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Analyses et synthèses

French insurers facing climate change risk

ACPR
BANQUE DE FRANCE

GENERAL OVERVIEW

How do French insurers manage climate change risk and where do they stand in implementing the provisions of Article 173 of the Energy Transition for Green Growth Act (LTE – *Loi sur la transition énergétique pour la croissance verte*)?

The question is warranted for the insurance industry for two reasons:

- With investments totalling EUR 2,628 billion, French insurers have an important role in financing the energy transition. At the end of 2017, 10% of insurers' investments were invested in sectors sensitive to transitional risk (sectors that produce or consume fossil energy, electricity, gas, etc.). The share of insurers' investments localized in geographical areas subject to physical risk is very limited (6% if the Netherlands is considered a risk area, 1% otherwise), these investments being mainly located in the European Union and in North America.

- Climate risk lies at the heart of the activity of non-life insurers who therefore have risk management tools on the liability side that have been developed for many years to change their pricing and reinsurance coverage.

In order to precisely gauge the state of the progress made within the French insurance sector, the *Autorité de contrôle prudentiel et de résolution* (ACPR) conducted a study of all insurance market players in France last September. 139 insurers, representing 80% of French insurers' investments, responded. This report details the main results.

While the definition of climate change risk appears relatively consensual across entities, the management of this risk remains to be improved. The breakdown of climate change risk into physical risk, transition risk and liability risk refers to risks already known by insurers, allowing them to capitalise on existing risk management tools and procedures. Nevertheless, the multifaceted nature of climate change requires new adaptations.

Insurance entities favour, on the asset side of their balance sheets, an assessment of climate change risk determined by the carbon footprint of the business sectors of their investments, or as a function of the environmental, social and governance (ESG) rating of these investments. On the liability side, the measures used are based on the geographical location of the undertakings and persons insured, as well as the impact of adverse scenarios on those liabilities. However, the forecasting dimension remains the most difficult to integrate into monitoring tools, particularly as regards the scenario of a portfolio deviation leading to temperatures rising by more than 2°C.

From this point of view, two singularities of the insurance sector deserve to be emphasized. Firstly, unlike banks or asset managers, climate risk affects not only the asset side but also the liabilities of insurance organizations; the risks associated with the increasing frequency and cost of extreme weather events, including the induced increase in mortality and tropical diseases, have a direct impact on the pricing of insurance policies and may eventually raise the question of the insurability of certain risks, with possible implications for public policies. Secondly, it appears that insurers' experience in climate risk management is more advanced in the banking sector, thanks in part to the regular use of severe stress tests. Still, the horizon of these tests is generally very short (5 years on average), well below the supposed horizon of the materialization of transition risk (2030-2050). Furthermore, the ongoing changes to the climate cast doubt upon the validity of the historical data used for the calibration of risk assessment models.

As regards the resources devoted to the management of climate risk, staffs exclusively dedicated to this task remain limited, although a large number of employees can participate indirectly in this monitoring (underwriting, risk management, pricing, etc.). The main measure taken by insurers is the establishment of indicators to monitor climate risk developments. Beyond this, limiting investments in non-green sectors, raising awareness of asset managers, training employees, or using voting rights to influence the choices of undertakings of which they are shareholders constitute other sources of leverage that insurers use to contribute to the goal of reducing climate change set by the Paris Agreement. However, these measures mainly concern insurers' assets; on the liability side, their strategy remains focused on setting up geographical policies and adjusting their pricing. Finally, the forward-looking dimension of climate risk management, with the implementation of developed climate scenarios, requires further strengthening.

The provisions of Article 173 of the LTE impose transparency requirements on insurers regarding their risk management and investment policies linked to climate change. Since 2017, most of the market has published the requested report, but the situation of entities of very small size has been mixed. In total, the mobilization of market players is heterogeneous: a small group of actors is positioned as leaders in the management of climate risk but a large number of insurers are still waiting for the standards of the profession. Thus, many reports do not necessarily provide all the information required by the legislator or suffer from approximations on key points. After two years of the Act's application, it is still too early to make a definitive judgement on a process which is difficult to implement. Clearly identifying the insurers' objectives and measuring the progress made from year to the next remains challenging.

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We thank Camille LAMBERT-GIRAULT and Alice LEMERY for their contribution.

SUMMARY

Introduction: issues and sources of the study

The purpose of this *Analyses et Synthèses* is to assess the actions of French insurers, both internally and in their external communication, since the entry into force of the Energy Transition Law for Green Growth (hereinafter LTE). It is also part of the overall strategy of the Banque de France to take into account the risks associated with climate change and to promote the orderly transition towards a balanced and sustainable economy, while preserving financial stability. Climate risk is a growing concern for the whole financial sector, modifying or amplifying already well-known risks to insurers: financial risks, natural disaster risks, legal risks, reputational risks, etc. It also raises new challenges associated with the potential increase in the frequency and cost of extreme weather events, which raises questions regarding the insurability of certain risks and casts doubt on the utility of the historical data that are used to configure the models used by insurers to estimate the probability of occurrence of these risks and to price them.

In France, the monitoring of climate risk for the financial sector was established by the LTE, which was adopted in August 2015. Article 173 of this Act requires all institutional investors to publish information on how to take criteria for meeting ESG objectives in their investment policy into account, as well as on the means to contribute to the energy and ecological transition (see Box 1 below). As part of its supervisory tasks, the *Autorité de contrôle prudentiel et de résolution* (ACPR) is responsible for verifying that all insurers apply the content of Article 173 of the LTE.

Insurance undertakings are also concerned by other international and European initiatives on addressing climate risk in existing risk management models.[1]

• At the international level, the TCFD (Task Force on Climate-Related Financial Disclosures) implemented by the Financial Stability Board (together with representatives of financial industry) issued recommendations in June 2017[2] for the publication of clear, comparable and consistent information on the risks and opportunities posed by climate change. In particular, this initiative aims at increasing transparency for investors on the climate risks to which they are exposed. One of the objectives is to avoid a sudden adjustment of the markets related to a revaluation of the risk premium resulting from, for example, the announcement of ambitious energy policies (transition risk).

1 *Analyses et Synthèses* "French banking groups facing climate risk" addresses the issue of increased awareness of climate change issues for financial stability.

2 https://www.fsb-tcfd.org/publications/final-recommendations-report/

In addition, the IAIS (International Association for Insurance Supervisors) and the SIF (Sustainable Insurance Forum) published a discussion paper in June 2018[3] reviewing the observed practices and how ICP (Insurance Core Principles) apply to climate change risks.

• At the European level, the Commission announced on 8 March 2018 its Action Plan on financing sustainable growth, which set out in ten recommendations, the ninth of which focuses on strengthening disclosure requirements. These new requirements are consistent with Directive 2014/95/EU on the disclosure of non-financial information, requiring large listed groups, including insurance groups, to publish a CSR report (corporate social responsibility). These reports must address three main areas, often characterized by the acronym ESG (environmental, social and governance) and are not only dedicated to the consideration of climate risk by firms.

These initiatives, dedicated to the insurance sector, are part of a more global approach involving the entire financial sector. This paper therefore also contributes to the reflections of the central banks' and supervisors' Network for Greening the Financial System (NGFS – Box 2).

Box 1

State of play of French insurers' assets' exposure to climate change

Insurers, in their asset allocation strategy, face challenges related to climate change risk which are very similar to those faced by banks and asset managers, and this risk can be analysed through very similar methods.

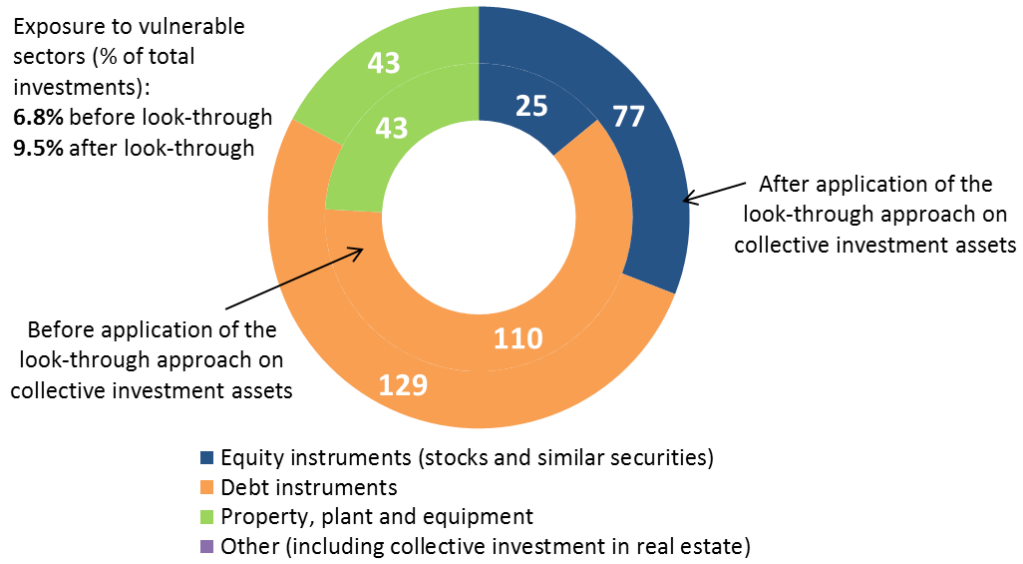
By taking into account the transition risk of the fossil, electricity, gas and water-producing sectors ("Utilities") and energy consumers ("Housing", "Intensive energy sectors", "Transport"), 10% of the French insurers' portfolio would be subject to transition risk (i.e. EUR 250 billion out of a total of EUR 2,628 billion of investments), after application of the look-through approach on assets held through collective investment (cf. Chart 1). This amount is roughly equal to that measured in 2016 (+0.87% year-on-year). However, given the increase in insurers' assets in 2017, the share of these exposures is slightly down, both before (7.2% in 2016 against 6.8% in 2017) or after (9.7% in 2016 against 9.5% in 2017) look-through application of undertakings for collective investment. Nonetheless, the differences are not significant enough to conclude on a meaningful evolution of insurers' investment strategies in terms of energy transition on this basis alone.[4]

3 https://www.iaisweb.org/page/supervisory-material/issues-papers/file/76026/sif-iais-issues-paper-on-climate-changes-risk

4 For a more comprehensive analysis of the transition risk of French insurers: Bulletin of the Banque de France No 220, December 2018, an increasing share of CIV in the financial investments of insurers established in France in 2017. https://publications.banque-france.fr/sites/default/files/medias/documents/bdf_220-4_une-part-croissante-des-opc-dans-les-placements-financiers-des-assureurs-etablis-en-france-en-2017.pdf

Chart a French insurers' exposures to the energy transition risk

(EUR billions and %)



Sources: ACPR, Banque de France (DGS); 2017 annual reporting Solvency 2.

Investments by insurers exposed to countries with a physical risk qualified as medium or strong, according to the Standard & Poor's definition (2014), are limited: The rating agency has classified countries according three criteria:

- the share of the population of the country living at or below sea level (less than 5 meters above),

- the share of agriculture in GDP, and

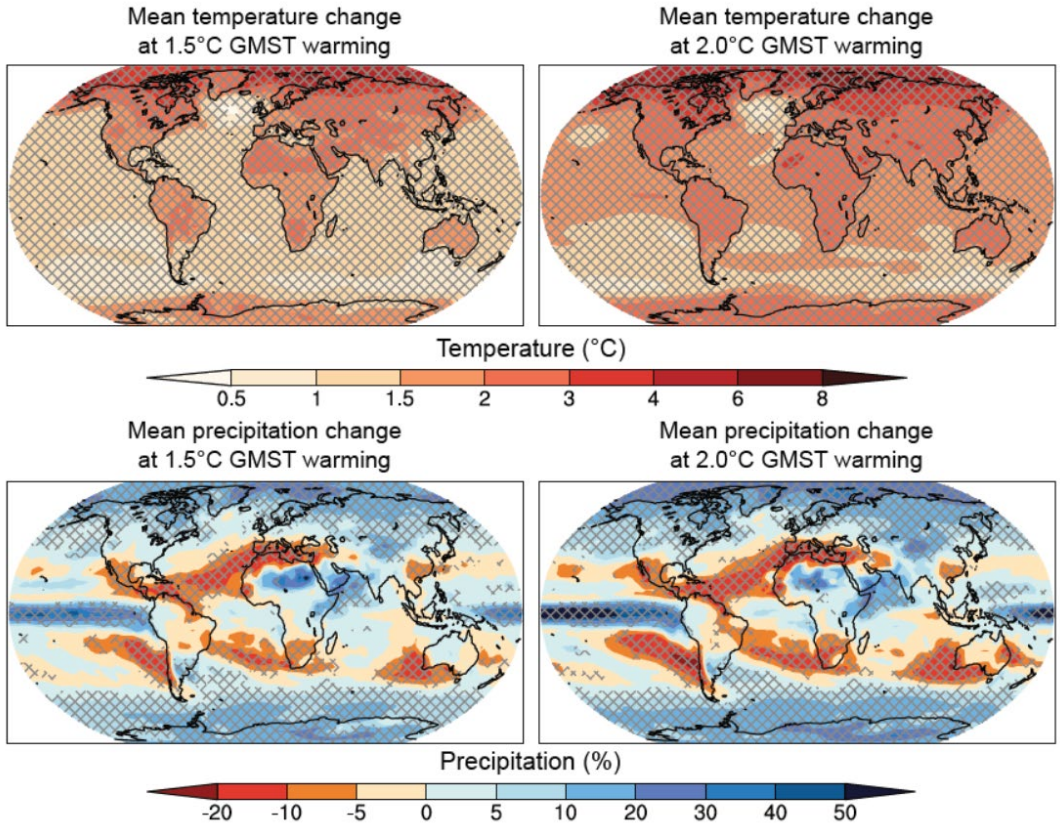
- a synthetic index built by the University of Notre Dame, the "ND-GAIN" which combines indicators of exposure, sensitivity and adaptability to climate change for each country.

For the most part, French insurers' assets are localized in very few vulnerable countries according Standard & Poor's rating. Indeed, 55% of their assets are located in France, with the rest of their exposures mainly linked to securities issued in developed countries (European Economic Area and OECD member countries – cf. Chart 2). Moreover, the Netherlands' classification as a medium vulnerability country is debatable, as some experts consider that the physical risk in this country does not arise so much from areas under sea level, but rather from the flooding of rivers—and there is considerable investment currently underway to protect against this risk.

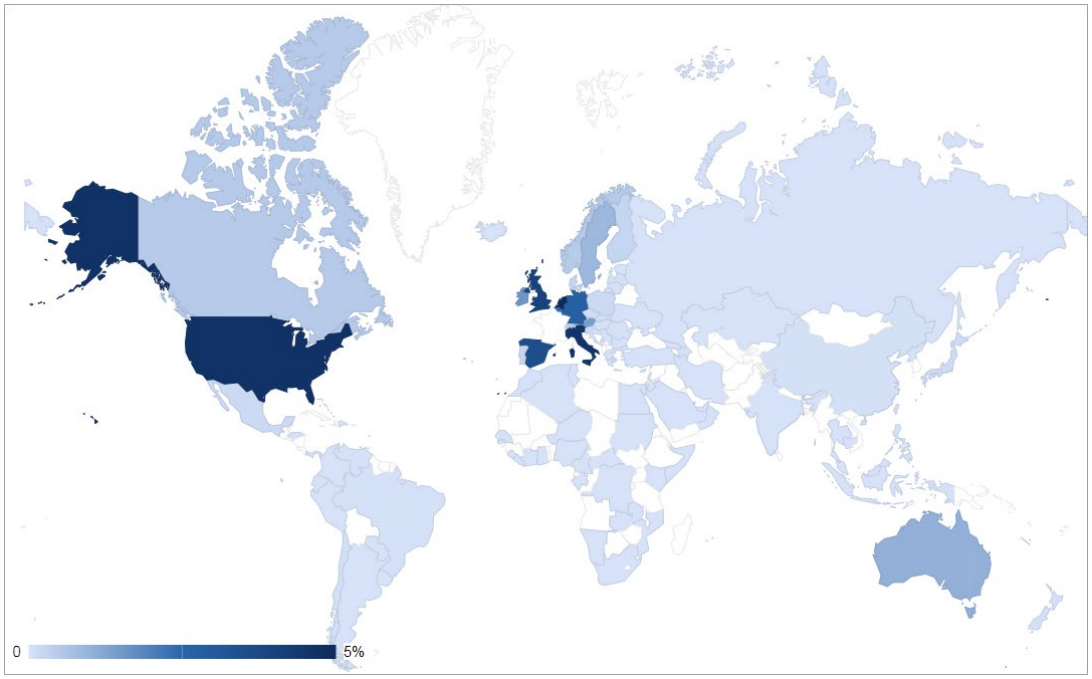
The share of insurers' investments which are exposed to countries with a physical risk qualifying as medium or high is, on the other hand, practically negligible, since they represent less than 1% of insurers' portfolios (6% if Dutch securities are included, rated moderately vulnerable by Standard & Poor's).

Chart b Evolution of average temperatures and precipitation over the period 2081-2100 under the 1.5° C and 2° C warming scenarios, and breakdown of insurers' assets by geographical area outside France

(in %)



Source: GIEC, "Climate Change 2018: Synthesis Report", 2018.



Source: ACPR data as at 31 December 2017.

Chart 2: Given their overrepresentation in the balance sheet of French insurers, assets located in France are not taken into account in the calculation of geographical exposures. On the map above, the darker a country is, the greater the exposure of French insurers to that country. The maximum exposure, however, is only 5%.

On the liability side, the insurers' problem is different than that of other financial sectors. In particular, non-life insurers integrate the dimension of climate change into their risk management for business lines relating to property damage (personal, professional and agricultural), natural disasters, transportation or construction, as well as liability coverage for companies considered to be dangerous for the environment or heavy polluters.

The data used in this study are from the insurers' statements from two main sources:

• a survey conducted by the ACPR from late August to mid-October 2018 with all French insurers: 44 groups and 23 institutions on a parent-company basis responded to the online questionnaire on the authority's website (see Annex), i.e. 139 entities. This sample includes EUR 2,090 million of assets, representing 80% of the investments of French insurers, and EUR 1,758 million of technical provisions, representing 83% of the market's technical provisions. Non-life institutions represent 53% of the participants, while life and mixed institutions represent 44%. The share of reinsurers, with five reporting entities (4%), is marginal. It may also be noted that insurers governed by the Insurance Code represent a majority (79% of the sample) compared with those governed by the Mutual Code (12%) and those governed by the Social Security Code (9%);

Box 2

Network for Greening the Financial System (NGFS) [5]

The Network for Greening the Financial System (NGFS) is an initiative of the Banque de France, launched at the One Planet Summit in Paris on 12 December 2017. It aims at promoting the emergence of recommendations addressed to the whole financial system as well as best practices among supervisors and central banks. This commitment by the Banque de France is based on two deep convictions:

• Climate risks are long-term risks to financial stability. The NGFS's work is therefore to better understand how these risks affect the financial sector and to develop identification and prevention tools;

• The transition to a low-carbon economy is a financial challenge that requires massive capital mobilisation, and a qualitative challenge to avoid the risk of greenwashing.

In support of States, which are responsible for public energy policies, the Network is thus committed to strengthening the necessary global response to the objectives of the Paris Agreement. Fostering an orderly and healthy development of green funding is therefore one of the major challenges for central banks and supervisors.

5 https://www.banque-france.fr/node/50628https://www.banque-france.fr/node/50628

The institutions participating in the NGFS (30 members and 5 observers, spread over 5 continents at the end of February 2019), on a voluntary and active basis, exchange experiences, share best practices, contribute to the development of climate and environmental risk management in the financial sector and mobilise the financial resources necessary to support the mass transition to a sustainable economy.

The NGFS appointed Frank Elderson, member of the Executive Board of the Central Bank of the Netherlands, as Chairman. The Banque de France organizes the Secretariat of the NGFS and its working groups, structured around the following three axes:

- micro-prudential supervision and regulation (chaired by Ma Jun from the People's Bank of China),

- macro-financial scenarios and impacts (chaired by Sarah Breeden from the Bank of England),

- role of central banks in financing the transition (chaired by Joachim Wuermeling from the Deutsche Bundesbank).

The first NGFS report, representing a full year of work, will be published on 17 April 2019 in the context of an international conference in Paris, and will highlight best practices to be promoted regarding the greening of the financial system.

- information published by insurers under Article 173 of the LTE with a more extensive analysis of the reports published in 2017 and 2018 by the 17[6] main insurance groups of the Market.

6 Axa SA, CNP Assurances, Crédit Agricole Assurances, BNP Paribas Cardif, Sogecap, Generali France, Allianz Holding France, Covea, Groupe des Assurances du Crédit Mutuel, Aviva France, SGAM Ag2r La Mondiale, Groupama SA, Natixis Assurances, MACIF, Scor SE, MACSF SGAM, CCR.

Climate change risk: a well-identified risk by French insurers

1 A consensus definition of climate change risk

Taking climate change risk into account is a real challenge for French insurers as a potential factor for the modification or amplification of traditional risks. The majority of French insurers seem to have assessed the magnitude of this risk: **55% of respondents to the survey declare having an internal definition of climate risk and 60% having a risk analysis process on all or part of their assets and/or liabilities**. Of these institutions, 43% report both an internal definition and an analysis process of these risks.

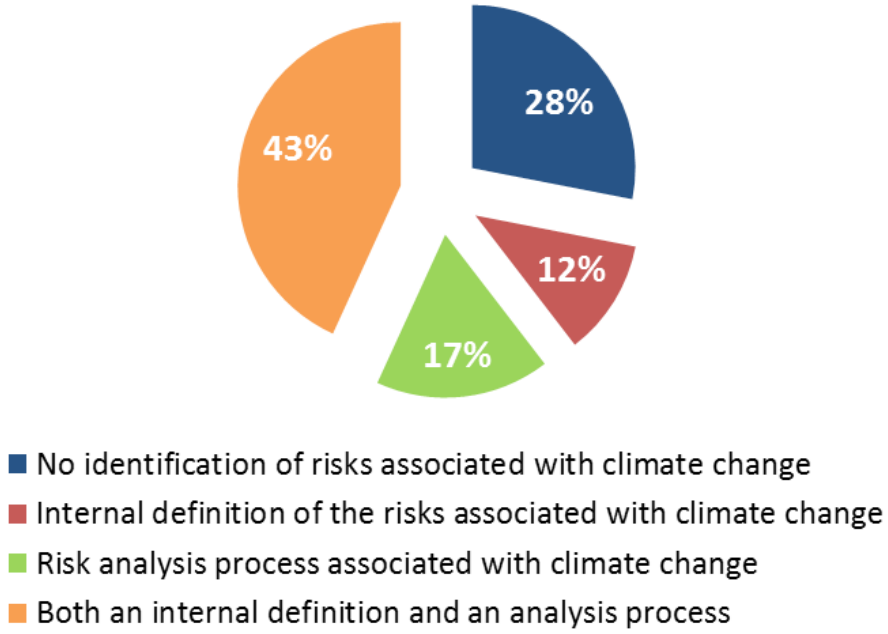
Still, less than one-third of the entities (28%) report that they do not have a definition of climate change risks or specific processes pertaining to them. These risks are addressed mainly from a natural disaster perspective (Chart 1).

Moreover, there appears to be a consensus concerning the definition of climate risk in the French industry. For example, almost all insurers with an internal definition of these risks adopted the classification of the three large categories set out by the Governor of the Bank of England, Mark Carney, in a speech at Lloyd's in London in September 2015:[7] 93% of the respondents cited the physical risks, 79% the transition risks and 51% liability risks. These results are to be seen in relation to insurers' activities, which are themselves primarily directed towards managing physical risks. Furthermore, the little mention of liability risk could result from the fact that some entities include it in transition risk.

7 Carney (2016): "Breaking the Tragedy of the Horizon – climate change and financial stability", speech given at Lloyd's of London, September 2015.

Chart 1

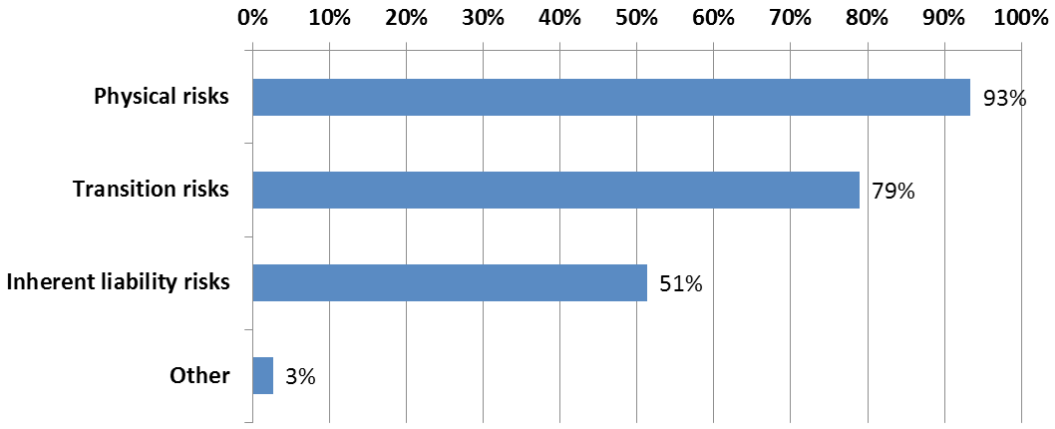
Identification of climate change risks



Source: ACPR.

Chart 2

Types of risks identified



Source: ACPR.

Box 3

Definition of climate change risk[8]

For the insurance sector, the multiple dimensions of climate change risk today form a consensus. This risk is likely to affect insurers on the asset or liability side of their balance sheets by the presence of:

• **physical risks**, resulting from damage directly caused by weather and climatic phenomena, such as:

- the loss of value of investments held by insurers and issued by entities affected by these climatic events;

- an increase in the frequency and cost of claims to be settled by insurers;

• **transition risks**, resulting from adjustments to a transition to a low-carbon economy, particularly when they are poorly anticipated or occur abruptly. Such risks relate, for example, to:

- a depreciation of assets as a result of regulatory developments that would penalise or even prohibit certain activities deemed too intensive in the emission of greenhouse gases (GHG);

- losses in insurance contracts resulting from the termination of certain insured activities similarly deemed to be too polluting in GHG;

• **inherent liability risks** (legal and reputational risks) related to the financial impacts of clearing requests from those suffering damage due to climate change, such as:

- investments financing the development of polluting or highly emitting GHG industries and activities;

- professional insurance, civil liability or infrastructure construction.

8 Carney (2016): "Breaking the Tragedy of the Horizon – climate change and financial stability", speech given at Lloyd's of London, September 2015.

2 Monitoring of climate change risks still to be enhanced

Monitoring the climate change risks to which insurers are exposed requires the development of dedicated expertise and a company-wide implication.

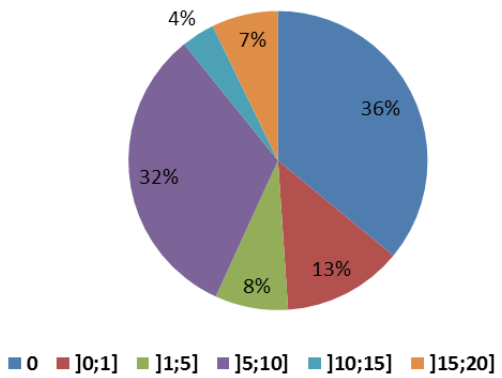
2.1 Mobilizing of personnel occurs through specific governance regimes

36% of insurers report no specific staff dedicated to climate change risk management. 11%, however, report dedicating more than **10 full-time jobs to monitor these risks (Chart 3)**. The number of persons assigned to managing climate change risks is not correlated with the size of the undertaking, be them life and mixed entities or non-life entities.

However, beyond the staff exclusively assigned to monitoring climate change risk, many other teams (underwriting, risk management, pricing, etc.) may be involved in this monitoring, without directly affecting them. Such monitoring thus involves a specific internal organisation, involving different departments (in particular those responsible for asset management and underwriting activities). Internal working groups dedicated to climate change risk analysis have been set up to facilitate both the dissemination of information to the relevant teams and the decision-making process of the governing bodies.

Chart 3

Staff dedicated to management of climate change risk



Source: ACPR.

2.2 Risk management tools under development

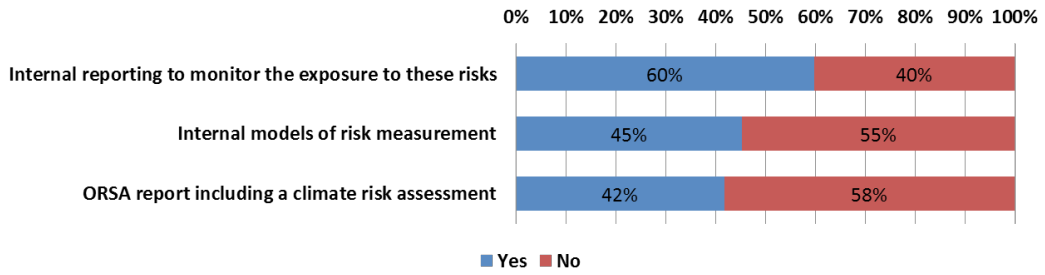
About half of insurers report having established tools to improve the recognition and effective integration of climate change risks into their risk management framework. More specifically, 60% have internal reporting for monitoring the exposure to these risks, 45% have internal risk measurement models and 42% have an assessment of these risks in their ORSA[9] report (Own Risk and Solvency Assessment) (Chart 4).

The activity of the undertaking (life or non-life) does not seem to be a determining factor in the establishment of internal climate change risk measurement models, or in the integration of scenarios specific to these risks in the ORSA. However, these scenarios remain linked to extreme events of natural disasters, with scenarios for transition risk on the asset side being incorporated into the ORSA in a less systematic manner.

9 The ORSA is an internal risk and solvency assessment process by the entity (or group).

Chart 4

Measures for managing climate risk



Source: ACPR.

3 Measures of climate change risk on the asset and liability sides

3.1 Risk measures on the asset side

• A firm understanding of the carbon footprint of the asset portfolio.

Insurers face the need to measure the carbon footprint of their asset portfolios, which is a major consideration in analysing climate change risks. This measurement of the carbon footprint helps to identify the most emitting companies and sectors.

In fact, **94% of respondents say they know the carbon footprint on all or part of their asset portfolio** (corporates, sovereigns, French regions, etc.). The entities that do not know the carbon footprint of their assets portfolio are predominantly non-life undertakings of more modest size (less than EUR 350 million in total assets).

• The identification and assessment of investment exposure is most often performed at the industry level.

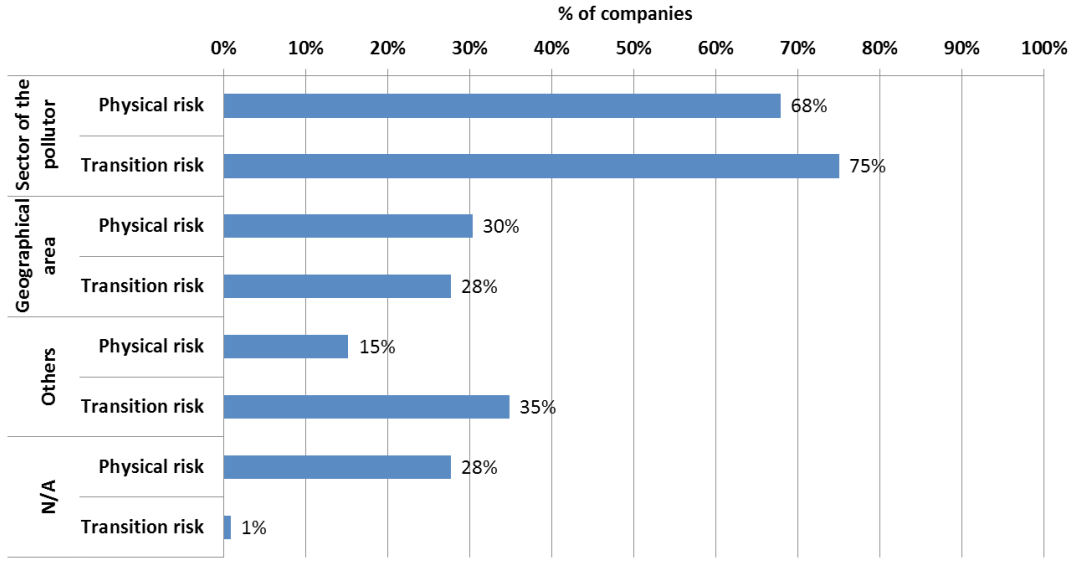
In general, **over 80% of insurers report that they are able to identify and measure their exposures to climate change risks on the asset side**. The main criterion for assessing this exposure is the business sector of the security issuer; geographical area is cited half as often to identify investments (Chart 5).

• The main tools for measuring the materiality of these climatic risks are ESG rating, analytical identification and carbon intensity of assets.

Among the most common tools, **the ESG rating is used by 97% of the sample** (as a percentage of assets), although these ratings incorporate risks apart from those related to climate change. 85% of insurers

Chart 5

Granularity of measurement of climatic risks to assets



Source: ACPR.

analytically identify the sectors or geographical areas most exposed to climate change risk and 81% of them assess the carbon intensity of the portfolio, i.e. the carbon footprint of the asset correlated with the turnover or the value of the undertaking. Some entities report correcting the value of the carbon intensity of asset allocation effects by dividing the carbon emissions in the equity portfolio (in tons of carbon) by the number of tons issued by the total investment over the period. The most commonly used tools are therefore based on historical data of carbon consumption, with the tools of French insurers rarely integrating a forward-looking analysis. Thus, few entities (representing less than 50% of total market assets) rely on tools to match their asset composition with a 2°C scenario.

Furthermore, the decomposition of the portfolio into a green/brown[10] segment, in the absence of any taxonomy at the European level, is even less used: entities using such a tool, based on an internal taxonomy, account for slightly more than 30% of assets in the sample.

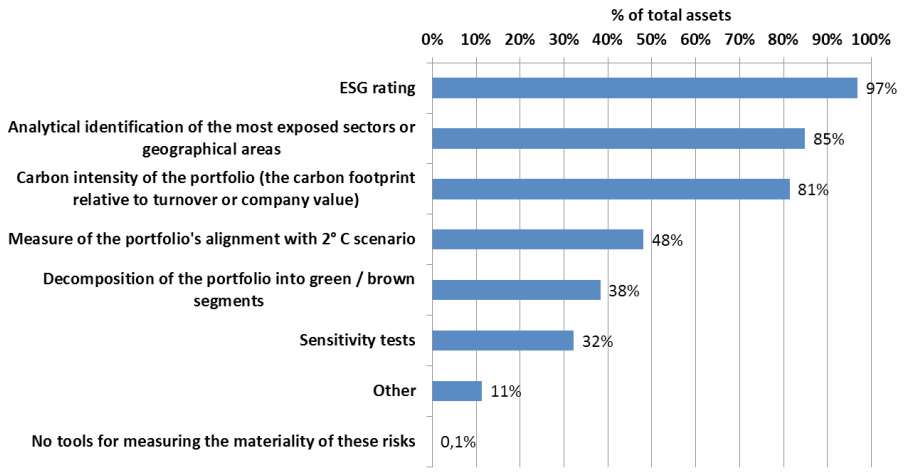
Finally, insurers responding to the survey also developed specific indicators of climate change scenarios or purchased models to assess physical risks on part of their investment portfolios. Although they are expected to determine future scenarios, currently these tools are based mainly on historical data rather than prospective analysis.

To assess the materiality of climate change risks, the majority of insurers use between 2 and 5 different metrics, with larger firms on average having more tools. Those which report not having specific tools for measuring climate risk on their asset portfolios are mostly small non-life insurance entities.

10 The questionnaire gave an indication of what could be considered brown, being understood that each insurer uses its own, potentially broader definition.

Chart 6

Tools for measuring the materiality of climate risks on the asset side



Source: ACPR.

3.2 Risk measures on the liability side

• The measurement of climate change risk on the liability side follows directly from the core activities of a non-life insurer.

All insurers collecting premiums in the classes[11] exposed to climate risk measure and assess the exposure of their liabilities portfolio to climate change risk. To do so, they report alternative methods for identifying and measuring climate risks besides carbon footprint. Unless otherwise specified, the figures presented in the remainder of this part only cover the responses of these entities, which represent almost all the technical provisions of non-life insurers in the sample.

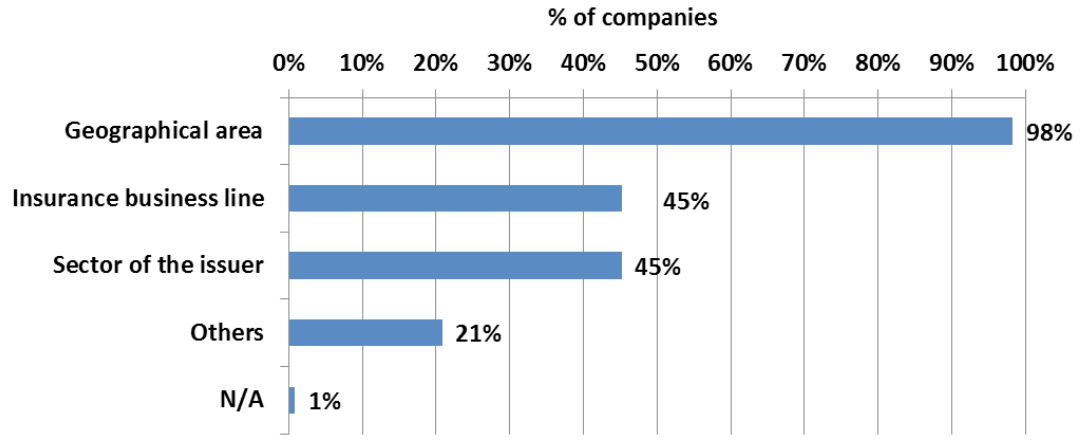
Nearly 83% of insurers report that they are able to identify and measure their exposures to climate change risks on the liability side, mainly through the geographical location of insured firms and persons. This approach is used by almost all (98%) of these entities (Chart 7). Geographical location is already used by non-life insurers to assess their damage insurance liabilities; they can therefore rely on their existing experience to analyse the physical risk to which they are exposed. In addition, although two-thirds of insurers rely on different criteria to identify and measure the exposure of their liabilities to climate change risk, geographical location is seen as the main assessment criterion for 90% of liabilities impacted by climate change risk. Lastly, insurers also report other exposure measures such as amounts insured per contract, or the year of construction for real estate.

For 90% of these liabilities related to climate change, **the granularity of the geographical area is very fine and generally corresponds to the level of the municipality (or an even smaller district) for 41% of the technical provisions** (Chart 8).

11 The categories exposed to climate risk correspond to the following four categories: Damage to property, natural catastrophes, transportation and construction.

Chart 7

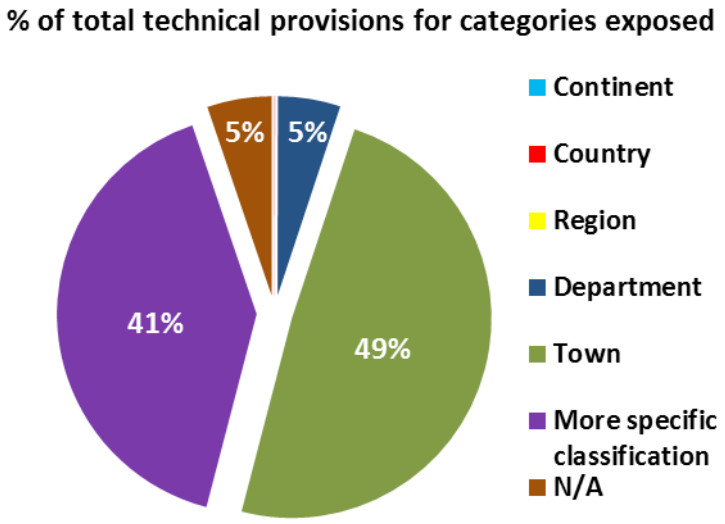
Measure granularity of climate risk on the liability side



Source: ACPR.

Chart 8

Granularity of the geographical area on the liability side



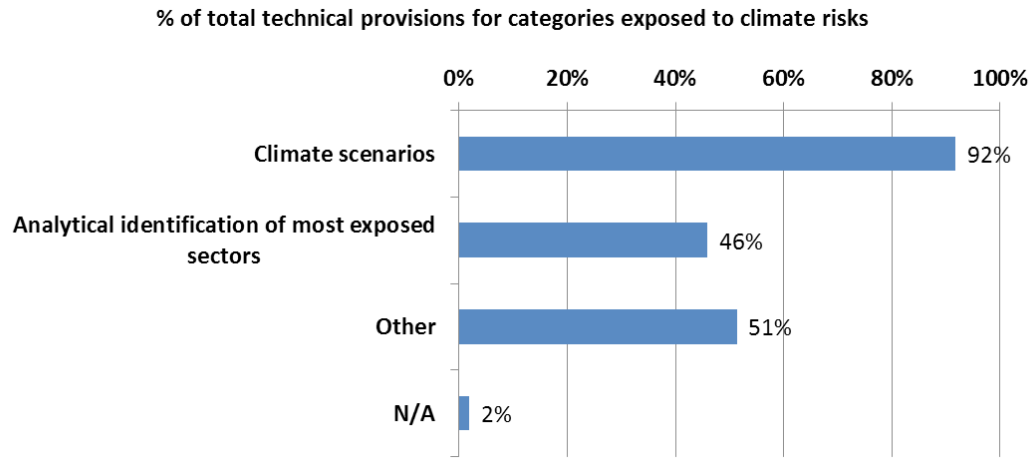
Source: ACPR.

• **Climate scenarios are preferred as tools for measuring the materiality of climate risks on the liability side.**

A vast majority of insurers, representing 92% of the liabilities exposed to climate risk, measure the materiality of these risks on their liabilities relying on **climate scenarios** simulating climate change over the coming 5 to 10 years, depending on the course of the energy transition. The analytical identification of the most exposed sectors is less used; the respondents reporting it represent less than 50% of the liabilities exposed to climate risk (Chart 9).

Chart 9

Tools for measuring the materiality of climate risks on the liability side



Source: ACPR.

4 Measures taken to mitigate the impact of climate change risk

• **Measures taken on the asset side: limitation of investment in non-green sectors and awareness of asset managers.**

Once the risks are identified, insurers must be able to limit them. As regards their investments, insurers prioritise **the establishment of specific monitoring** (for 80% of the total assets of the sample) **and a sectoral policy aimed at limiting investment in sectors designated as "non-green"** by insurers (63%) according to their own taxonomy. Many of them (representing between 40% and 50% of total assets of the sample) also cite the establishment of an awareness policy on climate issues in the operational teams responsible for investment, specific policies to encourage firms to engage in the energy transition or reduce their carbon footprint or investment targets in green sectors.

"Decarbonisation" portfolio objectives are less often cited (30%), as are hedging strategies by climate derivatives (Chart 10). French insurers and reinsurers have a marginal share of derivatives designed to cover natural and climatic disaster risks exclusively from CAT Bonds; the notional value of these derivatives is EUR 544 million, representing 0.1% of the total notional value[12] of French insurers.

Among the entities that have not implemented measures to contain identified risks in terms of climate change on the asset side, two-thirds of them intend to do so over the next two years, most starting with the establishment of a specific risk monitoring.

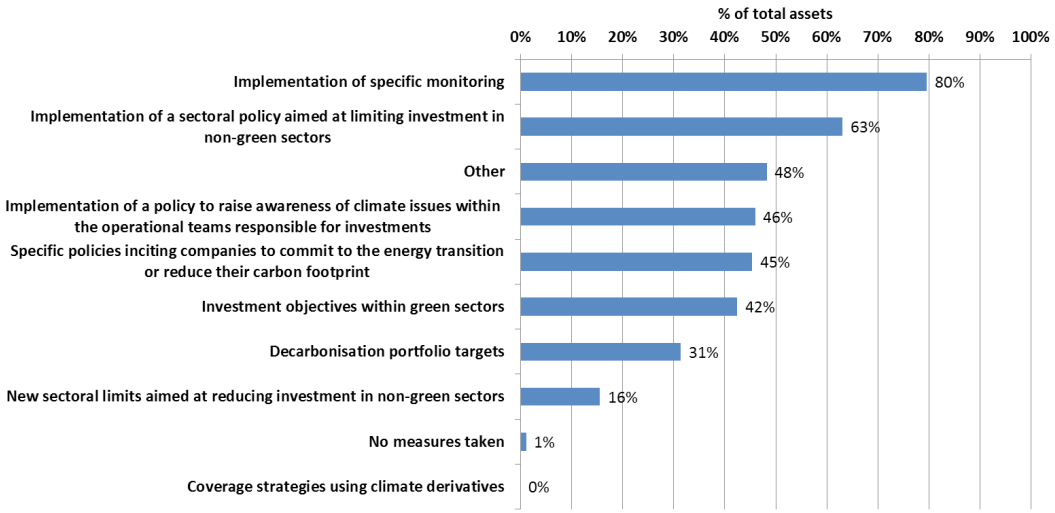
• **Measures taken on the liability side: geographical policy, pricing adjustment and renewal of risky policies.**

In order to mitigate the impact of climate change on their liabilities, insurers in the

12 Source: Solvency 2 data.

Chart 10

Measures taken to contain risks identified on the asset side



Source: ACPR.

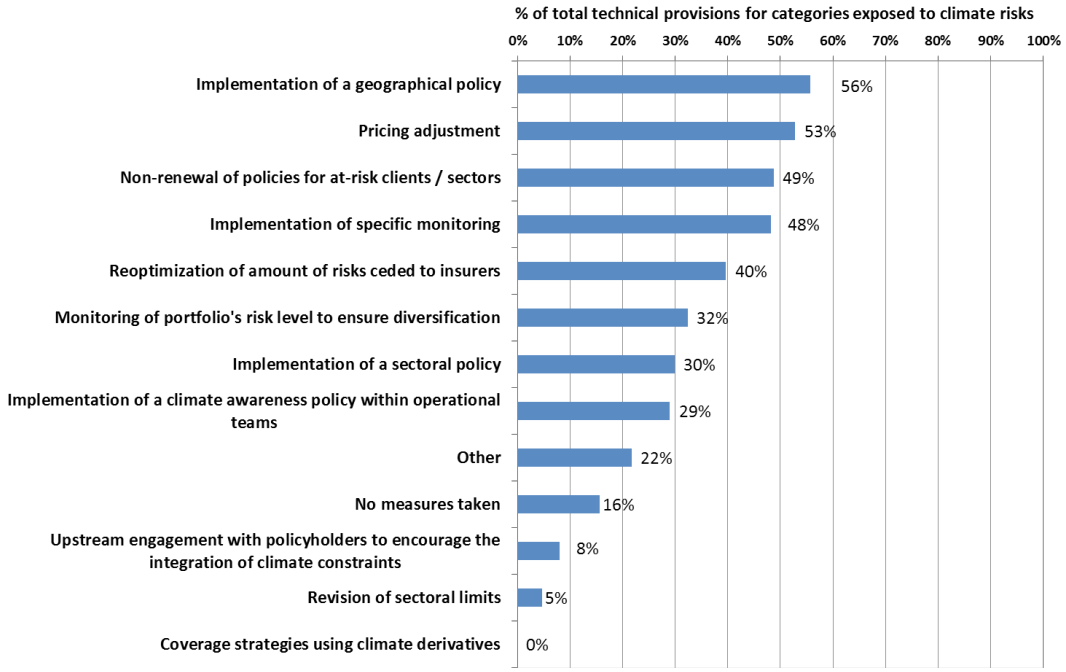
sample use a set of measures broader than those used on the asset side. **The establishment of geographical policies and pricing adjustment** are mentioned by entities accounting for more than 50% of the liabilities under this risk (natural disasters and damage).

Policy renewal for customers or risky sectors and the implementation of specific monitoring are also often cited for almost 50% of liabilities, while a re-optimization of the amount of risks ceded to reinsurers was cited for 40% of liabilities (Chart 11). While announcements made by some insurers often reverberate in the press, the sectoral criteria—with the establishment of an exclusion policy—are hardly mentioned. Finally, upstream engagement with policyholders to encourage the integration of the climate constraint is rare but nonetheless envisaged in the future for more than 50% of the liabilities. Other measures taken are diverse, from the implementation of a climate risk approach through a hedge against excessive mortality risks (all causes of abnormal mortality rates are taken into account, such as pandemics or heatwaves) to the development of products to raise awareness of climate risks.

Note that particularly severe weather events in France (the 2016 Seine flood, 2003 heatwave, 1999 storms, etc.) and abroad (Hurricane Katrina in 2005 in particular) seem to have encouraged insurers to develop specific tools. For example, the methodologies for assessing climatic risks following these events were revised for insurers representing 70% of the liabilities of the classes exposed to climate risks. In addition, insurers representing 80% of the liabilities of classes that are exposed to climate risks are able to accurately calculate the cost of these events.

Chart 11

Measures taken to contain risks identified on the liability side



Source: ACPR.

With regard to insurers that have not implemented a specific measure to contain climate risk on the liability side, most envisaged no changes in the near future, considering that their activity does not require them; these are mainly provident institutions. For others, the first steps envisaged are the monitoring of portfolio risk levels to ensure their diversification, and reoptimization of the amount of risks ceded to reinsurers.

5 Gradual integration of forward-looking climate change risk analyses

• Groups are more advanced in developing climate risk assessment tools.

While the majority of entities (representing 85% of the assets total of the sample) report having an internal reporting to monitor their exposure to climate risks, half of them (51% of the assets total of the sample) have developed an internal model for measuring these risks (whether validated by the supervisor) or have included a climate risk assessment in their ORSA report. As expected, the level of risk associated with the ORSA's climate scenarios and reported by insurers is higher for entities with natural disaster activity than for others.

However, these tools are largely implemented within entities belonging to insurance groups. A minority of them report using internal reporting, an internal model and a climate risk assessment integrated in their ORSA report. Moreover, the adoption of internal reporting does not seem to be a prerequisite for the implementation of a dedicated model or stress tests in the ORSA. In particular, respondents note the gradual approach adopted in this field; they report

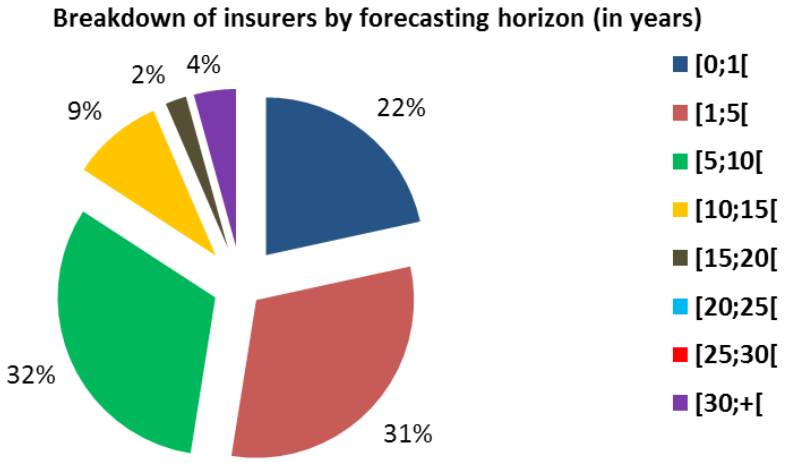
focusing first on a class of assets or a category of liabilities identified as particularly exposed to climate change risk before extending the methodologies and tools developed to other asset classes or lines of business. The need for a cross-sectional analysis is also cited repeatedly. Finally, the application of Article 173 of the LTE is sometimes highlighted as a trigger for the reflections undertaken within the entities.

- **Stress test scenarios to be refined to address climate risks.**

Assessing the time horizon attached to climate risk and the scenarios taken into account in climate change studies (2030, 2050 or beyond), institutions report that the stress tests they implement are overwhelmingly (85% of the cases) carried out over a horizon below 10 years and more than 50% of them below 5 years (Chart 12).

Chart 12

Forecasting horizons to simulate climate risk scenarios



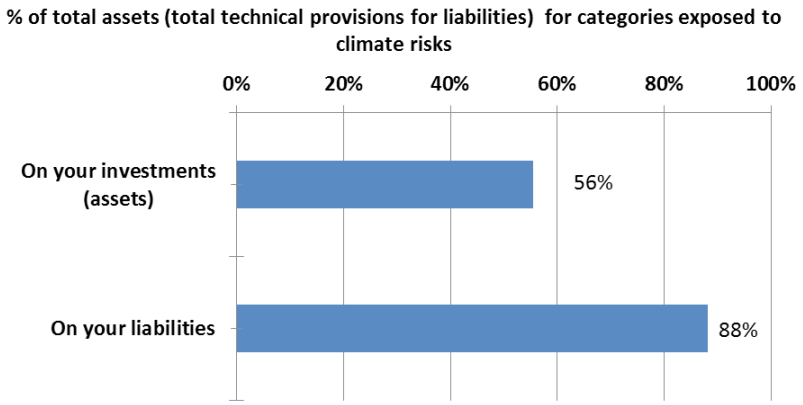
Source: ACPR.

Box 4

How to develop a stress test scenario to assess climate change risk?

To the question "What stress testing scenarios would you consider most relevant for your group?" the respondents to the survey which replied that a scenario on liabilities is relevant represent almost 90% of the technical provisions of the exposure classes exposed to climatic risks. This ratio is much lower concerning investments, as insurers who emphasize the importance of these stress tests represent only slightly over half of the assets in the sample (Chart a).

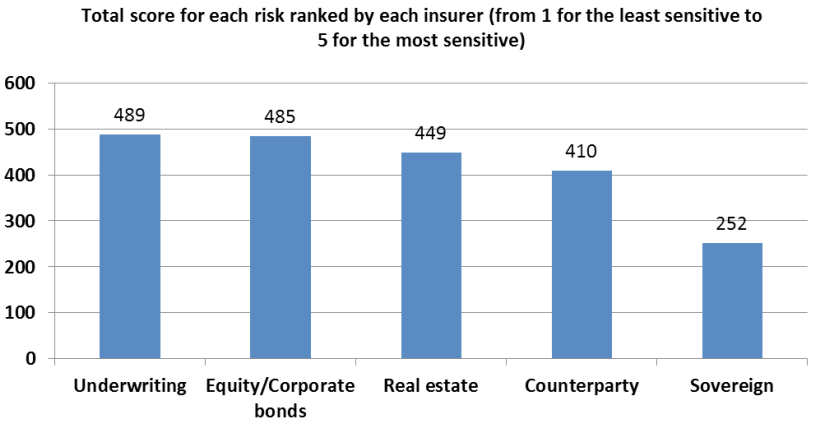
Chart a Stress scenarios considered most relevant



Source: ACPR.

Moreover, with regard to a possible scenario on the asset side, groups consider that all risk classes should not be affected in an equivalent manner. The **risk considered to be the most sensitive to climatic shocks concerns underwriting and holding shares or corporate bonds**. Real estate risk is also often cited. Risks regarding sovereign assets and especially counterparties are less often cited by insurers (Chart b).

Chart b Sensitivity of different risks to climate change shocks



Source: ACPR.

Climate change risk and transparency

1 Article 173 of the Energy Transition for Green Growth Act (LTE)

The content of Article 173 of the LTE has been incorporated, by decree, into Article D. 533-16-1 of the Monetary and Financial Code, which explains the content and details of the information to be disclosed by insurers. Although primarily applicable to financial investments, public disclosure obligations go beyond this, and extend to risk management.

All insurers are required to provide the following information regarding their investment policies and risk management:

- description of the general approach to taking into account the ESG criteria in investment policy, and where appropriate risk management;

- description of how underwriters take into account the ESG criteria;

- reference to possible adherence to a charter/code/initiative, or obtaining a label on the recognition of ESG criteria;

- general description of the procedures in place to identify the risks associated with the ESG criteria and the exposure of its activities to these risks.

Institutions or groups with a balance sheet above EUR 500 million are subject to the enhanced disclosure requirements on the nature of the criteria to be taken into account (distinguishing between transition risk and physical risk), the information used for the analysis on these criteria, the methodology used and the results of the analysis, and the integration of the results of the analysis in investment policy.

Finally, the Act specifies that the information should be published on the institution's website and updated annually.

Under its supervisory powers under Article L. 612-1 of the French Monetary and Financial Code, the ACPR shall verify the compliance of the undertakings subject to supervision with Article 173 of the LTE. This audit covers two points:

- compliance with the reporting obligation by French insurers;

- the adequacy of the contents of the report published with the provisions provided by law.

Institutions that have published a report under Article 173 of the LTE account for 94% of the market total balance sheet. The absence of publication mainly concerns small entities with limited means, or those representing a limited volume of financial investments, as their activity is predominantly oriented towards the non-life sector. In particular, the following are concerned: insurers subject to Solvency 1, mutual insurers of Book II of the Mutuality Code or non-life insurers of the Insurance Code. The absence of publication may have different reasons: first, the lack of means, in particular for substituted mutual insurers, some of which do not have a website; alternatively, a misunderstanding of French law; and finally a possible amalgamation of the European obligation to publish a ESG report by the listed groups and the obligation under Article 173 of the LTE.

Moreover, even if the information is indeed published, the report often remains too difficult to find on the website—a significant difference between large and small players.

2 The application of Article 173 of LTE differs from one entity to another

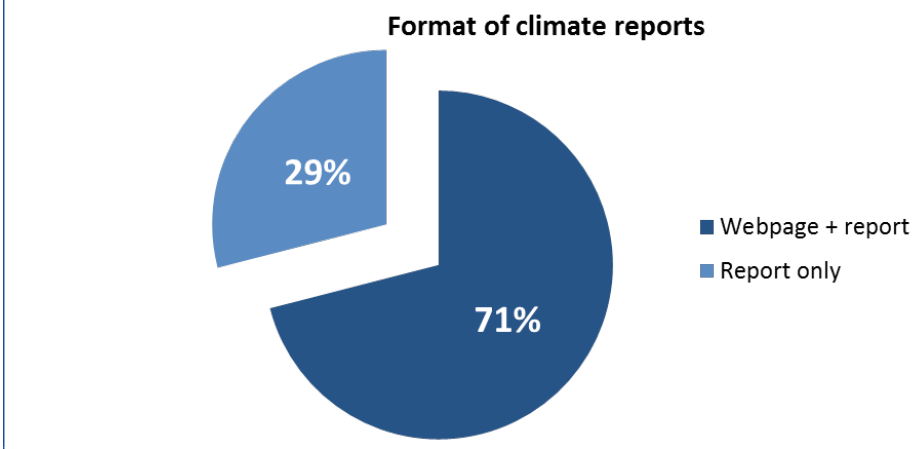
The legislator has wilfully avoided strict prescriptions in the implementing decree of Article 173 of LTE in order to foster innovative initiatives and industry approaches in a new, complex and uncertain area. The extensive reading of the reports published by 17[13] French insurance groups, representing 88% of the market investments, provided a first measurement of the practice of the most important players in the market both in the form of the report and in its content.

First, all the groups in the sample already published an annual report in 2017. In terms of form, 76% of the sample produced a specific report resulting from the provisions of Article 173 of the LTE. For others, the communication on these provisions was

13 Axa SA, CNP Insurance, Crédit Agricole Assurances, BNP Paribas Cardif, Sogecap, Generali France, Allianz Holding France, Covea, Groupe des Assurances des Crédit Mutuel, Aviva France, SGAM Ag 2 r La Mondiale, Groupama SA, MACSF SGAM, MACSF SGAM, CCR.

Chart 13

Terms of publication of the Article 173 LTE report



Source: ACPR.

included in a pre-existing report, be it the CSR report, the annual report or the reference document. The publication obligation was well respected as the majority of these entities relayed the information both on a dedicated web page and a public report.

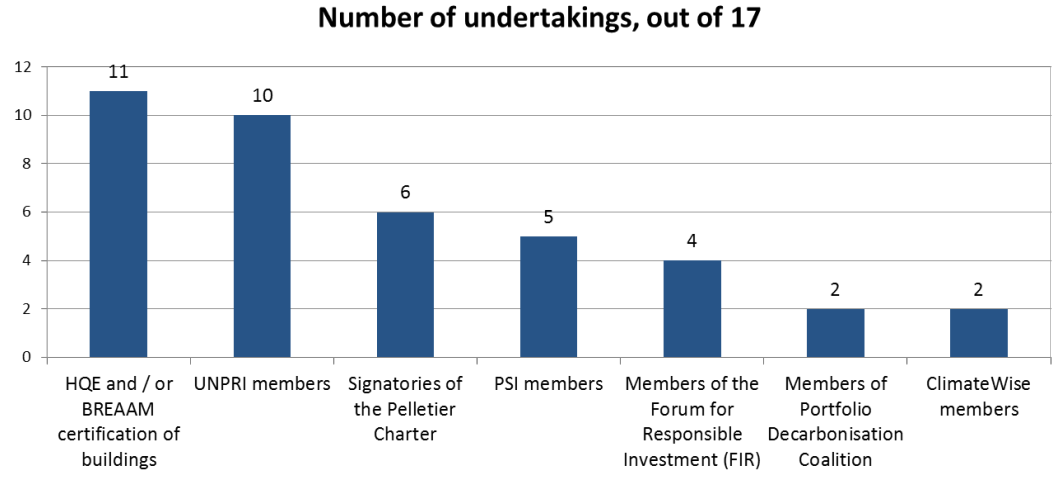
In addition, all groups described their general approach to taking the ESG criteria into account. The strategies put in place involve adherence to a charter or a code or the obtaining of a label on the recognition of criteria for meeting ESG objectives –charter and label not being mutually exclusive. For example, the reports cite or describe the selected charters and labels: the majority of the sample groups mention a HQE (High Environmental Quality) and/or BREEAM certification (Building Research Establishment Environmental Assessment) of buildings they own and the adherence to UN principles for responsible investment (UNPRI).

By contrast, as an entity with a balance sheet size above EUR 500 million, the sample groups are required to detail how the ESG criteria are taken into account by developing information on their investment policies. The level of detail of the information provided varies significantly from group to group and remains below the provisions of the decree implementing Article 173 of LTE (D. 533-16-1 of the Monetary and Financial Code).

Half of the sample, in fact, indicates merely whether climate change risks correspond to physical risks or transition risks. Similarly, while two-thirds of the sample appreciates the contribution of their actions to the international goal of reducing global warming and achieving the objectives of the energy and ecological transition, the goal of a warming scenario below 2°C to 2050 is set back by half of them.

Chart 14

Charter or label cited by the groups in their ESG report



Source: ACPR.

Finally, the reports must specify the overall characteristics of the methodology used, the main assumptions chosen and the explanations for the relevance of the methodology and the scope chosen. In particular, it is expected that the reports address all of the following: (i) the impact of climate change and weather events, (ii) evolution of the availability and price of natural resources and their exploitation in line with the climate and ecological objectives set by the organisation, (iii) greenhouse gas emission measures, both current and future, both direct and indirect, associated with emitters that are parties to the investment portfolio, (iv) measures of amounts outstanding invested in thematic funds contributing to the energy and ecological transition, (v) any element to assess the exposure to the climate change risks of the entity, its contribution to the international goal of limiting climate change and achieving the objectives to the energy and ecological transition. Depending on the reports, the emphasis is placed on one given component but not all of them are addressed in a systematic manner. As noted above, these are potentially complex procedures and methods to be implemented over several years. However, the reports could be more precise on developments within the groups in order to achieve the energy transition targets for green growth.

3 Reports focused on group investment policies

Although Article D. 533-16-1 of the Monetary and Financial Code requires all institutions subject to supervision to submit information on "the general approach of the entity to take into account social, environmental and quality of governance criteria in investment policy and, where appropriate, risk management", information produced by groups of the sample selected relate mainly to asset allocation decisions. Almost all groups have implemented a policy of exclusion or divestment from firms that do not comply with ESG criteria, mainly on the basis of environmental criteria. A smaller number of groups cite the adoption of a Best-in-class approach, which selects investments in the best rated firms from an extra-financial perspective, considering corporate responsibility of firms as a leading selection criterion.

The description of the general information used for the analysis of the emitters on the criteria for meeting ESG objectives is provided by most groups in the sample. The measure of the carbon intensity of the assets is the type of information most used in investment or divestment decisions. Other sources of information cited are internal financial analyses, external credit rating agencies or public institutions (OECD, UN, etc.).

Similarly, almost all cite the integration of a green bond investment policy into their asset allocation decisions. However, little information is published on how the ESG criteria are taken into account in risk management. In terms of governance, some groups report using their shareholder powers to induce firms in which they invest to make more responsible choices, and have set up a team dedicated to socially-responsible investment issues. Finally, a very limited number provide information on the "content, frequency and means used to inform underwriters (…) about the criteria for social, environmental and quality governance objectives taken into account in investment policy and, where appropriate, risk management".

4 Reporting to be improved in upcoming years

The practices observed are also different from group to group in the drafting of the report; some have chosen to outsource this task by seeking a specialised consultancy firm, while others have preferred to develop their internal competencies either at the group level or at the subsidiary level. Regardless of the strategy chosen, half of the reports examined suffer from inaccuracies over the scope considered, the precise list of assets covered by the analysis or even the list of subsidiaries taken into account.

Similarly, the objectives set by the groups are not systematically described in a clear manner; deadlines do not necessarily reflect the time that the group takes to achieve the objective. Some reports list the actions implemented, without necessarily linking them to the entity's overall policy to reduce their carbon footprint. Overall, the content of the reports published in 2017 and 2018 has not evolved much. The groups generally did not describe the implementation of their long-term objectives or progress from one year to the next in achieving them.

Beyond the communication made by insurance groups on their climate risk management policies, the published reports were the subject of numerous comments by observers, foremost among which were many NGOs. These communications also serve to inform the general public on the recognition of the ESG criteria in the risk management of insurers by increasing the visibility of their publication. While the effects of the transparency effort imposed by regulation are still limited after two years of enforcement, eventually they should become more visible.

For a better consideration of climate risk by French insurers

Reading the reports published under Article 173 of LTE makes it possible to identify some areas of improvement for better consideration and management of climate change risk among insurers.

First, **institutions need to define their climate risk management strategy more precisely**. This requires an appropriate definition of the risk and its integration into the overall strategy of the entity. Having in place an ESG policy is not enough to justify the implementation of a climate risk management policy as the part related to the environment requires to be specified according to the problems raised by climate change. Institutions must also identify the potential impact of the occurrence of this risk on both their assets and liabilities. This goes beyond taking into account the transition risk associated with holding certain assets. The management of physical risk is not limited to the management of natural disasters in non-life insurers, as assets may also be subject to physical risk. Similarly, the adequacy of the integration of climate change risk in asset management relative to the nature of liabilities deserves clarification. Last but not least, the strategies described by insurers rarely go beyond a declaration of principles. Formulating targets –be them precise figures, or those expressed in the national low carbon strategy or the Paris Agreement– will enable a better readability of the actions implemented and their effectiveness over time.

To address climate change risk, institutions need to adapt their governance system on a number of issues, first by defining and formalising the role and responsibility of governance bodies (especially senior management) in monitoring climate change risks. In particular, the distribution of responsibilities between risk management, investment management and the CSR function should be specified. Similarly, governance rules must establish the means and procedures to monitor progress towards the objectives and possible revisions of the objectives. Finally, institutions need to develop and fully integrate the metrics used in assessing climate change risks, even if part of the analysis is outsourced to a service provider. The availability of an asset rating is useful for decision-making, being easy and readily understandable; however, the methodology for setting the rating should be monitored in order to accurately integrate the findings of the service provider's work into the overall risk management process and the ALM management of the entity.

Insurers are expected to use metrics to understand climate change risk and to develop a true forward-looking analysis. While the carbon footprint is a very useful metric for assessing the risk of a portfolio of assets or liabilities, this measure remains historical and does not assess the exposure of this portfolio to climate change risk. Similarly, on the liability side, non-life insurers, which are most adversely affected by climate risk, cannot use movements in the loss ratio as the single metric. The adoption of a taxonomy to precisely define "green" assets will be helpful in evaluating the state of insurers' portfolios on both the asset and the liability sides. However, insurers cannot avoid the use of scenarios to develop a forward-looking analysis of their portfolios. Such scenarios may, for example, rely on very different assumptions: increases in temperatures (to 1.5°C, 2°C or even 4°C), breaks in public climate policies (through the introduction of binding regulatory standards), technological innovations (carbon capture) or changes in consumer behaviour.

Finally, the legislator has called for the integration of climate change risk by insurers to be accompanied by **increased transparency requirements**. By publishing their report under Article 173 of the LTE, institutions need to find the right balance between the technical expertise developed on this topic and the popularisation necessary to ensure a good understanding of the strategy of insurers for consumers and investors. They also need to avoid the temptation of announcement effects on these measures –albeit popular but with limited impact– and prioritise long-term objectives with genuinely significant impact, means to achieve them and progress since the target was set.

Annex: questionnaire submitted to French insurers in September 2019

A Identification of reporting entity

B Identification of climate change risks

1 Your institution has (several possible responses):

- an internal definition of climate change risks: Yes/No?
- a risk analysis process (ESG) associated with climate change, across all or part of your institution (assets and/or liabilities): Yes/No?

2 Does your institution distinguish different types of risks in its definition (tick if it is separately included in the analysis)? (several possible responses)

- Physical risks: defined as the exposure to physical consequences directly induced by climate change. Illustrative examples: risks associated with an episode of drought or heat wave, with exposure to shoreline or an area that can be exposed to flood, episodes of storms, responsibility for environmental damage, etc.
- Transition risk: defined as the exposure to developments induced by the transition to a low-carbon economy. Illustrative examples: risks associated with adverse commodity price developments on the producer and exporting sectors, with the evolution of energy markets—in particular macroeconomic, sectoral or counterparty risks as a result of rising energy prices, the strengthening of environmental standards, non-compliance, technological risks, reputational risks related to the financing of certain activities, etc.
- Liability risk: risks related to potential complaints for damages related to global warming, external (customers) or internal (shareholders) pressures, the stigma of funded sectors, the brand image, etc.
- Other, to be specified.

C Measurement of risks on the asset side

3 Is your institution able to identify and measure its exposures to these risks on the asset side?

- Yes, on all assets.
- Yes, on part of the assets.
- No.

For physical risk, how granular is the analysis? (several possible responses)
- At the sector level of the issuer.
- At the geographical area level.
- Other, to be specified.

For transition risk, how granular is the analysis?
- At the sector level of the issuer.
- At the geographical area level.
- Other, to be specified.

4 On which criteria is an exposure identified as vulnerable to these risks?

Criteria selected for physical risk (several possible responses).
- Sectors of the issuers.
- Geographical location.
- Other, to be specified.

Criteria selected for transition risk (several possible responses).
- Sectors of the issuers.
- Geographical location.
- Other, to be specified.

5 In particular, do you know the carbon footprint of your asset portfolios (corporates, sovereign, French regions)?
- Yes, on all the portfolio.
- Yes, on part of the portfolio.
- No.

6 What are the sources of (external or internal) information used by your institution to measure these risks?

7 What tools do you use to measure the materiality of these risks? Tick if used by the institution (several possible responses).

- Carbon intensity of the portfolio, i.e. the carbon footprint of turnover or business value.
- Sensitivity tests.
- Analytical identification of most exposed sectors or geographical areas.
- ESG rating.
- Decomposition of the portfolio into green/brown segments – the brown share corresponding to fossil energy exposure and in particular to thermal coal exposure.
- Portfolio alignment measure with a scenario 2°C.
- Other, to be specified.

8 Without communicating them to us, are you able to list the top 10 in-house (sub-) business areas (NACE) in which your entity invests?
- Yes, at the latest level (NACE code X.00.0.0).
- Yes, at an aggregate level.
- No.

For each of these (sub-)sectors, are you able to specify the risks associated with them, their materiality and the considered time horizon?
- Yes, at the latest level (NACE code X.00.0.0).
- Yes, at an aggregate level.
- No.

D Measurement of risks on the liability side

9 Is your institution able to identify and measure its exposures to these risks on the liability side?
- Yes, on the whole.
- Yes, partly.
- No.

If yes, at which level of granularity? Tick if available (several possible responses).
- At the insurance business line level.
- At the industry level (for professional policyholders).
- At the geographical area level.
- Other, to be specified.

10 What are the sources of (external or internal) information used by your institution to measure these risks?

11 What is the main criterion for measuring exposure to these risks?
- Insurance business line.
- Business area (for professional policyholders).
- Geographical location.
- Other, to be specified.

12 What tools do you use to measure the materiality of these risks? Tick if used by the institution (several possible responses).
- Climate scenarios.
- Analytical identification of most exposed sectors.
- Other, to be specified.

13 Do you know the carbon footprint of the undertakings you insure?
- Yes, on the whole liability portfolio.
- Yes, on part of the liability portfolio.
- No.

14 Without communicating them to us, are you able to list the top 10 (sub-) business areas (NACE) insured by your institution?
- Yes, at the latest level (NACE code X.00.0.0).
- Yes, at an aggregate level.
- No.

For each of these (sub-) sectors, are you able to specify the risks associated with them, their materiality and the considered time horizon?
- Yes, at the latest level (NACE code X.00.0.0).
- Yes, at an aggregate level.
- No.

15 At which level of geographical granularity do you measure your physical risk?
- Continent.
- Country.
- Region.
- Department.
- City.
- More finely, specify.

16 Did you subject your insurance portfolio to a major stress test?
- Yes.
- No.

If yes, tested period:
- 50 years,
- 100 years,
- 200 years,
- Other, to be specified.

E Response to climate risks identified

17 Tick among the following proposals what measures your institution has taken to contain the risks identified on the ASSET SIDE (several possible responses).

- Implementation of sectoral policies to limit investment in non-green sectors.
- The revision of sectoral limits to reduce investment in non-green sectors.
- Implementation of specific monitoring.
- Implementation of an awareness-raising policy on climate issues in the business teams responsible for investment.
- Investment targets in the green sectors.
- Objectives of portfolio decarbonisation.
- Specific engagement policies to induce firms to engage in the energy transition or to reduce their carbon footprint.
- Hedging strategies by climate derivatives.
- Other, to be specified.

18 Tick among the following proposals what measures are planned by your institution to contain the risks identified on the ASSET SIDE (several possible responses).

- Implementation of sectoral policies to limit investment in non-green sectors.
- Revision of sectoral limits to reduce investment in non-green sectors.
- Implementation of specific monitoring.
- Implementation of an awareness-raising policy on climate issues in the business teams responsible for investment.
- Investment targets in the green sectors.
- Objectives of portfolio decarbonisation.
- Specific engagement policies to induce firms to engage in the energy transition or to reduce their carbon footprint.
- Hedging strategies by climate derivatives.
- Other, to be specified.

19 Tick among the following proposals what measures are taken by your institution to contain the risks identified on the LIABILITY SIDE (several possible responses).

- Implementation of a sectoral policy.
- Implementation of a geographical policy.
- Non-renewal of policies for risky customers/sectors.
- Revision of sectoral limits.
- Implementation of specific monitoring.
- Pricing adjustment.
- Upstream engagement with policyholders to encourage the integration of climate stress.
- Implementation of an awareness policy on climate issues in business teams.
- Monitoring the portfolio risk level to ensure diversification.
- Reoptimization of the amount of risk ceded to reinsurers.

20 Tick among the following proposals what measures are taken by your institution to contain the risks identified on the LIABILITY SIDE (several possible responses).

- Implementation of a sectoral policy.
- Implementation of a geographical policy.
- Non-renewal of policies for risky customers/sectors.
- Revision of sectoral limits.
- Implementation of specific monitoring.
- Pricing adjustment.
- Upstream engagement with policyholders to encourage the integration of climate stress.
- Implementation of an awareness policy on climate issues in business teams.
- Monitoring the portfolio risk level to ensure diversification.
- Reoptimization of the amount of risk ceded to reinsurers.
- Hedging strategies by climate derivatives.
- Other, to be specified.

21 Without communicating them to us at this stage, are you able to accurately calculate the costs on your current exposures to major catastrophic events in France (2016 Seine flood, 2003 heat wave, 1999 storm, etc.) and, if applicable, abroad (depending on your international locations, e. g. Hurricane Katrina in 2005)?
- Yes.
- No.

22 Has your institution reviewed its methodologies for assessing these risks following these events?
- Yes, it has already been completed.
- Yes, ongoing.
- No.

If yes, specify.

F Monitoring climate change risks

23 Have you identified staff responsible for monitoring these risks?
- Yes.
- No.

If yes, how many staff members are identified to monitor these risks (in number of FTEs)?

24 Specify their department. Detail the scope of intervention of the teams responsible for monitoring these risks and how they interact with the CSR/sustainable development function.

25 Has your institution developed internal reporting for monitoring its exposure to these risks?
- Yes.
- No.

26 Are the challenges associated with climate change taken into account in your internal risk measurement models (validated or not by the supervisor)?
- Yes.
- No.

Where applicable, how and to what granularity?

27 What are your actions to improve the recognition of these risks in the risk management framework?

28 Does your ORSA report include an assessment of climate risk?
- Yes.
- No.

If yes, is the associated level of risk:
- Low,
- Medium,
- Elevated,
- Very high.

If not, the reason why this risk was removed from the valuation.

G Exercise of stress tests

29 What stress testing scenarios would you consider most relevant for your group? (several possible responses)

- On your assets.
- On your liabilities.
- Other, to be specified.

30 What economic or financial data would you need to carry out sensitivity studies on your climate change risks? (several possible choices)

- Change in the price of securities in sectors seen as strong greenhouse gas emitters (e. g. fossil energy prices).
- Level of rise in temperature.
- Content of public policies (example: carbon tax, CO2 emissions regulation, taxation, etc.).
- Other, to be specified.

31 Rank the risks below by sensitivity to climate change shocks (1 being the least sensitive, and 5 being the most sensitive).

- Counterparty.
- Shares/corporate bonds.
- Sovereign.
- Real estate.
- Underwriting.

32 In addition to the above list, what risks should also be considered?

33 What is your projection horizon (in years) for potential internal stress tests (e. g. in the ORSA) for climate risk?