

# Mind the protection gap:

The risk to capital markets and the resilience financing imperative



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# Executive summary

01



# Executive summary

Climate change is no longer just a physical risk issue; it is increasingly a financial stability issue. As climate hazards intensify and become less predictable, insured losses will continue to rise, leading to greater tightening in insurance markets. This is likely to result in a widening protection gap, where an increasing proportion of economic activity and value is left uninsured or underinsured.

This paper argues that insurability is the critical transmission channel connecting climate risk to the wider economy. When insurance becomes more expensive, narrower, or unavailable altogether, the effects spread into lending, investment, asset valuations, and public finances. In turn, this reduces bankability and investability across the real economy. The protection gap is therefore not just an insurance problem; it is a challenge to capital formation, economic recovery and long-term growth.

This is not a risk from which the UK is immune. The UK Climate Change Committee estimates that around £11bn of annual investment is required to support national adaptation and resilience.<sup>1</sup> However, financing remains constrained by valuation bias, short term horizons, fragmented project pipelines, and the public-good nature of many resilience measures. Without faster progress, underinvestment in resilience risks reinforcing a negative loop in which rising losses weaken insurability, further discouraging private investment and placing greater pressure on the public sector.

As a leading global centre for insurance and capital markets, the UK is also exposed not only to domestic climate risk, but also to broader shifts in global financial conditions. The insurability challenge therefore presents both a risk and an opportunity: meeting domestic and global adaptation and resilience needs will require significant capital mobilisation, with the UK's financial markets well placed to play an important role.

The paper sets out a practical agenda for action. Among other things, it calls for:

- earlier pricing and governance of physical risks
- improved mechanisms for recognition of resilience measures in insurance and financing terms
- a growing pipeline of investable adaptation projects
- greater use of blended capital
- targeted public backstops where markets alone cannot deliver.

The central message is clear: adaptation and resilience should be treated as core economic infrastructure. They are not discretionary costs, but essential for preserving insurability, protecting asset values, and supporting the effective functioning of capital markets in a climate-constrained world.

<sup>1</sup> Climate Change Committee, 'A Well-Adapted UK: The Fourth Independent Assessment of UK Climate Risk', (20 May 2026), available at: <https://www.theccc.org.uk/publication/a-well-adapted-uk/>



# Climate change and the risks to insurability

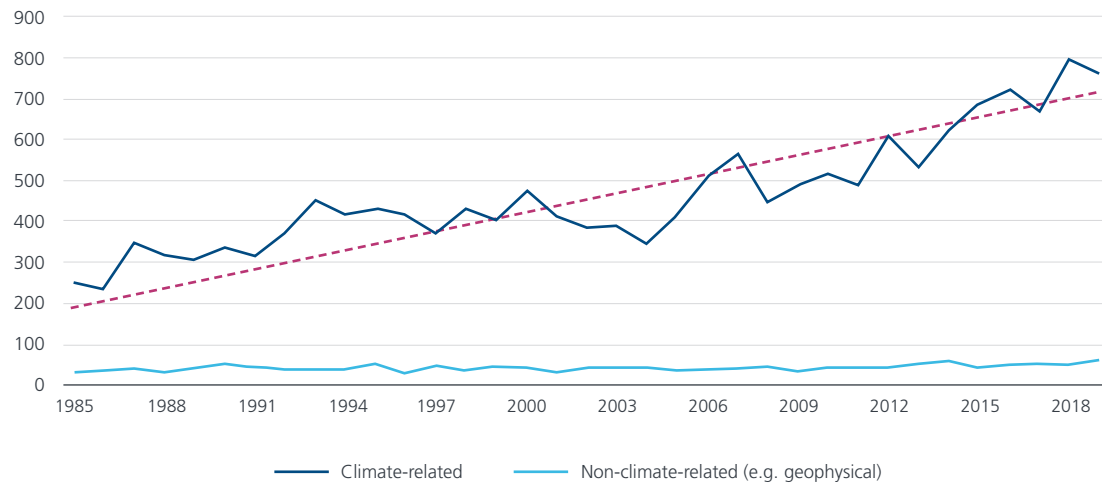
# 02



# Climate change and the risks to insurability

Climate change is driving a measurable increase in average global temperatures as greenhouse gases accumulate in the atmosphere, altering historical climate norms and weather patterns. This warming is already reshaping the nature of physical climate risk and is expected to continue to do so as greenhouse gas emissions continue to rise globally.

**FIGURE 1: Number of reported natural catastrophes worldwide<sup>2</sup>**



At the same time, development patterns and interconnected supply chains are increasing exposure and concentrating vulnerabilities. This means that physical impacts are less likely to remain localised and more likely to cascade through socio-economic systems.

These shifts have the potential to test the assumptions that underpin risk pricing in financial markets, underwriting of physical climate risks and long-term investment decisions. As hazard, exposure and vulnerability levels rise and uncertainty in forward-looking models persists, the availability, affordability and adequacy of capital is likely to come under strain.

<sup>2</sup> Marsh analysis of Munich Re NatCat service data

One of the most immediate risks is to the availability of insurance capital, or capacity, in the face of increasingly frequent and severe extreme weather. This is material because historical evidence indicates that when insurance markets weaken, the effects extend far beyond individual policyholders and affect wider financial and capital markets. This is because of insurance's role as a foundational layer in the wider financial ecosystem, transferring risk in a way which enables the functioning of debt and equity markets and supports financial stability more broadly.

**Adaptation and resilience investments** involve funding projects and initiatives that reduce the impact of physical climate risks like floods, storms, or heatwaves. For example, building flood defences, upgrading infrastructure to withstand extreme weather, or implementing early warning systems are all adaptation measures. These investments help protect communities and businesses whilst simultaneously supporting the availability and affordability of insurance coverage and the stability of financial systems.

Against this backdrop, investment in adaptation and resilience measures that mitigate physical climate risk and promote insurability is becoming increasingly critical to the integrity of financial systems. In the UK, the Climate Change Committee (CCC) estimates that £11bn of annual investment is required to mitigate the impact of climate change.<sup>3</sup>

Yet structural challenges continue to limit both public and private adaptation and resilience financing at the scale and pace required. A key reason is that benefits are often realised as avoided losses across multiple stakeholders, and are not always captured in traditional valuation approaches, disincentivising investment. The result can be a reinforcing cycle: insufficient resilience increases losses and uncertainty, which further strains insurability and tightens wider financial market conditions, limiting the availability of the financing needed to manage risk.

This section examines these dynamics, setting out how evolving physical climate risk is driving stress in insurance markets, transmitting into the wider financial system, and widening the adaptation and resilience financing gap.

## 2.1 Risks to insurability and the wider financial ecosystem

**“ Insurance only works while extreme weather remains a risk. Where it becomes a near certainty, insurance becomes unaffordable and potentially not available. ”**

Amy Barnes, Head of Climate and Sustainability Strategy, Marsh Risk

### 2.1.1 How rising hazard levels and model uncertainty are challenging coverage

The insurance ‘protection gap’ is becoming an increasingly important issue in both developed and emerging economies as extreme weather threatens insurance’s ability to spread losses in a way that keeps aggregate

<sup>3</sup> Climate Change Committee, ‘A Well-Adapted UK: The Fourth Independent Assessment of UK Climate Risk’, (20 May 2026), available at: <https://www.theccc.org.uk/publication/a-well-adapted-uk/>

portfolio-level risk manageable. Insurance works when risk can be priced with a high level of confidence, pooled, and diversified across time, geography and lines of business. Catastrophe loss models combined with peril and asset-specific vulnerability curves enable forward-looking risk analysis to support underwriting, pricing, reinsurance purchasing and capital allocation. However, climate change is challenging insurers' foundational practices through two main dynamics: rising hazard levels and increasing uncertainty about the distribution of future losses.

First, in many regions and for several perils, there is strong evidence of changing extremes and increasing climate-related loss potential. The Intergovernmental Panel on Climate Change's (IPCC) assessments highlight observed increases in certain extremes, including rising temperatures and compound extreme events, which include increases in the frequency of concurrent heatwaves and droughts (high confidence); fire weather in some regions (medium confidence); and compound flooding in some locations (medium confidence).<sup>4</sup> This presents a fundamental challenge because insurance is designed to transfer high impact, low probability risks from individual balance sheets into shared risk pools at affordable prices. When the frequency and severity of these risks increase, so does the price required to create a functioning risk transfer pool. Once the required price reaches a certain level, the costs of transferring risk outweigh the gains and insurance effectively becomes 'unaffordable'.

A second challenge is the growing difficulty of predicting physical climate risk. According to Guy Carpenter analysis, the annual change in insured global average losses from changing physical risks associated with climate change is projected to be approximately 1% from a hazard-only perspective. In such a changing environment, past losses are a weak indicator for future risk exposure. In addition, feedback loops and potential tipping points – for example, due to the links between climate change and biodiversity loss – are creating further uncertainty. Traditional actuarial methods – the basis for insurance pricing – assume the underlying probability of loss is broadly stable year to year. That assumption is becoming less reliable as climate hazards intensify, undermining the confidence with which insurers model expected future losses.

As a result, insurers face a higher likelihood of loss clustering (multiple severe events close together) and greater tail risk (more extreme outcomes). Compounding perils, for example heat, drought and wildfire, or repeated storms hitting the same region in a short period, create loss patterns that are harder to diversify and more capital-intensive to insure.

This is increasing pressure on catastrophe and physical climate risk models. Even as modelling improves, uncertainty is increasing because of:

- different climate pathways and scenario assumptions
- difficulty translating global climate signals into local hazard change (downscaling)
- inconsistent treatment of secondary and correlated perils (e.g., convective storms, hail, flash flooding)
- human factors that strongly influence realised losses (land use, building standards, wildfire suppression, and local protective infrastructure).

4 IPCC, AR6 Synthesis Report, (2023), p.51

Where uncertainty is higher, insurers typically need to hold more capital and/or price in greater volatility, leading to higher premiums, tighter terms, higher deductibles, and in some cases, reduced capacity or withdrawal from high-risk areas.

A further structural challenge is that most property and casualty insurance is priced and renegotiated on a 12-month policy cycle, while physical climate risk is evolving continuously. In principle, annual renewals should allow risk pricing to keep up with changing hazards. In practice, soft and hard market dynamics can mute or delay the climate risk signal.

In a soft market, competitive pressure and abundant insurance capacity can suppress risk differentiation, meaning price and terms may not fully reflect worsening weather-driven loss potential, even as events become more frequent or severe. As Marsh Risk recently highlighted, this can create the appearance of stability in commercial pricing as "commercial insurers generally become less selective about underwriting weather-related risks", despite deterioration in the underlying risk quality.<sup>5</sup>

These cycles, and the muting effect that they can have on market signals, increase the risk that climate impacts are then recognised by the market discontinuously rather than gradually through sudden repricing events and liquidity shocks.<sup>6</sup> When a run of events, updated cat-model views, reinsurance repricing, or capital constraints forces a shift into a 'hard market', where demand for insurance outstrips the supply of risk-bearing capital, the adjustment can be abrupt: rapid premium increases, tighter terms and conditions, higher deductibles, reduced limits, and in some cases insurer withdrawal from markets. Such cliff edges, where insurance remains accessible on broadly familiar terms until it becomes materially more expensive or harder to obtain with limited warning, have the potential to significantly undermine the stability and scalability of risk transfer precisely as climate hazards are worsening.

5 Marsh Risk, 'The silent signal: How extreme weather can impact pricing in a soft market' (January, 2026), available at: <https://www.marsh.com/en-gb/risks/climate-change-sustainability/insights/silent-signal-how-extreme-weather-can-impact-pricing-in-soft-market.html>

6 Sustainable Markets Initiative, 'Investing in an Era of Extreme Weather', (March 2026), available at: <https://impaxam.com/assets/pdfs/reports/smi-report-2026.pdf?pwmm=2626>

FIGURE 2: The asymmetrical climate effect in a hard versus soft insurance market<sup>7</sup>

The climate effect is asymmetrical between a hard and soft market



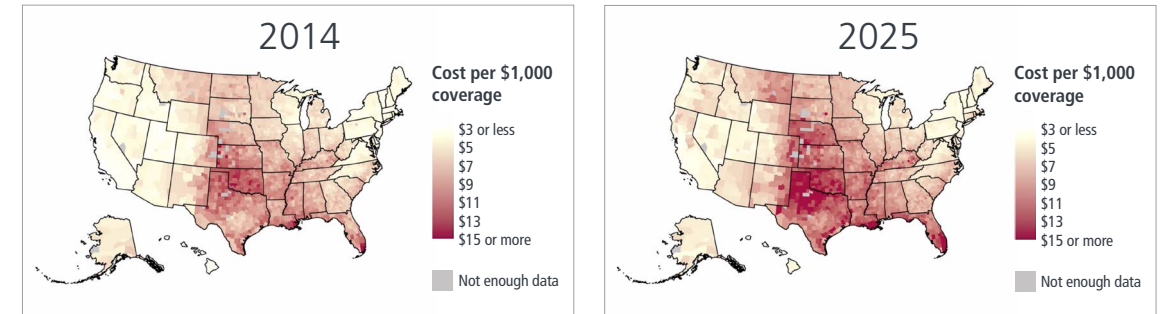
2.1.2 Evidence of insurability stress: withdrawals, exclusions and deductibles

Signs of stress are becoming visible in how coverage is structured, priced, and underwritten in higher-hazard regions. The most immediate signals tend to be seen in risk selection and deal execution: more granular scrutiny of location-level exposure, tighter definitions and exclusions for catastrophe perils, and greater emphasis on demonstrated risk controls and resilience. In addition to this narrowing of coverage, there is growing evidence of pricing changes and withdrawal of insurer capacity from select markets altogether, though to date this remains concentrated in select residential markets.<sup>8</sup>

7 Marsh, 'The silent signal: How extreme weather can impact pricing in a soft market' (January, 2026), available at: <https://www.marsh.com/en-gb/risks/climate-change-sustainability/insights/silent-signal-how-extreme-weather-can-impact-pricing-in-soft-market.html>

8 Sustainable Markets Initiative, 'Investing in an Era of Extreme Weather', (March 2026), available at: <https://impaxam.com/assets/pdfs/reports/smi-report-2026.pdf?ppwm=2626>

FIGURE 3: Average costs by county to purchase \$1,000 of hazard insurance for loans that existed continuously between 2014 and 2025<sup>9</sup>



Affordability pressure is also emerging through the layering of costs and retentions rather than a simple “yes/no” availability outcome. Common manifestations include higher catastrophe deductibles and aggregates, sub-limits for specific perils, reduced limit deployability at working layers, and more demanding data and engineering requirements to secure lead terms. For some insurers, this translates into greater reliance on alternative structures (for example, higher self-insured retentions, captives, parametric solutions, or public schemes) to fill gaps or manage volatility.

The protection gap can be considered as the shortfall between the total economic value exposed to physical climate hazards and the portion of that value effectively transferred to risk-bearing mechanisms. It encompasses uninsured losses and underinsurance (for example, policies with high deductibles, sub-limits, exclusions or restrictive terms), self-insurance and captive retention, parametric arrangements that only partially compensate loss, and assets or activities effectively excluded from affordable and comprehensive risk transfer.

In practical terms, a widened protection gap means an increased share of climate-driven loss, volatility and uncertainty retained on balance sheets. By transferring risk back onto balance sheets and into lender and investor exposures, protection gaps amplify systemic risk, impair recoverability after events, and can materially alter capital allocation decisions and market liquidity.

Taken together, these dynamics can widen the protection gap: even where insurance remains available, it may be less comprehensive, more conditional, and more sensitive to risk quality, shifting a larger share of climate-driven risk back onto organisations and the public sector.

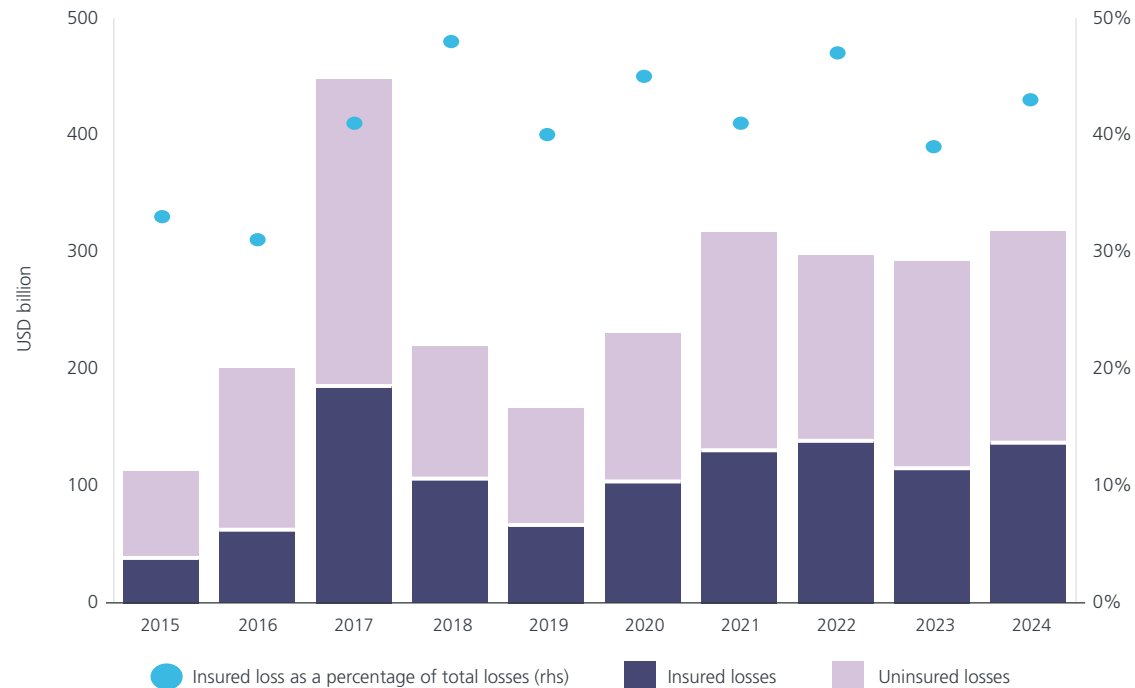
Loss trend data underline why current soft-market conditions should not lead to complacency. Swiss Re's Sigma reports that global insured losses from natural catastrophes reached \$137bn in 2024 and that insured losses have followed an approximate 5–7% annual growth rate in recent years (see Figure 4 below).<sup>10</sup> However, Sigma

9 ICE, 'How are home insurance costs changing across the United States?', (Nov 2025), available at: <https://www.ice.com/article/how-are-home-insurance-costs-changing-across-the-united-states>

10 Analysis not adjusted for increasing exposure levels (e.g. due to asset valuation inflation), hence variance compared to Guy Carpenter's estimated annual insured loss growth cited earlier.

assess that these insured losses represent just 43% of total economic losses from disaster events in 2024, which are estimated at \$318bn in total. In the UK, a developed economy where insurance coverage is generally more widespread, the CCC's Fourth Independent Assessment of UK Climate Risk report quantified the overall protection gap at 29% in 2024.<sup>11</sup> Whilst Figure 4 indicates that the share of insured losses as a percentage of total loss has remained relatively stable in the last decade, increasing physical climate risk will place greater pressure on insurability – with growing challenges around affordability, terms, and capacity in higher-risk areas – regardless of short-term market cycle effects. Where a greater share of losses remain uninsured, economic recovery tends to be slower, and the distributional impacts of disasters become more acute.

**FIGURE 4:** Global natural catastrophe insured and uninsured losses, share of insured losses (USD bn, 2024 prices).<sup>12</sup>



<sup>11</sup> Climate Change Committee, 'A Well-Adapted UK: The Fourth Independent Assessment of UK Climate Risk', (20 May 2026), available at: <https://www.theccc.org.uk/publication/a-well-adapted-uk/>

<sup>12</sup> Sigma, 'sigma 1/2025: Natural catastrophes: insured losses on trend to USD 145 billion in 2025', (April 2025), available at: <https://www.swissre.com/institute/research/sigma-research/sigma-2025-01-natural-catastrophes-trend.html>



# Climate protection gaps as a driver for wider capital markets stress

# 03

# Climate protection gaps as a driver for wider capital markets stress

## 3.1 From insurability to bankability and investability: insurance as a foundation

The challenges facing risk transfer markets in a changing climate have wider significance because of the fundamental role insurance plays as a foundation for wider capital markets.

Insurance is often described as a ‘first line of defence’ because it performs functions that extend beyond claims payment. It helps price risk, supports proportionate and growth generative risk-taking, and supports recovery by providing liquidity after loss events. It also supports wider financial activity. In debt markets, mortgages, construction finance, project finance and corporate lending typically rely on adequate insurance as a condition of funding. Equity investors often also require confidence that appropriate risk transfer measures are in place before investment.

Where insurance is unaffordable or unavailable, this can increase the cost of debt as lenders adjust pricing to reflect the additional retained risk. Uninsurability can also transmit into equity markets – either directly or as a result of the debt-stress mechanism described above – by increasing the cost of equity and constraining access to capital. This combination of debt and equity pressure can ultimately affect asset valuations, causing economic activity to slow. This is not necessarily because the underlying projects or transactions are no longer operationally unviable, but because the inherent risks cannot be efficiently transferred.

### 3.1.1 Insurability’s transmission into credit markets

Lenders typically require adequate insurance as a condition of lending because it provides an additional buffer against losses that could otherwise impact debt servicing. If insurance coverage becomes unavailable, excessively expensive, or heavily excluded, lenders may respond by tightening credit standards, shortening loan tenors, requiring additional collateral, or increasing interest rates to compensate for higher additional risk and uncertainty. In the most extreme scenarios, they may simply be unable to lend at all.

Financial authorities have increasingly acknowledged this transmission channel between insurance and lending markets. The Financial Stability Board’s (FSB) 2025 climate vulnerabilities framework explicitly recognises that weakening insurance coverage propagates risks to lending markets, potentially leading to broader pullbacks in lending that are highly detrimental to economic activity.<sup>13</sup> Similarly, the US Federal Reserve published analysis indicating how insurance gaps amplify bank exposures in climate-vulnerable sectors such as real estate and agriculture, increasing correlated defaults and financial stability risks in debt markets.<sup>14</sup>

13 Financial Stability Board, ‘Assessment of Climate-related Vulnerabilities: Analytical Framework and Toolkit’, (January 2025)

14 Brunetti, C., & Hancock, D., ‘Insurance, Weather and Financial Stability: Federal Reserve Board Finance and Economics Discussion Series’, 2024-067

### 3.1.2 Insurability’s transmission into equity markets

For investors, insurance costs and residual risk can materially affect cash flows. Rising premiums, higher deductibles and narrower coverage can increase operating costs and reduce the attractiveness of certain assets. In competitive sectors with thin margins, even modest increases in insurance costs can tip projects from viable to uneconomic.

An example of this is the growing concern around property insurance affordability in the US. Costs have risen considerably in the last decade due in part to a series of destructive climate events such as Hurricanes Ida and Harvey. This poses a challenge both to individual homeowners and real estate investors, which in turn are seeing higher insurance expenses reduce cash flows, net operating incomes and, ultimately, valuations.

The risks this poses to investment into multiple segments of the real estate market are increasingly being recognised by financial regulators, with the Minneapolis Fed last year noting that “property insurance costs threaten continued maintenance of and investment in our region’s housing stock”.<sup>15</sup> Recent research by the Global Real Estate Engagement Network has suggested properties in regions exposed to extreme climate events may experience a discount in value between 2%–20%.<sup>16</sup>

In segments of the US housing market, this dynamic has already been observed. States with high climate hazard risk exposure, such as California (high rates of wildfire) and Florida (high rates of hurricane/flood), have seen major insurers curtail new business and/or increase non-renewals, pushing more homeowners into publicly backed risk pools (e.g., California FAIR Plan and Florida Citizens) and increasing the cost and friction of maintaining lender-compliant insurance.<sup>17</sup>

For real assets, this can lower valuations, increase the cost of ownership and potentially ‘strand’ assets at significant scale as buyer demand disappears, with the risk that investment portfolios holding these assets also lose value. The risk is significant — the National Oceanic and Atmospheric Administration reported 27 major disasters in the US in 2024 alone, causing an estimated \$182bn in damages.

## 3.2 Governments’ role in managing protection gaps and uninsurability

Widening protection gaps cause uninsured risks to sit increasingly on balance sheets that are not well designed to absorb them. This has significant negative consequences for financing and economic activity. In addition, when extreme weather events occur under such conditions, climate losses are retained by households and businesses rather than being absorbed by insurance. This amplifies the impact on economic activity and the pace of recovery. In such circumstances, the public sector is often required to step in, socialising losses in the form of funding for disaster relief, emergency response and reconstruction. Research indicates that the cumulative impact of these

15 Spicher, C., & Starling, L., ‘Rising Property Insurance Costs Stress Multifamily Housing. Federal Reserve Bank of Minneapolis’, (2025)

16 Green, ‘Understanding the Impact of Climate Risk on Real Estate Valuations’, (May 2023), available at: <https://green-engagement.org/climate-risk-impact-on-real-estate-valuations/>

17 Insurance Business, ‘California’s FAIR Plan carries growing load as insurers retreat beyond wildfire zones’, (March 2026), available at: <https://www.insurancebusinessmag.com/us/news/catastrophe/californias-fair-plan-carries-growing-load-as-insurers-retreat-beyond-wildfire-zones-568596.aspx>

indirect and direct stresses on governments' fiscal position can be profound, with nations exposed to the highest levels of physical climate risk carrying an 18.5% higher probability of sovereign default on average than those with the lowest exposure.<sup>18</sup>

A potentially more fiscally efficient form of intervention than 'post hoc' disaster recovery funding is the provision of capital for government to act as an insurer of last resort. Such public sector support for risk transfer markets can be invaluable and is, in many cases, an important means of tackling systemic risks, such as climate.

## CASE STUDY

Public-private partnerships such as Spain's Consorcio de Compensación de Seguros (CCS) provide a pre-arranged, publicly backed risk-sharing mechanism that complements private insurance and reduces the need for ad hoc post-disaster public funding. Financed primarily by a compulsory surcharge on specified insurance policies (recargo de primas), CCS covers defined "extraordinary" perils, including severe floods, and indemnifies losses under the terms of the insured policy when an event is declared extraordinary or falls within the scheme's statutory scope. In recent severe flood events, CCS has supported prompt settlement of standard household and motor claims while managing larger industrial and infrastructure losses as assessments proceeded. Over decades, CCS has paid multi-billion-euro compensation for extraordinary risks, with a substantial portion attributable to flooding. It deploys its reserves and, where appropriate, reinsurance arrangements to smooth payouts and limits the need for ad hoc fiscal interventions.

There are, however, inherent opportunity costs in using public funds for insurance backstops, as these require the reserving of capital against future claims. This increases contingent sovereign liabilities (with consequences for sovereign risk) and diverts public sector capital away from other important activities such as climate adaptation or mitigation financing – activities that may deliver greater long-term return on investment.

In addition, many governments globally are currently not well placed to provide the capital required due to weak fiscal positions. Efforts must therefore be made to ensure the effective functioning of private insurance markets wherever possible, and central to this are adaptation and resilience interventions that reduce societal exposure and vulnerability to climate.

### 3.3 The adaptation and resilience financing gap

In this context, greater emphasis must be placed on adaptation and resilience:

**Adaptation and resilience:** the collective terms for measures that reduce exposure and vulnerability to current and future climate hazards so people, assets and systems can withstand and recover from climate shocks and stresses.

18 ICE, 'The link between physical climate risk and sovereign default', (March 2024), available at: <https://www.ice.com/insights/sustainable-finance/the-link-between-physical-climate-risk-and-sovereign-default>

The financing required for adaptation and resilience must be raised alongside, rather than instead of, that required for mitigation and the transition to net zero, because managing climate risk requires a blend of decarbonisation pathways and resilience investment.

This paper will not describe in detail the range of adaptation and resilience interventions required to manage physical climate risk. Instead, it notes that in the UK, the CCC's latest independent assessment of UK Climate Risk, 'A well-adapted UK', provides detailed and specific recommendations for the measures required.

However, it is important to acknowledge that adaptation and resilience interventions span asset-level measures such as flood barriers or cooling systems, and system-level measures such as coastal defences or reservoir expansions that reduce risk across communities. This distinction is important for financing – system-level measures often suffer from the free-rider problem, meaning greater public sector involvement is likely to be needed to fund them.

Our understanding of the scale of adaptation and resilience financing requirements is rapidly advancing as the issue is receiving increasing attention. The UK's adaptation financing needs are now estimated to be £11bn per year, whilst the UN Environment Programme (UNEP) expects that developing countries alone will need more than \$310bn per year in total by 2035 to cover adaptation and resilience costs, with current funding at just \$25–28bn per year.<sup>19</sup>

### 3.4 Why adaptation is hard to finance: avoided losses, public-good dynamics and valuation bias

A widely cited study by Allstate and the US Chamber of Commerce has estimated that "every \$1 spent on climate resilience and preparedness saves communities \$13 in damages, clean-up costs and preserved economic activity".<sup>20</sup> A follow-up report in 2025 suggested that the broader economic losses incurred by each \$1 in resilience underinvestment could be as high as \$33.<sup>21</sup>

Despite growing consensus on the payoffs delivered by investment, climate resilience is proving difficult to finance at scale. This is because, while the value is real, it is difficult to capture. Many resilience measures generate benefits primarily through avoided losses rather than the creation of new, positive cash flows. Avoided loss is inherently counterfactual: it depends on what would have happened without the intervention. This makes the benefit harder to quantify, capture and reflect contractually, and translate into a tangible return on investment or predictable cash flows. As a result, adaptation can be perceived as less investable than projects that create direct revenue streams, even when the long-term economic value is high.

The time profile of the costs and benefits compounds the challenge. Adaptation often requires significant upfront capital, with benefits accruing over decades. For many investors and corporate decision-makers operating within

19 UNEP, 'Adaptation Gap Report 2025', (October 2025), available at: <https://www.unep.org/resources/adaptation-gap-report-2025>

20 U.S. Chamber of Commerce, Allstate and the U.S. Chamber of Commerce Foundation, 'The Preparedness Payoff: The Economic Benefits of Investing in Climate Resilience', (June 2024), available at: <https://www.uschamber.com/security/the-preparedness-payoff-the-economic-benefits-of-investing-in-climate-resilience>

21 Allstate Newsroom, 'From Risk to Reward: New Research Finds Increased Payoff from Disaster Resilience Investments', (September 2025), available at: <https://www.allstatenewsroom.com/news/from-risk-to-reward-new-research-finds-increased-payoff-from-disaster-resilience-investments/>

short performance horizons, these long-dated returns can be difficult to justify. This is another expression of the tragedy of horizons: investment appraisal and capital allocation frequently discount long-term avoided losses heavily, favouring projects that improve near-term earnings or produce clear revenue.

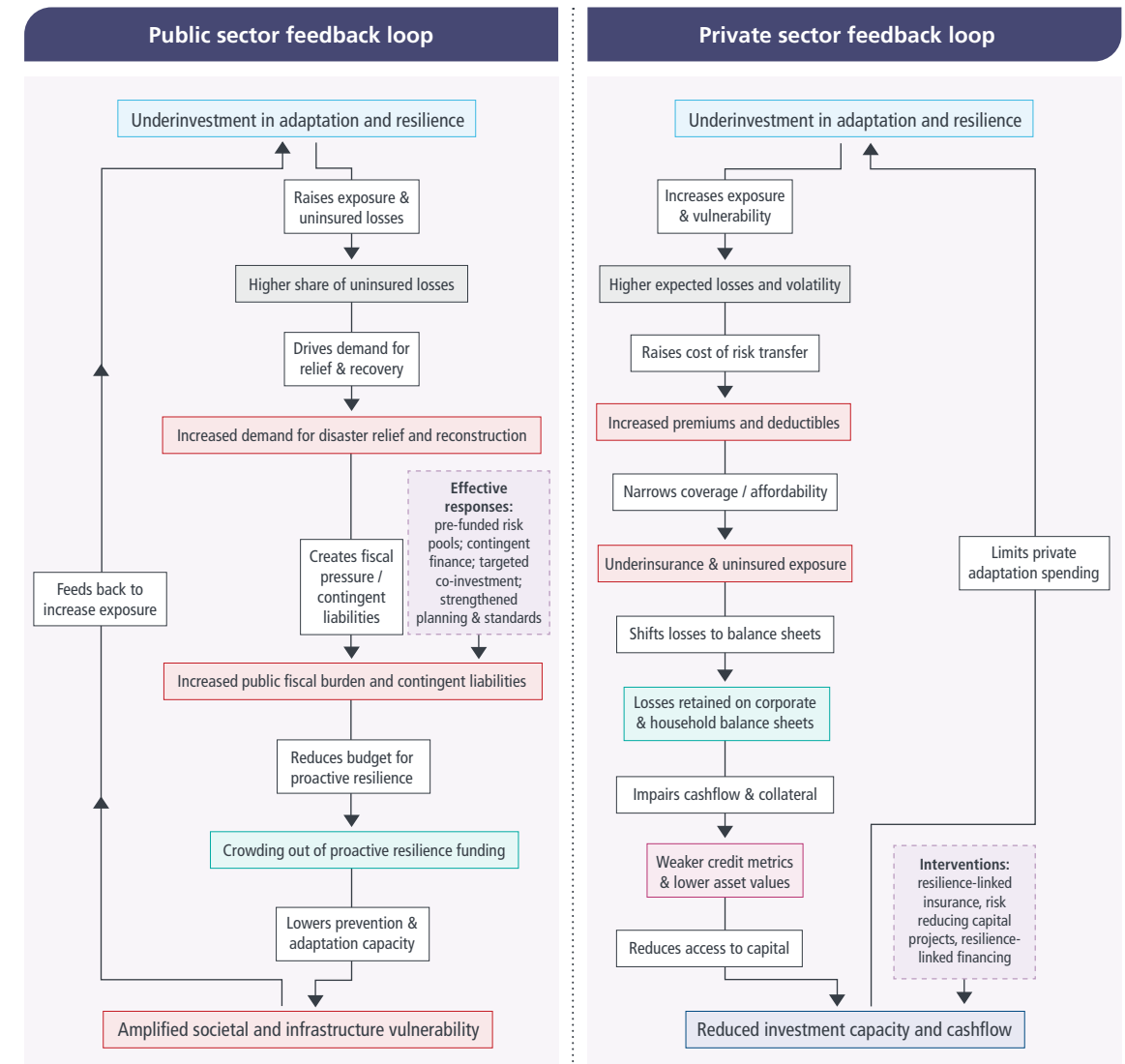
Finally, there are structural features of financial and regulatory systems that can inadvertently disadvantage adaptation. Accounting, regulatory and investment appraisal frameworks tend to reward projects with clear monetisable value more than risk reduction. Even where resilience investments improve long-term asset value and reduce volatility, the benefit may not be recognised in near-term financial reporting or conventional hurdle-rate assessments. This can bias capital toward mitigation or revenue-generating infrastructure, leaving adaptation underfunded relative to its societal and economic importance.

### 3.5 Consequences of underinvestment: feedback loops into insurability and finance

When adaptation does not keep pace with hazard and exposure growth, physical climate risk accumulates across the real economy. Over time, this can erode insurability through higher expected losses and volatility, pushing premiums and deductibles upward and widening the protection gap. As more assets become underinsured or effectively uninsurable at affordable rates, credit and investment pressures intensify: uninsured losses can impair borrower balance sheets, increase defaults, and reduce confidence in asset values.

At the macro level, underinvestment can shift an increasing share of losses onto public finances through disaster relief and reconstruction, raising fiscal stress and potentially reducing the resources available for proactive resilience. Research by Allstate and the US Chamber of Commerce shows how underinvestment can drive substantially higher costs, risking the creation of a reinforcing loop: weak resilience increases losses; higher losses constrain insurance and financing; constrained insurance and financing slows recovery and reduces investment capacity; reduced investment capacity further weakens resilience.

FIGURE 5: Resilience underinvestment feedback loops in the public and private sector<sup>22</sup>



22 Marsh Risk analysis

However, this research also highlights the theoretical scale of the economic opportunity to be realised. Research published this year by the Intercontinental Exchange (ICE) has also offered real-world evidence substantiating this theory in a public sector context.

As noted in Chapter 3.2, public sector adaptation and resilience financing can stretch fiscal capacity, particularly given the significant costs required to realise many projects. Governments must therefore balance the need for resilience investment with the risks of overleverage, including potential credit rating downgrades and subsequent increases in the cost of borrowing. In a study using Virginia Beach's \$567.5m flood mitigation bond as an example, ICE found that issuance of the bond still made sense even in a scenario in which it triggered a material downgrade in Virginia Beach's credit rating from AAA to BB. Under this scenario, ICE assumed Virginia Beach would face an 1.39% increase in average yield across the bond lifecycle but found that the additional debt servicing costs – roughly \$170m over 30 years – paled in significance compared to the cost of inaction – \$4.6bn over the same period.<sup>23</sup>

The consequences of underinvestment in resilience and widening protection gaps are likely to be significant and require a range of responses. These include risk transfer innovations that promote wider insurability in the face of climate, alongside systematic action to reduce underlying risk through scaled and coordinated adaptation investment, supported by finance structures and policy frameworks that align incentives over appropriate time horizons. A number of these responses and innovations are already in progress, though more work is required to meet the challenge.

<sup>23</sup> <https://www.ice.com/insights/fixed-income/could-a-credit-downgrade-be-worth-it-a-cost-benefit-analysis-of-debt-financing-for-climate-infrastructure>



# Structural and incentive misalignment

# 04

# Structural and incentive misalignment

Despite increasing engagement from insurers, capital markets and other actors, a set of structural and market constraints continues to limit progress in addressing the insurability challenge. Many of these constraints reflect long-established financial market mechanisms and incentive structures that are not yet well aligned with the characteristics of physical climate risk and resilience investment.

## 4.1 Structural and incentive misalignment

### 4.1.1 Tragedy of horizons

A fundamental constraint in closing the protection gap lies in the mismatch between the long-term nature of climate risk and the short-term horizons that typically shape financial decision-making. Physical climate risk will continue to evolve over decades, yet many financial and capital allocation decisions are made with a view to far shorter horizons – for example, the 12-month insurance underwriting cycle or the 3-5-year investment horizons common in private markets.

This temporal mismatch affects capital allocation. Investments in resilience, whether through infrastructure upgrades, nature-based solutions, or risk mitigation measures, often deliver value over extended periods by reducing future financial losses. However, those longer-term benefits are often discounted in current decision-making.

For insurers, lenders, and investors, this creates a structural disincentive, in that exposure to climate risk may not persist long enough to justify upfront adaptation investment. The result is a system that tends to favour reactive risk transfer over proactive risk reduction, even where the latter would be economically more efficient over the long term. In aggregate, this contributes to persistent underinvestment in resilience, slowing adaptation even as risk awareness increases.

### 4.1.2 Private benefit versus public good in resilience

Many resilience measures, including flood defences, wildfire management, or coastal protection, generate benefits that are widely shared across communities and individuals. While the societal value of these interventions can be substantial, the benefits are often diffuse and not easily captured by any single actor.

This creates a collective action, or ‘free rider’ problem. Individual firms or asset owners may have limited incentive to invest independently where the returns are shared broadly and others can benefit without contributing proportionately. Without coordination, rational decisions at the individual level can lead to underinvestment at the system level.

### 4.1.3 Valuing avoided loss within existing financial frameworks

A further structural constraint relates to how financial systems assess value. Investment appraisal, accounting standards, and performance metrics are generally designed to favour projects with clear and monetisable revenue streams. By contrast, many resilience investments derive their value from reducing the likelihood or severity of future losses rather than generating immediate income.

This has practical implications. Avoided losses are inherently uncertain, contingent on future climate scenarios, and often difficult to capture within conventional financial models. As a result, adaptation investments may appear less attractive on a risk-adjusted return basis, even where their broader economic or societal value is significant.

This creates a bias in capital allocation toward mitigation projects or infrastructure with direct revenue generation, and away from adaptation measures that primarily provide protective benefits. Until financial frameworks evolve to recognise the economic value of resilience more effectively, adaptation investment is likely to remain comparatively underprioritised.

## 4.2 Market constraints

### 4.2.1 Limited pipeline of bankable adaptation projects

Beyond structural incentives, there are also practical constraints on the supply of investable opportunities. Many adaptation initiatives are highly localised, context-specific, and relatively small in scale. This makes them difficult to standardise or aggregate for institutional investors. In many cases, projects also lack clear revenue models or predictable cash flows, further limiting their attractiveness to private capital.

In many regions, particularly emerging markets, project preparation capacity is also limited. The technical, financial, and governance capabilities required to develop adaptation projects to an investable standard are not always in place, creating a gap between identified resilience needs and viable investment opportunities, especially where multi-stakeholder coordination is required.

This results in a persistent mismatch: capital is increasingly available for climate-related investment, but the pipeline of bankable adaptation opportunities remains constrained. Addressing this pipeline challenge may be as important as mobilising additional capital in closing the protection gap.

### 4.2.2 Fragmentation of adaptation funding

Adaptation finance today is currently highly fragmented. Funding flows come from a diverse range of sources, including public budgets, multilateral development banks, philanthropic capital, and private investors, often with differing mandates, return expectations, and deployment mechanisms.

This fragmentation is reinforced by the nature of the underlying opportunities. Adaptation funding is often project-specific and geographically dispersed, which limits opportunities for scale and standardisation. In practice, this means each project may require separate origination, technical validation, stakeholder alignment, legal

documentation, monitoring, and reporting. The result is higher transaction costs, slower deployment, and fewer opportunities to aggregate projects into diversified portfolios of meaningful size. This constrains access to capital-market-style channels that rely on repeatability and pooled assets.

Fragmentation also makes it harder to measure progress. Without more consistent frameworks for tracking adaptation investment and outcomes, it remains difficult to assess how effectively financing is helping to close the protection gap. Greater aggregation, standardisation, and coordination mechanisms will therefore be critical to improving both efficiency and transparency.

A related challenge is that adaptation projects also often lack predictable revenue or cashflows, limiting their suitability for traditional project finance structures. Treating adaptation solely as project finance can therefore be misleading. Many projects function primarily as risk mitigations, protecting long-term asset values – with the benefit captured through improved resilience and credit quality – rather than creating standalone, separately quantifiable revenue streams. However, this creates greater scope for balance-sheet solutions, including loans or bonds linked to resilience capex, where lenders can underwrite strengthened business continuity and reward via enhanced borrower creditworthiness. Adaptation and resilience components can also be incorporated into wider loans, so that financial viability does not rest on climate resilience features alone.

This approach is most feasible where adaptation measures sit within a company's operational control (for example, hardening facilities, supply chain resilience, or upgrading drainage and cooling systems on owned sites). By contrast, place-based resilience investments that depend on public infrastructure, land-use decisions, permitting, or municipal coordination, such as flood defences, coastal protection, or wider drainage networks, remain harder to finance through private balance sheets alone. These investments often require stronger public-sector capacity, aggregation mechanisms, and blended finance or public-private partnership models.

### 4.2.3 Inconsistent policy signals

Finally, the broader policy environment plays a decisive role in shaping adaptation investment. Clear, stable regulatory frameworks, covering areas such as land use, building standards, disclosure requirements, and long-term climate strategy, are essential to reduce uncertainty and enable long-duration capital commitments.

In many jurisdictions, however, policy signals on climate risk management and resilience remain uneven or are still evolving. Uncertainty around future regulation, public investment priorities, or risk-sharing arrangements can increase perceived risk for private investors, discouraging engagement in adaptation projects.

Inconsistent policy alignment can also weaken incentives for risk reduction. For example, where pricing signals do not fully reflect underlying climate risk, or where planning frameworks do not adequately incorporate resilience considerations. Taken together, these factors underline the importance of policy clarity and consistency in both triggering and subsequently mobilising private capital at scale. A more predictable and aligned policy environment can play a catalytic role in unlocking investment and accelerating progress toward closing the climate protection gap.



# Responses and innovations

05



# Responses and innovations

Awareness is growing globally of the threat that physical climate risk poses to insurability and, in turn, to capital markets. A range of responses are emerging to address the insurability challenge, with further innovation likely in the years ahead.

## 5.1 Insurance market responses: Alternative Risk Transfer (ART)

ART solutions are innovative mechanisms beyond traditional (re)insurance that enable more flexible and capital-efficient risk transfer. They can diversify capital sources, stabilise insurance costs in volatile markets, and expand capacity for hard-to-place risks. While not developed specifically in response to the climate insurability challenge, several ART solutions could help narrow growing protection gaps and reduce the risk of stranded assets.

ART responses			
Solution	What it does	Strengths	Limitations
Parametrics	Parametric insurance products are based upon measurable indexes (e.g. wind speeds) with pre-defined thresholds that trigger automatic payout if met. Unlike traditional 'indemnity-based' property insurance, parametric products are priced based on the probability of the indexed threshold being triggered, rather than the probability of a given quantum of damage being suffered by the policyholder. Parametrics' index-based nature mean they can payout much faster than traditional insurance products as there is no need for loss quantification, adjustment or settlement negotiation. This delivers significant benefits when parametrics are used for disaster response financing.	<ul style="list-style-type: none"> <li>• Rapid payouts, valuable for immediate post-disaster liquidity.</li> <li>• Lower claims adjustment costs and admin complexity.</li> <li>• Can cover risks hard to insure traditionally e.g., drought, extreme heat.</li> <li>• Transparency of triggers can improve predictability for buyers.</li> </ul>	<ul style="list-style-type: none"> <li>• Basis risk: payout may not match actual losses (trigger met but little damage, or damage occurs without trigger).</li> <li>• Requires reliable hazard data and well-designed triggers.</li> </ul>

Risk pooling (e.g. regional catastrophe pools)	Risk pooling is one of the fundamental concepts upon which insurance is built – the aggregation of similar risks from multiple parties into a shared pool, leveraging the law of large numbers to smooth claims experience across the group. Artificially augmented risk pools (e.g. at a regional, national or international level) drive further diversification, improving the commercial insurance market's ability to transfer otherwise 'hard-to-insure' risks.	<ul style="list-style-type: none"> <li>• Greater diversification reduces volatility for participants.</li> <li>• Can make insurance viable in smaller or more exposed markets.</li> <li>• Often improves access to capital supply, including reinsurance and capital markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Effectiveness depends on the extent of diversification – if hazards become more correlated (e.g., climate-driven extremes), benefits of risk pooling weaken.</li> <li>• Requires strong governance and coordination among participants.</li> <li>• Pooled capital may still be insufficient for very large events.</li> </ul>
Public-private partnerships (PPP)	Collaborative arrangements between government and commercial insurers to jointly finance, structure and manage coverage for high-risk natural catastrophe events. This combines public sector resources (e.g. backstops and subsidies) with private sector expertise (e.g. underwriting, pricing) to bridge protection gaps where traditional insurance markets retreat due to unprofitability.	<ul style="list-style-type: none"> <li>• Maintains coverage availability in high-risk markets where the commercial market may not function in isolation.</li> <li>• Spreads risk between public and private balance sheets.</li> <li>• Can improve affordability through subsidies or pooling mechanisms.</li> <li>• Enables large-scale natural catastrophe coverage (e.g., national flood systems).</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of moral hazard if pricing does not reflect underlying risk.</li> <li>• Requires public sector funding and can create long-term fiscal exposure.</li> <li>• Government subsidisation may artificially distort market, reducing incentives for adaptation or risk reduction where PPPs are poorly designed.</li> </ul>
Insurance-linked Securities (ILS)	ILS convert insurance risks – typically peak natural catastrophe exposures – into tradable securities like CAT bonds, which can then be transferred to non-insurer capital markets investors who bear the risk in exchange for yield. This introduces new risk-bearing capital sources from outside of the (re)insurer market.	<ul style="list-style-type: none"> <li>• Expands global risk-bearing capacity beyond the traditional reinsurance sector.</li> <li>• Provides insurers with multi-year, fully collateralised protection, reducing counterparty risk.</li> <li>• Attractive to investors due to low performance correlation with wider financial markets.</li> <li>• Can help stabilise capacity when traditional reinsurance tightens.</li> </ul>	<ul style="list-style-type: none"> <li>• Highly sensitive to investor sentiment—capital can exit the market quickly after large losses.</li> <li>• Structuring and issuance costs can be relatively high.</li> <li>• Most suitable for well-modelled catastrophe risks, limiting applicability to some climate hazards.</li> <li>• Capacity may fluctuate with broader financial market conditions.</li> </ul>

## CASE STUDY

### Insurance-linked securities

In May 2025, Guy Carpenter acted as the sole structuring agent for a pioneering \$600m 'Resilience Bond', which was issued by the North Carolina Insurance Underwriting Association (NCIUA). The bond is the first transaction to not only provide financial protection against natural catastrophe events but also to integrate disaster resilience features, enabling new private sources of funding to support risk management measures. While the bond offers financial protection against storms rather than floods, it has potential application much more widely following this groundbreaking placement.

Solution	What it does	Strengths	Limitations
Integration of climate data into portfolio planning	Insurers are progressively taking greater consideration of long-term climate projections, including in response to regulatory requirements in jurisdictions including the UK. Such climate data provides projections for physical and transition risks under different scenarios, enabling proactive management of investment and underwriting portfolios.	<ul style="list-style-type: none"> <li>Enables anticipation of emerging exposure concentrations and proactive planning, including through client engagement and refinement of underwriting appetites.</li> <li>Helps avoid sudden 'cliff edges' when multiple insurers retreat from high-risk markets at short notice, reducing capital supply and driving up prices.</li> </ul>	<ul style="list-style-type: none"> <li>Short-term (typically 12 month) policy lifecycle means some insurers are struggling to integrate climate data into decision-making, instead relying on their ability to revise appetites at a later date.</li> </ul>

## 5.2 Banking and capital markets responses

Capital markets have consistently developed products and structures to respond to evolving risk where there is clear commercial demand. In relation to weather and climate risk, this is already reflected in established hedging tools used in sectors such as agriculture, logistics and maritime to manage exposure to variables including rainfall, wind and temperature. What is now emerging is a more targeted layer of innovation focused on forward-looking physical climate risk. These solutions can better support capital allocation, strengthen resilience and help sustain insurability, productivity and economic activity. Climate risk projections are increasingly being incorporated into capital allocation decisions, directing capital towards more resilient assets and away from significant risk exposure. Public-private finance is also being used to de-risk adaptation and resilience investments, helping improve risk-adjusted returns and crowd in private capital.

## Banking and capital markets responses

Solution	What it does	Strengths	Limitations
Integration of climate data into credit / investment allocation decisions	Integrating physical risk data into capital allocation decisions enables lenders and investors to quantify and project future climate risks and build these into pricing and decision-making.	<ul style="list-style-type: none"> <li>Steers capital towards climate-resilient assets and ultimately reduces the portion of investable assets exposed to insurability challenges and at risk of becoming 'stranded'.</li> <li>Enhances financial stability and market confidence by reducing exposure to climate catastrophes and directing capital towards adaptation and resilience.</li> </ul>	<ul style="list-style-type: none"> <li>Data and modelling gaps persist, though these are being improved at pace.</li> <li>Uncertainty over the world's future emissions and climate trajectory hinder accuracy and require models to consider a wide range of potential outcomes.</li> <li>Capital allocation decisions often focus on short-term (e.g. 5 year) horizons, whilst physical climate risks are expected to evolve over multi-decade timeframes.</li> </ul>
Blended / concessional structures for adaptation financing (e.g. guarantees, first-loss vehicles)	Like PPP in risk transfer, blended finance leverages public sector (or philanthropic) capital with lower required returns to improve the attractiveness of financing to private markets. Blended finance includes grants, first-loss equity or guarantees, all of which serve to absorb first-losses and thus reduce risk across the rest of the capital stack.	<ul style="list-style-type: none"> <li>De-risks innovative or unproven projects making them more attractive to traditional investors – of particular value for crowding in private investors into innovative and low-yield adaptation and resilience investment.</li> </ul>	<ul style="list-style-type: none"> <li>Not yet proven to be a scalable solution that can crowd-in capital to the least developed markets globally.</li> <li>High complexity means blended structures generally come with significant expenses and lengthy timelines, again limiting scalability.</li> </ul>

## CASE STUDY

### Blended / concessional structure

In 2024, Societe Generale acted as Arranger, Global Coordinator, Sustainability Bank and sole Hedge Provider for a €506m loan to the West African Development Bank (BOAD) in Togo, to finance sustainable projects across the bank's eight member countries. The loan was guaranteed by the Multilateral Investment Guarantee Agency (MIGA) evidencing the impact that such de-risking mechanisms can have in unlocking private capital. In addition, 30% of the borrowed amount is to be dedicated to adaptation projects, showcasing how adaptation financing can be effectively integrated into broader transactions that blend value creation (e.g. development of renewable energy infrastructure) with value protection (e.g. adaptation and resilience).

### 5.3 Policy, legal and regulatory responses

Central banks, governments and financial regulators are increasingly recognising the risks that climate change poses to both capital markets and the real economy. Responses include policy interventions designed to integrate climate resilience into budgeting and long-term asset planning, including through direct investment and targeted funding intended to crowd in private investment. Several prudential supervisors, including the Bank of England, have also continued to tighten regulatory frameworks around climate risk, although progress has been slower than at the start of this decade.

This includes the integration of climate considerations into financial reporting requirements and prudential stress testing. However, while regulatory initiatives, such as the increasing global implementation of International Sustainability Standards Board (ISSB) aligned reporting, are helping to build awareness and improve risk management, most frameworks remain exploratory rather than linked to binding capital requirements. Further development of physical climate risk regulation and supervisory tools will therefore be needed, alongside improvements in climate risk data and modelling.

Legal responses are also accelerating. Climate-related litigation is increasingly targeting corporates, directors and financial institutions for alleged failures to assess, disclose, or manage material physical climate risks and for misstatements in sustainability and resilience claims. Over time, these cases, alongside evolving duties of care, fiduciary expectations, and contractual risk-transfer provisions, are likely to further raise the standard of ‘reasonable’ climate risk governance and disclosure, reinforcing supervisory efforts through enforceable liability and precedent.

Climate-related financial disclosure requirements	Requires standardised company disclosure of physical-risk exposures, and governance/risk management frameworks in place to manage these risks. This aims to reduce information asymmetry and support external stakeholders price risks and allocate capital accordingly. Current direction of travel is toward a global baseline (e.g., ISSB/IFRS S2) aligned to TCFD-style pillars.	<ul style="list-style-type: none"> <li>Improves transparency and comparability, enabling investors/lenders/insurers to differentiate exposures.</li> <li>Drives better data, controls, and governance as disclosures face scrutiny/assurance.</li> <li>Helps regulators monitor system-wide concentrations and repricing dynamics.</li> </ul>	<ul style="list-style-type: none"> <li>Disclosure does not reduce exposure and can become boilerplate if not decision-useful.</li> <li>Metrics are model-dependent and assurance is uneven, limiting reliability.</li> <li>Greater transparency can accelerate repricing and withdrawal from high-risk areas without broader adaptation policy.</li> </ul>
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Policy and regulatory responses			
Solution	What it does	Strengths	Limitations
Enhanced prudential supervision and stress testing	Positions physical climate risk as a financial-stability risk and seeks to actively monitor company and system-level exposure to this risk. Regulator-led stress testing of severe but plausible scenarios can assess the impacts of insurance-market retreat on collateral impairment/asset repricing, and credit deterioration and identify actions to remediate these exposures.	<ul style="list-style-type: none"> <li>Communicates the materiality of climate risk to the market, positioning it as core to prudential risk management.</li> <li>Gives supervisors a system-wide view of shared exposures and concentration hotspots.</li> <li>Builds shared language and comparability over time; exposes model fragility.</li> </ul>	<ul style="list-style-type: none"> <li>Often principles-based and uneven across jurisdictions; enforcement varies.</li> <li>Constrained by data gaps and uncertainty on hazards and adaptation effectiveness.</li> <li>Rapid de-risking can worsen availability/affordability (credit/insurance withdrawal) without parallel public adaptation.</li> </ul>

# Recommendations for change

06

# Recommendations for change

Physical climate risk poses a potentially systemic risk to economies, both through the direct impact on companies and communities, and through its indirect effect on financial systems. This paper focuses on one key transmission channel: the effect of rising physical climate risk on insurability, and in turn, on capital markets. This channel may materialise quicker than wider economic impacts, and therefore merits focused attention.

Addressing the risk that protection gaps pose to both the economy and capital markets will require coordinated action across the public and private sectors. We therefore propose the following four recommendations as cross-sector priorities to strengthen insurability, support resilience investment and improve the alignment of finance with physical climate risk.

1

## Earlier pricing and governance of physical climate risks

- Financial markets and real economy actors should continue to make greater use of forward-looking physical climate risk data to identify material exposures, assess resilience over relevant time horizons, and support strategic decisions on portfolio management, underwriting, pricing and capital allocation. For firms facing material risk, this should enable proactive, incremental adjustment of exposures, while also helping to identify resilience investment opportunities.
- The health of the property insurance market (including affordability, availability, and exclusion / deductible trends) should be actively monitored and treated as an early-warning indicator for physical climate risk levels. This should inform proactive risk management by signalling deteriorating bankability and investability in exposed assets, sectors and geographies. However, it should also support adaptation and resilience financing opportunities where insurability challenges strengthen the business case for upfront resilience investment.
- Organisations should define clear management actions and responses where early-warning indicators are breached to avoid cliff-edges, including risk appetite adjustment, repricing, tighter terms, and reallocation to resilience-related capex and annual opex requirements.

2

## Reward active risk reduction, not just risk transfer

- Banks, investors and insurers should, where possible, look to improve recognition of verified resilience measures in pricing and the terms of financing. This could include premium credits, deductible reductions, coverage enhancements, margin ratchets, covenant flexibility, or longer loan tenor where resilience measures are considered to materially reduce expected loss. While financial institutions cannot drive this change alone, emerging examples of such resilience verification and recognition mechanisms already exist. For example, insurers in several storm-affected US states are increasingly tying insurance coverage to implementation of measures in line with the IBHS FORTIFIED Roof Standard.<sup>24</sup>
- Governments and regulators should explore opportunities to move beyond a purely risk-based perspective on climate to ensure there is recognition of the benefits of adaptation and resilience and of the related investment opportunities, issues that the CCC has been keen to draw attention to in the UK. In addition, there is an opportunity for accounting and reporting approaches to better capture the value of avoided loss, exposure risk reduction and climate-related opportunities, so that resilience investments are recognised as value protection rather than only as costs.
- Insurers should continue to broaden the availability of ART solutions such as parametrics in line with expected increases in demand for such products, given the benefits afforded in terms of speed and liquidity of claims payment. However, insurers should continue to communicate that these ART innovations are a complement rather than a substitute to risk reduction through resilience and adaptation.

24 Fortified Home, IBHS Fortified Roof Standard (<https://fortifiedhome.org/>)

## 3

**Build an investable pipeline of resilience projects aligned to national adaptation outcomes**

- The public sector should continue work to establish national and sectoral adaptation priority objectives, supported by delivery plans, owners, and prioritised project pipelines ready for translation into investable programmes. This should be backed by stronger project preparation capacity, standardised appraisal methods and more consistent data on estimated project performance, so that resilience investment opportunities can be better identified, assessed, and financed at scale. In the UK, this should build on progress made under the CCC, recently articulated in the 2026 A Well-Adapted UK report, to establish a national adaptation framework.
- Corporates should move beyond viewing resilience as standalone project finance and instead embed resilience into routine business investment, including balance sheet funding, infrastructure programmes, pooled vehicles and repeatable sector pathways. This will position resilience as a core business investment and enable more effective recognition of enterprise-level return on investment through enhanced business continuity, asset protection and long-term value preservation.
- Adaptation should be integrated into existing capex and renewal cycles wherever possible, particularly where the adaptation component alone would not meet return on investment threshold but strengthens the value of a wider asset upgrade, replacement or compliance package. Regulators, asset owners, lenders and insurers should explore business-case methods that recognise avoided disruption, claims reduction, and lifecycle value. In insurance specifically, claims management should more consistently support 'build back better' objectives so that repair and reinstatement spend can be used to embed resilience.
- Corporates should work with the financial and related professional services sectors to identify and prioritise resilience measures (including nature-based solutions) that preserve insurability, cash flow continuity, collateral value and long-term asset value. Engineering, exposure and claims data will all represent valuable information sources for this exercise.
- The public sector should support the aggregation of local, fragmented resilience projects into larger, investable portfolios where possible, particularly where projects are too bespoke or geographically dispersed to attract private capital on their own. In the UK, this aligns with the CCC's recommendations, including their call for a clearer understanding of financing responsibilities across the public and private sector and delivery plans to achieve targets.

## 4

**Use public policy and blended capital to solve coordination failures**

- Government should further define, test and implement the policy interventions at its disposal to drive resilience financing where private markets alone are unlikely to deliver the required scale. This may include deployment of guarantees, first-loss capital, co-investment structures, resilience funds and public-private partnerships that unlock funding for resilience interventions that have strong system value but weak standalone commercial returns. Public interventions should aim to crowd in private underwriting and investment, while avoiding open-ended subsidies that suppress risk signals or preserve maladaptive development patterns.
- Government should support place-based resilience financing where underlying asset performance depends on shared infrastructure (including natural infrastructure) such as flood defence, drainage, coastal protection or wildfire management rather than site-level action alone.
- Government should continue to support public backstops and pooled solutions and use them to incentivise wider implementation of prevention standards, data sharing, and risk reduction measures so that short-term affordability support does not become a substitute for long-term resilience building.

# Conclusion

07



# Conclusion

Climate change is reshaping the face of capital markets, with impacts that extend beyond the pricing and availability of insurance cover. As protection gaps widen, more risk is retained by households, businesses, lenders, investors, and the public sector, with material consequences for capital allocation, financial stability, and economic resilience.

Insurability is therefore not simply a sectoral issue, but a foundational concern for bankability, investability, and orderly economic activity. Closing the protection gap will therefore require a dual response: reducing underlying physical risk through sustained investment in adaptation and resilience, while strengthening the mechanisms through which that risk is transferred, financed and ultimately priced.

For the UK, this presents both a resilience challenge and a strategic economic opportunity. With deep capital and insurance markets, the UK is well placed to support innovation, mobilise capital, and develop practical solutions that can help close the protection gap domestically while contributing to the wider global response.



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