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ADAPTATION

I4CE
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The adaptation of real estate: what roles can the financial sector play?

Initial overview and insights on banks, insurers and asset managers

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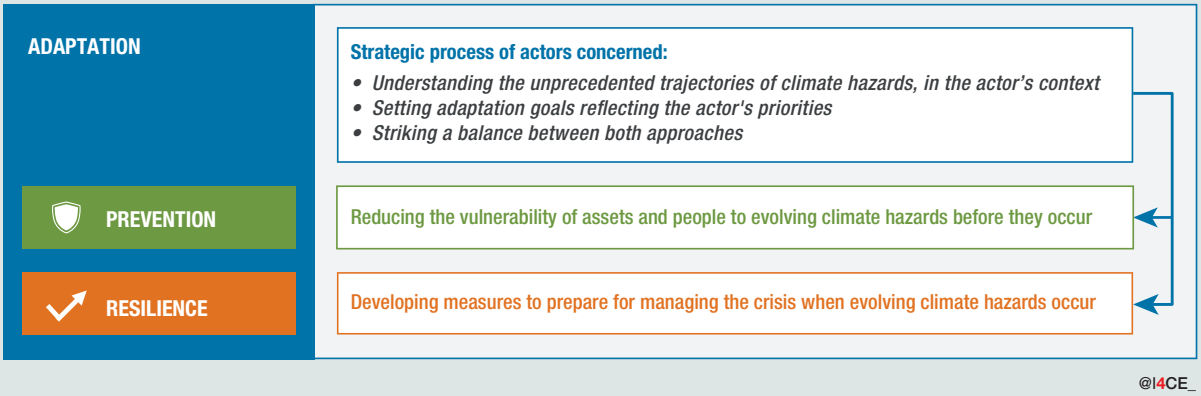
SUMMARY

The need to clarify the role of banks, property insurers and asset managers in real estate adaptation

As the effects of climate change become increasingly evident (EEA, 2024), stakeholders in the real estate sector must prepare for the consequences of global warming, which could reach +4°C in France by the end of the century. The challenge for the real estate sector ranges from preventing climate-related damage (for example, relocating properties in areas at increasing risk of flooding, installing shutters to protect against increasingly frequent heatwaves) to building resilience in times of crisis (for example evacuation plans for hazards that are becoming more intense, reconstruction efforts).



(*) NB: The term "prevention" has traditionally referred to approaches aimed at preparing for historical risks. However, in this report, it refers to adapting prevention strategies to the context of climate change, incorporating a forward-looking approach to the unprecedented evolution of climate risks.

This raises the question of how the costs of adaptation will be covered. It is currently estimated that these costs amount to at least billions of euros per year for heatwaves alone, to which are added the costs of adapting to floods and the problem of shrinking and swelling of clay soils. As the use of public finance tools becomes increasingly restricted, questions arise regarding the potential role of commercial financial actors, alongside public actors, households and businesses.

This exploratory report aims to lay the groundwork for a dialogue on the potential role of commercial banks, property insurance companies and asset management firms in supporting investments for real estate adaptation and providing appropriate financial services. It draws on initial testimonies from financial institutions and real estate professionals in France, as well as a literature review.

In the context of its capital provision activities, the financial sector could be expected to support real estate stakeholders in their adaptation efforts

Financial actors may see an interest in real estate adaptation, both in terms of market opportunities (financial services they can offer, the ability to differentiate themselves by being proactive on the issue) and in terms of limiting their own risks. For example, the profitability of a real estate company's shares could decrease if it falls behind its peers on adaptation issues.

Financial actors have several tools at their disposal to support **real estate stakeholders** in adaptation.

Asset managers (on behalf of their investors) and banks provide **capital** (loans and investments) that can be useful for real estate stakeholders to adapt their own activities or to develop offerings to enable others to adapt. Insurance companies, in turn, promise capital in the event of damage. These financial service activities give bankers, insurers and asset managers the capacity to influence the entire adaptation process of real estate stakeholders, from **various angles**, as illustrated in the **Figure page 5**.

In practice, the financial sector has so far shown limited momentum in real estate adaptation

While there are mixed responses from asset management firms, banks are generally less advanced and tend to defer the issue to insurers. Insurers, on the other hand, are aware of the importance of prevention for their business, which is primarily focused on resilience. However, at this stage, their action to support prevention is more about raising awareness among policyholders than taking on the costs of necessary actions Where resilience is concerned, public policy is essential to ensure the solidarity objective of the French public-private *Cat Nat scheme* and the involvement of insurers.

Several trends could explain why this subject is struggling to gain traction among financial actors

Many French banks and some asset managers have yet to fully explore the commercial opportunities of real estate adaptation, as they do not spontaneously see an interest in it. At first glance, adaptation is seen as an additional cost that is hard to offset by an increase in property value, and the performance of adaptation solutions is still not well measured. Furthermore, real estate stakeholders themselves have not yet generated demand for adaptation-related financial services, having struggled from the outset with the development of an adaptation strategy[1]. There is also an entry cost for banks and even asset managers, which are generally ill-equipped to support real estate stakeholders in developing their adaptation strategies and, ultimately, in generating demand for financial services. Thus, adaptation often loses out in the financial institution's priority setting, with more attention given to the low-carbon transition, for example, where efforts have already begun.

More specifically in the case of banks, their approach to climate issues has centred around financial risk management, particularly in real estate. This has not yet motivated them to engage in adaptation. This can be explained by an initial focus on net-zero transition issues once more, followed by difficulty conducting prospective analyses of physical risks and demonstrating their significant impact on banks. Moreover, even if it is proven that physical risk for real estate can propagate to the bank, it remains difficult at this stage to assess the impacts of adaptation measures in terms of reducing the bank's financial risk. Finally, financing adaptation also means that banks increase momentarily their exposure to the physical risks of stakeholders while they actually adapt.

Where insurance and prevention companies are concerned, some actors that have proactively developed prevention offerings note a lack of interest from their clients. There are also difficulties mobilising insurers due to economic considerations about prevention. Insurers are traditionally ill-equipped to promote prevention. Moreover, the short-term nature of property damage insurance

1 For example, real estate companies are struggling to ensure the issue gains traction internally due to the lack of demand for adaptation in the real estate market, difficulties defining adaptation objectives, and the lack of a structured professional sector for implementing adaptation, etc.

policies can limit the profitability for the insurer of covering prevention costs for their policyholders. These costs may also exceed the insurer's compensation or their ability to effectively incentivise the policyholder by reducing their premium.

The Cat Nat scheme, recognised as necessary by all, still needs to be adjusted to avoid diminishing accountability among stakeholders in the prevention chain. On the one hand, its major benefit is that it provides broad coverage for households and businesses against climate-related disasters. Every policyholder pays the same additional premium, regardless of their risk exposure or their prevention efforts. This coverage perspective is ultimately reinforced by the unlimited guarantee provided by the state. On the other hand, policyholders have no economic incentive to engage in prevention, as their premium remains unchanged. Insurers, who bear the risk, also see their losses capped by the scheme, which does not encourage them to make further prevention efforts[2]. Bankers in turn consider that the scheme covers them from physical risk and the need to encourage adaptation. However, the scheme has been undermined by the evolution of climate damage in recent years, and many actors are calling for an adaptation strategy for the Cat Nat system. This could include incentives for real estate stakeholders and financial actors to engage more in prevention.

Public action is needed to drive real estate adaptation, by gradually engaging financial actors

New measures, identified by the mission on the insurability of climate risks in France, could be implemented. One example is mobilising insurers in a mechanism that sanctions higher-income policyholders who refuse to undertake prevention efforts.

Next, the broader mobilisation of financial actors should be seen as complementary, but cannot replace other changes directly concerning the real estate sector environment (such as building regulations). Furthermore, as real estate project developers gain a better understanding of the economic profile of actions to adapt their activities[3], this should raise clearer questions about the roles of insurers, banks and asset managers (for example, which assets have a business case that could justify involving them? Is there a need to develop specific products?).

Alongside these developments, it would be useful to continue to explore the tools available to financial actors (outlined in the **Figure page 5**), and the potential adverse effects that could arise as they take ownership of the issue (for example, through financial risk management). To do so, it would be helpful to better identify the connections between real estate and financial activities, and how they operate in real-world contexts.

2 Through the unlimited stop-loss retention treaty provided by the Caisse Centrale de Réassurance.

3 It is worth noting that a lot is already known about the cost profiles of measures to adapt to various hazards. Existing information should thus be more widely shared with all real estate stakeholders, as well as with financial actors who have not yet explored the topic beyond their initial assumptions about the low economic appeal of adaptation.

TOOLS AVAILABLE TO FINANCIAL ACTORS TO DRIVE ADAPTATION, IN CONNECTION WITH THEIR FINANCIAL SERVICE ACTIVITIES: SOME HYPOTHETICAL EXAMPLES

Source: I4CE.

INTRODUCTION

Context: a growing focus on adaptation issues, calling for clarification of the financial sector's role

The issue of climate change adaptation is increasingly present in the public debate in France, driven by preparations for the 3rd National Climate Change Adaptation Plan (PNACC3), which is aimed at preparing the country for a +4°C temperature increase by the end of the century. This adaptation will come at a cost, which will vary according to the strategies adopted by the territories and sectors. For example, to adapt buildings to heatwaves alone, I4CE currently estimates that these costs amount to at least billions of euros per year[4].

This raises the question of the role different actors could play in covering these costs. As the use of public finance tools becomes increasingly restricted, attention is shifting towards the potential of commercial financial institutions – banks, insurance companies and asset management firms – to drive investments or provide suitable financing solutions.

However, the potential for action by commercial institutions is still unclear. Their operational dynamics are inherently technical. The issue of adaptation adds a layer of complexity, and financial institutions still communicate very little on this matter.

The dialogue on financing adaptation needs a solid foundation in order to move beyond certain assumptions and to clarify the role these actors could play. For example, it is easy to assume that insurers would have a direct interest in financing actions to reduce vulnerabilities, whereas in reality their business model might lead them to withdraw from markets that become too risky – as shown by the growing insurance challenges faced by municipalities.

A status report on the role of the financial sector, in the case of real estate adaptation

Objective

This report is intended for public actors involved in adaptation policies within the economy or in the functioning of the financial sector. The goal is to provide them with the foundations to discuss the roles that financial actors could play in supporting adaptation.

To achieve this, the report takes stock of adaptation needs in the real economy and examines current dynamics in the financial sector to address these needs. It also offers insights into the behaviour of financial actors and their broader environment, with the goal of informing the discussion on the prospects for engaging financial actors.

However, this exploratory study does not aim to provide an exhaustive framework for the contribution of financial actors to adaptation in the real economy, or to structure an order of priorities for actions by the various stakeholders.

Sectoral focus on real estate

To clarify the roles the financial sector could play in adaptation, we focus our study on its capacity to meet the adaptation needs of real estate in France.

Indeed, adaptation needs and strategies are dependent on local and sectoral contexts, in terms of climatic conditions, exposure and vulnerability, the configuration of interactions between stakeholders, and the political nature of certain choices.

This study focuses on the real estate sector for two reasons. First, it is a field where the understanding of adaptation needs is particularly advanced, both among field actors and financial stakeholders. This makes it an interesting case study for exploring the role of financial actors. Second, the adaptation challenges within this sector are considerable, as outlined in other studies cited in this report.

4 For more information on these estimates, see the table on p.22 in the I4CE report "Anticipating the impacts of a 4°C warming: what is the cost of adaptation in France?" (I4CE, 2024a).

Structure of the report

The Scope and methodology section specifies the types of properties, real estate stakeholders and financial actors considered in the study, as well as the components of adaptation. It also details the information sources used in preparing this report. **Section 1** illustrates what might be expected from the financial sector in terms of real estate adaptation. **Section 2** explains why the financial sector is currently lagging in this area. **Section 3** examines the challenges behind this limited engagement. The **Conclusion** calls for reflection on the public policy framework that could help to drive real estate adaptation, involving the financial sector where appropriate.

SCOPE AND METHODOLOGY: REAL ESTATE, THE FINANCIAL SECTOR AND AN ANALYSIS OF ITS ROLE IN ADAPTATION

REAL ESTATE

Scope of real estate: the properties and actors concerned

This report discusses the role of the financial sector in the adaptation of real estate to climate change in the French context. It focuses on both new and existing properties (for retrofitting, rehabilitation, or for which no operations are planned), whether for residential or commercial use.

In terms of actors, this report defines "real estate" or the "real estate sector" as all stakeholders involved in the supply and demand for land and buildings, including:

- Professions involved in construction and retrofitting (planners, real estate project developers, building tradespeople, etc.) and the use of properties (social landlords, real estate investment companies, property managers, etc.).
- Companies operating outside the real estate sector, households and local authorities, all key "real estate" stakeholders, especially in their capacity as occupants and/or owners of land and buildings. Local authorities, for example, are involved in negotiations with developers regarding the use of their land, in the context of calls for projects. They may also be owners and users of buildings[5].

FINANCIAL SECTOR

Scope of the financial sector: types of actors and their connection with real estate

The study defines the financial sector as encompassing all financial professionals with a commercial focus. This excludes public financial institutions, regulators and supervisors from the scope of the "financial sector" as referred to in this report[6].

The report first examines French commercial banks, insurance companies and mutual insurance companies involved in damage insurance and, to a lesser extent, asset management companies.

The term "insurance", as used in this report, includes mutual societies. These are characterised by the fact that their "members" own the society as well as being its clients. Other areas of insurance (e.g. health insurance, life insurance) are not covered in this report.

The study examines the various connections between the financial sector and real estate: the ownership of real estate assets by financial institutions; the provision of services related to real estate, such as real estate loans for households and businesses; ownership of equity shares in real estate companies; insurance products, etc.

5 Local authorities are also responsible for organising urban planning within their territory. They play a key role in regulating the activities of the real estate sector, households and companies in this field. This is reflected, for example, in: the Local Development Plan (PLU), which may go beyond the requirements set by state representatives; the issuance of building permits, validating projects submitted by other real estate sector stakeholders; a right of compulsory purchase with compensation; etc.

6 This report nevertheless refers to public financial institutions, including the Caisse Centrale de Réassurance, as partners of the financial sector. The role of financial sector regulators and supervisors is also mentioned.

Scope of adaptation: "prevention" and resilience

In this study, the term "adaptation" encompasses everything that can be done to anticipate the adverse effects of climate change and to qualify the appropriate measures to prevent or minimise the damage that these effects may cause.

This includes "prevention" actions (risk reduction in advance) and "resilience" actions (managing risk when it occurs). For more information on adaptation, see **section 1.1** of this report.

Methodology and analysis sources

This report is based on:

- A series of semi-structured interviews with professionals from the real estate sector (developers, social housing providers, real estate investment companies, construction company representatives, etc.), as well as representatives of private or public financial institutions, whether specialising in real estate or not (banks, insurance companies, reinsurance companies, asset management companies, subsidiaries working in real estate). Most of the institutional representatives who responded to our invitation work in departments specialising in sustainability issues.
- I4CE's internal expertise on adaptation issues and the engagement of the financial sector in climate action;
- A literature review of adaptation issues in real estate in France and attempts to structure the financial sector's action on adaptation.

The goal of this study was not to provide a comprehensive overview of the actions of French stakeholders, but rather to gather a range of key testimonies and perspectives, with a view to exploring the important questions that need to be addressed.

As a result, the institutions interviewed were selected based on their activities concerning the physical impacts of climate change and adaptation to these impacts, or based on their importance in the sectoral landscape.

1. WHAT MIGHT BE EXPECTED FROM THE FINANCIAL SECTOR IN TERMS OF REAL ESTATE ADAPTATION

This first section explains why the financial sector might be expected to take an interest in real estate adaptation. It first explores why the financial sector might address the issue, then how it could act to support further adaptation of real estate.

In particular, this section of the report lays the foundations for understanding what is meant by the term "adaptation": a strategic process balancing prevention and resilience approaches.

1.1. Why the financial sector could be expected to address the issue

Buildings are exposed to climate risks and have adaptation needs, which could have implications for financial stakeholders, which are highly exposed to real estate in various ways.

1.1.1. Real estate: a sector that is highly exposed and vulnerable to climate change

The physical impacts of climate events on the real estate sector are not a new issue. In France, until the early 1990s, there were no building regulations in place to prevent construction in high-risk areas. As a result, much of the building stock is highly exposed to hazards, with many structures located in flood-prone areas or areas susceptible to shrink-swell (that is, the shrinking and swelling of clay soils) or coastal flooding, among other problems. Furthermore, at that time, there were no regulations establishing construction practices to avoid or mitigate climate impacts, leaving the building stock particularly vulnerable.

Climate events thus cause physical damage to buildings (even destruction), often requiring costly repairs and affecting property values. They also impact the usability of buildings, which may become uninhabitable or unusable during heatwaves, for example, leading to health consequences for occupants or productivity losses for businesses.

Today, climate change is exacerbating this problem by expanding high-risk areas (and therefore the proportion of buildings exposed) or by intensifying climate events within a given area. For example, OID (2024a) estimates that 78% of single-family houses will be highly or very highly exposed to the risk of shrink-swell with a 4°C temperature rise in France (compared to 35% with a 2°C rise).

This tends to increase the economic consequences of these events, and if no action is taken to adapt, the costs are likely to be even higher (I4CE, 2024b). By way of example, CCR (2023) estimates that average annual insured damages due to shrink-swell could reach 2.1 billion euros by 2050 (in the RCP 8.5 scenario), compared to 726 million euros today and 266 million euros in the 2000s, with exceptional years like 2022 already seeing insured damages reach 3.5 billion euros (CCR, 2024).

1.1.2. The necessary adaptation of buildings

In response to these escalating impacts, the real estate sector (construction professionals, users, etc.) must adapt its construction, retrofitting and property use practices. Adaptation means implementing a set of actions to anticipate the adverse effects of climate change and identifying appropriate measures to prevent or minimise the damage these effects can cause[7].

1.1.2.1. Adaptation can focus on two main approaches: prevention and resilience

As explained in **Figure 1**, at the building level, the goal is to implement actions that help to:

- **Prevent the occurrence of impacts** by reducing the number of exposed buildings or making buildings more robust to cope with climate hazards. For example, this could include reinforcing foundations in areas prone to soil movement, installing flood barriers, adding solar protection systems to avoid overheating in summer, or adapting materials and construction or retrofitting techniques to new climate conditions (OID, 2024b).

7 The IPCC defines adaptation as follows: "In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects". https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_AnnexVII.pdf

- **Better manage the impacts when they occur**, for instance through early warning systems or crisis management plans, as well as actions that contribute to accelerating a "return to normal" with rapid compensation mechanisms. This is what this report refers to as "resilience".

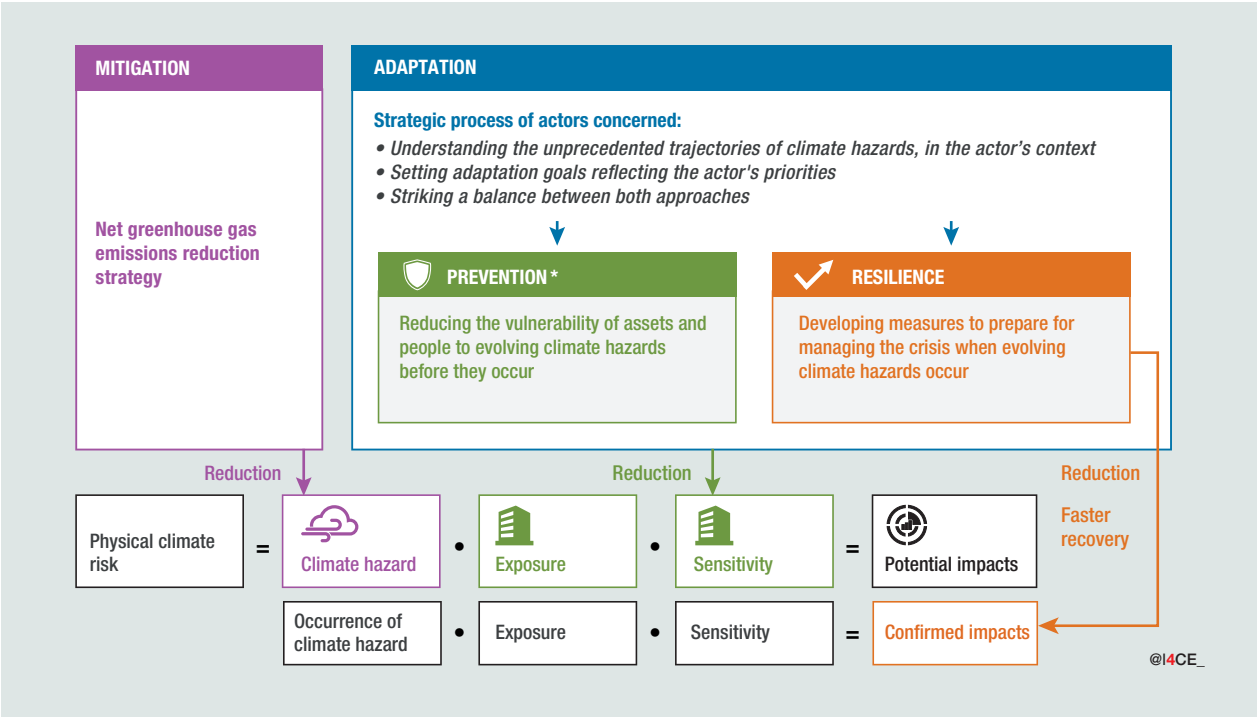
1.1.2.2. Real estate adaptation strategies still need to be developed according to stakeholder preferences

There is no quantified adaptation target, similar to the 2050 carbon neutrality target, which is based on greenhouse gas emissions measurements. Nor are there scenarios providing a clear picture of what adaptation could mean in the coming years. This lack of a shared vision is partly due to the relatively recent focus on the issue. In comparison, mitigation is already the subject of collective discussions, such as the preparatory work for the different national low-carbon strategies, which have helped to converge towards common objectives. **Similar discussions still need to be developed for adaptation in order to gradually define sectoral objectives**, such as a maximum annual compensation level for insured damages, or a required level of continuity for public services during extreme events.

These targets will be partly differentiated by actor according to the level of risk each is willing to accept. Thus, the types of responses resulting from adaptation strategies could vary considerably. In the case of flood adaptation for a building that houses a highly sensitive activity or population, for example, the decision could be to make the building flood resistant in order to keep the population in place, or to relocate the sensitive activity to a less exposed area.

However, these objectives will also need to be shared at the sectoral or territorial levels to ensure the coherence and effectiveness of adaptation decisions. For example, in the case of flood risks, community-level actions can often be far more effective than building-level actions, or those implemented jointly at both levels. Consequently, while these adaptation strategies must be carried out by each actor individually, the interdependencies between these different actors (occupants, owners, financiers, insurers, regional authorities, etc.), levels (building, neighbourhood, city) and sectors (building, transport infrastructure, etc.) also require a certain level of coordination (I4CE, 2024a).

FIGURE 1. ADAPTATION: A STRATEGIC PROCESS BALANCING PREVENTION AND RESILIENCE TO ADDRESS CLIMATE RISKS



* NOTE: The term "prevention" has traditionally referred to approaches aimed at preparing for historical risks. However, in this report, it refers to adapting prevention strategies to the context of climate change, incorporating a forward-looking approach to the unprecedented evolution of climate risks.

Source : I4CE.

1.1.3. The financial and real estate sectors are closely linked throughout the life cycle of buildings

Whether for construction, retrofitting or building use, the real estate sector almost always relies on financial services, on both the supply side (planners, developers, etc.) and the demand side (households, businesses, local authorities, etc.), as shown in **Figure 2**.

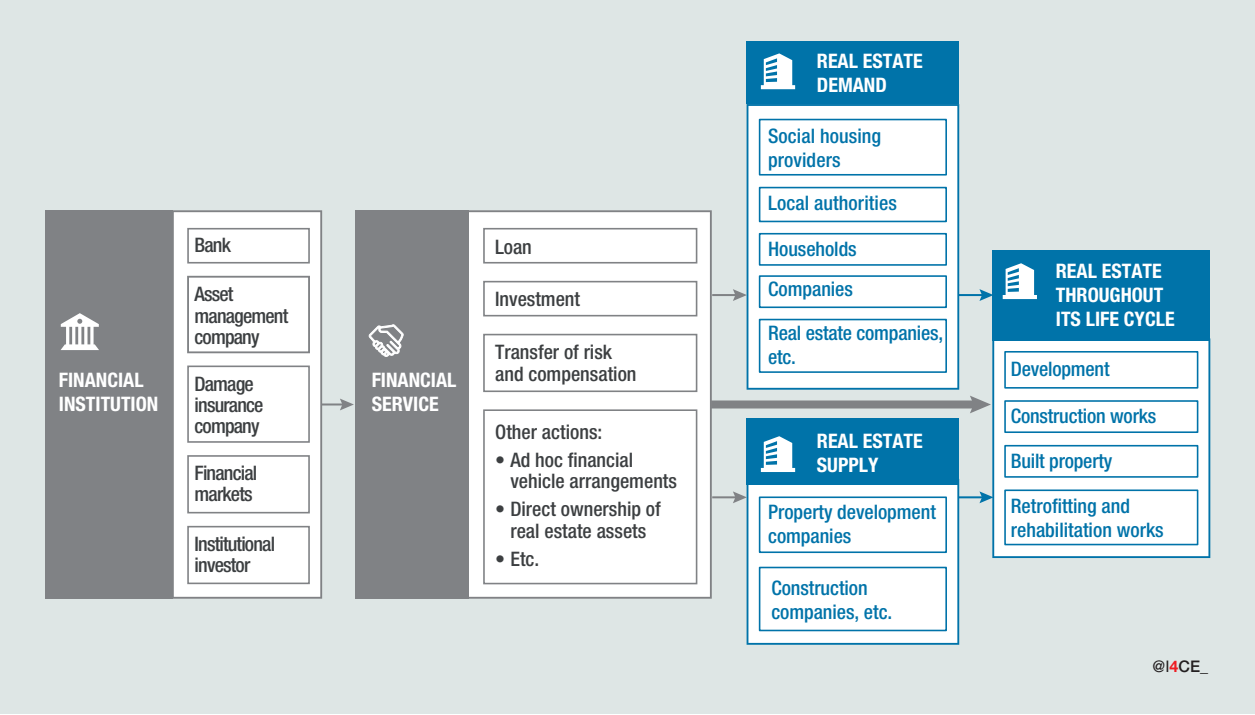
These services, which are provided throughout the life cycle of buildings, are structured around three key areas:

Real estate financing. The purchase, construction and retrofitting of property require significant capital. When actors lack the funds to implement their real estate projects, they can finance them through bank loans. For example, individuals take out real estate loans to purchase property or consumer loans for retrofitting works. Businesses (developers, landlords, etc.) also use bank loans to finance their projects, and may borrow on the financial markets by issuing bonds.

Real estate investment. Simply put, this involves acquiring an ownership stake in property. In practice, it engages various types of financial actors on both the supply and demand sides of the real estate sector. For example, a private or professional investor (damage insurer, life insurer, pension fund, etc.) can entrust their funds to an asset manager, which invests them in the real estate sector. This can involve buying: shares in real estate companies (developers, real estate investment trusts, etc.), shares in financial vehicles such as SCPIs[8], real estate debt portfolios, directly owned real estate, and so on. Financial institutions may also hold real estate for their own account, for example to accommodate their activities or for investment purposes.

Real estate insurance. This plays a key role in property protection and risk management. For example, home insurance covers individuals against damage from disasters, while inherent defects insurance guarantees repairs of defects for 10 years after delivery.

FIGURE 2. THE FINANCIAL SECTOR PROVIDES MULTIPLE SERVICES THAT LINK IT TO REAL ESTATE



Source: I4CE.

8 A Société Civile de Placement Immobilier (SCPI) is a structure, or "financial vehicle", that owns real estate, and investors hold shares in the SCPI. This is a non-listed investment.

1.1.4. The financial sector should assess its risks and opportunities related to climate impacts and real estate adaptation challenges

The impacts of climate change on real estate can lead to risks for financial actors, as illustrated by the following (non-exhaustive) examples.

Banks and real estate lending. In the context of climate change, banks may incur losses, for example through the real estate loans they provide to individuals to purchase property. The increasing frequency of natural disasters may reduce households' ability to pay their real estate loan instalments, due to factors such as job loss related to companies also affected by these events, among others. Moreover, once the borrower defaults on repayment, the bank may struggle to recover the remaining amount loaned. This is the case, for example, if the bank was relying on the sale of the property (used as collateral), which may have lost value due to climate impacts.

Real estate asset management. Multiple risks can be considered here. For instance, real estate asset managers might see climate impacts as a risk to the safety of property occupants. This could have repercussions for the financial institution, in terms of liability and reputation, but also financially, for example due to difficulty leasing certain properties or the need for repairs. Investment in a construction company could also be less profitable than planned if the company struggles to integrate adaptation challenges into its projects, and gradually becomes less competitive in the market. Repeated impacts on unprotected properties can also lead to accumulating repair costs, and generate stricter insurance compensation conditions, ultimately reducing the return on investment targeted by the asset manager.

Property damage insurance. For damage insurers, the issue of "risk" in general is different. Indeed, their business relies on the existence of risk. The insurer charges the client for an insurance policy, in return for which they agree to compensate the client if the covered risk occurs. Insurers can offer this service at an attractive price due to the principle of "risk pooling", as explained in **Box 1**. However, climate change could lead to higher claims for damages, affecting many policyholders in various geographical areas simultaneously and repeatedly over time. This may challenge the effectiveness of the risk pooling system: in this case, insurers will struggle to maintain coverage at affordable rates due to the growing number of claims.

Adaptation could, in turn, be attractive to financial actors if it enables them to limit their exposure to risks for their activities. For example, in 2015, Henri de Castries, then CEO of AXA, stated that *"a two-degree increase in the average global temperature may still be insurable, but what is certain is that a four-degree increase is not"*[9]. This means that insurers would benefit from thinking about not only the resilience provided by their insurance policies, but also the idea that this activity needs to be complemented by other actions. With this statement, Henri de Castries seemed to target the absolute priority: mitigation. In terms of adaptation, prevention strategies can also help insurers greatly in limiting the total amount of claims.

Financial institutions could also see value in adaptation if it enables them to deploy commercial opportunities: new offerings for new business segments; differentiating their brand in the market, and so on.

Real estate stakeholders expect the financial sector to mobilise on this issue. Expectations are even higher given that the **CSRD**[10] **and the EU Taxonomy**[11] require real estate companies to disclose how they are adapting, in order to inform their financial stakeholders.

Building on the idea that financial actors might have a (spontaneous or incentivised) interest in adaptation, how could they make a tangible contribution to it?

9 https://www.leparisien.fr/economie/business/special-cop21-un-monde-plus-chaud-de-4-degres-sera-impossible-a-assurer-selon-le-pdg-d-axa-30-11-2015-5326047.php

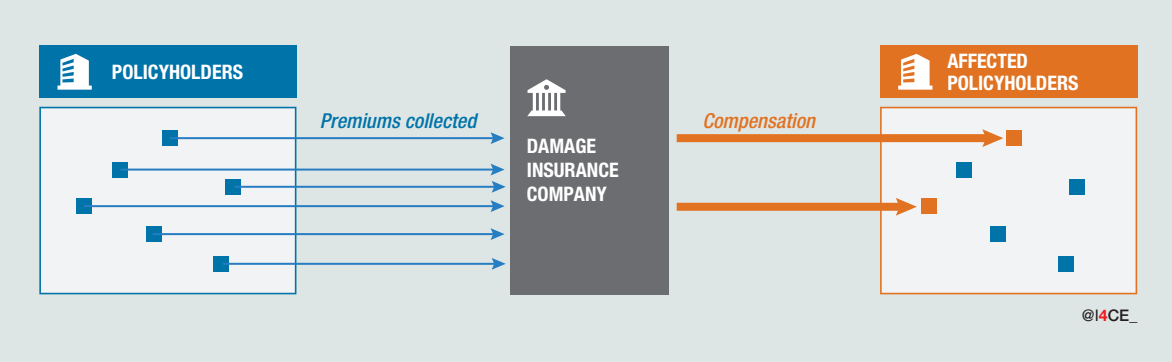
10 The EU Corporate Sustainability Reporting Directive (CSRD) is available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464

11 For more information on the EU Taxonomy for sustainable activities and its approach to adaptation, see the publication by the Observatoire de l'Immobilier Durable (2024d) "Updating of guidelines for the application of the European Taxonomy in real estate" referenced at the end of this report.

Box 1: The principle of risk pooling in insurance

Risk pooling allows the policyholder to take out an insurance contract (or "policy") for an amount lower than the potential damages the insurer agrees to compensate in the event of a claim.

To do so, the insurer collects premiums (in other words the proceeds from selling policies) paid by a large number of policyholders in a common pool. These funds are used to compensate the small number of policyholders who will actually experience a loss. Risk pooling thus requires the policyholder to agree to pay for others, knowing that one day they may benefit from it themselves. In this way, the insurer "pools" the risks of its clients, along with the resources to compensate them. This allows the policyholder to pay a small annual amount in exchange for compensation for a potentially much higher claim.



This principle of risk pooling makes insurance possible and profitable for both clients and insurers, under certain conditions. For example, the client pool should not be exposed to the same type of risk at the same time (in which case the insurer may lack the resources to compensate everyone simultaneously). A sufficient number of policyholders is also needed to reduce the cost for each individual in terms of premiums. To facilitate fair pricing of the policy, the probability of a risk recurring must also be well understood, and the number of clients must be large enough for their risk to align with this theoretical probability. Finally, the hazard must remain random and uncertain.

Sources: I4CE, from Ministère de l'Economie, des Finances et de la Souveraineté Industrielle et Numérique (2024); France Assureurs (2022).

1.2. How the financial sector could theoretically play a role in real estate adaptation: providing capital and driving the process

By providing financial services to real estate stakeholders, financial institutions can facilitate the adaptation of buildings in many ways. The elements discussed below are proposals by the authors, based on their expertise in adaptation, analogies to the ways financial actors are mobilised for transition issues, and discussions with the stakeholders interviewed. This selection of actions is presented to stimulate discussions and is not intended to be exhaustive.

1.2.1. Financial services can provide the capital necessary for adaptation

Banks, asset management companies and damage insurance firms provide financial services that, in their most obvious form, involve supplying capital, or promising to supply it. In doing so, they can make a direct contribution to real estate adaptation, in terms of both prevention and resilience.

Through the provision of insurance policies, damage insurers have a key role to play in the **resilience** of real estate to the impacts of climate change. Their primary service is offering risk transfer to their clients, a promise to cover the costs of disasters – especially those related to climate events – should they occur. Insurers may therefore find themselves in a position to provide capital to their policyholders in the event of a claim, in accordance with the policy terms. This capital can take the form of monetary compensation or the implementation of repairs. Through these repairs, insurers can also help to anticipate resilience to future hazards, a concept referred to as "build back better". This creates a direct linkage between efforts to build resilience to a hazard that has just occurred and the prevention of future hazards.

The provision of insurance policies also enables insurers to more broadly drive their policyholders' **prevention** efforts, in various ways, as illustrated in **section 1.2.2.**[12]

The banking sector, through loans, and asset managers, through investment products provided to investors (including damage insurers), are also in a position to provide the capital needed for adaptation, as shown in **Figure 3**[13].

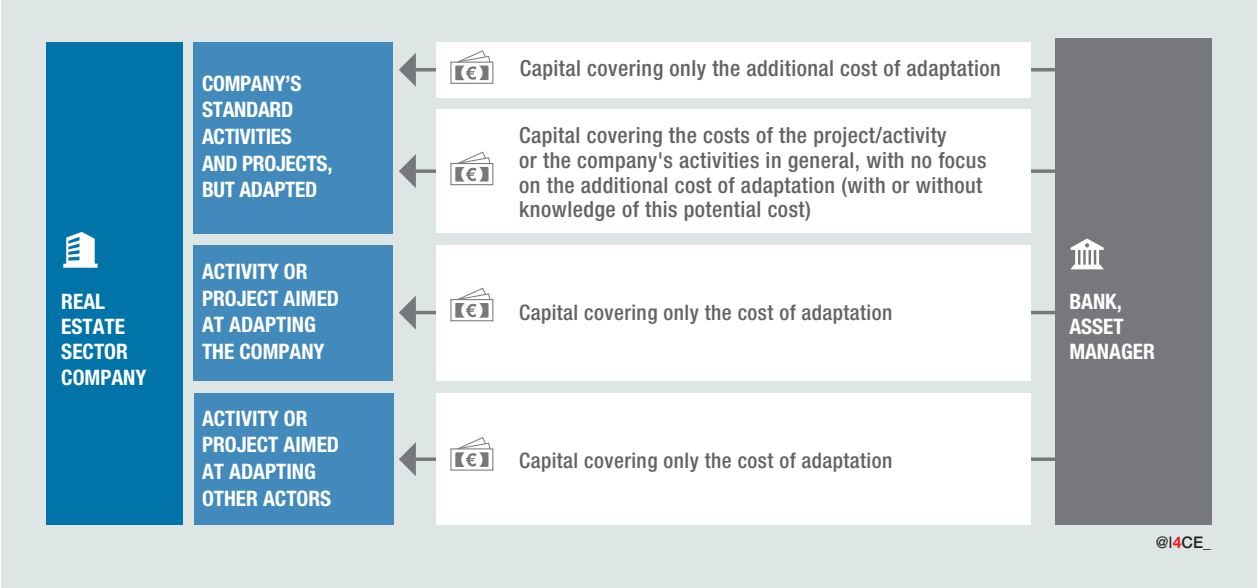
This may concern the **"resilience"** aspect of adaptation, for example if a homeowner borrows in order to complete repairs following a disaster. It can also concern the **"prevention"** aspect. For example, a company may need additional loans or equity to reduce the exposure and vulnerability of its own activities to climate risks. This could involve a project specifically dedicated to adapting its activities, or incorporating adaptation into the development of its core business activities. Alternatively, the company may may need additional loans or equity to develop activities aimed at improving prevention for other actors (such as the production and installation of flood gates on homes or business premises).

As illustrated in **Figure 3**, when a bank or asset manager provides capital (loans, equity) that contributes to adaptation, this capital is not necessarily earmarked solely for the additional costs of adaptation. For example, a banker might decide to provide financing for the company's overall project without specifically targeting the possible extra cost of adaptation.

12 Other financial services can contribute to resilience, such as risk transfer through financial markets (with CAT bonds, etc.), but these are not covered in this report.

13 They also provide other services that help to manage risk, for example guarantees where banks are concerned, or investment in derivative contracts where asset managers are concerned. Thus, as part of their capital provision activities, financial actors can contribute to the development of tailored financing schemes for adaptation, for example by integrating the participation of public actors, offering guarantees that can reassure commercial financial actors who would then be more inclined to participate in the scheme.

FIGURE 3. LOANS AND INVESTMENTS THAT CONTRIBUTE TO ADAPTATION: SEVERAL SPECIFIC CASES



Source: I4CE.

1.2.2. Financial services position the financial sector to more broadly encourage real estate stakeholders to adapt

Through their provision of financial services, financial actors can do more than just supply real estate stakeholders with capital for adaptation. Together, they also develop interactions before, during and after the provision of the service. These interactions can help financial actors to motivate, encourage, oblige or assist real estate stakeholders in their adaptation efforts. Financial actors will be likely to use this leverage for adaptation if they see the benefit of doing so for their activities and positioning, or if they are obliged to do so.

The paragraphs below provide a non-exhaustive illustration of the ways in which financial actors can potentially use their service activities to broadly contribute to driving adaptation in real estate. **Figure 4** summarises these ideas of leverage, depending on whether they are specifically linked to the "prevention" or "resilience" components of adaptation, or more generally to any adaptation process. The lines with a money pictogram represent the capital that financial actors provide to real estate stakeholders through financial services. The lines without this pictogram illustrate the range of actions that financial institutions can implement more broadly for real estate adaptation, closely or loosely linked to these financial service activities.

1.2.2.1. Engaging in dialogue to contribute to decision-making, raise awareness or challenge

Financial institutions are in direct interaction with real estate stakeholders through insurance agents, bank account managers, and contacts between asset management companies and the entities they invest in. This enables them to maintain a dialogue throughout the delivery of the financial service: when preparing to sign the contract, during the life of the financial service, and when planning its renewal[14]. This dialogue can have various forms and purposes. The following paragraphs provide **a few examples of the role of each type of financial actor**.

For example, acting on behalf of an investor who entrusts them with funds, **an asset manager** may invest in shares of a real estate company, thereby becoming a co-owner of the company. This gives them the **right to vote** on the selection of projects implemented by the company and on decisions regarding sources of financing. The investor can thus steer discussions with the company's management and other shareholders about integrating adaptation into the company's activities, if they see it as being in their interest in terms of risks and opportunities, or if they are obliged to do so. A shareholder with a minority stake in the company can team up with other shareholders to exert more influence on decisions.

An insurer can also engage in a form of dialogue with real estate stakeholders, whether they are clients or prospects, for example to **raise awareness** of climate

14 The connections between financial actors and real estate stakeholders are complex. Not all of them offer the same potential for the financial actor to impact the adaptation process, whether in terms of driving the approach or providing financial services.
For example, a financial asset manager's real estate portfolio may contain real estate debts purchased from another actor. In this case, the manager inherits the outstanding loan repayments under the terms already negotiated between the borrower and their original creditor. This leaves little room for the manager to influence the borrower in the adaptation of their property.
When a developer seeks to finance a project, the timing of when investors and financiers are involved plays a key role in determining how much influence these financial actors have over the integration of adaptation.

risks as well as prevention and resilience actions. This can help them to adopt better adaptation reflexes, reducing the losses to be compensated in the event of a disaster and ensuring the safety of policyholders. Similarly, the Assurance Prévention association, set up by France Assureurs, informs policyholders about road traffic risks and measures to prevent them.

A bank can also engage in dialogue with its client, for example when renewing a loan, in order to **challenge** them on their adaptation efforts. The bank may require information on the client's adaptation strategy in order to conduct its own risk analyses, to monitor its participation in real estate adaptation, or to inform its internal strategy and reporting. It may therefore request such information, signalling to the client the importance of adaptation, with the offer of possible rewards for their efforts, or the risk of less favourable loan conditions otherwise.

Indeed, engagement – as observed on the issue of the low-carbon transition for companies – can be part of an **"escalation strategy"**. When the dialogue and recommendations from the financial institution are not enough to improve the client's approach, the institution can move up a gear and act on the conditions for granting, maintaining or renewing its services to the client.

1.2.2.2. Changing the conditions of financial services to encourage adaptation efforts

Financial institutions could **adjust** the conditions of their financial services according to the adaptation efforts of their stakeholders. For example, **a bank** could introduce bonuses or penalties depending on its counterparty's good practices or lack of effort on adaptation, by modifying interest rates (if the bank has access to a cheaper resource or if its client is less risky), loan amounts and repayment schedules, or adding special clauses. This would complement the distribution of loans with more favourable terms offered by public actors.

Another possibility is that access to financial services could be **conditioned** on actions related to adaptation. For example, an **insurance policy** could lead to certain compensations on the condition that the beneficiary carries out a property climate resilience assessment, develops and implements an adaptation plan, and so on.

An asset manager could also **develop** investment products, such as a thematic fund, accessible only to actors engaged in an adaptation process. This would enable them to spark investor interest in the topic and to open up a new segment of financial activity. Similarly, an investment bank could assist a real estate stakeholder in structuring a bond issue targeting their adaptation efforts.

1.2.2.3. Providing operational support for stakeholder's adaptation efforts

Financial actors can also make practical contributions to the adaptation efforts of real estate stakeholders, through their expertise, their networks and their connections to various other stakeholders, and so on.

Financial actors can help to create the enabling conditions for adaptation by real estate stakeholders. For example, an insurer could provide the insured company with data and analytical tools to assess its exposures.

Further along the adaptation process, some insurers are already implementing resilience measures for their policyholders. They send SMS alerts to clients to warn them when a risk is imminent and to remind them of the actions to take during a crisis (such as, in the case of flooding, advising them not to retrieve their car from the basement, as doing so could result in drowning).

In cases where preventive and/or resilience work is needed, insurers could, for example, direct their policyholders to the appropriate professionals, using their knowledge of local actors.

Financial actors could also provide support beyond the stakeholders directly linked to their financial services. For example, insurers could offer their technical expertise to local authorities. These authorities provide a general framework for the adaptation strategies of real estate stakeholders located in their territory, who may be direct clients of the financial institutions.

FIGURE 4. TOOLS AVAILABLE TO FINANCIAL ACTORS TO DRIVE ADAPTATION, IN CONNECTION WITH THEIR FINANCIAL SERVICE ACTIVITIES: SOME HYPOTHETICAL EXAMPLES

Source: I4CE.

1.3. The "Cat Nat" scheme: a key element of the French context that significantly shapes insurers' actions on resilience

In France, insurers are involved in pooling natural disaster risks, with strong regulation by the state through the "Cat Nat" scheme. The increasing number of claims in recent years has led to deficits in the scheme, exposing its weaknesses in light of changing risks (partly driven by climate change). This has raised concerns about its long-term sustainability. As a result, the state is steering the development of an adaptation strategy for the system, which is shaping the prospects for engaging the insurance sector, in terms of adaptation.

1.3.1. An objective of broad, solidarity-based coverage set by the state

Before the Cat Nat scheme was introduced, insurance coverage for households and businesses in France was very limited for risks of flooding, storms, landslides, and so on. Public aid was also minimal compared to the scale of the damage. As a result, the French government established the Cat Nat scheme to compensate victims of natural disasters through the law of 13 July 1982[15].

The goal was to provide all French citizens with broad protection against "direct material uninsurable damage, caused by the abnormal intensity of a natural event", in accordance with the French Constitution, declaring the "solidarity and equality for all French citizens in bearing the costs of national disasters" (Bidan and Cohignac, 2017). The solidarity-based nature of the scheme means that those who are less exposed to natural disasters pay for those who are more exposed.

1.3.2. An objective pursued by a public-private mechanism relying on insurers

Facilitated by the high penetration rate of "damage" insurance in France, the Cat Nat scheme relies on the mechanisms and networks of the insurance industry, with strong regulation by the state (CCR, 2022). The public-private partnership involves insurers, a public reinsurer (the Caisse Centrale de Réassurance or CCR), and the state. **Box 2** describes how the public-private mechanism involves insurers while pursuing its objective of broad, solidarity-based coverage.

This system helps to minimise state intervention. In comparison, in Germany, the lower insurance penetration rate requires urgent state intervention during extreme events, since the level of solidarity is dependent on political choices and the response is very costly for public finances. For example, following the floods of July 2021, public aid for reconstruction stood at around 30 billion euros (50% from the federal budget, 50% from the Länder) (IGA *et al.*, 2023).

1.3.3. A mechanism not designed to cope with a changing climate

When the natural disaster compensation system was set up in 1982, it was not intended to address the challenges posed by climate change. The additional premium set by the state to fund the system was thus based on the assumption that risks would remain stable, without factoring in the increasing risks associated with climate change.

As a result, the system has had to cover increasing impacts in recent decades: the average annual insured damages covered by the Cat Nat scheme have all increased since the 2000s (partly due to climate change), while the additional premium rate has remained unchanged over the same period (25 years with no adjustment). With costs rising and resources remaining relatively constant, the CCR reserves have sharply declined, leading to a **major structural imbalance** estimated at around 1.2 billion euros per year (Langreney *et al.*, 2023). By the end of 2024, the CCR equalisation reserve[16] fell to nearly zero (Lavarde, 2024).

To address this imbalance, an increase in the additional premium rate, requested by the CCR along with many insurance and institutional actors, was approved on 1 January 2025. This is expected to boost resources by 1.5 billion euros per year (Lavarde, 2024). This increase will help to make up for previous shortfalls and provide some financial recovery for the scheme. However, stakeholders have raised concerns about the need to ensure the long-term balance of the system to avoid future issues, and are calling for complementary actions to achieve this (see **section 3.3**).

***

Overall, financial institutions are thus expected to take an interest in the issue of real estate adaptation and to be in a position to drive its development.

But what is actually being done? What steps have financial institutions already taken regarding adaptation? Is it possible and relevant to engage them further? Under what conditions?

15 Law No. 82-600 on compensation for victims of natural disasters.
16 Provision intended to cover fluctuations in claims related to insurance operations.

Box 2. Participation of insurers in the solidarity-based Cat Nat scheme

The broad coverage of natural hazards is based on the complementarity between risks covered solely by the insurance market, and other risks, known as "uninsurable", which are included in the Cat Nat scheme. The boundary between these two categories is not fixed. Currently, standard insurance policies cover the material impacts of hail, the weight of snow and ice on property, and storms, excluding powerful cyclonic winds[17]. Hazards included in the Cat Nat scheme traditionally include landslides related to abnormal drought episodes, flooding (runoff, rising groundwater, etc.), extreme cyclonic winds, and so on. (CCR, 2022)[18].

Insurers are required to offer Cat Nat coverage and to collect its funding whenever they sell property damage insurance. They have a legal obligation to provide individuals[19] with Cat Nat coverage as an extension of their property damage insurance policies (for example, as an extension of home multi-risk insurance (MRH) for households, or professional multi-risk insurance (MRP) covering business premises). This covers policyholders against direct property damage caused by a disaster. If the business has taken out "business interruption" coverage, the Cat Nat scheme also extends to these losses, resulting from direct property damage caused by the disaster[20]. Standard clauses that more specifically define this coverage are regulated[21]. When the insurer provides Cat Nat coverage, they also collect the additional premium.

The state sets the pricing conditions for the solidarity-based Cat Nat coverage included in insurance policies. The solidarity of the system is reflected in a mandatory Cat Nat premium rate that is the same for all policyholders in France, regardless of their exposure to natural disaster risks. From 1 January 2025, for example, this stands at 20% of the premium for the property damage coverage in the basic policy for real estate[22]. In the event of a natural disaster, the deductible, which is set by the state, must be paid by the policyholder.

The activation of Cat Nat coverage is decided by the public authorities and supported on the ground by insurers. Affected municipalities request state recognition of a natural disaster, which is then confirmed through an interministerial decree, in accordance with the conditions laid down by law[23,24]. Insurers must inform policyholders affected by a natural disaster, assess their damage and offer them compensation quickly, in line with regulatory requirements[25].

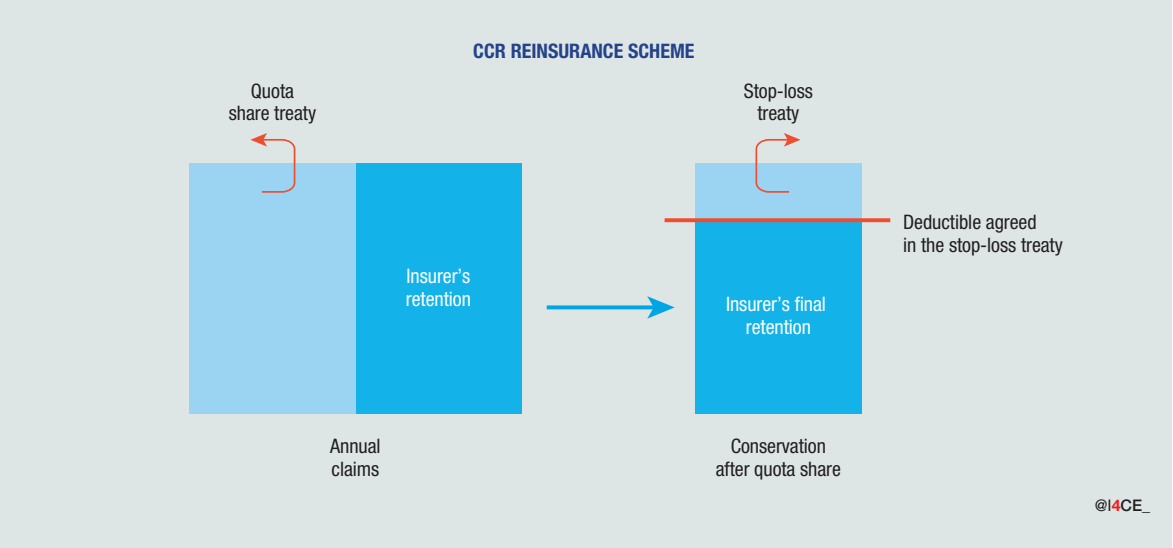
Public actors (CCR, state) ensure the solvency of the solidarity-based mutualisation scheme involving insurers. Insurers are required to extend Cat Nat coverage to their policyholders without any limit on their commitment (except for the deductible, which must be paid by the policyholder), and they cannot set the premium freely. This can impact the insurer's solvency.

To address this, the Caisse Centrale de Réassurance (CCR), which is 100% state-owned, offers two types of "reinsurance treaties", in other words insurance policies for insurers:

- The first is a quota share reinsurance treaty. The insurer cedes 50% of the premiums collected to the reinsurer, and in return the CCR covers 50% of the claims. Since the insurer is required to cede a percentage of its entire damage portfolio (auto, home, business, etc.), this ensures a shared, mutual responsibility between the two institutions, avoiding the temptation to cede only the "bad risks" (bad policies) to the reinsurer.
- The second is a "stop loss" treaty, which covers the insurers "retention", in other words the portion not ceded in the quota share. The reinsurer intervenes when the total annual claims exceed a deductible known as the "priority", which is at least 200% of the premiums retained by the insurer. This helps to protect the insurer against frequency risks, meaning the repetition of multiple hazards in a single year (such as shrink-swell), by limiting the insurer's loss to twice the premiums they retained.

17 "Storms, snow and hail" (TNG in French) coverage is mandatory in all property insurance policies (home multi-risk, business multi-risk, etc.). (Préfet de la Manche, 2023).
18 It should be noted that the hazards covered by the Cat Nat scheme are regularly the subject of debate. For example, including the risk of marine submersion but not coastal erosion creates complex compensation situations. The current inclusion of the risk of shrink-swell is also questioned, since this phenomenon is becoming better understood and more predictable, making it increasingly seen as a certainty rather than a risk.
19 More specifically, any individual or entity other than the state, for the coverage of property located in France (Article L125-1 of the insurance code). This can therefore include households, companies and local authorities.
20 Taking out damage insurance is not always mandatory, unlike MRH. However, in practice, MRH is taken out in most cases.
21 Article L125-2 of the insurance code.
22 Thus, the price of the basic policy for a factory is proportional to its risks, excluding natural disasters. It will depend on the value of the factory, its exposure and vulnerability to the hazards covered by the policy, excluding natural disasters. Depending on the nature of the policy, these hazards could include damage related to explosion risks or theft. If the basic price is 100 euros per year, the total price with the 12% Cat Nat premium will be 112 euros per year.
23 Article L125-1 of the insurance code.
24 This activation by the public authorities is subject to debate, particularly in the case of compensation for shrink-swell.
25 Article L125-2 of the insurance code.

FIGURE 5. CCR REINSURANCE: QUOTA SHARE AND STOP LOSS RETENTION



Source: https://www.institutdesactuaires.com/global/gene/link.php?doc_id=320&fg=1

Thanks to the State's unlimited guarantee, the CCR can reinsure insurers' losses with no cap, using its "unlimited" stop loss. Although insurers can use private reinsurers, the CCR actually holds around 95% of the natural disaster risk market in France. This is mainly due to the appeal of its unlimited stop loss, a capacity that private reinsurers lack (Marsaud and Rousseau, 2023). Furthermore, access to private reinsurers fluctuates with market conditions, which have tightened since 2023, limiting the growth prospects for private reinsurers in this area. Between 2015 and 2019, stop loss enabled insurers to halve their Cat Nat deficit (Langreney *et al.*, 2023).

As a result, the involvement of the CCR and the state plays a key role in maintaining the solvency of the compensation system as a whole.

Finally, the state's guarantee is only activated when claims exceed 90% of the CCR reserves. This system therefore also helps to minimise state intervention, and has proven effective: since its introduction in 1982, the state guarantee has only been activated once, in 2000 for the 1999 financial year, following storms Lothar and Martin (Lavarde, 2024).

2. IN PRACTICE, THE FINANCIAL SECTOR HAS SO FAR SHOWN LITTLE INTEREST IN ADAPTATION

This section provides an overview of the current state of engagement from banks, asset management companies and damage insurance firms regarding real estate adaptation. It outlines their attempts at action, their motivations and the challenges they face. The elements presented in this section reflect insights gathered from interviews, alongside findings from recent studies such as the "Mission on the insurability of climate risks in France", known as the "Langreney mission"[26]. Given the exploratory nature of discussions on this topic, the conclusions presented are intended to stimulate discussions with all stakeholders and are not meant to be exclusive, definitive or exhaustive.

Where banks and asset management companies are concerned, few actors have made significant progress so far. Internal efforts to drive adaptation are held back by the lack of an obvious commercial opportunity to justify taking up the issue (**section 2.1**). More specifically for banks, the climate risk management approach has yet to result in action on adaptation (**section 2.2**).

Insurance companies, on the other hand, appear to recognise the importance of climate risk prevention for the long-term viability of their activity. However, their involvement in adaptation is still limited. Some proactive stakeholders have seen their efforts hindered by limited demand. There are also difficulties in engaging insurers due to economic concerns around prevention (**section 2.3**). Regarding resilience to climate impacts, some insurers have not always acted in line with the solidarity objective of the Cat Nat scheme, highlighting the ongoing need for state regulation (**section 2.4**).

2.1. Banks and asset management companies: the lack of an obvious commercial opportunity puts the issue on a back burner

Many French banks and some asset managers have yet to fully explore the commercial opportunities of real estate adaptation, and do not spontaneously see an interest in it (**section 2.1.1**).

The issue is often set aside, as real estate stakeholders themselves have not yet generated demand for adaptation-related financial services (**section 2.1.2**). Furthermore, banks and asset managers are generally ill-equipped to support real estate stakeholders in developing adaptation strategies and, ultimately, in generating demand for financial services. Consequently, adaptation often loses out in the financial institution's priorities, with more attention given to the low-carbon transition, for example, where efforts have already begun (**section 2.1.3**). A few banks and asset managers have already taken up the issue, however (**section 2.1.4**).

This section of the report draws on discussions with financial actors as well as real estate stakeholders.

2.1.1. The commercial opportunity of real estate adaptation is not obvious for banks and asset managers

At first glance, adaptation to climate risks seems to conflict with the traditional management approach of these financial institutions. This approach places importance on short-term profitability relative to the risk incurred, with an asset-centred perspective, without spontaneously considering long-term and systemic issues.

However, the characteristics of adaptation are not consistent with these financial imperatives. At the level of real estate stakeholders, adaptation is seen as an additional cost that is difficult to offset by a benefit. This benefit is currently viewed mainly as the potential to limit any loss of property value, rather than generating added value through rental or sale, due to the lack of recognition of adaptation by the real estate market[27]. Moreover, it appears to be difficult for some financial actors to identify

26 This mission, launched in 2023 by the Minister for Ecological Transition and the Minister for the Economy, identified the challenges of the Cat Nat scheme and the role of insurers in preventing climate risks (and mitigating greenhouse gas emissions). It delivered its final report to the two ministers in April 2024.

27 This barrier is particularly pronounced for commercial developers, whose business model is based on optimising the balance between costs and selling prices, with adaptation increasing costs without any immediate impact on values. However, this observation is less significant for actors involved in building use, who sometimes take a longer-term view, enabling them to better integrate the benefits of adaptation over the duration of the presence (and use) of the asset in their portfolio.

effective solutions for adapting real estate to the impacts of climate change. This, in turn, limits the commercial opportunity for integrating adaptation into financial services.

A more in-depth examination of the profitability profiles of adaptation measures could, however, reveal potential opportunities for the real estate and financial sectors. As explained in **Box 3**, there is already a knowledge base on the profile of these solutions. This base could be expanded and shared more broadly within the real estate and financial ecosystem.

Box 3. Current knowledge on the cost and benefit profiles of adaptation measures in buildings

Real estate stakeholders, and some of the financial actors interviewed, have a good understanding of the adaptation solutions available for buildings:

The types of actions that can be implemented are well identified for most hazards. The Observatoire de l'Immobilier Durable (OID) summarises them in its guide to adaptation actions for climate change, which is widely known and used by real estate professionals (OID, 2024b).

For example, where heatwaves are concerned, actions could include building work overseen by a project manager, as shown in the **Figure in this box (page 24**). They can also involve non-construction measures, such as providing information on ways to prepare for a heatwave (closing shutters, etc.), or identifying safe areas in certain buildings in case of flooding in the surrounding area. In contrast, for shrink-swell, the most costly hazard for the Cat Nat scheme in recent years, current solutions remain expensive and still largely untested. R&D efforts are therefore needed to develop new solutions and to facilitate their large-scale deployment.

The costs of some standard actions are already known and can be relatively low:

The approximate costs of building-related actions are known, and were explored by a research project [28].

The cost of integrating adaptation into a retrofitting project can sometimes be zero. For example, for heatwaves, loft insulation works automatically entail adaptation (I4CE, 2024b). When there is an additional cost, it can sometimes be reduced if all actions are carried out simultaneously, such as installing ceiling fans and solar shading.

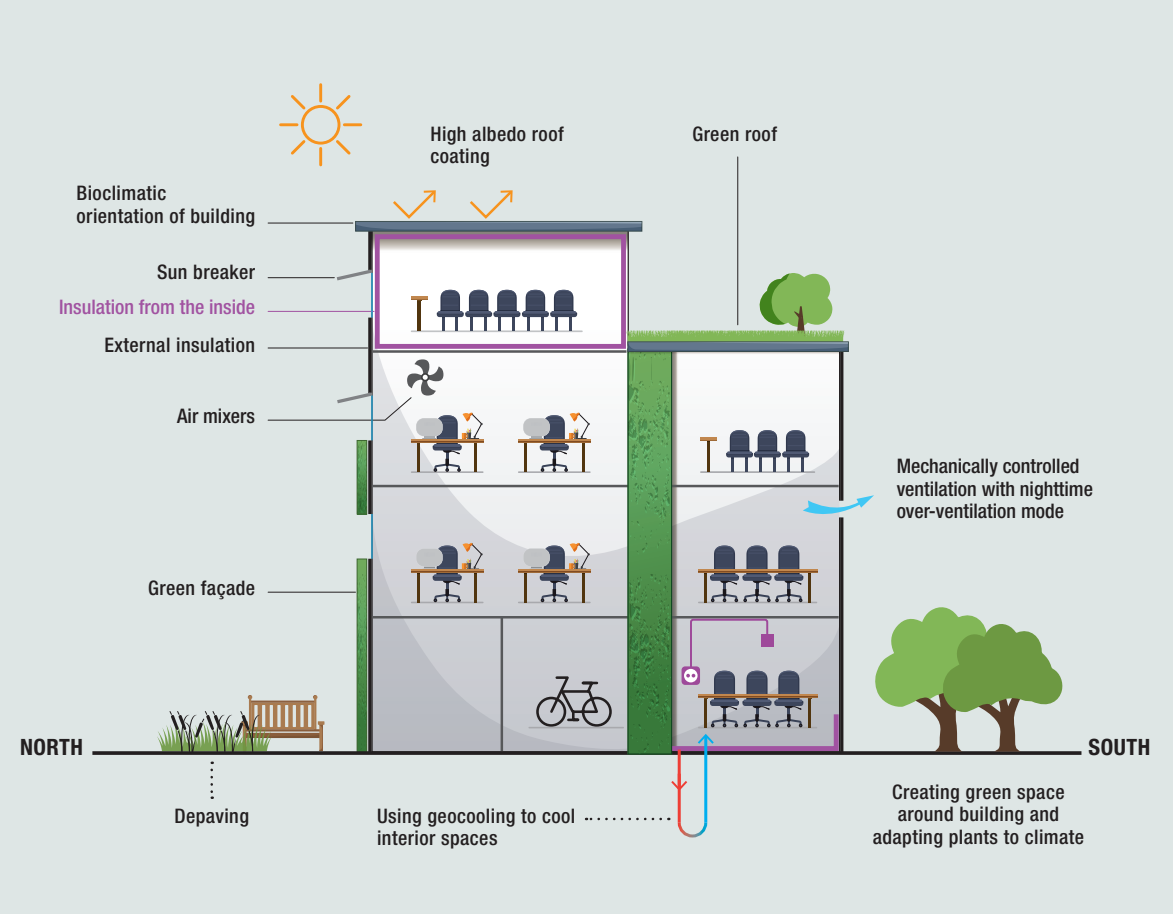
It is not certain that real estate stakeholders and financial actors are always fully aware of this information. The more advanced among them have typically turned to consultancy firms to obtain these estimates (often a lengthy process) or contacted professionals for quotes.

An incomplete evaluation of the economic profile of action packages in real estate projects

The estimation of benefits is not widespread. It would require a cost-effectiveness analysis of the different adaptation options (I4CE, 2024b), taking the local context into account [29]. In real-world situations, the need for action at the building scale can depend on the broader configuration of the area and the actions implemented by other stakeholders. For example, the flow of water towards a building depends on the topography and geometry of the neighbourhood and the territory, but also on the adaptation measures implemented at these different scales. A building's exposure to a heatwave depends on its location within an urban heat island, which is itself influenced by urban planning policies influencing neighbourhood greening, traffic density, etc. This complicates the understanding of the risks to which the building and its occupants are exposed, and the range of effective adaptation actions in these conditions.

28 https://www.i4ce.org/en/projet/economic-implications-of-adaptation-pathways-climate/
29 Some actors also note that projected costs could evolve as certain markets for adaptation solutions emerge, such as flood barriers.

FIGURE 6. OVERVIEW OF SOLUTIONS TO ADAPT BUILDINGS TO HEATWAVES



Source: I4CE (2024b) based on OID (2024b).

2.1.2. Demand for capital related to adaptation is slow to emerge among real estate stakeholders

In terms of demand for financial services, real estate stakeholders – households and businesses in the sector – have not yet expressed demand for additional credit or capital for prevention, or that integrate prevention. Real estate stakeholders are therefore not drawing banks and asset managers into the field of adaptation. However, discussions with real estate sector businesses show that some stakeholders are starting to question their financing needs in relation to adaptation, as explained in **Box 4**.

The lack of real adaptation projects discussed between real estate stakeholders and financial actors makes it difficult at this stage to draw on these discussions to identify the types of external financing that real estate stakeholders are likely to need, and whether adaptation meets the expectations of various financial actors in terms of economic profiles (cost, benefit, risk, time horizons). Consequently, it is also difficult to determine the need for financial innovation for adaptation, public-private partnerships, subsidised loans, and so on.

More generally, companies in the real estate sector face a range of challenges in developing a cross-cutting adaptation strategy within their activities, which would be a prerequisite for scaling up capital demands that integrate adaptation. These challenges, which can sometimes be linked to difficulties in assessing the economic profile of adaptation, are summarised in **Box 5**.

Box 4. Real estate stakeholders are starting to question their needs in terms of financing that integrates adaptation

Some real estate sector stakeholders in France, typically large public entities but also private companies, are making progress on their adaptation-related economic and financial challenges. Some are conducting resilience assessments of their own buildings to understand the risks and to assess the costs and benefits of adaptation actions in real situations (as explained in **Box 3**, it is important to determine what is happening on the ground to fully understand a building's adaptation needs). For example, CDC Habitat has developed its own tool, the Diagnostic Performance Résilience (with plans to make it publicly available), along with field surveys[30]. There are other tools for assessing climate risks to real estate, which typically need to be combined with a field analysis. One such tool, Bat-Adapt developed by OID, is often given as the reference (though it does not provide a granular assessment of costs)[31]. These analyses are often ongoing when actors are interviewed, meaning they do not yet have information on the cost-benefit profiles of action packages.

Extending these analyses to the entire building stock raises the issue of cost. Some actors are therefore working on (or have already developed) typologies of properties and standard situations with known vulnerability profiles, adaptation solutions that work, and their cost. This should enable them to apply the analysis conducted on a sample of properties to the whole portfolio.

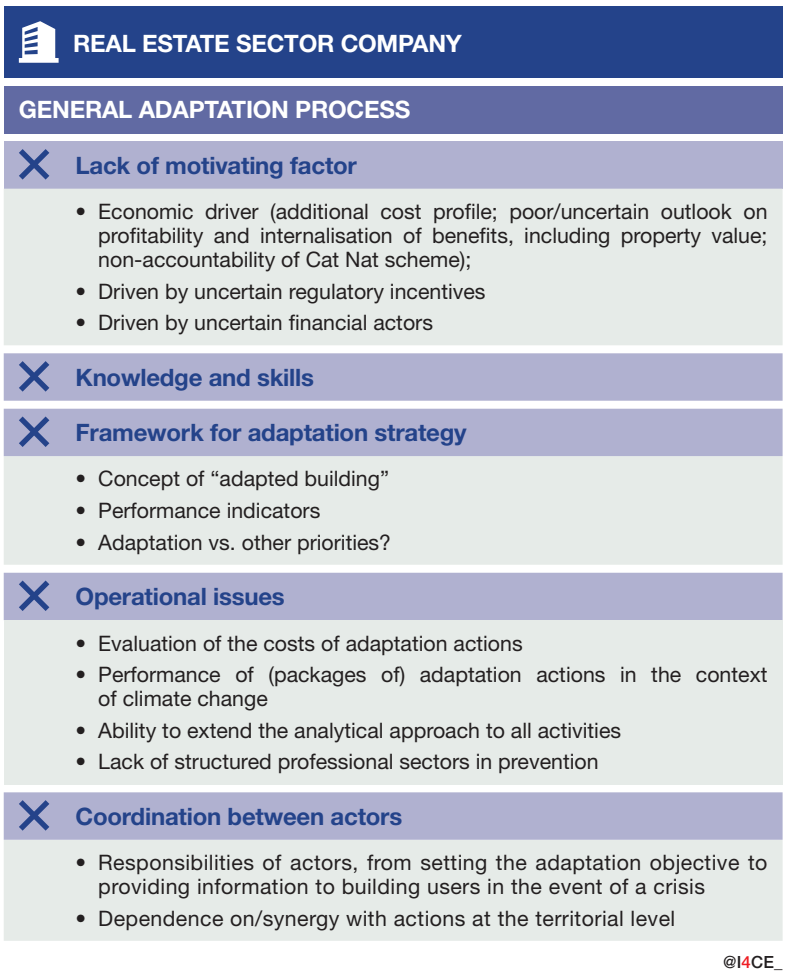
Other proactive real estate stakeholders have worked more directly to integrate adaptation actions into specific projects, relying on internal teams responsible for project planning and sustainable building issues. They first note that some planned actions, such as greening, already entail adaptation at no extra cost. However, they also observe that some actions will be too complex or costly to implement. No further details have been provided on the role of costs and profitability as a decisive factor in selecting actions.

The real estate sector has yet to discuss how integrating adaptation into its operations might interact with its current or potential financial stakeholders, or affect the allocation of its funds and the search for new capital. Some have views on the matter, hoping in particular to attract new investors through their commitment to sustainability issues, rather than through short-term economic arguments focusing on the project level.

30 https://groupe-cdc-habitat.com/actualites/article-magazine/un-diagnostic-pour-mesurer-la-resilience-du-patrimoine-aux-aleas-climatiques/
31 https://r4re.resilience-for-real-estate.com/resilience/analysis

Box 5. Challenges faced by real estate stakeholders in developing a strategy – some examples

FIGURE 7



The absence of a regulatory framework. Real estate stakeholders point out gaps in how climate change is integrated into regulations on natural risk prevention. For example, flood risk prevention plans (PPRi) have so far been based on historical flood maps[32]. When actors restrict themselves to regulatory requirements, these gaps delay their consideration of adaptation needs.

Benefits and limitations of the financial signal. Real estate stakeholders have found the European taxonomy to be the most helpful tool for driving their internal adaptation efforts. However, its limitations become apparent when it comes to putting these efforts into practice. Real estate stakeholders are also seeking to understand which adaptation measures could prevent their insurance conditions from deteriorating, or even whether insurers could reward their efforts with better terms.

The Cat Nat disincentive. Real estate stakeholders note that the Cat Nat coverage – with the state's guarantee as a last resort – will compensate them regardless of the situation. This undermines any potential incentive for real estate stakeholders to undertake works that could have reduced their repair costs following climate damage. Moreover, the system does not offer real estate stakeholders other incentives for adaptation, as prevention actions are not rewarded through lower insurance premiums or deductibles.

Knowledge and expertise on adaptation are limited throughout the real estate sector, except among some social housing providers and actors from large public or private groups.

The adaptation strategy framework. There is no "global framework" that defines what constitutes an adapted building, with measurable objectives, to guide real estate stakeholders in developing their strategy and provide consistency. Furthermore, it is difficult to identify how adapting to a hazard might conflict with other priorities (such as the low-carbon transition). Questions also arise about how to set priorities (for example, should social housing be built on a site chosen by the local authority, even if the building will be vulnerable to risks?) and who should enforce these priorities.

Operational challenges. The professional sectors with expertise in adaptation issues need to be structured. To function, they also require recommendations, for example on construction materials and building designs that perform well in the context of climate change.

Source: I4CE.

32 This should change with the implementation of the PNACC3.

2.1.3. A lack of interest from financial actors, compounded by the entry cost of supporting companies' efforts, and competition with other priorities

Banks and some asset managers are poorly equipped to provide added value to real estate stakeholders by helping them to tackle key barriers in their strategic adaptation efforts, as outlined above. This lack of internal tools also limits their ability to address adaptation in the provision and monitoring of their financial services. Banks are beginning to equip themselves to assess the exposure of their activities to physical climate risks (see the next section), but this process is still underway. For example, it remains difficult for them to assess the impact of the local environment on real estate adaptation. As a result, this entry cost contributes to the perception of limited commercial opportunity.

Financial actors thus tend to concentrate on higher-priority issues. In particular, they maintain their focus on mitigating greenhouse gas emissions, an area they have been involved in for some time, driven by clearer business opportunities and guidance from regulators and supervisors.

2.1.4. Some asset managers and banks are making progress on adaptation

On the whole, French commercial banks and asset management companies show a limited interest in adaptation. However, some actors see its strategic value and are committing resources to it. A small number of actors have been working on this issue for many years, incorporating adaptation recommendations into their managers' toolkits.

Some actors are also working to make progress on the subject internally, with the help of collective initiatives. For example, some have joined UNEP FI international working groups, one of which is dedicated to banks, within the framework of the Principles for Responsible Banking (UN PRB). This group has already produced a framework report, followed by a guide for setting adaptation goals in banks, and its work is ongoing (UNEP FI, 2022; PRB, 2023). Some actors are also interacting with specialised organisations such as the Observatoire de l'Immobilier Durable and the Institut de la Finance Durable, sometimes in the context of EU research projects (for example the Reachout[33] and ClimateFit[34] projects).

French actors may be involved in connection with international actors, for whom adaptation is sometimes a salient issue in their own regions, as is the case in the Netherlands[35]. They can also draw inspiration from the approach adopted by public banks, which are more naturally focused on the issue and are sometimes directly involved in collective efforts[36].

2.2. Banks and their approach to climate-related risks: the current dynamics have yet to generate interest in adaptation

Banks, driven by their supervisory and regulatory authorities, have started to mobilise their different teams on climate-related issues, which they recognise as a source of risks for their operations (**sections 2.2.1 and 2.2.2**). How could the management of these risks lead banks to prioritise adaptation?

At this stage in their process to analyse their exposure to these risks, banks have not yet fully addressed the question of adaptation and the role they could play in it. This is largely due to the scope of their analysis, which prioritises net-zero transition risks over climate risks and adaptation to these risks. Banks also tend to pass on the issue of climate risks to insurers (**section 2.2.3**). However, early experiments in managing physical climate risks are beginning to establish a tenuous link with adaptation (**section 2.2.4**).

33 https://reachout-cities.eu/about-reachout/
34 https://climatefit-heu.eu/
35 In the Netherlands, the management of "natural" risks has led to the financing of entire infrastructures, and dedicated financial institutions have been created for this purpose (e.g. NWB).
36 As explained by I4CE (2021a), public financial institutions can indeed support territorial actors in their adaptation strategy, for example, through technical assistance missions or the provision of capital.

2.2.1. Regulators and supervisors view climate issues as a source of risks for banks' operations

Before the intervention of supervisors, banks addressed climate issues from the perspective of corporate social responsibility (CSR). This approach is primarily aimed at ensuring the bank is climate responsible.

Bank supervisors then began to focus on climate issues as risks to the sector. This risk-based approach is in line with their prudential mandate: their role is to safeguard the financial system's ability to finance the economy. This entails first ensuring that the banking sector – and individual institutions – are resilient in times of crisis and, second, doing everything possible to prevent these crises from occurring.

The lens through which climate issues are viewed was highlighted in 2015 by Mark Carney (2015), then Governor of the Bank of England and co-chair of the Financial Stability Board (a G20 body working on risk management within the financial system).

The banking system is considered to be exposed to two categories of climate-related risks. The first category is physical climate risk. This refers to the risks arising from climate change, which can impact the economy and propagate to the banking sector, as explained in **section 1.1.4** of this report. There are two complementary ways to address this: adapting to the impacts of climate change; limiting human-induced climate change through the transition of the global economy to a world with net-zero greenhouse gas emissions.

This transition requires a major restructuring of economic activities: some will emerge, while others will change or disappear. Companies that fail to anticipate these changes and to prepare for the transition could face difficulties, such as struggling to repay their loans. This leads to the second climate-related risk: transition risk, in other words the potential losses banks may incur during the economic transition whose characteristics remain uncertain[37].

As supervisors have begun to view climate issues as a financial risk, they have become a concern for banks' risk management departments and thus for their senior management.

2.2.2. Supervisors have prompted banks to reflect on climate risks, in particular through "stress tests"

In practice, supervisors have engaged banks on climate-related issues using several approaches within the prudential framework. First, they have developed obligations for banks to disclose information about how they address ESG issues, including climate. Second, they have implemented prudential supervision measures, setting supervisory expectations for banks regarding their management of climate risks, conducting climate stress tests, and requiring banks to develop transition plans enabling them to manage their ESG risks, including climate.

The experience of climate stress testing illustrates how banks have engaged their internal teams on climate issues. These tests assess the resilience of banks to climate-related challenges and are coordinated by the ACPR and the ECB, the supervisors of French banks. The goal is to measure the financial stability of banks in the face of various transition and/or climate change scenarios. In the bottom-up version of this exercise, banks themselves are asked to run the supervisors' scenarios in their internal risk models. This requires banks to consider how the impacts of the transition and climate change will propagate to their banking activities, and ultimately to develop a strategy to address them[38].

Further to these efforts by supervisors to raise awareness among banks about their climate risks, banks could be expected to analyse their physical climate risks and to begin to consider the adaptation of their counterparties in the real economy (households, businesses, local authorities). However, this line of thinking has been sidetracked due to a limited interest in physical climate risks.

2.2.3. Banks have focused their efforts on transition risks and have largely passed on the issue of physical risks to insurers and the Cat Nat scheme

So far, banks – as well as supervisors – have concentrated most of their efforts on transition risks, rather than on physical risks and adaptation. Several factors explain this.

The transition is seen as the primary objective of climate policies. Transition risks are also relatively easier to analyse and manage than physical risks and adaptation to these risks. They have the advantage of being linked to measurable indicators of tonnes of greenhouse gases, and country indications of their transition targets. The transition is also a matter of economic restructuring, and its integration into bank models is more intuitive than the effects of climate variables.

Banks and supervisors took time to recognise that physical risks and adaptation were not just issues for economies less developed than France, and for the tropical regions. The physical consequences of climate change were initially viewed as a long-term risk, whereas in reality, these impacts are already being felt in the real estate sector.

Finally, banks and supervisors have largely viewed physical climate risks as an insurance issue. The perception that banks are protected from climate impacts through

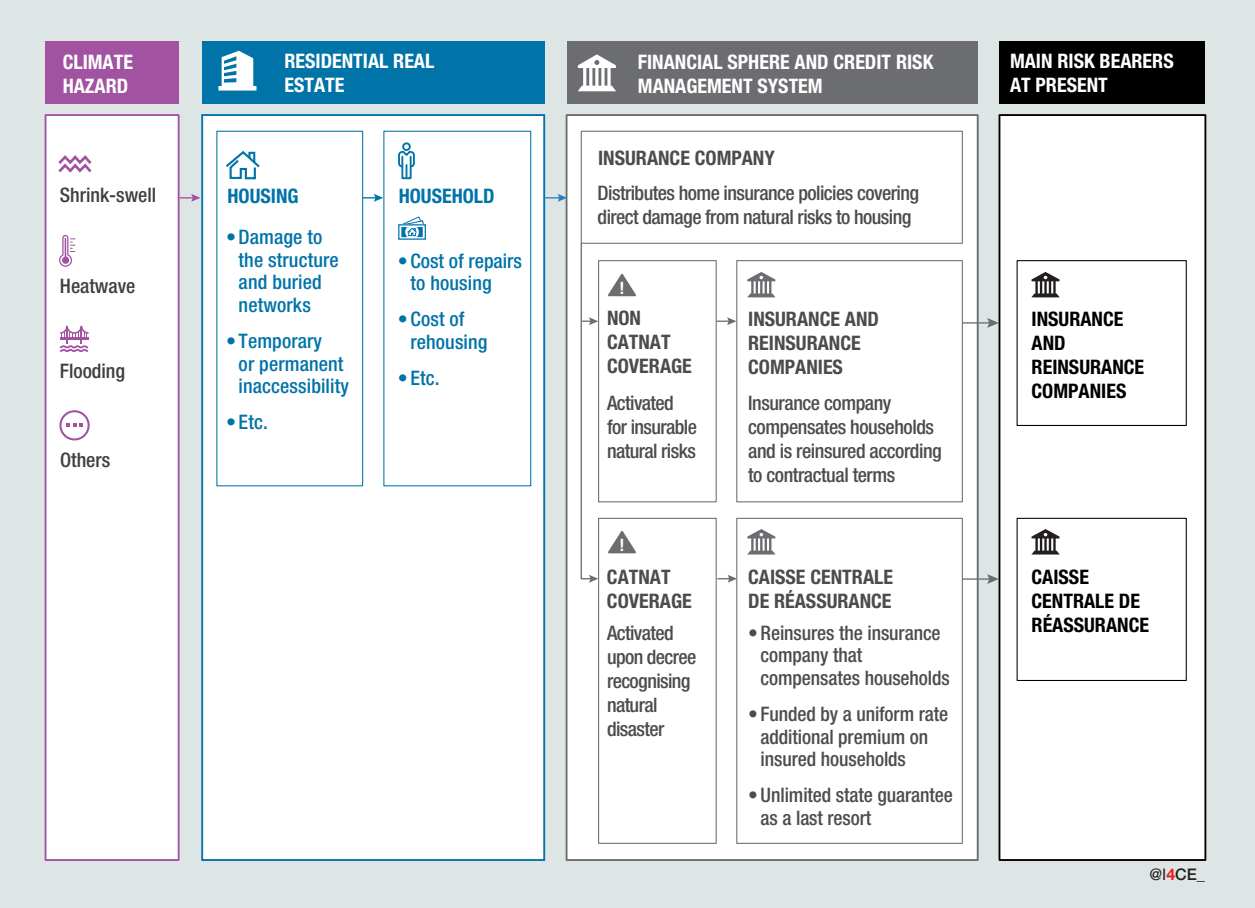
37 For examples of the exposure of residential real estate to transition risks, see I4CE (2021b). For examples of the exposure of real estate lending to transition risks in France, see the report by Banque de France and I4CE (2023).

38 For a summary of banking supervision actions on climate risks at the European level, see the EEA (2024) European Climate Risk Assessment Report (Chapter 17, "Financial crisis and instability", Section "17.4.4 Microprudential and macroprudential approaches"). For more detailed information on climate stress tests, see the I4CE report (2023).

insurance mechanisms is reinforced by the existence of a specific system in France, the Cat Nat scheme, which is considered to be highly robust (for more details on the Cat Nat scheme, see **section 1.3**). Objectively, the Banque de France and I4CE (2023) have shown that the Cat Nat system (see **Figure 8**), as well as the conditions for granting credit, have so far limited the exposure of household real estate lending to climate risks in France (however, the same study also suggests that climate change could challenge the viability of these systems).

The integration of physical climate risks has therefore made slow progress, and for many years the main driver for banks has been the production of regulatory reports on how they address ESG issues, for example in the context of the EU Non-Financial Reporting Directive (NFRD).

FIGURE 8. THE CAT NAT SYSTEM HAS SO FAR SHIELDED REAL ESTATE LENDING IN FRANCE FROM CLIMATE RISKS



Source: Based on Banque de France and I4CE (2023).

2.2.4. Early efforts on physical risks have not yet resulted in an adaptation strategy

Commercial banks have not completely abandoned the analysis of physical risks. However, this exercise still faces technical limitations that restrict its potential use for adaptation. For example, some banks are making progress in analysing their exposure to risks across the different lines of their portfolios, particularly real estate lending, sometimes with the help of external consultants. However, these analyses still face difficulties obtaining granular information, about building vulnerabilities, as well as territorial adaptation measures that could benefit buildings.

Risk analysts are also struggling to demonstrate a significant impact of climate change on the financial risks to which banks are exposed. The analyses used suffer from technical limitations, which are sometimes acknowledged by the analysts themselves.

For example, in its assessment of climate risks in Europe, the European Environment Agency stresses the need to analyse the interactions between climate hazards and non-climate risk factors, which when combined can lead to economic and financial impacts far greater than the sum of each individual risk (EEA, 2024).

To return to the issue of risk related to real estate lending to households, which is theoretically covered by the Cat Nat scheme, it is possible that in the future, households might face increasing difficulties obtaining full and timely compensation for climate-related damage, sometimes not considered as natural disasters. There could also be an increase in delayed real estate loan repayments. As banks are exposed to long-term risks due to the maturity of their

loans, it is also possible that insurers could withdraw rapidly or that the government could be forced to make tough decisions about how to allocate its increasingly strained budget, and so on. These scenarios have not yet been explored, but they could lead to a shift in how banks view the linkage between risk and adaptation. Finally, it is important to consider risk management mechanisms for activities other than real estate lending to households, such as loans to businesses for their development, construction and acquisition activities, among others.

In addition, even when the banks identify potential mid-term impacts, they have difficulties integrating them in their credit risk indicators as these are one-year default probabilities.

Given the limited understanding of risk and problems demonstrating its significance for banks, the risk-based approach fails to make a strong case for supporting an adaptation business model within banks. Moreover, banks may have trouble using risk analysis to drive financing actions while it is difficult to quantify to what extent adaptation finance reduces substantially and directly the bank's financial risk. Since it is difficult to quantify, in terms of reduction of physical risk, the performance of adaptation solutions across all buildings in real context, demonstrating the impact of these solutions on reducing financial risk is still problematic.

Finally, establishing that there is a higher and significant physical risk for banks does not necessarily lead them to finance adaptation, even if the effectiveness of the adaptation solution is proven. Financing adaptation requires banks to expose themselves to this physical risk until the adaptation solution yields results. Demonstrating a higher risk could therefore lead them to withdraw from financing the real estate project, as explained by Mullan and Ranger (2022).

Some commercial banks are nevertheless conducting operational experiments on risk management. For example, they are providing account managers with initial geolocated information on building exposure to climate risks across several scenarios and timeframes. This information is intended to engage a dialogue with their clients about their understanding of risk. However, this dialogue does not appear to have had a significant impact on decision-making by banks at this stage.

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For now, it seems that banks are struggling to generate interest in adaptation within their teams, based on the analysis of physical climate risks. One of the reasons for this is that banks have shifted responsibility for the issue to insurance mechanisms.

2.3. Insurance companies and prevention: expressed interest but difficulties in implementing action

2.3.1. Awareness of the importance of prevention for insurance companies

The organisations representing insurance professionals publicly highlight the need for climate risk prevention, particularly to maintain the ability to provide accessible insurance services.

The French federation of insurance companies, France Assureurs, states that, considering the climate damage expected by 2050, prevention would at the very least be an asset. Indeed, France Assureurs published an analysis in 2021 on the impact of climate change on insurance by 2050, in mainland France and the French overseas territories[39]. In the preface, the Chair of France Assureurs notes that this study "reinforces the idea that fostering prevention and promoting a culture of natural risk awareness within our population are key assets to strengthen our country's resilience to climate change" (France Assureurs, 2021).

In its white paper on climate-related insurance issues, the French federation of general insurance agent unions, Agéa, also mentions the importance of prevention and analyses the current challenges of this approach, including in relation to real estate (Agéa, 2024).

Some insurance companies individually advocate for prevention, such as Covéa in its white paper on climate risk prevention (Covéa, 2023). Insurers face greater difficulties in implementing actions for prevention. For example, Bpifrance Le Lab (2024) reports that among the directors of small, medium and intermediate enterprises interviewed in their study, only 23% has been asked about their adaptation measures by their insurer.

39 The study quantifies the cost of damage, distinguishing between climate-related damage and damage related to projected economic developments. It is based in particular on climate data from a non-insurance institute: the Laboratoire des Sciences du Climat et de l'Environnement (LSCE). This report is the second edition of the study published in 2015, which was then limited to the 2040 time horizon and to mainland France.

2.3.2. Internal tools for prevention have traditionally been limited

Insurers have a disadvantage in terms of internal tools to anticipate and prevent the increasing risks in the context of climate change.

Commercial insurers generally have no internal models on the unprecedented evolution of climate hazards, linked to the greenhouse gases emitted by economic activities. Instead, they work with statistical actuarial models based on past experience. (Langreney *et al.*, 2023)

They collect little or no data on the vulnerabilities of property to risks related to current or future climate hazards. Insurers gather the data needed to anticipate the potential damage they may need to compensate, such as building size. However, they do not centralise other potentially useful but costly information needed to understand the vulnerability of insured property to changing climate risks. For example, the vulnerability of the structure may depend on the materials used in the building, the construction techniques, the layout, and so on. The contents of the building (such as machinery and boilers) may also be at risk of flooding depending on their elevation. Insurers do, however, record claims history, in terms of the amount of damage to compensate, along with the data collected on property characteristics.

Insurance experts also lack expertise on climate-related risks and the solutions to prevent them.

Despite their limited internal tools, insurers are nevertheless simultaneously taking action on climate change at the level of the Paris financial centre.

2.3.3. Initial actions to foster prevention, few obvious links to the management of insurance policies

Initiatives to foster climate risk prevention are being developed at the financial sector level, in particular through France Assureurs and Mission Risques Naturels (MRN)[40]. They are also being developed internally by insurance companies, sometimes with dedicated teams[41]. These initiatives contribute to various aspects of prevention (as outlined in **Figure 4** in **section 1.2**). Some of them involve stakeholders from the real estate ecosystem. Several examples are given below.

Insurers, for instance, are implementing actions to raise awareness among policyholders about climate risks, adaptation measures, and their importance. The "Aux Alentours par MAIF" (In the Surroundings by MAIF) online platform provides a map of natural risks, advice on prevention for flood and shrink-swell risks, information about eligibility for flood assessments funded by public aid, and more[42]. It is based on several data sources (including the public Géorisques platform). However, the integration of climate change projections has not been verified. This insurer also participated in a study conducted by Goodwill-management, guiding SMEs on implementing a forward-looking strategy for climate risk prevention (Goodwill-management and MAIF, 2023).

Other actions more directly foster the development of the prevention market on the ground. This is the case for several initiatives involving MRN, such as the "Trophées Bâtiments Résilients" (Resilient Buildings Awards) created in 2020. The first three editions of this competition have spotlighted buildings adapted to observed climate conditions, with a view to disseminating best practices within the construction sector[43]. In 2023, MRN, CCR and France Assureurs also launched the "Initiative Sécheresse" (Drought Initiative) to identify and test effective and sustainable solutions for preventing and repairing shrink-swell, which is increasing because of climate change. The project is testing solutions on 300 single-family houses over a five-year period[44]. MRN has also worked with the Fédération Française du Bâtiment (FFB) to clarify the key characteristics of flood barriers, to facilitate regulatory work by the competent bodies, thereby helping the market to emerge (MRN and FFB, 2024).

Finally, insurers and sector organisations are calling for a more systemic approach, involving regulation by the public authorities. For example, in its white paper, Agéa (2024) details proposals submitted to the Langreney mission, aimed at jointly mobilising insurance companies, public authorities, policyholders and construction sector bodies, among others[45].

These examples of solutions, among the most visible, do not fully explore the possibility for insurers to establish links between prevention and the financial terms of their policies. For example, they could improve the terms to encourage policyholders to reduce their risk or reward those who have already done so. They could also give less favourable terms when policyholders refuse to take preventive action, despite having the means to cover the out-of-pocket costs.

This raises questions about the prospects for expanding and deepening insurers' efforts towards prevention, not only for current natural risks, but also for their evolution linked to climate change.

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40 The "Mission des sociétés d'assurances pour la connaissance et la prévention des risques naturels", or Mission Risques Naturels (MRN), is an association created by insurers in the early 2000s. It is made up of a team of six collaborators. The MRN concentrates most of the visible efforts developed collaboratively by insurers in the field of prevention. It contributes to a better understanding of natural risks and provides technical guidance for prevention policies. https://www.mrn.asso.fr/mrn/presentation/

41 For example, in 2015, Generali set up its "Climate Lab". This lab brings together multidisciplinary experts (actuaries, geographers, hydrologists, etc.) helping to implement prevention actions, such as: mapping risks, sending SMS alerts to policyholders, and reflecting on natural climate-related risks.

42 The insurer Generali has also launched an awareness platform called "Ensemble face aux risques" (Together Against Risks), which includes information on exposure to climate risks such as flooding, droughts and wildfires.

43 https://www.mrn.asso.fr/resilience/trophees-batiments-resilients/

44 https://www.mrn.asso.fr/france-assureurs-ccr-et-la-mission-risques-naturels-lancent-initiative-secheresse/

45 Some insurers also implement adaptation measures, for example on resilience, by sending SMS alerts to their policyholders to warn them when a climate risk is imminent and to remind them of the actions to take.

2.3.4. Economic considerations that may discourage insurers from engaging in prevention efforts

Some actors interviewed point out that certain factors could discourage insurers from taking action in certain areas of prevention. This is linked to concerns about the profitability of these actions and the effectiveness of incentive tools they could implement.

2.3.4.1. The short-term nature of policies could limit the profitability of prevention for insurers

Damage insurance is characterised by policies that are renewed annually. If policyholders make a higher number of claims in a given year, the insurer can offset this by raising their premiums the following year. This reduces the incentive for insurers to finance or encourage prevention measures among policyholders.

Moreover, when considering the direct profitability of a single policy over one year, investing in prevention is unlikely to pay off in the same year. For this to happen, the measure would need to be implemented and then offset by the occurrence of a hazard, to which the policyholder would then be less vulnerable, all within the same policy year.

The actors interviewed do not all consider that insurance companies are likely to follow this way of thinking, as it seems too focused on the short term. Insurers may feel that their efforts to encourage prevention among policyholders will, over time, result in lower claim rates across all insurance actors.

2.3.4.2. The relationship between prevention costs and initial premiums may discourage insurers

Insurers could be discouraged from investing – or encouraging their policyholders to invest – in prevention if the cost of doing so exceeds the amount of the premium they receive (even before considering that prevention could reduce the loss to be compensated in the event of a claim, and therefore reduce the use of the premium).

Moreover, before investing or encouraging policyholders to invest in preventive measures, the involvement of prevention experts represents a cost for the insurer in itself. Conducting a vulnerability assessment of the property in order to make recommendations for preventive actions currently requires experts to visit the site. Moreover, experts need training on the prevention of climate-related risks, beyond the current natural risks, which is another added cost (these information-gathering costs also contribute to the limited data resources available to insurers, as mentioned earlier.).

2.3.4.3. Potential limitations to the effectiveness of economic incentives developed by insurers

One way insurers could encourage prevention is by lowering premiums to motivate policyholders to take action. However, the effectiveness of this approach alone may vary depending on the situation.

As some insurers suggest, the cost of preventive works may be higher than the premiums they collect. A typical example is the cost of work to prevent shrink-swell for single-family homes – a risk that may not be recognised under natural disasters decrees - compared to the cost of an annual multi-risk home insurance premium, which has a good coverage-to-price ratio in France. Even if the insurer reduced the premium, this would likely have little impact on the policyholder's decision, as the remaining out-of-pocket costs would still be significantly higher.

2.3.4.4. Situations where these economic considerations are less of a limitation: inherent defects insurance; key clients

Inherent defects insurance and insurance for key clients are situations where these economic barriers to prevention appear to be less of an issue. This is generally true for key clients, but less so for inherent defects insurance.

Key clients. Insurers have a strategic interest in maintaining a long-term, multi-year relationship with their key clients. This extends the timeframe for the insurer to recoup the costs of prevention actions. In addition, key clients are likely to insure high-value assets, meaning they pay higher annual premiums. This provides more opportunities for financing prevention before it reaches a point where the costs of prevention outweigh the benefits for the insurer.

The 10-year warranty for builders. In France, the law stipulates that builders are responsible for certain types of damage to property for 10 years following delivery. This is known as the "10-year warranty", which means that the builder guarantees the property will be usable for at least 10 years. To ensure the proper implementation of this warranty, the law establishes a mechanism that involves insurers. The builder must take out liability insurance, and the property buyer must take out inherent defects insurance. The involvement of insurers in the 10-year warranty is an exception to the possibility of reviewing rates annually or simply withdrawing from the policy. The insurer has an interest in ensuring the work enables the buyer to use the property as intended for at least 10 years from delivery; if not, the insurer is liable for corresponding compensation claims.

This mechanism might seem to encourage insurers to ensure that climate risk prevention is incorporated into construction work. This would reduce the risk of climate hazards affecting the building's structure or use. However, standard clauses stipulate that the warranty does not cover damage caused by force majeure events, such as natural disasters (DILA, 2024). Furthermore, the implementation of this exception is inadequate (Langreney *et al.*, 2023). Taking out insurance linked to the 10-year warranty is mandatory, but property owners do not always sign up for it, and there have been no penalties for failing to do so. As a result, insurers are excluded from the construction process and miss the opportunity to integrate climate risk prevention into works.

2.3.5. Proactive stakeholders faced with the challenges of adapting the real estate ecosystem

An article by MAIF[46], for instance, discusses an attempt to encourage prevention, offering advantageous conditions for its policyholders. Rather than just reducing premiums, MAIF proposed "a free home vulnerability assessment, with the possibility of financial aid for preventive work for low-income households". This initiative primarily targeted policyholders already aware of flood risks. However, according to the article, the experiment encountered limited interest from policyholders.

Insurers also report difficulties generating demand in other sectors, such as municipalities, some of which have failed to implement insurers' recommendations.

The low demand for prevention among policyholders is explained by several assumptions worth exploring. Various insurance actors mention the need to improve policyholders' risk awareness. Another factor to consider is the out-of-pocket costs for the policyholder, and their ability and willingness to allocate such amounts to work. Moral hazard could also be a factor, if the policyholder expects to receive solidarity-based compensation in the event of a loss, for example through the Cat Nat scheme, and as a last resort, the state[47]. In its 2023 white paper, Covéa suggests, for example, a framework for role-sharing: "Insurers have continued to implement preventive actions, but psychologically and socially, a new understanding of roles has emerged, with prevention increasingly falling under the responsibility of the state and public policy". Other assumptions concern psychological traits influencing behaviours in the face of risk and uncertainty, or a lack of trust in insurers and prevention experts.

Insurers may begin to consider other, more punitive tools at their disposal, or to engage the public authorities on the need for more systemic action by all stakeholders.

2.3.6. Internal tools insurers can potentially combine with broader stakeholder mobilisation

Between proactive experiments and potentially limited interest in prevention, it is not clear what role insurers intend to play in supporting prevention, among the efforts of other actors. It seems appropriate to seek more systemic action from the various actors in order to mobilise insurers where possible, and to unlock other aspects over which they have no control.

For example, insurers can be called upon to indicate reliable professional contacts for climate change adaptation work. However, these professionals need to be trained and identifiable. To carry out the work, building professionals also need to have access to recommended materials, and so on.

Another example, as explained above, is that the incentive power of adjusting insurance premiums can be a useful contribution, but is insufficient on its own. Other financing methods can be added, such as a combined loan and insurance offer from a bank-insurer, but these loans finance an investment that ultimately comes from the client's pocket. This would justify exploring how this type of financial tool could be combined with other actions (including accountability through Cat Nat, public aid, etc.) to remove barriers to demand.

2.4. Insurance companies and resilience: some actions undermine the solidarity objective of the Cat Nat scheme

The involvement of insurers in a solidarity-based climate risk pooling system mainly depends on regulation by the state. It has already been noted that insurers' market behaviours tend to undermine the principle of solidarity-based pooling within the Cat Nat scheme, when economic signals push them in this direction, as outlined below[48].

Insurers are still accountable for some natural disaster risks[49]. Seeing the difficulties of the Cat Nat system over the last decade, they have begun to worry about their future exposure to climate risks, and have acquired risk maps. This has given them a better understanding of their exposure to "technical risk", meaning the actual climate risk faced by their policyholders and the claims insurers might need to pay out.

Some insurers have thus started to target their most exposed clients in order to limit their own financial losses related to natural disasters. In practice, they have pulled out of the most vulnerable areas, or raised their premiums. On this point, as the Cat Nat scheme regulates the deductible amount and the Cat Nat additional premium,

46 The article, published on 18 October 2024, can be found here: https://entreprise.maif.fr/home/actualites/2024/solidarite-climat-aider-les-plus-vulnerables-d-entre-vous.html
47 This assumption regarding the expectation of unconditional state support is also considered to explain the low demand for multi-risk home insurance in some parts of France.
48 For more insights into the mechanisms that could weaken solidarity-based climate risk pooling, see the Sinonvirgule study (2023).
49 See Box 2 for more information on insurers' participation in the Cat Nat scheme.

some insurers have raised their rates through the premium of the damage insurance policy (to which the fixed and uniform premium rate applies). Such an increase may be justified to some extent when the underlying policy covers hazards related to climate conditions not included in the Cat Nat scheme, like minor floods. However, it is less justified if the policy covers risks like industrial fires, for example.

The materialization of this moral hazard has negatively impacted other insurers who continued to uphold the solidarity principle of the Cat Nat system. They inherited the most vulnerable clients abandoned by other insurers, leading to a higher proportion of losses in their portfolios and increasing their Cat Nat deficit. This chain reaction has accelerated the destabilisation of the Cat Nat system (one of the objectives of the insurability mission was to propose measures to stabilise the system and to ensure its long-term viability in the face of climate risks).

Insurers ultimately recognise the long-term benefits of collaborating to maintain the Cat Nat scheme, which they see as a valuable mechanism. They also understand that free-riding behaviours could, in the worst case, lead to them collectively losing their involvement in collecting the insurance premiums tied to the Cat Nat system. Mutual insurers also seem to be more sensitive to this issue. These companies are, in fact, owned by their clients (referred to as members). As a result, the owners of the insurance company are themselves more aware of the importance of including their peers, even the most vulnerable, in the solidarity-based system.

So far, insurers have been unable to reach a collective, spontaneous agreement on a strategy for effort sharing in vulnerable areas. This suggests that the participation of insurers in this system requires strong state regulation.

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This overview, based on recent interviews and initiatives, shows that financial actors demonstrate limited interest in adaptation, as they fail to see a direct benefit in terms of opportunities or risk management. While financial actors remain a potential driver of real estate adaptation, there is also a risk that they could disengage from the most exposed real estate stakeholders, as they begin to address climate risks and adaptation needs. These risks will therefore need to be managed.

Real estate stakeholders are also struggling to make adaptation a priority, which is preventing them from clarifying its implications for their financial service needs. The Cat Nat scheme, universally acknowledged as necessary, reduces the accountability of real estate stakeholders and financial actors in preventing climate risks for real estate.

Could public actors further engage real estate stakeholders and financial actors on adaptation, while managing the associated risks?

3. PUBLIC ACTORS ARE BEGINNING TO GRASP THE ROLE OF THE FINANCIAL SECTOR IN ADAPTATION

3.1. The regulatory framework for sustainable finance is just emerging on adaptation

The issue of adaptation is beginning to emerge in European financial regulations on sustainable finance. For example, the European taxonomy for sustainable activities has been the most influential text for the actors interviewed when it comes to adaptation[50]. The sustainability reporting requirement, the CSRD, also addresses the issue of adaptation.

The initial steps taken are being tested, while the financial sector authorities already seem willing to engage more actively in adaptation.

3.1.1. Financial regulations and supervision are currently vague and non-binding in terms of adaptation

Currently, financial regulations on sustainability issues mainly require actors to disclose information, rather than mandating action on adaptation. For example, financial actors are not required to align their portfolios with the taxonomy. Nor do they anticipate any obligation in this regard, particularly concerning adaptation, which is less detailed than for other issues.

Financial actors also have sustainability reporting obligations, which do include elements of adaptation. However, this obligation is more about disclosing existing plans than taking action. Furthermore, reviews of previous reporting obligations by supervisors have shown a clear tendency among financial actors to take a "compliance" approach (in other words a tendency to interpret the requirements at a minimum level, and not drawing conclusions for their internal management).

Prudential regulation for banks and insurers, on the other hand, includes obligations related to climate risk management but not directly to adaptation.

3.1.2. What are the prospects for developing more incentive-based financial regulations and supervision to engage the financial sector in adaptation?

Financial regulation on sustainability issues is an iterative process. For emerging topics – typically adaptation – the first requirements aim to advance the market on the issues, to identify good practices and challenges, then to gradually increase requirements, and so on. At this stage, unsurprisingly, the regulatory framework – like the "adaptation" sections of the European taxonomy for sustainable activities – is more of an incentive for financial actors to engage in the issue than an operational guide.

In late 2022, the European Commission launched the "Climate Resilience Dialogue" between (re)insurance companies, public authorities and other stakeholders, to exchange best practices and identify ways to address the climate protection gap. The group delivered its final conclusions in July 2024 (Climate Resilience Dialogue, 2024). In addition, in its Communication on managing climate risks[51], the European Commission provides for the creation of a working group on financing for resilience, involving key industrial actors as well as representatives of public and private financial institutions, and drawing on knowledge from EIOPA and EIB.

Since 2023, the European Insurance and Occupational Pensions Authority (EIOPA) has released resources to help identify solutions to reduce the insurance protection against climate risks and natural disasters in Europe. In particular, their work addressed the issues of offer and demand for insurance (EIOPA, 2023). In 2024, EIOPA and the ECB also proposed an EU public-private reinsurance scheme to compensate the private actors affected by natural disasters and an EU fund to help rebuild public infrastructure following natural disasters (EIOPA and ECB, 2024).

50 For more information about the European taxonomy for sustainable activities and its treatment of adaptation, see the publication by the Observatoire de l'Immobilier Durable (2024d) "Mise à jour du guide d'application de la Taxinomie européenne pour l'immobilier", referenced at the end of this report.

51 COM/2024/91 final

At the same time, for net-zero transition issues, the European Banking Authority (EBA) appears to be moving towards a more direct focus on the banking sector's contribution to the transition, rather than just managing transition risks on banks' operations (EBA, 2024). This could potentially pave the way for a more proactive approach from the EBA on adaptation.

At the international level, the NGFS (2024) has also published a concept note on adaptation, highlighting the potential for mobilising banks and insurers. This outlines their work programme on the topic.

3.2. The public financial institutions are turning their attention to the issue

The public financial institutions could engage private actors in financing adaptation, for example by taking on a sufficient share of the risk to make the arrangements more attractive to these actors.

As reported by the Cour des Comptes (2024), the EIB is leading an advanced approach on adaptation, and the CDC is also active. Development finance institutions, based in France and abroad, also founded the Adaptation & Resilience Investors Collaborative (ARIC) initiative in 2020, with the secretariat provided by UNEP FI[52]. The goal of this group is to advance investment in adaptation and to disseminate work of interest to private sector financial institutions and investors seeking to make a positive impact on adaptation issues through their activities. In 2024, it published an impact assessment framework for adaptation (ARIC, 2024a) and two guides (British International Investment and FMO, 2024; ARIC, 2024b).

The CCR, for its part, offers a financial commission to insurers according to the preventive actions they report each year (with a focus on teams responsible for liabilities, in other words insurance activities, rather than those responsible for investments in assets for these companies).

Furthermore, in late 2024, the CCR launched a fund dedicated to innovation in natural disaster prevention. The management mandate was awarded to the private equity firm StarQuest[53]. The CCR has set StarQuest a dual profitability objective, guiding the fund's investment choices. First, the fund should contribute to business models that are economically profitable in the long term. Second, the development of these activities should help to reduce the CCR's liabilities (in other words reduce the compensation it must provide). Through this fund, the CCR is also seeking to encourage commercial financial institutions to invest more in prevention.

3.3. Public actions are needed to ensure the French Cat Nat system remains robust

The increase in the additional premium that took effect on 1 January 2025 was just the first step in the adaptation of the natural disaster compensation system. The authors of the recommendations for this increase (in particular the 2023 report by the Langreney mission) point out that the new premium amount is not meant to anticipate climate change, but rather to restore balance to the system. Without additional action, however, a further deterioration, estimated at around 100 million euros per year, is expected.

Experts and insurance actors are thus calling for the creation of a mechanism to index the additional premium to climate inflation, the specifics of which are still being discussed (annual increase, review clause, etc.). The proposed increase, of around 1% of the additional premium rate per year, remains reasonable. This would lead to an additional premium rate of about 26% in 2050, compared to 20% in 2025 (meaning an additional annual payment of between 20 and 30 euros per household in 2050 compared to 2025 (Lavarde, 2024)).

However, the future balance of the Cat Nat scheme cannot rely solely on an increase in the additional premium. Over time, the sustainability of this guarantee for businesses and households could become an issue. Thus, many institutional actors (Ledoux, 2023; Lavarde, 2024) and insurers (CCR, France Assureurs, AXA, MAIF) are calling for greater prevention efforts, particularly by increasing the state's financial support through the Barnier Fund and earmarking a portion of this increase for individual prevention measures.

To address these needs, a draft law aimed at ensuring the balance of the natural disaster compensation system[54], supported by the government, has been adopted at first reading in the Senate and is due to be examined at the National Assembly.

52 https://www.unepfi.org/climate-change/adaptation/adaptation-and-resilience-investors-collaborative/
53 For more information on the "Climate Change Resilience Fund", see: https://www.ccr.fr/en/fonds-publics
54 Text No. 612 (2023-2024) by Christine LAVARDE and several of her colleagues, submitted to the Senate on 21 May 2024.

3.4. A national adaptation plan aimed at maintaining long-term access to insurance for all

Measure 2 of the third National Climate Change Adaptation Plan (PNACC3), which is currently being finalised, aims to "ensure the continued ability of all individuals to obtain insurance against natural risks through the modernisation of the insurance system" (Government, 2024).

To achieve this, action 1 of measure 2 proposes the creation of an observatory on natural disaster insurance, in the form of an annual report produced by the CCR, aimed at "informing the public authorities about the evolution of the insurance offering and market shares at the national level and in exposed areas"[55]. This would serve as a basis for the public authorities to target incentives for insurance companies to maintain their presence in high-risk areas. The goal is for insurers to contribute to the collective effort to insure clients who are the most costly in terms of claims.

Action 2 of measure 2 aligns with this, proposing a reflection on incentive measures for insurers to pool efforts through the CCR prevention commission mechanism.

Action 3 of this measure aims to engage insurers in prevention efforts. It calls on them to share awareness-raising information with their policyholders. It also suggests they contribute to creating a personalised information platform for individuals on public aid and integrated solutions for financing and managing prevention and remediation work. Finally, this measure proposes exploring for which hazards insurers could help to produce vulnerability reduction analyses

55 See: https://consultation-pnacc.ecologie.gouv.fr/sites/default/files/2024-10/Mesure02%20-%20Proteger%20-%20Assurance.pdf

4. CONCLUDING REMARKS: AVENUES TO DEFINE THE ROLE OF THE FINANCIAL SECTOR BASED ON THIS OVERVIEW

This first overview suggests that, in order to effectively drive real estate adaptation, the public authorities need to focus on encouraging the use of several tools available to the financial sector, as outlined below. This mobilisation of financial actors should complement other efforts, but it cannot replace other changes in the real estate sector, for example concerning construction standards.

4.1. Deciding on the proposed insurance measures, which are largely independent of other actions

The public authorities need to clarify their intentions regarding the potential implementation of the other measures proposed by the Langreney mission, concerning the mobilisation of insurance companies.

The mission suggests, for example, making policyholders more responsible for prevention, in connection with the Cat Nat scheme and insurers. This would involve making post-hazard repairs mandatory and penalising policyholders who fail to comply. Standard policyholders would face a tripling of their deductible, while higher-income policyholders would be exposed to the insurer's market conditions, with the insurer free to set the premium and deductible. This approach should foster a dialogue between insurers and policyholders on prevention. As a result, penalties for a lack of prevention would be lower for policyholders with fewer resources, thus preserving the solidarity objective of the Cat Nat scheme.

4.2. First creating the conditions for adaptation in the real economy

The overview presented in this report shows that real estate stakeholders face difficulties in developing an adaptation strategy, prior to integrating it into their capital needs. Financial actors are generally ill-equipped to assist real estate stakeholders on these issues. They are typically waiting for these points to be resolved, since they are more directly related to the organisation of the real estate sector and to decisions on adaptation in the different regions.

The public authorities could address these difficulties in a more legitimate and direct way by targeting the real economy. For example, those leading adaptation efforts within real estate companies are calling for stronger adaptation policies directly aimed at land use planning, urban development, and building construction and retrofitting regulations. They are also looking for guidelines on building adaptation, which would require engaging technical experts. Local authorities should also be provided with the means to define and communicate their adaptation strategies, which condition the adaptation needs of individual actors; and so on. It should be noted that the measures outlined in the PNACC 3 should help to improve real estate adaptation[56].

This should not prevent the public authorities from simultaneously seeking ways to encourage a more active and complementary contribution from the financial sector. For example, some financial actors are also trying to establish typical building profiles, based on vulnerabilities and actions to be implemented. It would be worth exploring whether or not their private efforts could benefit a wider audience.

56 The 3rd National Climate Change Adaptation Plan, presented in late 2024 and which should be formally adopted in the first half of 2025, sets a framework to prepare the French economy and territories for +4°C warming by 2100. To do so, it defines a reference warming trajectory (TRACC) and introduces 51 measures aimed at systematically embedding an "adaptation reflex" across all affected sectors. Several of these actions concern the real estate sector, either directly (e.g. measure 5 on the prevention of shrink-swell, measure 9 on adapting housing to heatwaves, measure 12 on the state's real estate portfolio) or indirectly, through technical standards and frameworks (measure 24), public procurement (measure 44), or the mobilisation of economic sectors (measure 33).

4.3. Mobilising financial actors as partners

The measures developed for the real economy can unlock certain effective tools available to financial actors – something that should not be overlooked.

For example, the report by Langreney *et al.* (2023) suggests involving insurers in coordinating a network of prevention professionals. However, for insurers to propose skilled professionals, these individuals would need proper training and the necessary tools to carry out their work. This network coordination could therefore be anticipated and organised in connection with the development of mandatory training in the real estate sector, as well as recommendations on the materials that construction professionals can use.

Moreover, discussions on the role of financial actors in adaptation are still absent at the local level. However, many actors, including the NGFS, companies and local authorities, have been calling for some time for coordination between stakeholders on adaptation. It would be helpful to explore how this coordination could support the development of effective territorial adaptation strategies. Which (potentially existing) mechanisms could be used? At what scale? And for what purpose?

4.4. Continuing the exploration

4.4.1. Clarifying the business cases for adaptation

To ensure the effective integration of financial sector tools into real estate adaptation efforts, it will also be important to continue exploring these tools. For example, the exploration of insurers could be extended to include their role in driving collective prevention, going beyond just individual prevention.

Furthermore, as real estate project developers gain a better understanding of the economic profile of actions to adapt their activities, this should raise clearer questions about the roles of insurers, banks and asset managers (for example, which assets have a business case that could justify involving them? Is there a need to develop specific products?).

It would also be useful to take a more systematic look, in the French institutional context, at the links between the lifecycle of real estate projects, banks, asset managers and investors, as well as the connections between professions (including insurance) within a given group. In addition, it is important to explore the various management goals of these financial actors (such as managing real estate portfolios, or ensuring short-term capital gains from resale). This would help to clarify the tools available to the different actors, as well as the unexplored synergies between professions (for example, investment and insurance within an insurance company, or banks, insurance and asset management subsidiaries), and possibly to identify initial opportunities to mobilise them at lower political cost.

There should also be further exploration of the opportunity to structure the mobilisation of financial actors through regulatory approaches to sustainability.

4.4.2. Several public actors have a role to play in identifying the risks associated with efforts to mobilise financial actors and in positioning themselves to manage these risks

Where insurance is concerned, the overview presented in this report shows that by obtaining more information about property vulnerabilities, some insurers could penalise the most vulnerable clients. It will be necessary to implement effective controls of the use of vulnerability data by insurers, if possible to support prevention, without undermining the solidarity-based coverage of the Cat Nat scheme.

It may also be useful to stay vigilant to changes in the frameworks established by public policy, whether or not they aim to mobilise the financial sector for adaptation. For example, attention should be given to progress in mapping the presence of insurers in France, entrusted to the CCR. This vigilance also applies at the European level (for example, the regulatory framework on financial data access– FIDA – and the implications of making data available in EU countries where solidarity-based pooling is not mandatory).

Finally, it is necessary to further explore whether banks and financial market actors managing their climate-related financial risks could be counterproductive, limited, or beneficial for real estate adaptation. This particularly concerns the approach of regulators and supervisors to these risks, which are generally focused on the resilience of the financial sector to crises, rather than on mobilising this sector to prevent such crises (EEA, 2024).

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The **Finance ClimAct** project contributes to the implementation of France's National Low-Carbon Strategy and to EU policy on sustainable finance. It aims to develop the tools, methods and new knowledge needed to (1) help energy-intensive industries to foster investment in energy efficiency and the low-carbon economy, (2) enable financial institutions and their supervisors to integrate climate issues into their decision-making processes and to align financial flows with energy and climate objectives, and (3) to assist savers in integrating environmental objectives into their investment choices.

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