

How should financial actors deal with climate-related issues in their portfolios today?

Paris,
April 2017

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This analysis note is the third part of three Climate Briefs on managing climate-related transition risks by financial institutions.

SUMMARY FOR DECISION MAKERS

Financial institutions are exposed to climate-related transition risks - and opportunities - corresponding to the uncertain financial impacts (both positive and negative) that will affect the economic actors they finance. The impacts depend on the choices made to limit global greenhouse gas emissions, and the effects of the policies and approaches on the economy. Financial institutions must progressively roll out methodologies for measuring their exposure to climate-related risks and the alignment of their portfolios with a pathway that is compatible with a global warming lower than 2°C (“2°C pathway”).

Certain constraints, differentiated according to business lines, currently limit the ability of financial institutions to incorporate these recommendations into their operational processes.¹ Nonetheless, these institutions as of today should - and can - analyse climate-related issues and begin to put in place the basis for management and reporting strategies to support alignment with a 2°C pathway.

This Climate Brief presents the most promising avenues of analysis for different financial business lines depending on their specificities. Broadly speaking, financial players should begin as of now to analyse their climate-related issues in a forward-looking manner based on semi-quantitative indicators. These initial steps will facilitate the integration into their processes of quantitative indicators of impact of the low-carbon transition on financial performance as such indicators become available.

Two types of currently available indicators seem particularly relevant to us:

- indicators of alignment with a 2°C pathway: these macro-indicators aggregate both quantitative indicators based on historical data when available, and qualitative forward-looking indicators. On one hand, they can measure, for example the exposure to the introduction of a carbon price. On the other hand, they can give a forward-looking analysis of a company's ‘resilience’ in a low-carbon economy given its ability to adapt itself to a regulatory and market environment in transition;
- indicators of “green shares” and “brown shares”: these indicators inform financial players of a company's current distribution of revenues between “green” activities that will be favoured and “brown” activities that will be penalised by the low-carbon transition. These indicators, once aggregated in terms of outstanding amounts, enable a financial institution to measure its exposure to companies that are heavily exposed to transition risks – as well as those that stand to benefit from the transition. These indicators, however do not alone make it possible to measure the extent of the potential losses or gains, but may be progressively refined into shades of “green” and “brown” to better characterize the scale of upside and downside risks.

¹ These two analyses are detailed in the Climate Briefs n°44 and 45 at <http://www.i4ce.org/download/three-notes-on-the-management-of-climate-related-risks-by-financial-actors/>

Various organisations – such as extra-financial rating agencies, consulting firms and specialised service providers – are developing ‘Climate’ indicators, intended to enable financial actors to assess and address climate-related transition issues.² Some service providers are already offering databases for these indicators covering several thousand companies, for the most part listed, together with financial portfolio analysis services based on these indicators. The most relevant choice of indicators for a financial player depends on its objectives and the level of detail required.

This Climate Brief first presents an overview of the categories of available climate indicators. Next, it explores recommendations on the analyses that financial players should be putting into effect as of today in project finance, asset management, private equity and bank lending.

Overview of the available categories of climate indicators

“Climate” indicators can be grouped into five main categories: Carbon footprint indicators; “ESG” type qualitative indicators; “Green share / brown share” indicators; “Physical” carbon footprint indicators; and indicators of alignment with a low-carbon or 2°C pathway. This first section presents the features, advantages and disadvantages of each of these indicator categories.

The methodologies on which these indicators are based are recent and, for the moment, there is no formal standardisation. While at times having similar names, a given indicator may use calculations or rating methodologies different from others. This is often particularly true for the

² This means the issues associated with the progressive implementation of a transition towards a low-carbon economy in accordance with the objectives contained in the Paris Agreement and in particular limiting the increase in the global average temperature to a maximum of +2°C compared with the pre-industrial era.

type of data on which such assessments are based and on the scope covered.

It is therefore crucial when publishing these metrics to disclose the methodology used, the scope covered, and the assumptions made. Without this transparency, metrics and indicators can be difficult to understand and to be used by a third party person – thus limiting their usefulness.

FAMILY 1 Carbon footprint indicators

Company-wide carbon footprint estimates (on a more or less wide scope, from scope 1 & 2 to scope 3, depending on the approach taken), weighted by the amount of euros invested or annual turnover. These quantitative indicators represent historical values and not forward-looking values.

Carbon footprint indicators, and indicators of carbon intensity per euro of turnover or per euro invested, present the major advantage of being quantitative, and therefore being easy to use by people versed in financial models. They can also be easily aggregated at portfolio level by calculating a weighted average, since they are expressed in the same unit, regardless of sector. However, these indicators give a false impression of allowing a direct comparison of two assets or of two portfolios with each other. However, many considerations need to be taken into account in order to be able to compare two assets in line with their carbon footprint, and in particular the methodology and the scope of calculation, the company’s degree of vertical integration, the precise characteristics of the products and services being sold. These limitations are even more important for methodologies that only calculate scopes 1 & 2 or just a part of scope 3 (see Box 1) than for methodologies that calculate all direct and indirect emissions relating to an asset. Lastly, since these indicators are historical and not linked to a pathway, they do not allow a direct evaluation of an asset’s level of alignment with a 2°C pathway.

ADVANTAGES

- These indicators are quantitative.
- The same unit is used for all sectors, so it is therefore possible to aggregate at portfolio level by calculating a weighted average.
- Since the same indicator is used for all sectors, it is easy to communicate.
- Only category of indicators clearly highlighted in the TCFD recommendations and in article 173 in France.

DISADVANTAGES

- These indicators give a false impression of simplicity for comparison of assets and portfolios (see Box 1 for more details).
- These indicators do not make it possible to draw conclusions directly on alignment with a 2°C pathway.
- The orders of magnitude of carbon intensity are not very evocative for non-experts.
- These are not forward-looking indicators for the time being.

FAMILY 2

“ESG” type qualitative indicators

Rating of companies according to their consideration of climate issues, using a typical extra-financial rating methodology. These indicators are by definition qualitative.

Ratings in “ESG” format are based on qualitative criteria and indicators drawn from annual reports, sustainable development reports and interviews with companies. “ESG” type ratings have the advantage of being harmonised for all sectors and all types of company – within ratings from one rating agency –, and can be assessed for all companies, regardless of the level of detail of their reporting. Thus, comparison of the rating for two companies or for two portfolios is easy when the rating is carried out by the same service provider. In addition, it is possible today to offer a forward-looking qualitative climate-focused rating based on an assessment of the strategy and governance for climate-related issues by the company. However, the main disadvantage of a qualitative rating is that it is subjective, and can therefore be controversial, all the more so as rating methodologies and scales are often not standardised between service providers.

ADVANTAGES

- It is possible to propose a forward-looking rating as of today based on qualitative indicators, in particular on the company’s strategy and governance with regard to climate-related issues.
- It is not necessary to collect additional quantitative data from companies in order to carry out a qualitative rating.
- Qualitative ratings can be understood by the general public
- Since the rating scale is the same for all sectors, it is easy to compare different assets.

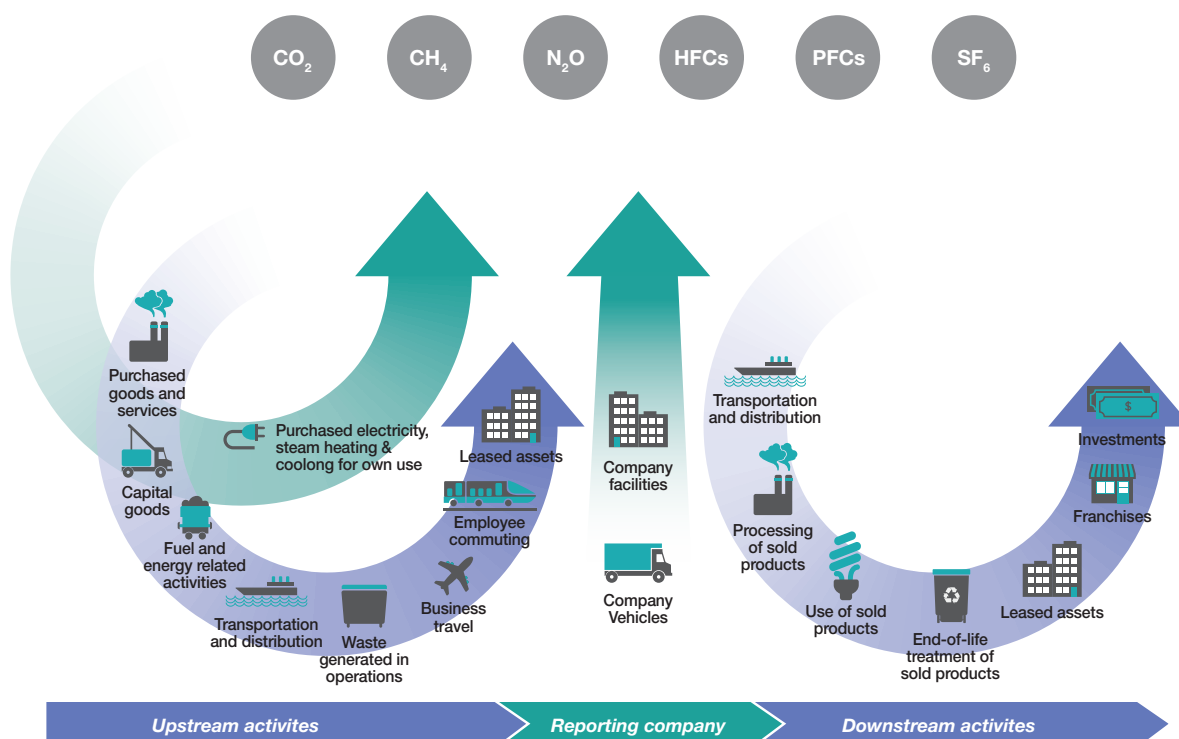
DISADVANTAGES

- A qualitative rating is necessarily subjective, it may therefore be subject to controversy and therefore requires great transparency on the rating criteria and components.
- They are not quantitative indicators, and therefore cannot be used to calculate the financial impact of transition risks and opportunities.
- Rating methodologies and scales are not standardised between service providers, the possibility of comparing the ratings of two service providers is therefore limited.

BOX 1: DEFINITION OF CARBON FOOTPRINT SCOPES

A carbon footprint measurement is generally defined by the scopes covered: this involves the perimeter of GHG emissions (direct and indirect) on which this carbon footprint is measured. The following image illustrates what each of these scopes covers in terms of perimeter:

FIGURE 1: ILLUSTRATION OF CARBON FOOTPRINT SCOPES 1, 2 AND 3



Source: GHG Protocol Corporate Value Chain (scope 3) Standard

FAMILY 3

“Green share/brown share” indicators

Assessment of the share of “low-carbon” and “carbon-intensive” activities – generally measured as a percentage of annual incomes. This assessment is generally based on the information available in the latest annual report and is – as of now – historical and not forward-looking.

The “green share/brown share” indicators present the advantage of being pragmatic indicators: 1. since they ask the companies to usually report only two additional data points on the ‘green’ and ‘brown’ classification of activities; and 2., since they are easily understood by non-experts. These indicators give a preliminary relevant indication of the player’s positioning and strategy with regard to the low-carbon transition. Lastly, they can be easily aggregated at portfolio level.

However, transparency is important with regard to the methodology used to define the “green and brown shares” at asset level. This methodology may be differentiated in line with the type of financial product and with the sector of the company. In the case of a bond portfolio, the “green share” may correspond to the outstanding amounts invested in green bonds. In the case of a multinational industrial company, the “green share” may be defined as the portion of revenues originating from eco-activities or the portion of revenues originating from activities in line with a 2°C pathway.

The methodology for defining “green and brown shares” should thus be standardised so as to facilitate reporting and enable comparison between two companies. The main disadvantage of these indicators is that they do not give alone forward-looking information to investors. They could, however, be complemented by forward-looking indicators of “green and brown shares” at a medium- or long-term horizon.

FAMILY 4

“Physical” carbon footprint indicators

Indicators of the carbon performance of an activity or product with a denominator based on a physical unit of production (eg. tCO₂e per kWh produced, gCO₂e/km/passenger, gCO₂e/m² ...). These indicators vary from one activity to another, and therefore cannot be aggregated between activities. These are usually historical indicators, but forward-looking indicators can be provided alongside the publication of company targets.

“Physical” carbon indicators are the most precise indicators since they give an indication of a specific activity’s carbon performance. They are therefore preferable for portfolios with only a few lines, and above all for portfolios where there is an objective to improve the carbon performance of companies through close shareholder engagement. This may in particular be the case for private equity funds. In practice, these indicators require a more in-depth analysis by financial institutions, as well as privileged access to company data.

ADVANTAGES

- The most accessible type of indicator for non experts and the general public.
- Indicators that are easy to aggregate at portfolio level (weighted average of “green share” and “brown share”).
- Quantitative indicators – when the data is available – to semi-quantitative – when they are calculated from proxies.
- Indicators based on activity data, directly available for “pure players” and easy to report for companies in other cases.

DISADVANTAGES

- There is no standardised definition at present for what “green” and “brown” activities are.
- Non-experts do not understand the classification of “green” and “brown” activities.
- Indicators that do not give a forward-looking view for now, and so do not provide information on the alignment with a 2°C pathway.
- For the time being, very few companies report on their “green share” and “brown share”, so interviews and proxy calculations are most often necessary.

ADVANTAGES

- This involves quantitative indicators measuring an activity’s carbon performance, these are therefore the most accurate indicators for comparing two assets or companies in the same business sector.
- The denominator of these indicators represents a physical unit; so non-experts clearly visualise their meaning.

DISADVANTAGES

- The denominator of these indicators depends on each activity; so these indicators cannot be aggregated at portfolio level, nor even with regard to a multi-activity company.
- For a portfolio, many indicators need to be calculated, by collecting physical data corresponding to each activity: the analysis time for each company is long, and these indicators are therefore uniquely suited for portfolios with a small number of lines, such as portfolios dedicated to energy transition or private equity portfolios.
- Significant levels of data needs to be collected from the companies.

FAMILY 5

Indicators of alignment with a 2°C pathway

Rating of the alignment of a company with a “2°C pathway” or scenarios corresponding to an economic and political trajectory that allows reaching the objective of limiting the increase of global average temperature below 2°C compared to the pre-industrial era.

These ratings are generally based on a mix of quantitative indicators (carbon footprint or even “physical” carbon footprint indicators) and qualitative indicators, making it possible to assess a potential trend in the company’s emissions, and are therefore partially forward-looking. These ratings may also be based on detailed data from companies’ investments, making it possible to anticipate emissions pathways. For more details on the definition of indicators of alignment with a 2°C pathway, see Box 2.

The indicators of alignment with a 2°C pathway are the only forward-looking indicators available today. They are particularly promising since they offer an overall assessment for a given company of its transition-related issues, and the treatment of such issues in its strategy. The rating scales are to be adapted to the specific rate of decarbonisation necessary for each sector for the achievement of a 2°C pathway. In addition, non-experts easily understand these ratings. Aggregating different criteria in a single macro-indicator therefore allows financial institutions to reduce the complexity of an assessment of climate-related issues requiring analysis of a high number of criteria. However, for the time being, these indicators present three significant limitations: their development began only recently, so

companies’ coverage is still limited and assessment methodologies vary greatly between service providers; and due to the small amount of forward-looking information reported by companies at the moment, assessment is to a great extent qualitative and therefore subjective.

ADVANTAGES

- As a rating, these indicators are therefore easy to communicate and understandable for non-experts.
- These indicators make it possible to translate the complexity of low carbon transition into a single indicator.
- These indicators are easily aggregated at portfolio level since they are ratings.
- These indicators allow an easy comparison of companies from different sectors, as well as portfolios.

DISADVANTAGES

- The assessment methodology for alignment with a 2°C pathway is difficult to understand for a non-expert; financial institutions must therefore trust the opinion of the service providers who carried out the analysis.
- The concept of alignment with a 2°C pathway is new, and there is therefore no consensus at present on a definition of this concept and on the assessment criteria.
- A company’s performance is compared with a 2°C scenario for the company’s business sector(s); however such 2°C scenarios are insufficiently developed at the moment for certain sectors.

BOX 2: WHAT IS MEANT BY AN ASSET AND A PORTFOLIO ALIGNED WITH A 2°C PATHWAY?

So as to achieve the objective of limiting the increase in global average temperature to below +2°C compared with the pre-industrial era, all of the economic players are going to need to make significant efforts in terms of energy efficiency and energy mix in order to achieve zero net greenhouse gas emissions by 2050. **It is these efforts as a whole at global level making it possible to achieve the objective of +2°C that is classified as “2°C pathway”.**

In the context of this “2°C pathway”, each activity will see its carbon intensity progressively decrease, at a level and pace depending on its specificities and the technological breakthroughs occurring in the sector. Thus, this 2°C pathway clearly indicates a progressive process of decreasing greenhouse gas emissions. On the contrary, it does not refer only to a single carbon intensity value.

So an asset or company aligned with a 2°C pathway is not necessarily an asset for which a significant proportion of revenues is already today drawn from activities that present a very low carbon intensity. It is a company for which the decrease in greenhouse gas emissions associated with its activities follows the rate – specific to the activities being carried out – that corresponds to the 2°C pathway. For example a cement producer may be aligned with a 2°C pathway, if it achieves its carbon intensity reduction rate in line with a 2°C pathway and initiates enough efforts – in terms of investment and R&D – to keep itself on that pathway, since there will always be a need for cement in a low-carbon economy.

Similarly, a portfolio aligned with a 2°C pathway is not necessarily a portfolio that contains only low-carbon assets, but a portfolio in which assets are aligned with a low-carbon pathway, in accordance with their activities.

Detail by business line of the analyses possible to implement as of today

Climate Brief n°45 presents the forward-looking analyses for alignment of portfolios with a 2° pathway that financial institutions should implement with time, and suggests work to be initiated in order to overcome the current constraints that prevent these analyses from being carried out as of today. Among these proposals, a key recommendation consists of starting preliminary assessments based on the information and metrics that are already available. Each category of available indicators presents advantages and limitations, and their relevancy depends on the different business lines of a financial institution.

The following section details for four business lines: the climate-related management objective to be aimed for; specific constraints; the most relevant climate indicators; and avenues for improving the availability of information.

Infrastructure investment and lending

Specificities of the business line with regard to the analysis of climate-related issues

Investment and financing of infrastructure projects is the activity for which there is the longest history of analysis of climate-related issues, for four main reasons:

- development and international financial institutions started to develop methods to assess climate-related issues for infrastructure projects around ten years ago. These methods today are relatively harmonised and available for use by private players;
- infrastructure projects are particularly vulnerable to climate-related risks and opportunities: regarding issues related to the low-carbon transition, there is a high risk of

stranded assets³, especially in the energy and transport sectors; regarding physical risks, infrastructure projects are significantly exposed to risks such as rising sea levels, flooding, extreme events and water shortages;

- infrastructure projects are highly vulnerable to climate-related risks due to their long lifespan and high level of initial capital required;
- it is relatively easy to analyse the climate-related issues of infrastructure projects since, by definition, the assets being financed are clearly identified in terms of location and technology, and many due diligence procedures are carried out by technical specialists prior to financing.

Possible analyses as of today

It is therefore possible for financial institutions to carry out detailed analyses for infrastructure assets and for portfolios or funds specialising in infrastructure assets. Such analyses should focus on a calculation of the infrastructure project's carbon footprint over the whole of its lifespan and of a comparison of this result with alternative technologies or projects, as required by the Equator Principles⁴ - to which most financial institutions with a project financing activity are signatories.⁵

3 A generic definition of the term stranded assets is provided by the Oxford Smith School of Enterprise and the Environment: "assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities that can be caused by a variety of risks" (Caldecott et al, 2013) In practice, the term stranded asset is associated with a range of definitions. To consult the list drawn up by the Oxford Stranded Assets programme, see: <http://www.smithschool.ox.ac.uk/research-programmes/stranded-assets/definitions-stranded-assets.php>

4 The Equator Principles form a risk management framework adopted by financial institutions to determine, assess and manage the environmental and social risks of infrastructure projects, on the basis of the framework developed by the International Finance Corporation (World Bank Group) and launched in 2003. Today, 89 financial institutions in 37 countries are signatories to the Equator Principles.

5 The Equator Principles apply to project financing, for projects where total capital expenditures are in excess of 10 million dollars.

BOX 3: WHY DO NDCs MAKE USEFUL SCENARIOS FOR INFRASTRUCTURE INVESTMENT?

Between now and 2020, all countries having ratified the Paris Agreement will be required to communicate their national voluntary contributions, known as NDCs for "Nationally Determined Contribution" covering the period up to 2030. NDCs can be thought of as credible scenarios for what could be the pathway for national economies in the medium term. It can indeed be assumed that the implementation of such contributions is credible, knowing that they are determined voluntarily by the countries themselves in line with their specific circumstances. However, initial national contributions will present limitations: the horizon to 2030 of such contributions does not provide insights as to how a country intends beyond that date to achieve the objective of zero net emissions between now and 2100; and their implementation can of course be obstructed by potential exogenous shocks. Furthermore, the aggregated effort of current NDCs is not in line with a "2°C pathway". NDCs will need to be progressively fine-tuned and their ambition will be raised since the countries undertake to submit, every five years at most, a revised NDC which is expected to be more ambitious than the previous one.

While currently imperfect, NDCs constitute the primary elements of national 2°C scenarios giving indications on the low-carbon investments that will be made or facilitated by countries. In the case of infrastructure financing, for which the location and technology of the assets is known exactly, for which the number of lines in a portfolio is relatively limited, and over which the countries have a relatively significant influence, it is therefore possible and desirable to analyse the relevance of an infrastructure in relation to the NDC of the country in which the infrastructure is based.

An analysis of the project's alignment with the national 2°C pathway of the country where the infrastructure is constructed, or by default with the objectives set in the NDCs⁶ for that country, should also be carried out, quantitatively whenever possible and at least qualitatively when a sufficiently detailed scenario is not available. For example for the energy sector, when a country's target energy mix is detailed in the NDCs or national Climate Plan it is possible to carry out a quantitative analysis of the project's alignment with a 2°C pathway. This analysis of a project's alignment with a 2°C pathway must allow to ensure that the project will not lock in emissions, i.e. that the level of greenhouse gas emissions caused by the project will not block achievement of the objective for reducing emissions set by the country in the medium- or long-term.

Lastly, financial institutions should assess a project's exposure to physical risks resulting from climate change. Infrastructures are in fact the sector where methodologies for assessment of the exposure to physical risks are the most developed and sufficiently mature to give accurate indications for managing such risks.

Synopsis of available indicators

Today, in terms of a financing or investment portfolio on infrastructure projects, financial players can:

- calculate the portfolio's total GHG emissions and its carbon intensity per million euros invested;
- calculate the emissions avoided during the infrastructure's lifespan;
- create an indicator summarizing an overall indication of the portfolio's alignment with a 2°C pathway, for example by measuring the proportion of investments aligned with a 2°C pathway, or by constructing an alignment rating per asset which is then averaged at the portfolio level;
- calculate the "green and brown shares" of the portfolio, with shades of "green" and "brown";
- rate the exposure to physical climate-related risk of each asset in the portfolio.

Avenues for improving data availability

The data necessary for analysis of climate-related issues and alignment with a 2°C pathway is often already widely available for infrastructure projects. On the one hand, methodologies are relatively mature and available (even if they go often unused at present), whether for analysing the risks and opportunities associated with the low-carbon transition or for assessing the physical risks resulting from climate change. On the other hand, the data necessary for carrying out such analyses is generally made available by the infrastructure's developers at the time of the due

diligence process⁷, such as in the environmental and social due diligence documents.

Nonetheless, in order to ensure the availability of this information at the time of financing or investment and throughout the financing period, the investor or financier may add clauses to the contractual documentation with reference to the regular availability of updates of these indicators (and therefore consider these indicators as KPIs⁸).

Listed-equity asset management

Specificities of the business line with regard to the analysis of climate-related issues

The majority of recent initiatives for assessing low-carbon transition issues for financial portfolios, such as for example the Montreal Carbon Pledge⁹ or the Portfolio Decarbonization Coalition¹⁰, target listed-equity asset management. Similarly, most climate-related methodologies and databases developed up to today focus on listed assets, and primarily companies. This can be explained by the greater availability of public information on listed assets as financial market regulation authorities have put in place stringent disclosure requirements. This is also the asset class on which the majority of Socially Responsible Investment¹¹ outstanding amounts are concentrated and for which extra-financial rating agencies – service companies dedicated to the rating of businesses on Environmental, Social and Governance criteria – have been developed since the 1990s.

Possible analyses as of today

A certain number of climate-related indicators have been developed by intermediaries – suppliers of conventional financial data, extra-financial rating agencies and dedicated companies – for many listed companies, and to a lesser extent for sovereign and supranational bonds. Nonetheless, most of these indicators today are still indicators of past and present carbon footprint and of past and present carbon intensity per million euros invested or per million in turnover. These indicators on their own therefore do not make it possible to carry out a forward-looking analysis of climate-related issues for assets under management or to analyse the portfolio's alignment with a 2°C pathway (see Box 2). What would be necessary are forward-looking indicators, often not available due to the lack of publicly available information on a company's forward-looking strategy, even when companies are listed.

⁶ An "NDC", or Nationally Determined Contribution, or "national contribution", is the document summarising each country's contribution to achieving the objectives of the Paris Agreement, and in particular to the worldwide effort to reduce greenhouse gas emissions. See Box 3 for more information.

⁷ A due diligence procedure is the set of audits that the potential investor or financier carries out to make sure of the infrastructure project's viability and to verify the consistency of information supplied by the project initiator.

⁸ A KPI or Key Performance Indicator is a performance indicator that measures a critical aspect of the overall performance of the company or of an activity.

⁹ See <http://montrealpledge.org/>

¹⁰ See <http://unepfi.org/pdc/>

¹¹ Socially Responsible Investment refers to an investment made by taking into account, in addition to financial performance, a rating of extra-financial criteria (environmental, social, ethical and governance criteria, also known as ESG criteria), usually carried out in-house by a dedicated department on the basis of external analyses carried out by extra-financial rating agencies.

BOX 4: ADVANTAGES AND LIMITATIONS OF CARBON FOOTPRINT INDICATORS FOR LISTED ASSETS

The carbon footprint and carbon intensity metrics have the great advantages of being easily available to thousands of businesses, and being easy to aggregate at the portfolio level. This is therefore a particularly useful type of indicator for reporting and communication at the level of the portfolio or the financial institution.

However, these indicators must be used extremely carefully for the purpose of portfolio management. The comparison of two companies or two portfolios based solely on the measurement of a carbon footprint or carbon intensity in fact presents several limitations:

- calculations of carbon footprints carried out by different service providers are for the moment based on non-standardized methodologies and scopes.¹²
- with regard to a cross-sectoral comparison, constructing a low-carbon portfolio based on the sole criterion of scope 1&2 carbon intensity (definition in Box 1) can lead to constructing a portfolio that over-represents the service sector in the event that there is no consideration of tracking error and sectoral diversification. Such a portfolio therefore contributes in a limited and indirect manner to the financing of the energy transition.
- with regard to a stock picking approach¹³, and therefore a comparison of companies in the same sector, a comparison based on a single criterion of the company's carbon intensity scope 1&2 presents two main limitations. Firstly, for most sectors - in exception to the energy and heavy industry sectors -, transition issues are captured only by including scope 3 emissions, which is most of the time not included in databases that are currently available. For example, with regard to car manufacturers, for whom transition risks and opportunities have a direct impact on their strategy, the main issue lies in the carbon performance of vehicles sold, which is captured solely in the scope 3 of the carbon footprint. Even in the case of sectors for which the key issues are direct GHG emissions, a comparison of the carbon intensity of two companies based only on scope 1&2 may not be relevant. Outsourcing a carbon intensive activity is indeed enough to make the carbon intensity fall substantially, even if the company's transition risks remain more or less the same.

Using this type of indicator should therefore be systematically paired with an analysis of the company's activity and the use of forward-looking indicators that are qualitative for the time being.

It is nevertheless already possible for the managers of listed assets to go further than simply measuring the portfolio's carbon footprint, especially with reference to the securities of listed companies.

Certain intermediaries have developed methodologies for rating the alignment of a company – or of a country, a supranational agency, etc. – with a 2°C or low-carbon pathway. These methodologies mostly combine quantitative indicators, in particular of the current carbon footprint or “physical” carbon intensity of the company's key products or assets, and qualitative indicators covering the company's strategy with regard to low-carbon transition issues. Such ratings enable asset managers to access a first qualitative assessment of the alignment of at least part of their portfolio with a 2°C pathway. Beginning as of today to incorporate these ratings and the corresponding analyses into the fundamental analyses carried out on these companies would enable asset managers to familiarise themselves with climate-related transition issues and

to begin to complement their tools and processes with such indicators.

Managers of listed assets may also begin to progressively track indicators of the “green share” and “brown share” of the revenues of portfolio companies.¹⁴ Indeed, even if they do not represent forward-looking information as such, these indicators do give a useful estimate of the level at which the low-carbon transition is being taken into account in a company's strategy. In addition, the “green share” and “brown share” indicators are those that seem the easiest to aggregate at the level of a financial institution that combines different financial business lines. They are sometimes based on proxies when the necessary information is not provided by companies.

Lastly, for certain sectors, in particular the energy sector, and for certain types of transition risks, in particular the risk associated with the introduction of a carbon price, it is already possible to carry out a sensitivity analysis of the impact of the materialization of a transition risk on the asset's valuation.

¹² For a detailed analysis of the variations in results obtained for the same companies by different service providers, see in particular the case study from Natixis Research, *Enjeux et outils de l'intégration du climat aux stratégies d'investissement – Immersion dans le Carbon Footprinting (Issues and tools for integrating climate change into investment strategies - Immersion in Carbon Footprinting)*, April 2016.

¹³ Stock picking refers to the activity of selecting securities one by one, and not based on stock market indexes, in accordance with fundamental analysis criteria. In the field of Socially Responsible Investment, stock picking refers to the selection of companies that have the best ESG rating within a sector.

¹⁴ A “green share” corresponds to the portion of the company's revenues generated by activities contributing to low-carbon transition; a “brown share” corresponds to the portion of the company's revenues generated by activities that will have become obsolete in a low-carbon economy. There is no consensus today on the definition of “green” activities and “brown” activities, even if financial players can refer to existing taxonomies, such as the Climate Bond Initiative and the TEEC (Transition Énergétique et Ecologique pour le Climat / Energy and Ecological Transition for Climate) label in France, for the “green share”.

After this qualitative or semi-quantitative first stage of forward-looking assessment, financial institutions may set themselves preliminary investment targets integrated into their decision processes. This would support carrying out of a quantitative analysis when forward-looking quantitative information on underlying assets becomes available.

Synopsis of available indicators

Managers of listed assets should seek to pair quantitative indicators with a forward-looking qualitative analysis. Among the different indicators that can be combined in the analysis, the following can be found:

Quantitative indicators:

- carbon footprint (or intensity in €m invested);
- measurement of “green” and “brown” shares;
- “physical” carbon intensity for certain products for which information is generally provided by companies, in particular in the energy production, heavy industry and car manufacturing sectors.

Qualitative analysis, of:

- the type of products and services sold by the company;
- the level of outsourcing of carbon-intensive processes;
- the company’s strategy;
- its R&D and investment objectives.

Avenues for improving the availability of data

In parallel with these preliminary analyses of the climate-related issues for their listed portfolios, asset managers may contribute towards improving the availability of data and the quality of information supplied. They can in particular put in place a proactive policy on engagement with companies, in order to encourage them to carry out an analysis of their alignment with a 2°C pathway and of the risks and opportunities presented by the low-carbon transition for their activities. They can for example base themselves on the recommendations of the Task Force on Climate-related Financial Disclosure¹⁵ to focus their requirements in terms of reporting. Investors and asset managers may also liaise with each other in their policies for engagement on climate-related issues in order to increase the impact of their initiatives.

In parallel, asset managers should also be working with the providers of climate-related data in order to progressively make the available indicators evolve into forward-looking indicators that correspond to their requirements and can be integrated in future into their investment decision models and processes.

15 In April 2015, the G20 asked the Financial Stability Board (FSB) to analyse how the financial sector could take climate-related issues into account. Further to the observation of a great lack of information for achieving this, in January 2016 the FSB launched the Task Force on Climate-related Financial Disclosures (TCFD) in order to define the guidelines for improving company reporting on their climate-related issues so as to enable financial institutions to measure their exposure to climate-related risks. The initial recommendations of this task force were published in December 2016 and are available here: <https://www.fsb-tcfd.org/publications/>

Private Equity

Specificities of the business line with regard to the analysis of climate-related issues

Except in the case of funds specialising in investment in infrastructure projects, there is as of today no sectoral-wide initiative for the integration of climate-related issues dedicated to Private Equity players. Nonetheless, some players or funds specialising in impact investment are beginning to carry out analyses of climate-related issues for companies in their portfolios and to incorporate indicators associated with climate change into the reporting that certain companies must supply to them. However, even existing initiatives are still limited since the required analysis is not yet systematised nor aggregated at portfolio level. Above all, no analysis of the alignment with a 2°C or low-carbon pathway are carried out for the time being.

Nevertheless, private equity investment presents advantages for carrying out a forward-looking analysis of alignment with a 2°C pathway:

- the typical holding horizon for Private Equity funds is from 5 to 10 years - a horizon at which it is reasonable to assume that certain climate-related risks and opportunities will have manifested themselves;
- as these funds have access to very detailed information on underlying companies and to frequent reporting suited to their request, they would be able to request from companies the information needed to carry out quantitative analyses for alignment with a low-carbon pathway;
- these funds directly influence the strategies and development choices made, and may therefore act as an incentive to the alignment of these companies on a 2°C or low-carbon pathway.

Possible analyses as of today

Private Equity funds and direct investors in unlisted assets can already carry out an analysis of the financial impacts of risks and opportunities associated with the low-carbon transition, and assess the alignment with a 2°C pathway of underlying companies. This assessment could be carried out first on companies already in their portfolios, before being included in the analyses carried out before investment.

These investors may for example integrate quantitative parameters for degradation – or improvement – of the base case into financial modelling conducted for company valuation, based on a relevant 2°C scenario for the sector in question, so as to measure the impact on financial performance of the materialization of transition risks and opportunities. This type of analysis is in line with the recommendations issued by the TCFD.

They could also carry out a rating of the alignment of companies in the portfolio with a 2°C pathway, on the basis of methodologies developed by different service providers.

Private Equity investors could also analyse how companies in their portfolio can improve the impact of the low-carbon transition on their financial performance. For example, energy efficiency measures could enable companies to reduce their expenditures, and to reduce the financial impact that the introduction of a carbon price would have. Developing new activities aligned with a low-carbon transition would also enable companies to anticipate market changes and gain market share. This analysis would fit into the usual work of investment managers and make it possible to study improvement in the financial performance of companies from a new angle.

Lastly, in terms of reporting with regard to an investment portfolio or a fund, these investors could already publish the aggregated carbon footprint – scope 1, 2 and 3 as intensity per million euros invested – and above all the aggregated “green share” and “brown share” at portfolio level. The “green share” represents the percentage of the funds invested in companies for which a significant portion of revenues originates from activities contributing to the energy transition. In order to determine the activities considered to be “green” and the percentage of revenues constituting a significant portion, investors may for example base their classification on the TEEC label launched by the French Ministry for Ecology, Sustainable Development, Energy and the Sea in December 2015. The “brown share” to the contrary constitutes the percentage of the funds invested in companies for which a significant portion of revenues originates from activities contrary to the low-carbon transition.

Synopsis of available indicators

Private equity asset managers could base themselves on the following indicators in order to carry out the analysis of their assets:

- ratings for a company’s alignment with a 2°C or low-carbon pathway;
- the “green share” and “brown share” indicators of the company’s revenues which, even if they do not represent forward-looking information as such, give a useful indication of the company’s positioning with regard to the low-carbon transition;
- “physical” carbon intensity indicators for monitoring the improvement of the company’s carbon performance;
- in the medium term, variables making it possible to calculate the financial impact of a 2°C scenario on a company.

Avenues for improving the availability of data

In order to improve the availability of information on the climate-related issues of companies in the portfolio, it is above all a matter for investors in unlisted companies to bring the monitoring of climate-related metrics into their reporting requirements included in shareholder agreements. These metrics could be partly specific depending on sectors. This new requirement would make it possible to ensure that

companies in a portfolio take properly into account the risks and opportunities associated with climate-related issues in their strategy and transactions. For the cost of the process of collating and reporting this data to remain reasonable for the company, it will be necessary to ensure that the required indicators are consistent with the company’s strategic issues and as far as possible based on data already collected by the company.

In a second phase, investment managers will be able to carry out these analyses *ex ante* so that the climate-related issues will be integrated into the investment decision process.

Lastly, in order to put such a procedure in place, it is necessary for investment managers to be trained on the potential financial impacts of climate change and the low-carbon transition, or for them to be able to find the necessary support in-house for carrying out these analyses.

Bank lending

Specificities of the business line with regard to the analysis of climate-related issues

Bank lending, apart from the specific case of project financing, is the least mature financial business line for forward-looking analysis based on a 2°C scenario. The banking industry today combines three constraints which restrict its ability to take climate-related issues into account, and which it is important to overcome as quickly as possible:

- the very high number of lines to be analysed, particularly in the personal loan segment;
- the nature of the counterparties concerned, mostly private individuals and small and medium-sized businesses rather than listed companies, and therefore generally without required public disclosure reporting;
- the limited number of data on counterparties available in information systems of banks for the time being.

Possible analyses as of today

In view of the current constraints, banks should as a first step conduct an initial quantitative – in order of magnitude – or qualitative assessment of the exposure of their different customers and financial products typologies to the risks and opportunities of the low-carbon transition and to the physical risks resulting from climate change. This first estimative assessment should make it possible to analyse the missing information for each customer-base segment and each type of product or service. It would then be possible, as a second step, to carry out a more detailed analysis of climate-related risks and opportunities for the segments of the lending portfolio that are the most exposed.

Banks could also send a questionnaire to all of their corporate clients in order to identify the “green and brown shares” in the revenues of these companies. Such a questionnaire should present a very detailed taxonomy of the activities considered to be “green” and “brown”.

For the personal banking segment, the banks could, as a first step, systematically determine in the case of new mortgage loans whether the customers intend to undertake energy renovation work in their property – and if so to describe the work involved – in the form of an on-line survey for example.

Synopsis of the indicators for which banks can calculate proxies

Due to the constraints of access to data on the climate-related issues of their customers, it is difficult for banks to calculate quantitative climate change indicators. They can however calculate proxies for certain indicators:

- calculation of exposure to sectors with a high likelihood of downside risks linked to the low-carbon transition;
- calculation of exposure to each convergence between a sector highly vulnerable to physical risks and an highly exposed geographical area^{16 17};
- estimation of “green shares” and “brown shares” in their portfolio, which may be based either on a survey sent to all their customers, or for the corporate segment, on an analysis of the annual reports from their counterparties involved in sectors highlighted as the most vulnerable to physical risks and low-carbon transition risks.

Avenues for improving the availability of data

In-house processes for collecting information and analysing counterparties’ financial strength should be enlarged to take into account climate-related issues. In particular, the IT system for collection, storage and aggregation of data on the loan portfolio should be adapted to allow the integration of climate metrics. The currently available information often does not make it possible to analyse the loan portfolio’s alignment with a low-carbon transition, despite the sometimes long time horizon of loans that are granted.

Two first-steps objectives for improving this adaptation of the processes for collecting information could be as follows:

- fine-tuning the sector-based breakdown of counterparties, so as to obtain a sector-based breakdown that is as consistent as possible with an analysis of alignment with a 2°C pathway;
- allow for collection of data on “green shares” and “brown shares” in the revenues of counterparties. In the IT system, on the basis of a taxonomy shared between financial institutions.

¹⁶ Methodology specifically proposed by Cicero (Center for International Climate Research) in its report *Shades of Climate Risk*, February 2017 <http://www.cicero.uio.no/en/climate-risk-report>

¹⁷ These two calculations are also the methodologies followed by ACPR (French prudential and resolution control authority) in France to assess the exposure of the French banking sector to climate-related risks. The conclusions of this analysis are available in a report for consultation published in February 2017 available at: <http://www.tresor.economie.gouv.fr/File/433386>

BOX 5: THE FRENCH TREASURY DIRECTORATE RECOMMENDS THAT BANKING INSTITUTIONS SHOULD APPRAISE THEIR EXPOSURE TO CLIMATE-RELATED RISKS BASED ON SCENARIOS

“[...] it is essential for banking institutions to develop suitable methodologies and assemble data, so as to be able to gain a better appreciation of risks to which they are subject.

From that point of view, banks may envisage using conventional tools such as scenario-based risk analysis. Based on sensitivity analyses of a more microeconomic nature and with the help of scenarios that are consistent and suited to each institution’s situation, using such methodologies should enable a better understanding and identification of points for attention with regard to “climate change” issues in their portfolio of activities.

In order to minimise vulnerabilities, the full integration of climate-related issues in the conduct of operations by financial institutions is crucial. This process may also help to advance the collective debate on methodologies still to emerge. Research effort and dialogue between the various components of the financial sector (in particular with insurers) jointly with the academic world will be essential.”

Source: French Treasury Assessing climate change related risks in the banking sector <http://www.tresor.economie.gouv.fr/File/433465>

Laying the cornerstones of such an analysis will enable financial players to anticipate changes in the sector

Private financial players can immediately begin – and in fact some have already started – to measure and steer the alignment of their portfolio with a 2°C pathway. This can help limit their exposure to climate-related transition risks and seize the opportunities associated with the low-carbon transition. Even if, for now, certain constraints limit the ability of financial institutions to carry out a quantitative analysis of the impact of a 2°C scenario on financial performance, the first steps proposed in this Climate Brief can be implemented as of today and provide a cornerstone for a progressive deepening of the analysis.

Broadly speaking, financial actors should begin as of now to analyse their climate-related issues in a forward-looking manner based on semi-quantitative indicators. Indeed, the purely quantitative indicators that exist to date are based solely on historical data, and therefore give no indication of the pathway adopted by the company. Moreover, the relevance of a comparison of different companies based on existing quantitative indicators is to date very limited, and such a comparison may lead to misleading conclusions.

Two types of indicator seem particularly relevant to us:

- **Indicators of alignment with a 2°C pathway:** these macro-indicators aggregate both quantitative indicators based on historical data when available, and qualitative forward-looking indicators. On one hand, they can measure, for example the exposure to the introduction of a carbon price. On the other hand, they can give a forward-looking analysis of a company's 'resilience' in a low-carbon economy given its ability to adapt itself to a regulatory and market environment in transition.
- **Indicators of "green share" and "brown share":** these indicators inform financial institutions of a company's current distribution of revenues between "green" activities that will be favoured and "brown" activities that will be penalised by the low-carbon transition. These indicators, once aggregated in terms of outstanding amounts, enable a financial player to measure its exposure to companies that are heavily exposed to transition risks – as well as those that stand to benefit from the transition. These indicators, however do not alone make it possible to measure the extent of the potential losses or gains, but may be progressively refined into shades of "green" and "brown" to better characterize the scale of upside and downside risks.¹⁸

¹⁸ The "shades of Green" concept has been introduced by Cicero, in the context of its second-opinion reviews of green bonds. <http://www.cicero.uio.no/en/posts/what-we-do/cicero-grades-climate-friendly-bonds-with-shades-of-green>

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