-institutions-align-financial-flows-paris-agreement>

- support the implementation of national contributions and the design of long-term national decarbonisation pathways to 2050,
- contribute, via their financing activities, to significantly reducing reliance on fossil fuels and quickly ramping up the emergence of sustainable alternatives.

For instance, during the One Planet Summit, the World Bank pledged to cease financing the exploration and extraction (upstream) of oil and gas as of 2019.⁶¹

Since 2011, multilateral banks have used a shared methodology to assess their progress and published the results in a joint annual report.⁶²

• FINANCING VOLUMES IN 2017 •



Total reported MDB climate finance commitments, 2011-17 (in USD million)

Source : MDBs joint report on climate finance 2018

In 2017, the MDBs' climate finance activities amounted to 35.2 billion dollars, a 28% increase over 2016. Including third-party assets under management,⁶³ the total comes to USD 51.7 billion. Climate finance represents an average of 25% of overall activity for these institutions, and every bank increased its portion in 2017. **With a rate of 40%, the EBRD met its 2020 target in 2017.**

Financing was directed at a rate of 79% to climate change mitigation projects, meaning carbon emissions reduction, while 21% went to finance climate change adaptation.⁶⁴ 8% of financing went to strengthen capacity and to technical assistance.

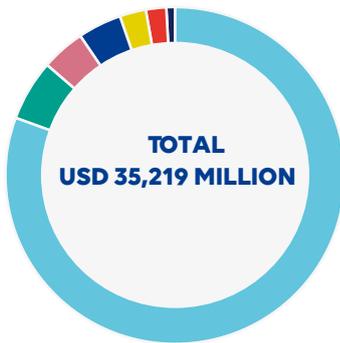
61 <https://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit>

62 <http://www.eib.org/attachments/press/2017-joint-report-on-mdbs-climate-finance-48p.pdf>

63 Such as the Climate Investment Funds (CIF) managed by the World Bank or the Global Energy Efficiency and Renewable Energy Fund (GEEREF) managed by the EIB.

64 It is worth noting that the accounting mechanisms are different: financing for mitigation is counted in its entirety, based on asset class, whereas only the additional investment actually devoted to adaptation in development project lending qualifies in the latter category.

• FINANCING INSTRUMENTS IN 2017 •



- 81%** Investment loans USD 28,433 million
- 6%** Policy-based lending USD 2,014 million
- 4%** Guarantees USD 1,506 million
- 4%** Grants USD 1,425 million
- 3%** Lines of credit USD 960 million
- 2%** Equity USD 590 million
- 1%** Other instruments USD 291 million

Total MDB climate finance by type of instrument, 2017 (in USD million)

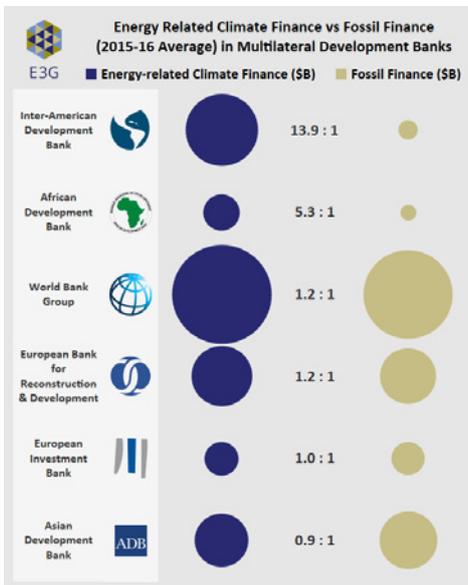
Source: MDBs joint report on climate finance 2018

Of all financing, 81% was issued as loans to investment projects.⁶⁵

Multilateral banks' **capacity for leverage** is measured by the co-financing they attract, including through the guarantees they provide to private financing: **in 2017, development banks generated USD 51.7 billion of co-financing, of which 22 billion came from the private sector, for a multiplier of close to 1.5.**

The MDBs' financing for fossil fuels

In a report from May 2018, the NGO E3G ranked the climate policies of the six multilateral development banks (MDBs) and provided a critical analysis of each.⁶⁶



Energy related climate finance vs fossil fuels financing (2015-2016 average) (in \$bn)

Source: E3G 2018

Their main criticism rests on the fact that some MDBs, striving to remain in line with the policies of the countries they invest in, continue to provide substantial financing for fossil fuels. E3G encourages the MDBs as a group to adopt a policy excluding fossil fuels as a matter of course.

⁶⁵ Policy-based loans serve to finance State budgetary expenses.
⁶⁶ https://www.e3g.org/docs/E3G_-_Banking_on_Reform_Report_-_Final.pdf

Other development banks

• THE IDFC •

The International Development Finance Club (IDFC) brings together 23 international, regional and national public banks. All continents are represented, excepting North America.⁶⁷ While the club does not include every bilateral or national development bank, it nonetheless provides a wealth of quantitative and qualitative information on the development of public climate financing.

In 2017, alongside the MDBs, IDFC members signed a commitment on the part of development banks to align their activities with the Paris Agreement (see *above*).

Each year, the IDFC calculates the climate contribution of its members according to a methodology that was reconciled with that of the MDBs in 2015.

The IDFC's most recent report is devoted to green financial flows in 2017,⁶⁸ which totalled USD 220 billion, or 27% of all their financing activities for the year, versus 19% in 2016, for an average year-on-year increase of 27%. Climate change accounted for 89% of this amount, with the balance allocated to environmental projects such as fighting pollution and waste water treatment.

IDFC members appear somewhat behind as concerns the goal of mobilising private financing on behalf of climate policy. Indeed, 97% of the financing provided took the form of loans, of which 18% were granted on special terms (concessional loans). Subventions constituted 1.5% of total volume. Currently, the IDFC has no satisfactory measure for assessing leverage effects.

• SOUTH-SOUTH DEVELOPMENT BANKS •

These banks have emerged recently from a desire to reflect new geopolitical realities, and make sustainable development a core mission.

Known as the BRICS bank, the New Development Bank (NDB) is held by Brazil, China, India, Russia and South Africa. It finances green and sustainable infrastructure projects in member countries via loans. The Asian Infrastructure Investment Bank (AIIB)⁶⁹ is a multilateral development bank bringing together 87 member states. Its three priorities are sustainable infrastructure, transnational connectivity and the deployment of private capital.

Recently founded, these institutions do not yet publish information quantifying their levels of green investment, except on a per project basis.

• GREEN INVESTMENT BANKS •

These have appeared in recent years, primarily in Anglo-Saxon nations, at the State, regional and even municipal level, largely in places lacking national development banks to support public policy and environmental, especially climate-focused, programmes. While there are no reliable estimates of the volume of financing they provide, their qualitative contribution deserves mention here. As a rule, green investment banks explicitly seek to use public funds to attract private financing for green projects. As such, they provide innovative financing instruments for goals such as thermal renovation or the installation of solar panels on residential buildings in the United States.

Green banks do not publish a consolidated climate report that would make it possible to gauge their impact.

67 AFD, Bancoldex, BCIE-CABEI, BE, BNDES, BOAD, BSTDB, CAF, CDB, CDG, COFIDE, DBSA, HBOR, ICD, JICA, KDB, KfW, NAFIN, SIDBI, TDB, TSKB and VEB.

68 https://www.idfc.org/Downloads/Press/02_general/6_IDFCGreenFinance_4pager_Preliminary_180913.pdf

69 <https://www.aiib.org/en/news-events/news/2017/annual-report/common/pdf/AIIB-Annual-Report-2017.pdf>

Repairing the Green Climate Fund

The Green Climate Fund⁷⁰ is the primary operational tool for the UNFCCC and the Paris Agreement as concerns financing for climate action in developing countries. Going by the original pledges by developed countries, its capitalisation should have reached USD 10.2 billion.⁷¹ Due to US withdrawal from the agreement and fluctuations affecting certain of the currencies in which the promised contributions are calculated, however, the Fund finds itself with fewer resources and must launch a fundraising campaign to recapitalise

The Fund's board is comprised equally of developed countries which contribute to the fund, and the developing countries that benefit. Decisions are made by consensus. GCF seeks to catalyse additional public and private funding through a variety of financing instruments: grants, loans, equity and guarantees. Its capacity to absorb risk should make it possible to attract other resources. To date, 75 entities have been accredited by the Fund as authorised to submit requests for financing, including project owners, development banks and private organisations.⁷²

Since its launch in 2015, the Fund has approved 93 projects representing USD 4.6 billion of direct investment. Projects originating in the private sector amounted to 50% of overall financing. The Fund hopes to fund mitigation and adaptation in equal measure; currently, however, 43% of financing is directed to mitigation, 29% to adaptation, and 28% to crossover projects.⁷³

The Fund's pace of activity has been disappointing. Actual payments have been slow in materialising, at USD 158 million in early 2018. Most of all, GCF suffers from weak governance due to the diverging interests of the board members, who are called on to make all types of decisions. To schematise, one might say beneficiary countries are primarily interested in decisions to finance their own projects, while contributing countries are concerned about the Fund's financial stability. At the meeting held in July 2018, disagreements about the procedure for recapitalising the Fund stalled a billion dollars of financing decisions. GCF's executive director resigned following the meeting. **The situation changed in part in October 2018 when the board approved 19 new projects amounting to USD 1 billion. It also held discussions on developing a process for decision-making in the absence of consensus.**

The first operations conducted by the Green Climate Fund are promising, however, the fund must resolve its governance issues if it is to regain the trust of beneficiary countries, project owners and co-financers.

⁷⁰ <https://www.greenclimate.fund/home>

⁷¹ It is important not to confuse this objective with pledges for North/South financing transfers expected to reach USD 100 billion annually by 2020; this total covers the GCF's activities, but also other pathways (government aid, development banks, international private finance).

⁷² Sub-national authorities must have the support of national authorities to receive accreditation.

⁷³ https://www.greenclimate.fund/documents/20182/194568/GCF_in_Brief_About_the_Fund.pdf/280fa565-334f-4d0a-9f93-ab4034403918

The fragmentation of financing offerings available

Other international climate finance is available via specialty funds. The think tank WRI, which surveyed the landscape of multilateral climate financing in 2017, considers that the proliferation of public funding sources makes the offerings incomprehensible for recipient countries, which are confronted with multiple addressees, each with their own set of rules.⁷⁴

Public banks, drivers of change in financial systems

In the face of climate finance needs they will be unable to cover alone, development banks seek to increase the catalytic effects of their financing activities. All the development banks offer programmes with lines of credit that allow commercial banks to grant green loans. This is a useful way of mobilising banks with national networks to take action on climate issues. The flagship programme, Sustainable Energy Finance Facilities, sponsored by the EBRD, for instance, operates in 23 countries.

The MDBs, which launched the market for green bonds (*see below*), remain major issuers.⁷⁵ Today, these institutions also seek to support new issuers—sovereigns, local authorities (sub-national) and private entities—to increase the supply of green bonds attractive to international investors (*see the section on Green Bonds below*).

Public/Private financing, via co-investment or guarantees, has yet to see significant growth, and expansion in this area is a strategic goal for development banks.

Climate Finance Lab,⁷⁶ a project incubator, designs scalable prototypes for innovative financial instruments focused on overcoming specific obstacles to climate financing. Most development or national public banks are also pursuing this approach, which consists primarily of creating a financing platform that distributes risk amongst the various stakeholders of projects, with public money focused on early stage financing of projects and higher-risk segments (equity, junior debt, guarantees).

Conclusions

- Development banks are, on the whole ahead of other financial actors as concerns the proportion of financing devoted to climate action. A next step consists of aligning the entirety of their activities with climate targets.
- The joint commitments made in late 2017 should further increase their action going forward.
- A catalysing role in leveraging financial systems and actors is one of their goals, but remains limited in scope, with a ratio of 1.5 at most.
- To improve leverage ratios, development banks must expand higher-risk financing instruments such as equity participation and guarantees.
- Banks could also multiply the financing platforms they have begun creating to address both the needs of countries where they operate and those of investors who are still reluctant to make commitments, particularly in emerging and developing countries.
- The New Climate Economy considers development banks to be key in achieving sustainable growth, and its 2018 report calls for their means to be doubled, for a total of USD 100 billion annually.⁷⁷

74 <https://www.wri.org/publication/future-of-the-funds>

75 <https://www.climatebonds.net/files/reports/cbi-green-bonds-highlights-2017.pdf>

76 <http://www.climatefinancelab.org/wp-content/uploads/2017/10/The-Lab-Driving-Sustainable-Investment.pdf>

77 <https://newclimateeconomy.report/2018/>

Insurance

The business of insurance companies consists of evaluating, assuming and redistributing risk on behalf of their policyholders.

A distinction is made between property insurance, life insurance and reinsurance. Market volume came to USD 4.9 trillion in premiums for 2017, of which life and health insurance made up 55%.⁷⁸

In order to meet their obligations to policyholders, insurers manage on their balance sheets, financial assets that make them a major constituency among institutional investors.

According to PwC, the investment portfolios of insurance companies represented some USD 29.4 trillion in 2016, or 36% of the volume held by institutional investors.⁷⁹

The management of physical hazards due to climate disruption is central to managing liabilities for property insurers and reinsurers. With respect to assets, however, they are primarily concerned, like other investors, with managing transition risks.

Insurers: not on the forefront of institutional investors

Despite the fact that 7 insurance companies are on the AODP's 2017 ranking of the 50 top investors its 2018 study of the 80 largest insurance companies worldwide⁸⁰, shows that they are, on average, somewhat less advanced than institutional investors as a whole with respect to incorporating climate issues, whether in their governance, the articulation of a climate policy, or their handling of transition risks. Use of forward-looking scenarios remains rare. Fewer than a third of insurers measured the emissions of their portfolios, while estimated volume of green investments was only 0.5% of portfolios.

European insurers are ahead of the curve when it comes to taking climate change into account. Japanese insurers progressed significantly in 2017, particularly Tokio Marine. In 2018, Dai-ichi Life became the first Asian insurance company to establish a policy restricting investments in coal. American insurers are behind, but several improved in 2017.

Managing physical climate risks

In their underwriting activity, more than 80% of property insurers and reinsurers⁸¹ are aware of climate issues. Losses associated with weather events directly affect their bottom line and they have established the use of modelling to assess disaster risk. This expertise ought to facilitate modelling of physical risks associated with climate disruption. To do so, they must incorporate into their models the way extreme weather events will evolve due to climate change and the consequences thereof.

Life insurers are less cognizant of these risks in terms of their business (20%), despite that air pollution and natural catastrophes may affect the morbidity and mortality of their clients.

⁷⁸ <http://www.sigma-explorer.com/>

⁷⁹ <https://www.pwc.com/gx/en/asset-management/asset-management-insights/assets/awm-revolution-full-report-final.pdf>

⁸⁰ <https://aodproject.net/wp-content/uploads/2018/05/AODP-Got-It-Covered-Insurance-Report-2018.pdf>

⁸¹ Reinsurance is a mechanism for redistributing risk by which a specialist company assumes all or part of the risks covered by an insurance company.

• BRINGING CONSISTENCY TO THE ASSETS AND LIABILITIES THAT MAKE UP INSURERS' BALANCE SHEETS •

Achieving consistency between risk management of the balance sheet's assets and that of its liabilities is a logical next step in taking climate into account for insurance companies.

Some insurers are attempting to use their knowledge of physical risks (liabilities) to estimate risks to certain assets in their portfolios (assets), such as real estate and infrastructure. Conversely, it should be possible to transpose assessments of the transition risks weighing on portfolios into insurance activities.

To date, several major global insurers and reinsurers have established policies to exclude coal that apply both to underwriting and investment: Axa, Allianz, Zurich Re, SCOR, Swiss Re and, to some extent, Munich Re, under scrutiny of the NGO, Unfriend Coal.⁸²

• BUSINESS OPPORTUNITIES HAVE YET TO BE IDENTIFIED •

Insurers primarily look at climate issues as a set of risks that can impact their business model. This raises questions about whether certain risks will remain insurable. Few among them perceive climate change as a source of business opportunities: only 41% can see opportunities for innovating products to address the low-carbon transition.

Yet insurers have the power to influence the behaviour of their clients both in terms of reducing emissions and improving their resilience to climate change.

Insurance as a tool for improving resilience in the face of climate events

Countries where insurance coverage is widespread recover more quickly and completely than others following a climate disaster. Meanwhile, 70% of the population and businesses of emerging and developing countries remain uninsured.

There do exist products suited to this market, such as parametric insurance, crop insurance and microinsurance, however, increases to their commercialisation remain difficult to quantify.

In 2015, the G7 set a target of expanding direct and indirect access to insurance covering catastrophic risks in developing countries to 400 million persons by 2020, via the InsuResilience Global Partnership.⁸³ The Insurance Development Forum initiatives, first announced at COP 21, has a stated goal of improving and extending recourse to insurance to improve resilience to natural disasters and the economic shocks they induce,⁸⁴ most notably by extending and expanding microinsurance and providing support to public authorities.

• MICROINSURANCE •

According to the Microinsurance Network,⁸⁵ microinsurance products provided coverage to 280 million people worldwide in 2016, for a total of USD 2.4 billion in premiums. Penetration rates reached 8.5% in Latin America and the Caribbean for 2016, 5.4% in Africa for 2014, and 6.9% in Asia, for 2015.

• MECHANISMS FOR REGIONAL POOLING OF PHYSICAL RISKS •

Many governments of developing countries lack the means to adequately protect their economies from the impacts of natural catastrophes on their own. Three types of coverage and regional risk pooling in especially vulnerable areas have taken shape in the last several years, combining public

82 <https://unfriendcoal.com/insurance/>

83 <https://www.insuresilience.org/>

84 <http://theidf.org/>

85 <http://worldmapofmicroinsurance.org/#>

monies, private financing and international grants. They offer parametric insurance which, rather than seeking to cover all damages caused by a natural catastrophe, provides resources for the rapid response needed to mitigate impact.

- the **CCRIF SPC** (Caribbean Catastrophe Risk Insurance Facility)⁸⁶ is the oldest and most established. This programme provides insurance against hurricanes, earthquakes and torrential rains in 16 Caribbean nations and 1 country in South America, where the initiative intends to expand.
- the **African Risk Capacity (ARC)**⁸⁷ covers the risk of drought in 33 African countries, and is preparing to offer coverage for flooding and tropical storms. In order to qualify, States must have an existing emergency plan in place, so that aid can be disbursed quickly and effectively.
- the **Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI)**,⁸⁸ is the most recent of these mechanisms. It models natural hazards affecting Pacific Island Countries (PICs) and offers a tool for coverage against cyclones, earthquakes and tsunamis. To date, 14 island States are members.

Conclusion

- Insurance companies possess the necessary expertise and information to measure physical risks associated with climate change, however, they have currently not made much progress toward addressing the problem of resilience faced by territories or by their clients.
- A broad process of reflection and debate on the part of insurance companies that incorporates both of their roles, as insurers and investors is just beginning, with tremendous room for innovation.

86 https://www.ccrif.org/sites/default/files/publications/CCRIFSPC_Annual_Report_2016_2017.pdf

87 <http://www.africanriskcapacity.org/>

88 <http://pcrafi.spc.int/>

PART 2



Growing Market Practices



Private financial actors have begun to develop products and services directly aimed at financing assets that contribute to the low-carbon transition.

The green bond market

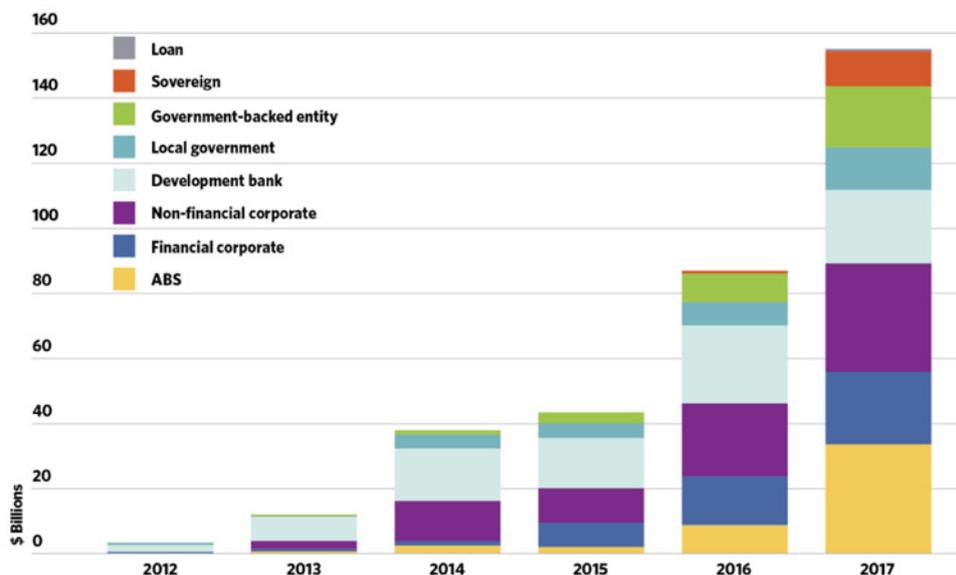
The most developed of these green asset classes is green bonds. Green bonds are bonds earmarked for use to finance or refinance assets that provide environmental benefits.

While they do not in themselves increase the volume of green finance, green bonds provide investors with information on the nature of the assets financed and, increasingly, on their climate or environmental impact. Although the term 'green' is self-declared by issuers, many issuers have the ecological integrity of their issued bonds verified by a third party. **Green bonds thus set a market standard and introduce a new parameter to the bond market: the end-use of the funds lent.** The market's growth is driven by calls for this information from investors keen to 'go green' with their portfolios.

Growth of the market is an indicator that an increasing volume of assets is taking environmental objectives into account, but this indicator is partial. The volume of bonds that finance green assets in practice is thus actually much higher than the volume of bonds indicated by their issuers as 'green'. According to the Climate Bonds Initiative (CBI) and HSBC,⁸⁹ the universe of 'climate-aligned' bonds reached USD 1.45 trillion in 2018, including USD 389 billion of outstanding green bond volume accounting for 32%.

• THE RAPID GROWTH OF GREEN BOND ISSUANCE •

The labelled green bond market is growing rapidly



Source: CBI 2018.

89 <https://www.climatebonds.net/resources/reports/bonds-and-climate-change-state-market-2018>

The volume of issuance amounted to approximately USD 160 billion in 2017. Despite projections estimated at USD 250 billion in 2018, market growth could be slowed by ongoing regulatory work in Europe and China in the context of a slow broader fixed income market.

- Since 2012, the market has diversified. By 2017, more than 1,500 green bonds had been issued by 239 issuers in 37 countries on 6 continents.
- Sovereign issuers appeared in 2017.
- The securitisation of green loans and green covered bonds are taking an increasing share of the market (ABS share in the table above).
- The sectors financed are, in order: renewable energy, real estate, transport, sustainable water and waste management, land use and forestry, adaptation.

• THE INTERNATIONAL STRUCTURING OF THE MARKET IS IN PROGRESS •

Two major voluntary standards seek to standardise the market:

- **The Green Bond Principles**⁹⁰ published in 2014, guarantee transparency
- Certification according to the Climate Bond Initiative's (CBI) **Climate Bond Standard**⁹¹ ensures alignment with the 2°C target.

Other initiatives have also been launched:

- The EIB and China have prepared a comparative table of their definitions of green bonds ('Rosetta Stone'),
- The Asean Capital Markets Forum has set regional standards, as have several countries: Indonesia, India, Argentina, Mexico, Nigeria and Kenya,
- The European action plan on sustainable finance will establish a classification of green assets and provide a label for green bonds.

14% of all green bonds issued in 2017 had obtained CBI standard certification.⁹²

• FACILITATING INVESTMENT IN GREEN BONDS •

Rating agencies have developed green bond rating services.

Indexes, ETFs⁹³ and green bond funds have also emerged.

Lastly, several exchanges have created segments dedicated to green bonds, some of which have transparency and quality requirements.

• THE KEY CHALLENGE IS THE GROWTH OF THE GREEN BOND MARKET •

According to the CBI's estimate, the green bond market has a potential size of USD 1 trillion in 2020.

- Direct public incentives contribute to this. Some Asian countries have introduced subsidies to issuers to cover the additional costs that green bond entail. Sovereign issues, which increased in 2017, bring volume and liquidity to the market.
- The European Commission is in the process of creating a framework to enable this growth as well, with plans to create a quality standard.
- International platforms and alliances, in which development banks play a leading role, are being built to support new issuers, particularly emerging countries, and to facilitate international investment:
- This is particularly the case with the partnership between the IFC (World Bank Group) and asset manager Amundi to promote investment in green bonds issued by banks in emerging countries.⁹⁴

90 <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

91 <https://www.climatebonds.net/standard>

92 https://www.climatebonds.net/files/files/Q4_2017_Newsletter_CBI_final.pdf

93 ETF Exchange-Traded Fund: listed investment fund that replicates the performance of an index. Indexes are indicators of the evolution of a basket of listed securities.

94 <https://www.amundi.lu/professional/Local-Content/News/IFC-and-Amundi-successfully-close-world-s-largest-green-bond-fund>

- The Global Green Bond Partnership launched in September 2018 at the Global Climate Action Summit in San Francisco seeks to facilitate sub-national issuance of green bonds.⁹⁵

The green loan market is emerging and organising

Green loans have been historically linked in many countries to public incentives or obligations, in particular to facilitate the financing of thermal renovation of housing and energy efficiency. These targeted assisted loans can be distributed by public banks or by commercial banks benefiting from subsidies or public credit lines.

2017 and 2018 saw two major market innovations:

• THE DEVELOPMENT OF A PREFERENTIAL OFFER OF GREEN LOANS •

This new offering by commercial banks consists of granting loans on favourable terms if the borrower meets environmental impact objectives—or, more broadly, sustainability objectives—agreed upon with the lender. For example, Berlin Hyp applies reduced rates to loans for highly energy-efficient buildings. Similarly, in 2018, Danone received a syndicated loan⁹⁶ with an interest rate that is pegged to the company's environmental performance, including its carbon emissions.

• THE CREATION OF THE GREEN LOAN PRINCIPLES⁹⁷ •

These guidelines, issued by the Loan Market Association (LMA) and the Asian Pacific Loan Market Association (APLMA), aim to establish a quality standard in this new green loan market.⁹⁸ They target high-volume loans such as syndicated loans. Based on the Green Bond Principles, they insist on transparency regarding the activities financed, provide for reporting on the impact of loans, and recommend third-party audit.

According to Environmental Finance, the volume of green loans had reached USD 32 billion by mid-2018.⁹⁹

The revival of green investment funds

Investment funds specialising in environmental issues, which suffered following the 2008-2009 crisis, have proliferated in recent years, responding to multiple market dynamics:

- investors' desire to diversify their portfolios into green investments: funds provide them with skills that they do not necessarily possess (such as analysis of infrastructure projects or cleantech) and additional services (environmental reporting in particular);
- the growing competitiveness of green technologies and projects, which increase investment opportunities;
- the necessary pooling of transition assets, often small, volatile and subject to deferred profitability, particularly in the field of energy efficiency.

In addition to climate funds (low-carbon funds, green funds or cleantech), thematic environmental funds (sustainable management of water, soil, etc.) and funds seeking to contribute more broadly to a combination of SDGs are emerging.

⁹⁵ <https://www.worldbank.org/en/news/press-release/2018/09/13/launch-of-the-global-green-bond-partnership>

⁹⁶ Syndicated loan: loan granted by several banks as part of a group; this technique is used for large loans.

⁹⁷ <https://www.lma.eu.com/news-publications/press-releases?id=146>

⁹⁸ Transparency on the selection of projects to be financed, on the allocation of funds and on the impact of projects.

⁹⁹ <https://www.environmental-finance.com/content/analysis/the-green-and-sustainability-loan-market-ready-for-take-off.html>

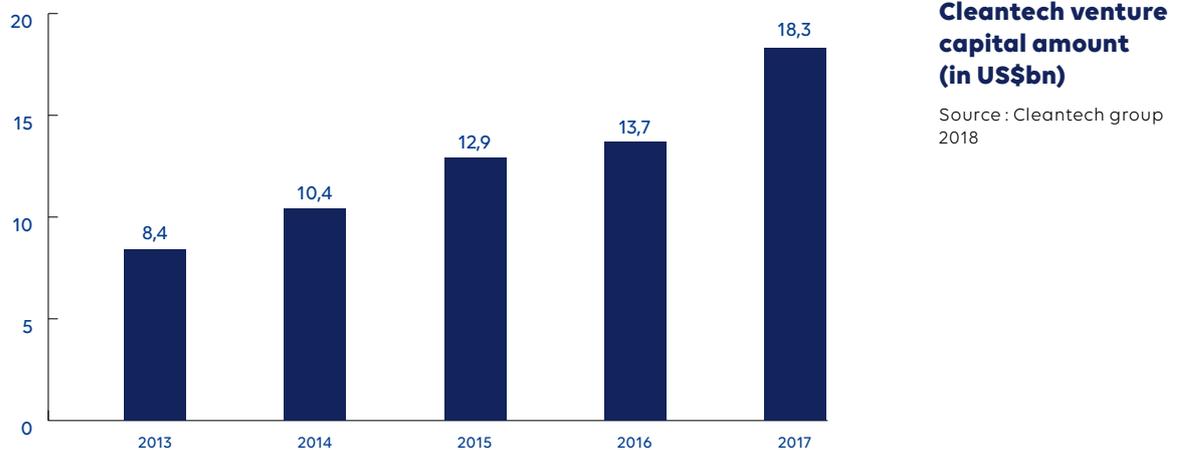
The global size of green investment funds has not yet been estimated. But green rating tools for investment funds under development by Morningstar (Portfolio Carbon Risk Score) and CDP (Climetrics).

Financing green innovation: private equity

Private equity (PE) is the business of investing in unlisted companies at all stages of their development, from founding and start-up to their initial public offering on an exchange or sale to another company. This type of financing is popular for funding a range of new technologies that contribute to greening the economy, commonly referred to as cleantech. Evolution of PE thus provides clues as to trends in the spread of innovation.

• INCREASES IN TOTAL VOLUME INVESTED •

The global overview compiled by the Cleantech Group¹⁰⁰ shows that capital investment in green technologies has been on the rise for the last five years.



• THE RISE OF FINANCING FOR SUSTAINABLE TRANSPORT •

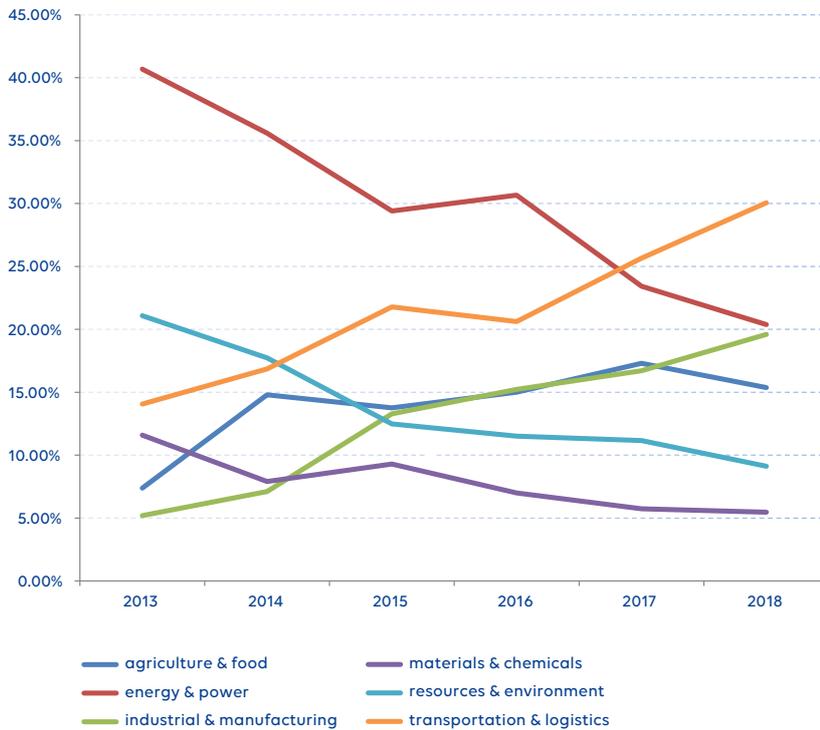
Innovations are financed across every sector of the economy, not only energy.

To take a few examples from 2018:

- Food & Agriculture: a delivery platform for fresh produce, seed stock adapted to climate change...
- Energy & Power: solutions for storing solar energy...
- Industrials & Manufacturing: 3d printing, optimisation of manufacturing, decontamination, high-efficiency light bulbs, carbon storage and use...
- Materials & Chemicals: biosourced and recycled materials...
- Resources & Environment: sustainable water management, recycling...
- Transport & Logistics: car-sharing, charging stations...

¹⁰⁰ <https://www.cleantech.com/>

The field of mobility is now the largest contributor, whereas financing for innovations in the energy sector has experienced a relative decline as a share of total deals.

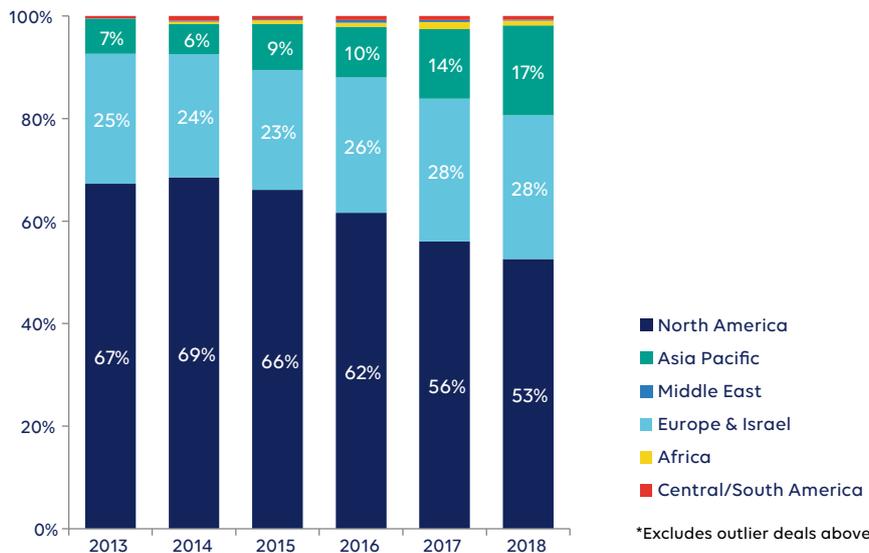


Percentage share of dollars invested by sector

Source : Cleantech group 2018

• INCREASING GEOGRAPHICAL DIVERSIFICATION •

Broken down by region, the relative share of North America shows a gradual reduction from 67% in 2013 to 53% in 2017, whereas Europe’s share has grown (from 25% to 28%), as has that of Asia, which expanded from 7% to 17%.



Geography of cleantech investment

Source : Cleantech group 2018

Financial services, rating and analysis to be generalised

Making climate concerns an integral part of the economy requires assessment of the risks and opportunities involved in transition over longer time horizons than the normal practices used by rating agencies and financial analysts. At the same time, the spread of climate reporting provides these agencies and analysts with a wealth of new information that they will have to incorporate. While climate factors have been introduced by rating agencies in the assessment of specific segments and products, such as green bonds and stranded assets, the inclusion of climate in rating and analysis has yet to be systematised.

Prospective tools for understanding climate-related economic developments and their translation into financial risks, i.e. climate scenario analysis, are still at the development stage but are progressing rapidly. Open source tools are already available.

Conclusions

- Green bonds are a simple investment tool. They demonstrate that information on the environmental characteristics of investments is very useful to investors. This information should be generalised to all bonds.
- Green investment funds are also an effective way to invest in green companies or assets. Their recent growth is a factor in the changing direction of financing, but the size and quality of the market are currently difficult to assess.
- Information services on the green qualities of economic activities and financial products remain underdeveloped and sometimes also lack transparency.

PART 3



Financial Authorities



Like all financial actors, financial authorities taking climate-related measures can have two main motivations:

- to direct capital flows to meet climate objectives, in particular their national objectives. This is the main role of policymakers.
- to reduce climate change risks to ensure the stability of financial systems. This is the mission of financial supervisors.

These measures may be international, regional or national and can involve varying degrees of constraints: from mandatory and verified policies to voluntary non binding guidance.

Strong growth in financial regulations related to the environment

The UNEP Inquiry into the Design of a Sustainable Financial System, the best observer of the sustainability of financial systems between 2015 and 2018, carried out a first quantified study of the public measures implemented through December 2017.¹⁰¹

Nearly 90% of all financial regulations related to the environment have been introduced since 2009.

By 2017, they existed in 53 regions, countries or sub-national territories. They are more numerous in Europe and Asia-Pacific (China, India, Indonesia). Japan and Australia have recently implemented policies. Brazil dominates in Latin America, particularly through its forest-related financial rules. In North America, financial regulation of the environment is mainly established at the state and provincial levels.

France is the only country thus far to have established a transparency framework governing climate action by companies, investors and asset managers (Article 173 of the 2015 French Energy Transition for Green Growth Act).

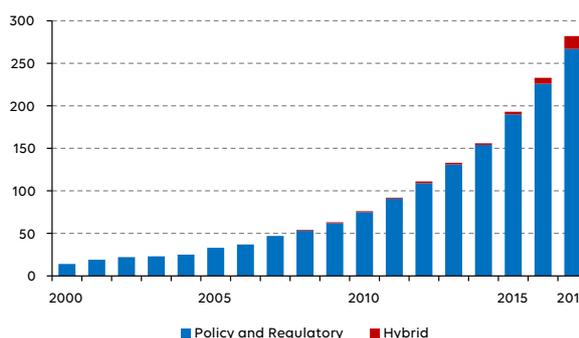
The study also shows that regulations in developed countries focus mainly on investment and securities, while in emerging and developing countries they focus on the banking sector, reflecting their financial systems. While the banking sector had been left out of regulation in developed countries until recently, supervisors are currently trying to tie prudential regulation to climate-related risks.

Finally, systemic measures, which consist of integrated approaches to guiding national financial systems, have recently exhibit the most progress.



Number of Jurisdictions Implementing Policy and Regulatory Measures, 2000-2017

Source : UN Environment Inquiry, 2018



Total Measures at Sub-national, National and Regional Levels, 2000-2017

Source : UNEP Inquiry 2018

101 http://unepinquiry.org/wp-content/uploads/2018/04/Greening_the_Rules_of_the_Game.pdf

An international political impetus

G20: Under China's presidency, in 2016, the G20 established a Green Finance Study Group composed of financial actors, which submitted its synthesis report¹⁰² in September 2016. It recommends adapting public policies, promoting voluntary market principles, developing coalitions of financial actors, developing green bond markets, etc. Work continued in 2017 under the German G20 presidency, on two specific issues: risks and transparency; in 2018, this was extended to sustainable finance under the Argentine presidency. It was also the G20 which, through the FSB, led to the creation of the **TCFD** (see above), whose recommendations are an important step forward.

- **The Climate Action Peer Exchange**¹⁰³ was created in 2016 at COP22, at the initiative of the Moroccan presidency, to promote exchanges on climate issues among finance ministers, led by the World Bank. Since the Paris Agreement, these ministers have been key actors within governments for implementing the financial component of nationally determined contributions (NDCs).

- The **Sustainable Banking Network**, led by the IFC, brings together the financial regulators and banking associations of 34 emerging countries and is beginning to assess the progress¹⁰⁴ of financial reforms undertaken, whether political or market-led, using a common approach based around three dimensions: risk management, green financial flows and market environment. Ten of its members have prepared national reports.¹⁰⁵ It appears that **fairly rapid progress is possible in all types of countries, regardless of their income levels.**

Risk management mechanisms have been introduced in the majority of countries; some are beginning to develop strategies for alignment on their national contribution. Many countries have introduced incentives for green credits, but so far very few have created mechanisms for identifying green financing flows. Not surprisingly, the best performing countries have also established the strongest policy frameworks.

Two systemic approaches: China and Europe

• GREENING CHINA'S FINANCIAL SYSTEM •

At the end of August 2016, the Chinese authorities published general guidelines for establishing a green financial system.¹⁰⁶ Intended to align finance with the objectives of the Five-Year Plan for Transition to Ecological Civilization, it is **the most systematic national plan**. Covering all Chinese financial markets, it complements the measures taken in 2007 and 2012 for the banking sector alone. These guidelines combine interventionist public measures, such as credit orientation, and regulations to increase market transparency, develop green financing and penalise polluting financing. One of the objectives is to bring the system and practices up to the highest international standards. In order to move forward in its implementation, financial players have been engaged in dialogue within the Green Finance Committee since 2015.

In 2017, China created five green finance pilot zones to test solutions replicable elsewhere.

As part of its Belt and Road Initiative, China also has the opportunity to export its green finance standards to many countries. It published guidelines for a 'green belt and road' in 2017,¹⁰⁷ launched a capacity building programme on green finance for the initiative's partner countries in 2018; the Green Finance Committee also recommended applying ESG criteria to Chinese direct investment abroad

102 http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf

103 <http://www.worldbank.org/en/news/feature/2017/05/10/cape-a-peer-to-peer-knowledge-exchange-for-finance-ministers-to-combat-climate-change>

104 https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn

105 Bangladesh, Brazil, China, Colombia, Indonesia, Kenya, Mongolia, Nigeria, South Africa, Vietnam.

106 <http://www.pbc.gov.cn/english/130721/3133045/index.html>

107 <https://engyidaiyilu.gov.cn/zchj/qwfb/12479.htm>

China review 2018

Green credit: The China Banking Regulatory Commission (CBRC) has defined green credit criteria (taxonomy), performance indicators and a mandatory bank reporting system. It does not make the results public, but China's share of green credit is 10%.

Green bonds: The People's Bank of China (PBoC) has begun broader work on all asset classes, starting with green bonds: definition of the scope of eligibility, public incentive, and third-party verification. In 2016, China's green bond market became one of the three largest in the world, along with the United States and France.

Finally, in 2017 the China Securities Regulatory Commission (CSBR) announced the establishment of an ESG reporting system for listed companies.

• THE EUROPEAN ACTION PLAN FOR SUSTAINABLE FINANCE •

The issues at play in the European financial system are different than those in China. Europe has longstanding environmental regulations, and pollution and resource problems are less acute. There are extensive ESG rules and practices in most Member States and Europe's financial actors are among the leaders in international green finance. Nevertheless, the method and the planned measures for Europe do have points in common with those of China.

At the end of 2016, the European Commission decided to address green finance issues very broadly by mobilising a High-Level Expert Group on Sustainable Finance¹⁰⁸ for one year that looked at coherence between its various regulations, harmonisation between Member States, support for the EU's environment-climate policy and, maintaining the lead of Europe's actors. Building on the work of the HLEG, the European Commission published an action plan¹⁰⁹ in March 2018, followed by legislative proposals in May. Its strategy focuses in particular on:

- establishment of a **European taxonomy of sustainable assets**, starting with assets that reduce greenhouse gas emissions. This is the key measure of the plan that subsequently determines other actions: creation of labels for green financial products (announced without a timetable for the moment), possible public incentives,
- **clarification of the obligation to take sustainability criteria into account in investment decisions.** The Commission should therefore propose making reporting comparable to that created in France by the French Energy Transition for Green Growth Act mandatory at EU level,
- creation of a standard for **low-carbon indexes and an obligation to make the indexes transparent regarding their carbon footprint**, which would allow clients to understand the implicit choices they make today with regard to the climate by following these indexes,
- the duty of financial service **providers** to take into account the **sustainability preferences of their clients.**

The Commission will also study the feasibility of recalibrating banks' prudential requirements to facilitate green credit. This point is the subject of much debate: should a 'green supporting factor' be created, similar to what has been done for SMEs, to reduce the capital ratio required from banks for their green credits? Or on the contrary, should a 'brown penalising factor' be instituted to increase this ratio for credits for activities that do not comply with climate objectives? The debate has not yet been settled.

This European plan brings the subject of climate and sustainability into the fabric of the Union's two major financial policies: The Capital Markets Union and the Banking Union. It will be a significant step forward if the legislative and regulatory measures it contains are adopted according to schedule (the first deadline being mid-2019) and if the political balances within the Union do not lead to its being watered down.

¹⁰⁸ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

¹⁰⁹ https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth_en

Monitoring climate risks

Recognition of the risks associated with climate change and the low-carbon transition has led financial stability authorities to seek to incorporate these risks into their purpose.

From 2015 onwards, several regulators (British¹¹⁰Dutch, French, Californian, etc.) began a dialogue with supervised sectors on the subject. Supervisors generally consider that these risks should be integrated by financial institutions into existing categories of financial risks (credit, market, liquidity, insurance, etc.).

• **The central bank of the Netherlands**¹¹¹ and the French **ACPR**¹¹² conducted a first calculation in 2017 of the current exposure of the sectors they supervise to climate risks.

The estimation of exposure to future risks requires **scenario analysis**. Broadly speaking, scenarios of strong temperature increases (e.g. 4°C) make it possible to assess the impact of pessimistic assumptions regarding physical risks, while 2°C scenarios make it possible to assess transition risks and inform strategic choices to align with the 2°C objective. Scenario analysis makes it possible to carry out stress tests. For example, the central bank of the Netherlands tested the resilience of the country's financial institutions¹¹³ to flood and storm risks and, looking at transition risk, examined the institutions' exposure to certain highly carbon-intensive sectors and green assets.

The two supervisors consider that the new prudential dialogue they are opening up with banks should lead them to increasingly integrate climate into their internal risk models, and would therefore be both more effective and less harmful than implementing a new fixed capital ratio (see above).

• In 2018, **Dave Jones, California insurance supervisor**, with the support of the 2DegreesInvesting think tank, conducted a sector **stress test on the risks associated with holding fossil fuel stocks** and published the results.¹¹⁴ The individual results, reserved for companies, detail the degree of alignment of their portfolios with the 2°C objective.

These concrete exercises revealed the current limitations of scenario analysis:

- insufficient data and imperfect methods,
- the mismatch between climate scenario horizons and financial horizons.

• COOPERATION AMONG SUPERVISORS •

To make collective progress, supervisors have also set up bodies for joint reflection:

The Sustainable Insurance Forum¹¹⁵, created at the end of 2016, is an international network of 16 insurance supervisory bodies. Its cooperation programme covers four topics:

- climate risks, in cooperation with the IAIS,
- the implementation of the TCFD's recommendations, particularly those on risk transparency for clients and scenario analysis,
- the development of a sustainable insurance market,
- capacity building within the network.

The Central Banks and Supervisors Network for Greening the Financial System (NGFS),¹¹⁶ was created at the end of 2017 at the initiative of the Banque de France.

110 <http://www.bankofengland.co.uk/pages/climatechange.aspx>
<https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/report/transition-in-thinking-the-impact-of-climate-change-on-the-uk-banking-sector.pdf?la=en&hash=A0C99529978C94AC8E1C6B4CE1EECD8C05CBF40D>
111 https://www.dnb.nl/en/binaries/Waterproof_tcm47-363851.pdf
112 <https://acpr.banque-france.fr/sites/default/files/medias/documents/20170314-climat.pdf>
113 Banques, compagnies d'assurance et fonds de pension
114 <http://www.insurance.ca.gov/0400-news/0100-press-releases/2018/release051-18.cfm>
115 Source : <https://www.sustainableinsuranceforum.org/>
116 <https://www.banque-france.fr/node/50629>

In September 2018, asked 18 members and five observers to share their experience and best practices, contribute to the development of financial institutions' management of environmental and climate risks and, as a significant objective beyond the 'risk' dimension, to '**mobilise finance to support the transition to a sustainable economy**'. The central banks that belong to the network now consider that, going beyond risk prevention, they must make positive contributions to the greening of finance. The work of the NGFS focuses on three topics: supervision and micro-prudential risks, the macro-financial approach, and **the contribution of central banks and supervisors to strengthening green finance. The full report will be published by April 2019.**

• CONCLUSION •

- In the two years since COP21, the growing focus on climate change by financial authorities has been remarkable. These signals are likely to become clearer in the future and are a new driving force behind the greening of the financial industry, which is generally very attentive to the wishes of its regulators. They should encourage financial players to prepare now for new regulations.
- Finally, it should be noted that monetary policies remain, for the time being, outside the scope of initiatives to introduce climate change into the policy framework of public authorities, with the exception of some developing countries (Kenya, Bangladesh) and China, where bank credit is voluntarily directed by their central banks.

The structuring of green financial centres

Financial centres are bodies for dialogue with regulators and for progress among the financial actors who belong to them; they often play a soft-law role. Financial centre initiatives focused on green finance have multiplied throughout the world in recent years: in Luxembourg, London, Paris, etc. They aim above all to increase their respective competitiveness in this segment of finance. An international network of green financial centres, the Financial Centres for Sustainability Development Network (FC4S),¹¹⁷ has been in place since 2017 to provide collective support and create a reliable tool to measure their progress.

¹¹⁷ <https://www.fc4s.org/>

CONCLUSION



**What
levers
for the
future?**



Progress in the climate action of financial actors has been very significant in recent years, but must still be increased in order to ensure alignment with the objectives of the Paris Agreement and reduce climate-related risks.

To accelerate the greening of finance and strengthen its contribution to the transition toward a green economy, four main types of levers must be addressed simultaneously:

• **COMPETITION** •

Competition—be it between institutions, between financial centres or between companies for access to ‘green capital’—can produce very powerful effects and market dynamics with high transformation potential, as shown by the still limited example of green bonds.

One of the main drivers of this competition will be **pressure from individuals**, whether savers or future retirees—which will itself result from a clarification of the offers, in addition to the growing awareness of global public opinion on environmental issues. This is why **retail banking and the mass asset management market are the new frontier of green finance, and why labelling policies are a priority subject.**

• **REGULATION AND SUPERVISION** •

The financial industry is for the most part, highly regulated and rather disciplined. The impact of regulators’ and supervisors’ initiatives on its evolution is therefore very powerful. The mere fact that banks and insurers are regularly asked about the climate by their supervisors as part of their **prudential supervision will have many effects on stakeholders’ behaviour.** Similarly, market authorities have strong leverage when they consider, as is now the case in France for the AMF, that their responsibility for the integrity of the capital markets extends to the consistency of the actions of asset managers in charge of public savings with their discourse. What better sanction than a mention in their public reports, particularly regarding the transparency of climate risks incorporated in the funds?

• **STRATEGIC USE OF PUBLIC MONEY** •

Public money is scarce, even in its broadest sense, incorporating the financing of international and domestic public banks, and most of the transition will therefore be primarily carried by private financing. Some priority climate expenditures can only be financed with public funds: capacity building, some infrastructure (especially in the poorest countries), etc. But **steering the climate allocation of public resources according to their leverage effect on private funds will be one of the most powerful ways to redirect financial flows.** This is essentially the reasoning of the New Climate Economy in its latest report,¹¹⁸ where it recommends doubling the financing capacities of public banks (from USD 50 billion to USD 100 billion) to give them the opportunity to really influence the USD 90 trillion in infrastructure investment to be made by 2030 in order to ensure their sustainability in terms of climate.

• **RESEARCH AND TRAINING** •

Financial economists have not yet invested much in the field of research on the greening of finance, either in theoretical research—portfolio management—or empirical research (‘tracing’ investment flows, development of sector scenarios, etc.). Their contributions are essential to the continuation of the momentum. It is also essential that this research be widely disseminated and therefore shared. To achieve the maximum transformation effect, new methodologies and new indexes, will have to be developed according to an open source rather than a ‘proprietary’ logic, which has not been the natural trend of the financial industry to date.

¹¹⁸ https://newclimateeconomy.report/2018/wp-content/uploads/sites/6/2018/09/NCE_2018_FULL-REPORT.pdf

Regarding training, everything remains to be done. Training of finance and management students must include both specialised courses on green and sustainable finance, which are still rare, as well as a minimum of knowledge acquisition for all on these subjects. The same applies to continuing education, a major lever of transformation for the financial professions, in which training plays a key and ongoing role.

In concluding this overview, it is clear that the contribution of finance to the transition to a green economy can be significant, but let us again remember that this is only a contribution. The financial industry, which has just recently entered the arena, can do a lot, but it cannot do everything. As we know, success depends on the convergence of all actors, both private (non-financial companies, civil society) and of course public, governmental or sub-national entities.

APPENDIX

TRACKING CLIMATE FINANCE FLOWS

Financial actors have tremendous power to unlock new financing. This does not mean, however, that they are the source of all the financial capital flowing into new investments to reduce carbon emissions or adapt our economies to the consequences of climate disruption.

It is therefore extremely important to trace these capital flows to assess how far we have come, and the distance yet to cover.

At the global level, there are currently two attempts underway to ensure worldwide tracking of climate-positive capital flows:

1/ The Standing Committee on Finance of the UNFCCC publishes a Biennial report assessing global flows of climate finance,¹¹⁹ whose latest edition, in November 2018, looks at flows from 2015/2016.

For the first time, the 2018 report includes information that seeks to assess the consistency of flows, according to article 2.1c of the Paris agreement.

The main conclusions to be drawn are as follows:

- The methods available for measuring have improved both in quality and coverage, however, there is still a lack of available information, especially as concerns private financing and domestic investments.
- With these reservations in mind, global climate finance flows were estimated at 680 billion dollars in 2015 and 681 billion dollars in 2016, for an increase of 17% compared to 2013-2014.
- Investments in renewable energy, estimated at 382 billion dollars in 2015, decreased to 322 billion dollars in 2016 due to a steep decline in the technology costs coupled with a fall in the number of projects financed, partially offset by an 8% increase in financing for energy efficiency.
- North-South flows are much better documented than domestic flows: 49.3 billion dollars in 2015 and 57.3 in 2016 were funnelled into developing countries via multilateral, bilateral or regional channels.

2/ The non-profit Climate Policy Initiative publishes an annual overview of climate finance: The Global Climate Finance Landscape,¹²⁰ whose latest edition came out in November 2018 comprising a preliminary estimate of climate finance flows in 2017.

Below are the main conclusions of this report:

- Global climate finance flows in 2017 range from approximately 510 to 530 billion dollars, representing a 12%-16% increase from 2016.¹²¹
- Private investment account for 54% of investments.
- The report highlights "steady renewable energy investment, rising electric vehicle investment and rising investment from development banks".
- Investment in sustainable transport is growing and accounts for 20% of climate finance flows.
- Adaptation finance is estimated at 22 billion dollars but is difficult to calculate.
- The share of domestic capital flows is overwhelming both in developed and developing countries and reaches 81%.

119 <https://unfccc.int/topics/climate-finance/resources/biennial-assessment-of-climate-finance>

120 <https://climatepolicyinitiative.org/publication/global-climate-finance-an-updated-view-2018/>

121 Methods used by CPI and the UNFCCC BA are consistent, but the overall amounts differ mainly because CPI does not include estimates of energy efficiency investments.

Are these capital flows sufficient?

The answer is obviously no, if we look at them in terms of the need to align all of the world's capital flows with the terms of the Paris Agreement. Gross fixed capital formation alone is on the order of 20 trillion dollars annually (close to 25% of world GDP). The flows that finance this mass are thus commensurately large, in the thousands of billions of dollars.

Are we at least in a position to compare these flows with estimated funding needed, or with a climate scenario?

There is not at this juncture a global financial plan for completing the low-carbon transition. No credible estimate of global needs currently enables a comparison of observed financing with a global trajectory.

If we look only at investment in infrastructure, the current spending is between 3.4-4.4 trillion dollars a year, depending on the measurement metrics used. The OECD estimates investments needs of 6.3 trillion dollars per year,¹²² with an additional 0.6 trillion dollars a year only that will make these investments compatible with a 2°C scenario. The New Climate Economy estimate is comparable.¹²³

The energy sector as an example

Energy, a keystone of the energy transition, is the only sector to see a systematic approach of this type implemented. In its annual World Energy Outlook (WEO-2017), the International Energy Agency (IEA) published a Sustainable Development Scenario (SDS),¹²⁴ which it presented as aligned with Paris Agreement climate targets as well as the SDGs.

The SDS projection calls for investments in energy amounting to 69 trillion dollars between now and 2040. It assumes that electricity must be expanded to meet two thirds of all energy needs, versus 40% currently.

Clean energy technology and energy efficiency account for the bulk of the 69 trillion dollars required according to the IEA:

- the SDS scenario, which deems that 'upstream oil & gas investments remain crucial for the stability of the energy system' can be, and is, subject to debate. However, it will at the very least offer a yardstick, going forward, for comparing observed investment flows in the energy sector for each year in the IEA's World Energy Investment Report,¹²⁵ although this was not included in 2018.

122 <https://www.oecd-ilibrary.org/docserver/9789264273528-en.pdf?expires=1543597880&id=id&accname=guest&checksum=C7DE6B369B342C27A7DC8A4FB81C53B0>

123 https://newclimateeconomy.report/2016/wp-content/uploads/sites/4/2014/08/NCE_2016Report.pdf

124 https://www.iea.org/publications/freepublications/publication/WEO_2017_Executive_Summary_English_version.pdf and <https://www.iea.org/weo/weomodel/sds/>

125 <https://webstore.iea.org/download/summary/1242?fileName=English-WEI-2018-ES.pdf>

• **ASSESSMENTS AT THE NATIONAL SHOULD BE A MATTER OF COURSE** •

While efforts to track flows of capital at a global level and compare them with scenarios on a planetary scale are necessary, it is probably even more important to complete this task at the level of each country, and for this to be a crucial component in steering national climate policy and tracking how well they are meeting their international commitments

Several countries complete surveys of climate finance at the national level: Belgium, Côte d'Ivoire, Germany, India, Indonesia...

France has combined financial evaluation of its low-carbon national strategy, the Stratégie Nationale Bas Carbone (SNBC) with the Landscape of climate finance¹²⁶ produced each year by the Institute for Climate Economics (I4CE) to improve its transition timeline and budgetary planning. It is to be hoped that the French example is broadly adopted, first at the European level, but also elsewhere in countries where this approach can, among other things, reinforce the nascent interest in climate issues on the part of finance ministers.

126 <https://www.i4ce.org/download/2018-edition-of-i4ces-landscape-of-climate-finance/>

