



REPORT

BRIDGING THE CLIMATE RISK DISCONNECT

Opportunities to mitigate climate risk transmission between banks and insurers

Environmental Defense Fund

October 2026

D. A. Carlin
& Company



About Environmental Defense Fund

At [Environmental Defense Fund](#), we find practical, powerful solutions to the world's biggest environmental challenges. We leverage our deep expertise in science and economics to focus on the areas where we can make the greatest impact. With a global presence in more than 30 countries, EDF delivers results by partnering across sectors and communities to stabilize the climate, strengthen the ability of people and nature to thrive, and support people's health. Contact our team via email: businesstransformation@edf.org.

Acknowledgements

This report was developed collaboratively by Environmental Defense Fund (EDF) and D.A. Carlin & Company, drawing on a cross-sector roundtable and interviews with practitioners and experts from banking, insurance, reinsurance, academia, policy and supervision. EDF and D.A. Carlin & Company are grateful to all participants who contributed their time and perspectives. Their contributions are reflected in this report on an anonymised basis, with attribution by institution type rather than by individual name.

At EDF, the work was led and guided by Kate Stein (Director, Insurance), Guillaume Morauw (Senior Policy Analyst, Sustainable Finance) and Andrew Howell (Head of Research, Sustainable Finance).

The D.A. Carlin & Company team was led by David Carlin as Project Lead. Reuben Wambui led the research and drafting of the report, with contributions from Simon Messenger.

For further information or to discuss the report, please contact EDF at BusinessTransformation@edf.org or D.A. Carlin & Company at info@dacarlin.com.

Suggested Citation

Environmental Defense Fund and D.A. Carlin and Company (2026). Bridging the Climate Risk Disconnect: Opportunities to Mitigate Climate Risk Transmission Between Banks and Insurers. New York: Environmental Defense Fund.

Rights and Permissions

© 2026 Environmental Defense Fund. This report may be reproduced in whole or in part, and in any form, for educational or non-profit purposes without special permission from the copyright holder, provided that the source is acknowledged. Environmental Defense Fund would appreciate receiving a copy of any publication that uses this report as a source.

Disclaimer

The findings, interpretations and conclusions in this report are those of Environmental Defense Fund and do not necessarily reflect the views of the institutions that contributed to the research, or of their staff. Roundtable and interview contributions are reported on an anonymised basis and represent the views of individual practitioners rather than the formal positions of their institutions. Nothing in this report constitutes investment, legal, accounting or regulatory advice, and it should not be relied upon as such.

Contents

List of Figures	4
List of Tables	4
Abbreviations	5
Preface	6
1. Executive Summary	7
2. A Risk Shared Between Banks and Insurers	12
2.1 Separate Management of a Shared Risk	12
2.2 Quantifying the Scale of the Exposure	12
2.3 Approach and Scope of this Report	14
3. Methodology	15
4. Regulatory Landscape and Diagnostic Evidence	15
4.1 Supervisory Frameworks for Climate Risk	16
4.2 Evidence of Insurance Stress Transmitting to Credit Loss	17
4.3 Limitations of Voluntary Industry Alliances	18
5. Climate Risk Transmission Channels Between Banks and Insurers	21
5.1 From Insurance to Banking	21
5.2 From Banking to Insurance	24
5.3 Interaction Between the Two Channels	25
5.4 Differences and Complementarities Between the Two Sectors	28
5.5 Within-Sector Differences: Size and Business Model	29
6. Structural Barriers to Cross-Sector Collaboration	31
6.1 Structural and Operational Barriers	31
6.2 The Economics of Resilience Financing	34
7. Recommendations	36
7.1 Recommendations for Cross-Sector Action	36
7.2 Recommendations for Banks	37
7.3 Recommendations for Insurers	38
7.4 Recommendations for Policymakers and Regulators	38
8. Conclusion	40
Appendix A. Selected Regulatory and Industry Initiatives	41
Appendix B. Detailed Methodology	42
References	45

List of Figures

Figure 1. A majority of catastrophe losses are uninsured, and the gap is not closing

Figure 2. Where the gap bites: uninsured UK mortgagors as Flood Re winds down

Figure 3. The self-reinforcing feedback loop between insurance retreat and credit tightening

Figure 4. The protection gap as a macro-financial transmission mechanism

Figure 5. The measurement loop that keeps climate losses out of the record

List of Tables

Table 1. Overview of priority recommendations

Table 2. The state of the evidence: established findings, developing evidence, and open questions

Table 3. What determines whether affordable cover remains available

Table 4. How the banks-insurers disconnect shows up across Basel risk categories

Table 5. Banks and insurers view the same risk through different lenses

Abbreviations

BCBS	Basel Committee on Banking Supervision
BoE	Bank of England
CETEx	Centre for Economic Transition Expertise, London School of Economics and Political Science
CISL	University of Cambridge Institute for Sustainability Leadership
CSRD	Corporate Sustainability Reporting Directive
EBA	European Banking Authority
ECB	European Central Bank
EDF	Environmental Defense Fund
EIOPA	European Insurance and Occupational Pensions Authority
ESMA	European Securities and Markets Authority
ESRS	European Sustainability Reporting Standards
EU	European Union
FCA	Financial Conduct Authority (UK)
FSB	Financial Stability Board
GDP	Gross Domestic Product
GIMAR	Global Insurance Market Report
IAIS	International Association of Insurance Supervisors
ICPs	Insurance Core Principles
IFRS S1 / S2 / ISSB	IFRS Foundation's Sustainability Disclosure Standards S1 and S2, issued by the International Sustainability Standards Board
LGD	Loss Given Default
Nat-cat	Natural catastrophe
NGFS	Network for Greening the Financial System
ONS	Office for National Statistics (UK)
ORSA	Own Risk and Solvency Assessment
PCAF	Partnership for Carbon Accounting Financials
PD	Probability of Default
PRA	Prudential Regulation Authority (Bank of England)
SME	Small and Medium-sized Enterprise
TCFD	Task Force on Climate-related Financial Disclosures
UK	United Kingdom
UNEP FI	United Nations Environment Programme Finance Initiative
US	United States

Preface

The decisions banks and insurers make about climate risk extend well beyond their own balance sheets. Together, the two sectors influence where capital remains available, which assets and communities remain financeable and insurable, whether investment in resilience is undertaken, and who ultimately bears the cost when losses occur. These are questions of consequence for the wider economy and for the people within it, and they are determined in large part by commercial judgements taken one loan and one policy at a time.

Environmental Defense Fund (EDF) partnered with D.A. Carlin and Company on this work to support a more climate-resilient real economy and society. Improving how banks and insurers understand and manage the risks they share is a means toward that objective, and an important one, because a financial system that cannot see a risk clearly is unlikely to finance the work that reduces it. It is not the objective in itself, and the distinction bears on how the findings in this report should be read.

Institutional resilience and societal resilience are related; they are not equivalent. A climate-resilient economy does not require lending or insurance to be sustained everywhere at any cost. Some risks warrant higher prices than they currently carry, and in some locations building or rebuilding is unwise whatever the market is prepared to underwrite. The report is of greatest value where the two forms of resilience diverge. It shows how decisions that may be rational for individual financial institutions can combine to produce an outcome that serves no one well. An insurer facing a deteriorating book may reasonably decline to renew coverage. A bank assessing the same asset may reasonably tighten its lending terms. Repeated across a market, the combination of these individual decisions depresses property values, makes rebuilding harder to finance, and leaves households, businesses and public budgets carrying more of the risk.

This is also why accurate risk pricing, although necessary, is not sufficient. Better data and sharper pricing render the risk visible, and visibility can accelerate withdrawal as readily as it can prompt investment. The more difficult questions follow: how much of the risk can be reduced through adaptation, how the residual risk should be allocated, and where public intervention is required because the market will not carry it alone.

The analysis that follows sets out in concrete terms how a change in the price or availability of insurance travels into credit conditions, and how credit conditions feed back into what remains insurable. It also identifies the practical work that would allow each sector to act on what the other already knows: shared definitions of resilience and insurability, asset-level data and damage functions both can use, verification of cover over the life of a loan, and recognition of measurable risk reduction within the frameworks that govern both industries. None of this requires banks and insurers to agree on commercial terms. It requires that they see the same risk on the same terms. Doing so creates opportunities for more effective action, enabling the two sectors to reinforce one another's efforts and, through complementary products, services and incentives that support resilience, achieve outcomes that neither could deliver alone.

The case for acting is practical as well as principled. Investment in adaptation and resilience protects people and property, and the evidence assembled here indicates that it is also economically sound, with returns that can substantially exceed the cost. Directing capital toward it depends on a financial system that recognises risk reduction where it occurs and prices it accordingly. We offer this report as a contribution to a discussion that we hope banks, insurers, supervisors and policymakers will now carry forward.

1. Executive Summary

Climate-related physical and transition risks have long been acknowledged as financial risks. However, a growing threat to financial stability comes from how actors in the financial sector attempt to manage these risks. In particular, risk transmission channels between insurers and banks have the potential to create cascading effects across assets, the financial system, and the wider economy.¹ This report covers both physical and transition risks, but focuses on physical climate risks, which are the primary driver of the transmission channels described below, and addresses transition risks where they interact with those same channels.

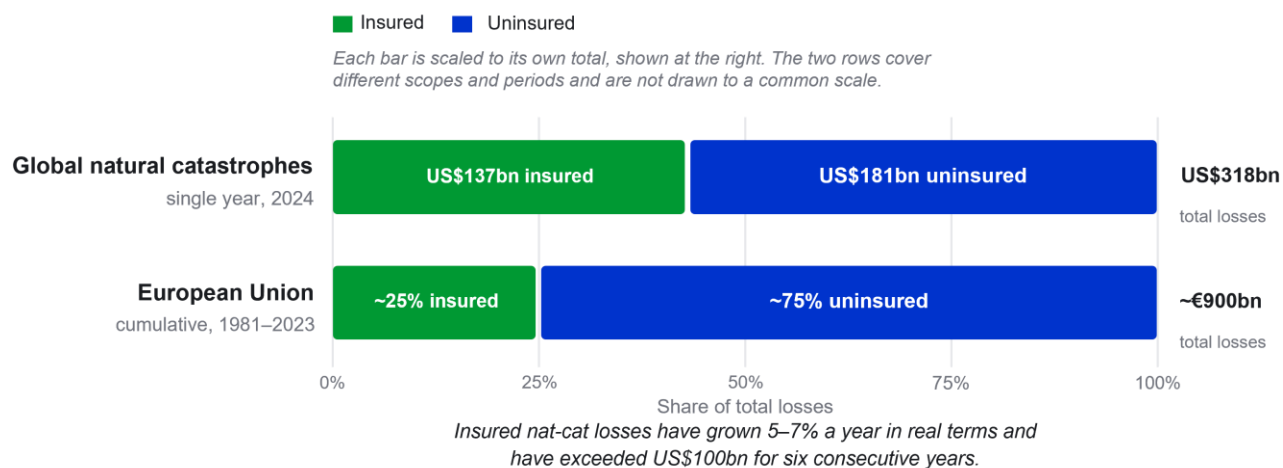
Banks and insurers are exposed to many of the same climate shocks, yet each often manages that exposure with limited regard for the other's actions. Insurers price and absorb the immediate cost of extreme events, while banks finance the homes, businesses, and infrastructure those events damage or destroy. The same assets often sit on both balance sheets, yet each sector traditionally assesses risk on its own terms, over its own time horizon, according to its own business model, and using its own set of assumptions. Insurance is repriced annually and can be withdrawn, whereas bank lending is often committed for years or decades and frequently assumes that insurance coverage will remain available, which is not always the case.² The interdependence between the two sectors is not well managed, and the resulting disconnect weakens the resilience of the financial system, economies and societies within which both operate. As this disconnect is both informational (owing to differences in information) and structural (owing to differences in business models and incentives), it is unlikely to close without deliberate action.

Climate risk is fundamentally a systemic financial risk. The pathway through which changes in insurance availability and affordability translate into credit losses, and to a lesser extent into market, liquidity and operational risk (Section 5.3), runs directly through the core activities of lending, underwriting, and capital allocation. Managing this risk is therefore not solely the responsibility of climate specialists. It is equally relevant to front-office, credit, underwriting, and risk teams. This report has been informed by discussions with all of them and aims to be practical and accessible for each.

¹ Financial Stability Board (2020).

² For concrete illustrations of this dynamic, see the discussion of UK mortgage exposure to the Flood Re transition in Section 2.2 and of US zip-code-level repricing in Section 4.2.

Figure 1. A majority of catastrophe losses are uninsured, and the gap is not closing



Source: Swiss Re Institute (2025); Swiss Re Institute (2026b); European Central Bank and EIOPA (2024). Note: the two bars are not drawn to a common scale. The first shows global natural-catastrophe losses for the single year 2024; the second shows cumulative European Union losses over 1981–2023. Each is scaled to its own total, and both are shown because the same pattern holds in each: the majority of the loss fell outside insurance.

The scale of this exposure is substantial, as illustrated above. Global natural-catastrophe losses reached US\$318 billion in 2024; only US\$137 billion, 43 percent, were insured, leaving a US\$181 billion gap in a single year.³ Looking ahead, the macroeconomic risks are even more severe: at 3°C of warming, projections indicate a 10 percent loss in total global GDP.⁴ Cumulative losses in the European Union (EU) between 1981 and 2023 run to roughly €900 billion, of which only about a quarter was insured.⁵ Uninsured damage to a financed asset affects the borrower’s ability to pay and the value of the bank’s collateral at the same time.

Two framings run through the analysis that follows and are worth stating at the outset. The first is that it is tempting to treat “banking” and “insurance” as independent domains, and that temptation is worth resisting. It is true that a thirty-year mortgage and a one-year property policy have little in common operationally, but a more useful line of inquiry is to ask what a bank needs from an insurer for a specific product or exposure, and whether the insurer can realistically supply it.

The second is that the differences between the two sectors are inconvenient and even troubling—but they are also complementary. Insurers hold the hazard and loss data that banks lack and are best placed to price resilience; banks hold the client relationships and the balance-sheet capacity to finance it. A shared view of the risk would let each act on what the other already knows, and that is where the practical opportunity in this report lies.

³ Swiss Re Institute (2025).

⁴ Waidelich et al. (2024).

⁵ European Central Bank and EIOPA (2024).

Key conclusions

This report draws five conclusions about climate risks across the banking and insurance sectors:

First, **supervisory frameworks for climate risk have advanced since 2020, though that progress has been uneven across geographies, and implementation of climate risk into market practices has been slower.** Between 2020 and 2025, the EU, the United Kingdom (UK) and numerous other banking and insurance supervisors published frameworks, scenario exercises, or stress tests related to climate risk. That progress is real but partial: coverage is uneven across jurisdictions and across the two sectors, and much of the guidance stops short of the granularity firms need in order to apply it. Practitioners who participated in this report's roundtable noted that this guidance, including the UK Prudential Regulation Authority's Supervisory Statement SS5/25, often remains insufficiently granular to translate directly into day-to-day underwriting and lending decisions. Progress at the operational level has lagged behind further still: time horizons remain structurally misaligned between the two sectors for reasons that go beyond what any supervisory framework is designed to fix; credit models generally do not incorporate insurance signals; and supervision remains largely separated along sectoral lines. Further, there is still no widely accepted method for valuing resilience investment once it has been made; no supervisory framework requires or equips firms to attempt this.

Second, in many jurisdictions, **credit decisions rely on assumptions about insurance availability made at loan origination that are inconsistently updated afterwards.** Only about 18 percent of surveyed banks incorporate climate risk factors into their internal ratings-based models, and the United Nations Environment Programme Finance Initiative (UNEP FI) and Global Credit Data found that for 62 percent of surveyed institutions, climate analysis is used mainly to satisfy regulatory compliance.⁶ Insurers are repricing and withdrawing from exposed markets at a pace that most banks are not tracking through routine post-origination verification of cover. UK evidence points the same way: modelling published in 2026 projects that up to 430,000 mortgaged homes in England could become uninsurable or prohibitively expensive to insure by 2050, leaving their owners unable to sell or remortgage, illustrating that even where a bank does track coverage and adjusts terms accordingly, the underlying risk does not leave its balance sheet.⁷ The thinnest evidence sits where the potential exposure is largest: in corporate and supply-chain lending, business-interruption risk can be 14 times larger than direct asset-damage risk, yet it is the least studied of the three product channels examined (Section 5.1).

Third, **the transmission from insurance market stress to credit losses is already visible in recent data, not just in projected scenarios.** In the most exposed markets of the United States (US), research using mortgage escrow data finds that a repricing of catastrophe risk has already reduced some home values by nearly 11 percent,⁸ and Federal Reserve Bank of Dallas research finds that premium increases measurably raise mortgage delinquency.⁹ These effects compound rather than simply add together. An insurer reprices or withdraws; property values fall; default risk rises; banks tighten credit; rebuilding slows; the insurable pool shrinks further; and the concentration that results prompts more

⁶ UNEP FI and Global Credit Data (2025).

⁷ UKSIF and Public First (2026).

⁸ Keys and Mulder (2024).

⁹ Ge, Johnson and Tzur-Ilan (2025).

repricing again. The loop tends to close on the places that were already most exposed (Figure 3, Section 5.3).

Fourth, closing this disconnect requires resources, not information alone, that sit on both sides of the banking-insurance divide. Insurers hold granular, asset-level data on hazard and loss that banks generally lack, positioning them to price in the changes in asset values, which are affected by the asset's resilience. Banks hold long-dated client relationships and the balance-sheet capacity to finance resilience investment. Insurers, as major institutional investors in their own right, also hold capital they could deploy toward the same end, though banks remain the more direct channel for financing most individual resilience projects.

Fifth, the improvements most likely to matter all depend on joint action across institutions. Collaboration is paramount to establish a common definition of resilience, shared asset-level data and damage functions, routine verification of cover over the life of a loan, and a method for capital rules to recognise resilient assets. The economic case for these investments is favourable: adaptation investment typically returns between two and ten times its cost.¹⁰ A dollar spent today on flood defences, building codes, or asset-level resilience upgrades can avoid several dollars of future loss, providing savings to borrowers, insurers, and lenders. The economic rationale for building this infrastructure already exists; what is missing is the collective action this report describes. Resilience can already be priced and financed where an institution is positioned to see it: in Hong Kong, Link Asset Management secured an 11.7 percent cut in its property-insurance premiums for 2025 by demonstrating quantified risk reduction from a HK\$5 million investment in flood resilience (Section 6.2).

Buying more insurance is not, on its own, a solution to this problem. If the underlying issue comes from where something was built, how well adapted it is, or how public policy has allocated risk, then buying more insurance will not reduce the risk. This report focuses on a more productive question: for a specific banking product or exposure, mortgages, commercial real estate, small and medium-sized enterprise (SME) lending, project finance, what does a bank need from an insurer, and can the insurer feasibly supply it? This is the insurance-to-banking direction of a relationship (Section 5.2 covers banking-to-insurance). Given the extensive evidence around this direction, these insurance-to-banking transmission channels are most deeply assessed within this report (Section 5.1).

Recommendations

The report identifies a practical agenda for addressing the disconnect between banks and insurers. The recommendations recognise that the two sectors have different business models, information and time horizons, but focus on areas where closer alignment could improve the identification and management of shared risks. They also address the role of policymakers and regulators in managing the systemic consequences of insurance repricing, market withdrawal and credit tightening. See Table 1 for an overview of recommendations.

¹⁰ Global Commission on Adaptation (2019).

Table 1. Overview of priority recommendations

Target audience	Priority recommendations
Banks and insurers together	Align approaches to assessing shared risks; develop focused mechanisms for exchanging material risk information; and consider jointly offered products that reward measurable adaptation and resilience.
Banks	Keep insurance and underlying asset-risk information current over the life of a loan; test credit exposures against changes in insurance availability and cost; and define actions to be taken when insurability or climate risks become material.
Insurers	Extend analysis to second-order effects, concentrations and correlations; assess the scale of underwriting that could be affected under different scenarios; and use product design and underwriting to strengthen incentives for resilience.
Policymakers and regulators	Assess banks and insurers as an interconnected system; extend scenario analysis to second-order effects and potential contagion; ensure regulatory frameworks appropriately recognise resilience; anticipate the consequences of market withdrawal; and strengthen public investment and incentives for adaptation.

2. A Risk Shared Between Banks and Insurers

Banks and insurers absorb much of the financial cost when extreme weather strikes, but they absorb it separately. An insurer's horizon may be the annual underwriting cycle, while a bank's horizon may be a loan's full term, which for a mortgage or an infrastructure asset can run decades. What should connect the two is how a change in the price or availability of insurance feeds through into bank credit risk, and how a bank's own lending and capital decisions feed back into the insurable economy. However, the interconnections between banks and insurers are rarely modelled. Against the backdrop of rising physical risks, the relationship between the two sectors is becoming ever more important for financial stability.¹¹ Likewise, the energy transition continues to accelerate with record new energy generation coming from low-carbon sources and growing investments into low-carbon technologies, which has implications for transition risks faced by banks and insurers.

2.1 Separate Management of a Shared Risk

When an insurer withdraws from a physical risk-exposed market, it manages its own exposure but does not eliminate the underlying risk. That residual risk falls to the bank still holding the loan against those same assets, and, in some markets, part of that risk lands on public or quasi-public insurers of last resort, a form of risk-sharing rather than risk mitigation. When a bank tightens credit in a damaged area, it protects its own portfolio while starving the area of the capital needed for resilient rebuilding, stronger flood defences, elevated foundations, or fire-resistant materials that would have helped maintain insurability in the first place. Each decision is individually rational and, from inside either institution, consistent with ordinary risk management. Neither decision is made with much reference to the other, which is how a risk that both sectors carry ends up being actively managed by neither.

The roundtable convened for this report, bringing together banks, insurers, and the wider financial sector under D.A. Carlin and Company's and EDF's joint facilitation, returned to this point from several directions. Participants discussed how climate risk, once it materialises, tends to move between institutions rather than disappearing: a loss transferred from one party does not vanish, but resurfaces as costs borne by a bank, a household, an asset owner, or the public sector. For a lender, a relevant question is whether an asset will remain insurable for as long as the loan against it is outstanding, a longer horizon than simply whether it is insured today. For an insurer, the parallel question is whether bank lending will continue to finance the resilience investment that keeps the asset insurable.

2.2 Quantifying the Scale of the Exposure

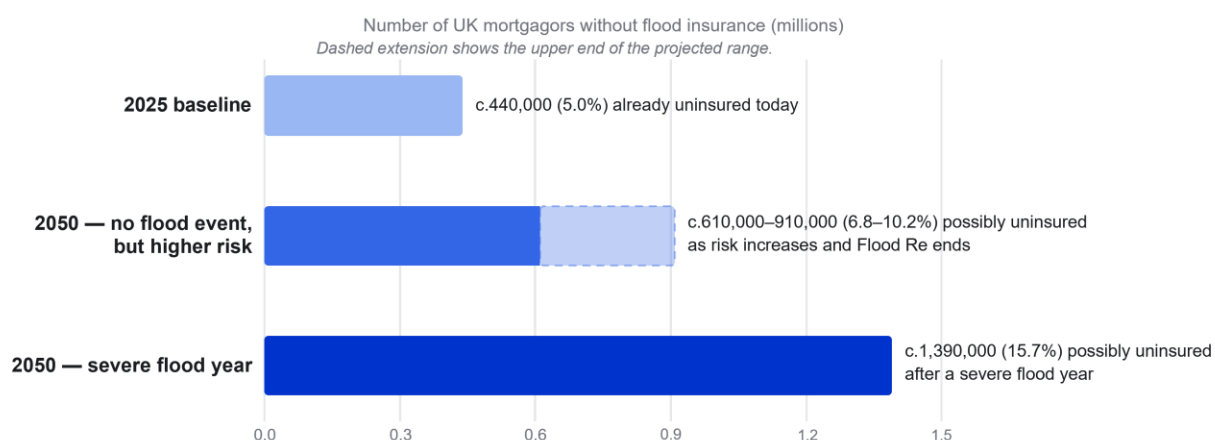
Uninsured losses have made up the majority of global catastrophe losses in most recent years. Fifty-seven percent of the US\$318 billion in global natural-catastrophe losses in 2024 were uninsured. Insured losses have also grown 5 to 7 percent a year in real terms and have now exceeded US\$100 billion for six consecutive years, a trend driven as much by growing exposure and secondary perils such as severe convective storms, wildfires, and inland flooding as by the large hurricanes that catastrophe losses have traditionally been associated with.¹²

¹¹ CISL (2026).

¹² Swiss Re Institute (2025); Swiss Re Institute (2026b).

This exposure is concentrated in specific portfolios. The UK provides a useful illustration of why that matters to a lender. Standard UK mortgage terms already extend beyond 2039, the year Flood Re, the government-backed reinsurance scheme that keeps flood cover affordable in high-risk areas, is due to leave the market.¹³ A mortgage underwritten today will reach the middle of its life at roughly the same time the backstop behind its collateral changes form. The US shows the same concentration through a different mechanism: in the most exposed zip codes, a reinsurance-driven repricing of catastrophe risk has already reduced some home values by nearly 11 percent, and rising premiums have measurably raised mortgage delinquency,¹⁴ a channel this report examines in detail in Section 4.2. In both markets, the pattern that matters to a lender is concentration in specific postcodes and specific loan books, not a diffuse national average. As illustrated below, approximately 5 percent of UK mortgagors are currently uninsured. However, as climate risks escalate and the Flood Re scheme concludes, this figure could reach between 6.8 and 10.2 percent by 2050.¹⁵

Figure 2. Where the gap bites: uninsured UK mortgagors as Flood Re winds down



Source: adapted from Banks and Erçelik (2026), Chart 1; underlying data from FCA Product Sales Data, Mitiga, RiskLayer, the ONS Living Costs and Food Survey and Bank staff calculations.

This exposure is also material at the level of the whole financial system. The EU supervisors' Fit-for-55 scenario analysis puts first-round credit and market losses for the EU banking sector at around €343 billion (5.8 percent of exposures in scope) under its baseline scenario, alongside a roughly €153 billion fall in insurers' investment values.¹⁶ These are stress estimates, not forecasts — that is, modelled outputs under hypothetical scenarios, not predictions of what will actually happen — but they are large enough to be macroprudentially material in their own right. Set against them, the costs of building the shared infrastructure this report points toward are modest. That infrastructure consists of technical standards (comparable data, common definitions and routine verification), not shared commercial pricing data or coordinated underwriting. As noted before, the returns on adaptation investment can run two to ten times the cost.¹⁷

¹³ Flood Re (2024).

¹⁴ Keys and Mulder (2024); Ge, Johnson and Tzur-Ilán (2025).

¹⁵ Banks and Erçelik (2026), Chart 1.

¹⁶ European Central Bank, EBA, EIOPA and ESMA (2024).

¹⁷ Global Commission on Adaptation (2019).

2.3 Approach and Scope of this Report

The report that follows takes a global view, drawing on evidence from the EU, the UK, the US, Australia and lower-income countries, while concentrating on physical climate risk and its interaction with banking and insurance and recognising that transition risk runs alongside it throughout. It covers both retail and commercial exposures. It is tempting to treat “banking” and “insurance” as independent domains, and that temptation should be resisted. The two sectors, and the products within each, indeed differ operationally: a thirty-year mortgage has little in common with a one-year property policy, nor SME lending with project finance. What matters more is the risk they share. This report therefore asks: **for a given product or exposure, what does a bank need from an insurer, and is it realistic for the insurer to supply it?** That question is concrete enough to bring front-office, underwriting, credit, and risk teams into the same conversation, which an abstract debate about “banking” and “insurance” rarely does.

The reverse direction matters too and is addressed on its own terms in Section 5.2: **what an insurer needs from a bank, and whether banks can realistically provide it.** The evidence gathered for this report suggests that the relationship runs both ways, although the reverse direction is documented far less thoroughly in the existing literature than the insurance-to-banking direction. A plausible reason is that supervisory stress-testing exercises (Section 4.1) are designed to trace how insurance-sector conditions affect bank balance sheets, while no comparable public regime yet traces the reverse pathway; insurers' exposure to bank-sector conditions is documented mainly through private commercial arrangements rather than systematic public disclosure.

Section 3 sets out how the evidence was gathered; Section 4 reviews what the existing diagnostic record already shows; Section 5 maps the specific channels through which risk moves between the two sectors; and Section 6 asks why, given all of that, the resulting misalignment between the two sectors has persisted, despite market benefits of addressing it. Section 7 sets out recommendations for banks and insurers together, for each sector, and for policymakers and regulators, and Section 8 concludes. Appendix A lists selected regulatory and industry initiatives; Appendix B details the methodology.

3. Methodology

In brief, this report draws on three evidence streams: a structured review of regulatory, supervisory and academic literature; a cross-sector roundtable convened jointly by EDF and D.A. Carlin and Company; and in-depth interviews with banking and insurance practitioners. These streams are used in complementary ways to identify where the two sectors' assumptions diverge and to test potential ways of closing the gaps. A full discussion of the specifics of the methodology used to support the findings and conclusions in this report can be found in Appendix B.

4. Regulatory Landscape and Diagnostic Evidence

The regulatory and academic record on climate risk is now extensive. Between 2020 and 2025, banking and insurance supervisors across multiple jurisdictions published frameworks, ran scenario exercises, and set out how physical and transition risks move through a balance sheet, detailed in Section 4.1. What this record has not yet produced, evidenced in Sections 4.2 and 4.3, is the operational integration inside firms or the cross-sector collaboration that would let this analysis change how a loan is underwritten in practice. The remainder of this section covers what supervisors have established, what the resulting evidence shows about credit outcomes, and why voluntary industry efforts to close the remaining gap have had limited success.

Before exploring the regulatory landscape, a brief primer on bank and insurance regulators may assist readers. Banking supervision generally sits at the national or supranational level: the European Central Bank (ECB) supervises the largest EU banks directly, alongside national authorities; the Prudential Regulation Authority (PRA) supervises UK banks; and in the US, federal agencies (the Federal Reserve, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation) share responsibility with state banking regulators depending on a bank's charter.

Insurance supervision is typically organised separately and, in some cases, at a different level of government: the European Insurance and Occupational Pensions Authority (EIOPA) coordinates but does not directly supervise EU insurers, leaving that to national supervisors under Solvency II; in the US, insurance is regulated state by state, coordinated loosely through the National Association of Insurance Commissioners, with no federal insurance supervisor; the Federal Insurance Office, within the US Treasury, has no supervisory authority but monitors the sector and can collect data and conduct research.

The UK is the main exception: the PRA supervises both banks and insurers under one roof, which is one reason the cross-sector exercises discussed below have so far been more feasible there than elsewhere. This split matters for what follows: because banks and insurers are usually regulated and supervised by different bodies, often nationally for one and supranationally (or sub-nationally) for the other, the two sides have limited built-in mechanisms for seeing the risk they share.

4.1 Supervisory Frameworks for Climate Risk

On climate risk, supervisory expectations have evolved from broad principles to operational practices.

- The Basel Committee on Banking Supervision (BCBS), the global standard-setter for the prudential regulation of banks, set out a shared vocabulary in 2021, mapping how physical and transition risk reach banks through credit, market, liquidity, and operational risk, and followed it in 2022 with a set of principles for managing and supervising climate-related financial risk.¹⁸
- In the EU, the ECB's 2020 guide set out its supervisory expectations, and its 2022 thematic review found most supervised banks still falling short of them.¹⁹
- In the UK, the PRA's Supervisory Statement SS5/25, which replaced SS3/19 in December 2025, expects banks to assess climate-related risks across the whole credit life cycle and to go beyond historical loss data, using forward-looking tools such as scenario analysis (that is, projecting how a loan's risk could evolve under different climate pathways over its life, rather than relying only on how it has performed to date), and expects insurers to consider how climate change could lead to larger claims than historical experience alone would suggest, including for long-tail liabilities.²⁰
- In the US, the federal banking agencies issued principles for climate-related financial risk management at large banks in October 2023, then withdrew them in October 2025.²¹ The Federal Reserve's 2023 pilot climate scenario analysis exercise with six of the largest US banks found that most participants assumed insurance markets would continue to operate effectively, and all reported data gaps on insurance coverage.²²

Insurance supervision has moved on a parallel course.

- The 2024 review of Solvency II²³ embeds climate as a material risk driver and requires insurers to run multi-decade scenario analysis through the Own Risk and Solvency Assessment (ORSA),²⁴ matching the long tail of their liabilities. In practice, this means insurers can no longer treat a multi-decade climate outcome as someone else's problem: they must show supervisors, in a documented and forward-looking way, that they hold enough capital to withstand it.
- EIOPA's work on the prudential treatment of sustainability risks is examining whether capital requirements should reflect climate exposure directly, and the International Association of Insurance Supervisors (IAIS) has applied its core principles to climate and now treats natural-catastrophe protection gaps as a supervisory concern in their own right.²⁵ In practical terms, both

¹⁸ Basel Committee on Banking Supervision (2021); Basel Committee on Banking Supervision (2022).

¹⁹ European Central Bank (2020); European Central Bank (2022).

²⁰ Prudential Regulation Authority (2025).

²¹ Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation and Office of the Comptroller of the Currency (2025).

²² Board of Governors of the Federal Reserve System (2024), pp. 19–20.

²³ European Union (2025).

²⁴ The Own Risk and Solvency Assessment (ORSA) is the process by which an EU insurer assesses, on a forward-looking basis, whether it holds capital adequate to its own risk profile, including risks such as climate change that are not fully captured by standard regulatory capital formulas.

²⁵ European Insurance and Occupational Pensions Authority (2024); International Association of Insurance Supervisors (2025a); International Association of Insurance Supervisors (2025b).

signal that regulators increasingly expect insurers to hold capital and manage underwriting as though today's protection gap were a systemic risk in its own right, not merely a commercial choice left to individual firms.

The two tracks have only recently started to connect. The ECB and EIOPA's joint work of 2023 and 2024 on a European approach to natural-catastrophe risk is the first substantive output produced jointly by a banking and an insurance supervisor; it treats the protection gap as a financial-stability vulnerability with a direct feedback loop into banks and proposes a layered public-private response. The Bank of England's 2021-22 Climate Biennial Exploratory Scenario remains one of the few cross-sector supervisory exercises, covering banks and insurers in the same test at the same time.²⁶ Almost everywhere else, the two sectors are still regulated, supervised, and stress-tested separately (as the primer at the start of this section sets out), on different horizons and against different metrics, and that separation is itself part of why each has difficulty seeing the risk they share. Appendix A maps the wider set of frameworks in more detail.

4.2 Evidence of Insurance Stress Transmitting to Credit Loss

The research question has moved on from whether climate risk affects credit outcomes to how much of that effect is already visible in the data. Recent research puts the answer at a measurable, non-trivial share.

Keys and Mulder used more than 74 million premium observations inferred from mortgage escrow data to trace how a repricing of catastrophe risk in global reinsurance markets fed through into household premiums. They found that the pass-through of disaster risk into premiums more than doubled between 2017 and 2024, as reinsurance prices also more than doubled, and that higher premiums reduced 2024 home values by close to US\$44,000 on average in the most catastrophe-exposed zip codes, with declines of around 11 percent where exposure and the growth in risk were both highest.²⁷ Research from the Federal Reserve Bank of Dallas finds that a one-standard-deviation premium increase raises mortgage delinquency by about 16 percent relative to the mean, an effect found in non-jumbo loans, stronger for borrowers with higher debt-to-income ratios, and one that also spills into credit-card delinquency.²⁸ Recent research on German firms after the 2021 floods shows lenders cutting loan rates for high flood-risk borrowers that bought additional insurance, with the largest cuts where local governments invested heavily in flood protection, in effect rewarding those signals with better lending terms.²⁹ The Dallas Fed's mortgage-delinquency results and the separate evidence on lender repricing behaviour draw on distinct datasets and methods but point the same way. Insurance has stopped being a silent backstop sitting behind a credit decision: it has become one of the factors actively driving that decision.

That households and lenders already behave as though insurance conditions matter, as the evidence above shows, does not mean banks' formal credit-risk models have caught up with that reality. [The Resilience-Adjusted Credit Risk work of the University of Cambridge Institute for Sustainability Leadership \(CISL\)](#)³⁰ provides a useful synthesis of banks' practices. It draws the supervisory and survey

²⁶ European Central Bank and EIOPA (2023); European Central Bank and EIOPA (2024); Bank of England (2022).

²⁷ Keys and Mulder (2024).

²⁸ Ge, Johnson and Tzur-Ilan (2025).

²⁹ Arlt et al. (2026).

³⁰ University of Cambridge Institute for Sustainability Leadership (CISL) (2026).

evidence together and proposes a structured way to fold physical risk, insurance adequacy, and adaptation investment into the core credit metrics of probability of default (PD) and loss given default (LGD). The research shows that integration of climate risks into decision-making still lags: although adoption of climate scenario analysis rose from 35 to 75 percent of surveyed financial firms outside the leading group between 2019 and 2022,³¹ only about 18 percent of banks fold climate risk factors into internal ratings-based models, and 62 percent still use climate analysis mainly to satisfy compliance.³² Publicly documented examples of individual banks doing this well remain scarce: the survey evidence is aggregate, and few institutions disclose model-level detail. The methodological groundwork is now in the public domain, however – Pozdyshev, Lobanov and Ilinsky, writing for the Bank for International Settlements, set out how physical risk can be introduced into the standard one-factor (Vasicek) credit model as a correction to banks’ internal estimates of both PD and LGD – so the binding constraint is increasingly adoption rather than method.³³

Two ideas from the CISL work recur through the rest of this report:

- the **insurance blind spot**, where a credit model assumes insurance cover remains when in fact it may be withdrawing, and
- the **revenue paradox**, where a loan taken out to fund adaptation raises a borrower's leverage, and so can worsen their credit score, even though it makes them a safer borrower in terms of their vulnerability to climate hazards.

A senior sustainable-finance lead at a global bank, interviewed for this report, described the practical effect of the short horizon directly. Standard one-year credit metrics such as PD and LGD are too short a horizon to register a climate effect on corporate credit approval today, even where the underlying mechanism—insurance cost affecting affordability, property valuation affecting collateral value—is intuitive once described. This is less a data problem than a measurement-horizon one: it points to the need to extend banks’ credit-risk horizons rather than gathering more hazard and exposure data.

The evidence of realised transmission and the interviewee’s account of short credit horizons are consistent rather than contradictory. Risk transmission is already visible in realised outcomes – premiums, delinquencies and collateral values, as the evidence above shows – while the one-year metrics banks use to approve credit are not built to register it. Insurance stress is reaching credit books; what is missing is a measure that shows it before the loss arrives. Banks are not alone in this: annual insurance repricing creates a parallel short-termism on the insurance side, and closer alignment between the two sectors’ metrics and time horizons is one route to addressing both.

4.3 Limitations of Voluntary Industry Alliances

Many elements of regulatory practices and expectations originated in voluntary industry initiatives. For instance, the disclosure framework of the Task Force on Climate-related Financial Disclosures (TCFD) has since been carried forward through the IFRS S1 and S2 standards of the International Sustainability Standards Board (ISSB) and become mandatory for large EU firms through the Corporate Sustainability

³¹ GARP Risk Institute (2023), cited in CISL (2026).

³² UNEP FI and Global Credit Data (2025).

³³ Pozdyshev, Lobanov and Ilinsky (2025).

Reporting Directive (CSRD) and the European Sustainability Reporting Standards (ESRS), and for large firms doing business in California through Senate Bill 261, although that law has faced legal challenge. UNEP FI's TCFD pilots translated risk frameworks into methods banks and insurers could apply to their portfolios, and the Partnership for Carbon Accounting Financials (PCAF) built a common approach to measuring and disclosing financed and insurance-associated emissions.³⁴

However, voluntary alliances also show how quickly collaboration can weaken if it is dependent on voluntary industry action alone. Under political pressure and facing antitrust concerns, the Net-Zero Insurance Alliance was restructured into a broader forum in 2024, and in the face of similar pressures, the Net-Zero Banking Alliance voted to cease operations in 2025.³⁵

The lesson for the challenge of bank-insurer climate risk is that durable collaboration needs a structure that does not depend solely on collective pledges. This points less toward alliance-driven actions and more toward shared reference points, common definitions, holistic data (shared definitions and comparable risk metrics, not shared commercial pricing or underwriting data), and common approaches that remain useful regardless of how the political winds shift.

While much of the evidence base rests on years of studies and regulatory analysis, some lines of inquiry are more emergent. Even after the research review was complemented with findings from the roundtable and interviews with practitioners, several important questions remain. [Table 2](#) assesses the state of evidence across the report, so that a reader can identify where to act with confidence and where more testing is warranted. It is worth noting that the classification reflects the strength and breadth of the underlying evidence, not the importance of the finding: an open question can matter as much to a reader as an established one.

³⁴ Task Force on Climate-related Financial Disclosures (2017); International Sustainability Standards Board (2023); European Union (2022); Partnership for Carbon Accounting Financials (2022); State of California (2023).

³⁵ The Net-Zero Insurance Alliance was succeeded by the Forum for Insurance Transition to Net Zero. See Forum for Insurance Transition to Net Zero (2024); Net-Zero Banking Alliance (2025).

Table 2. The state of the evidence: established findings, developing evidence, and open questions

Established	Developing	Open questions
The protection gap is large, persistent and growing; most catastrophe loss has been uninsured in most recent years.	Insurance is becoming a dynamic driver of credit outcomes, not a static backstop.	Who pays for resilience, and whether premium savings can ever be a sufficient private incentive to drive resilience on their own? How can an asset's future insurability be assessed? More broadly, who benefits from resilience investment, and how are those benefits shared among the parties who would need to help pay for it?
Insurance stress transmits to household credit: premium spikes raise mortgage delinquency and depress home values.	Resilience can be priced and financed through resilience-linked lending and sustainability-linked insurance, but this remains the exception.	What is the extent of risk in the corporate and supply-chain (business-interruption) channel ? How do impacts to household credit manifest in portfolios and the financial system?
Banks and insurers work on mismatched time horizons (insurers reprice risk annually, while bank loans run for years), and few banks integrate physical risk into credit models.	Cross-sector supervisory cooperation is beginning (ECB-EIOPA; the UK cross-sector scenario).	How can resilient assets be recognised in capital frameworks, along with the risk-reducing value of insurance ?
The diagnostic frameworks for physical climate risk exist; supervisors and standard-setters have mapped that risk within each sector.	Forward-looking insurability indicators are feasible, but not yet standard practice.	How far can public backstops be sustained as their fiscal limits come into view, and what stands behind them? And once those limits are reached, what happens to the credit and underwriting decisions that had been resting on the assumption that a backstop would be there?

Source: D.A. Carlin and Company analysis, synthesising the literature and regulatory review, roundtable and interviews described in Section 3 and the evidence set out in Sections 2 and 4 through 6.

5. Climate Risk Transmission Channels Between Banks and Insurers

Risk moves between the two sectors in three ways: from insurance into banking, from banking back into insurance, and, once both are moving at once, through a system-level feedback loop that is larger than either direction alone. Each is examined below on its own terms, identifying the mechanism at work, the risk-management process it touches, and how solid the evidence behind it is, before turning to where the two sectors differ.

5.1 From Insurance to Banking

Of the two directions, risk from the insurance sector to the banking sector has been explored and documented more thoroughly than the reverse, and the evidence behind it is correspondingly stronger. It begins with how an insurer recognises climate risk in the first place.

Solvency II requires insurers to quantify their exposures, assess them through the ORSA and report material risks, but it sets no clear threshold at which a climate risk becomes prohibitively expensive to insure. That leaves pricing, capacity, and withdrawal decisions to firm judgement, and those individual judgements feed directly into the credit channels described below.

One interviewee, a sustainability specialist at a global commercial insurer, described insurance as driving banking: *"Insurers and the insurance sector heavily influence the banking sector's view of what is a suitable asset to provide loans to."* This is consistent with insurance-to-bank being the dominant channel: insurance risk modelling shapes what a bank treats as a fundable asset more than bank behaviour shapes insurance decisions in the other direction.

During the roundtable, one major insurer articulated the state of the market, stating that physical risk is already the most material risk category from an underwriting standpoint, though tracking its second- and third-order effects on the rest of the financial system remains at an early stage. Those underwriting judgements reach bank balance sheets through three product channels, taken in turn below.

Residential mortgages. When an insurer raises premiums, pulls cover, or simply declines to renew a policy, the effect runs two directions at once. Households facing a sharp premium increase are more likely to fall behind on mortgage payments, raising PD; and the same rising insurance cost depresses the property's value, raising LGD (the share of a loan that is not recovered once a borrower has defaulted) by damaging the collateral even where the borrower keeps paying in full.³⁶ This channel is sharpened by how mortgage credit is funded. In the US, originating a loan and holding its risk are routinely separated: mortgages are widely sold on and securitised, with the government-sponsored enterprises (Fannie Mae and Freddie Mac) the largest single channel, alongside private securitisation and whole-loan sales. This separates the loan's originator from whoever ultimately holds the tail risk. In much of Europe, by contrast, banks fund mortgages largely through deposits and covered bonds, which keep the loans, and their risk, on the originating bank's balance sheet.

Banks typically require proof of insurance at origination and scrutinise it most closely at high loan-to-value ratios (mortgages with a small down payment relative to the property value, where the lender is

³⁶ Keys and Mulder (2024); Ge, Johnson and Tzur-Ilan (2025).

most exposed if the collateral loses value), but ongoing verification of cover after origination is inconsistent across markets. So a gradual insurer retreat from a market can go unnoticed by the lender until an actual loss occurs. This is not hypothetical: State Farm (from May 2023) and Allstate (from late 2022) stopped writing new homeowners' policies across California, citing catastrophe and wildfire exposure, rebuilding costs and reinsurance costs,³⁷ and a similar pattern of insurers pulling back from hurricane-exposed coastal markets has played out in Florida, pushing homeowners onto residual-market insurers of last resort; Citizens Property Insurance, Florida's insurer of last resort, grew to about 1.4 million policies by September 2023.³⁸ On the credit consequences of those withdrawals, the strongest evidence to date is Keys and Mulder, whose work on the most exposed US markets links the repricing of catastrophe risk to falls in home values of nearly 11 percent, while Ge, Johnson and Tzur-Ilan link rising premiums to measurably higher mortgage delinquency (Section 4.2).³⁹ How individual lenders adjusted their own credit policies in response is far less well documented, which is consistent with the uneven post-origination monitoring described above.

Part of that inconsistency is regulatory rather than behavioural. In the EU, Article 208(5) of the Capital Requirements Regulation⁴⁰ requires banks to have procedures to monitor that property taken as collateral is adequately insured against damage, but the Basel framework sets no general requirement to verify insurance cover, and in practice banks receive no systematic updates on it after origination.⁴¹ In the US, by contrast, federally regulated lenders must require flood insurance on property in a designated special flood hazard area for the term of the loan and force-place cover if it lapses⁴² – a more prescriptive duty than in Europe, and one that covers flood alone, not wildfire or windstorm.

Commercial real estate. The same mechanism operates here, with two twists. First, insurance cover is often arranged through layered programmes,⁴³ captives and self-insurance arrangements⁴⁴ that can obscure how exposed a bank's book is. Second, rising premiums compress net operating income, which reduces how much debt service a property can support. A valuation gap can build on top of this: where a large institutional owner has absorbed rising insurance costs across a whole portfolio, a buyer looking at a single asset within it faces current-market pricing, and the resulting change in value is not reflected back into how the original lender modelled the collateral. For example, if a real estate fund has been quietly absorbing rising premiums across a hundred-property portfolio, a bank valuing just one of those properties for a new loan may not see that cost buildup reflected in the property's own valuation history.

Corporate and supply-chain lending. This channel has attracted the least research attention of the three, and that thinness in the evidence base is itself notable. Business-interruption insurance⁴⁵ is the main route through which physical risk reaches a corporate borrower, both through direct claims and through widening coverage gaps. Yet, the evidence base here is thin next to the now well-documented

³⁷ State Farm General Insurance Company (2023); Associated Press (2023).

³⁸ PolitiFact (2024).

³⁹ Keys and Mulder (2024); Ge, Johnson and Tzur-Ilan (2025).

⁴⁰ European Union (2013), Article 208(5).

⁴¹ Menegat and Després (2026), p. 12.

⁴² United States Code, 42 U.S.C. §4012a.

⁴³ "Layered programmes" are where insurance cover is split into successive layers of limit, each placed with different insurers, so that a layer responds only once the layer beneath it is exhausted; syndication, by contrast, shares a single layer among a panel of insurers.

⁴⁴ A captive is an insurance subsidiary a company sets up to insure its own risks rather than buying cover on the open market; self-insurance means the owner sets aside its own funds to cover losses instead of transferring the risk to an insurer at all. Both make it harder for a third party, such as a lender, to see how much of a property's risk is actually covered by conventional insurance.

⁴⁵ Business interruption insurance pays a policyholder for lost income and continuing fixed costs while trading is halted or curtailed by an insured event rather than for the physical damage itself. This form of insurance is usually written as an extension to a commercial property policy rather than as a standalone contract.

residential channel. If this report has a single headline finding about where the evidence is thinnest and the exposure potentially largest, it is here: Potential business-interruption risk can be 14 times larger than direct asset-damage risk.⁴⁶ In practice, this evidence gap matters because business-interruption exposure sits several steps removed from a direct property claim:⁴⁷ it rarely surfaces in the underwriting or credit conversations that set a corporate facility's terms, leaving a potentially large risk effectively unpriced. The 2011 Thailand floods are a real-world illustration: months of flooding hit a country that supplied around a quarter of the world's hard disk drives, disrupting global electronics supply chains and nearly doubling drive prices, so that losses reached manufacturers far beyond the flooded areas.⁴⁸

Across all three of these channels, a pattern exists: some banks treat the existence of insurance coverage as a condition satisfied one time, at loan origination, when it is in fact a variable that can change materially over the life of the loan. While other banks do look for updates in insurance coverage at specific points, they may not fully consider how that insurance is likely to change over the life of the loan. A critical unresolved question is insurability itself: there is currently no agreed threshold at which an asset should be treated as uninsurable. Whether affordable coverage remains available depends on the type of risk, confidence in the pricing, whether the wider market is hard or soft, geography, policy exclusions, insurer appetite, syndication structure, and client type. Some perils, such as wildfire in certain locations, may go uninsured regardless of data quality: when a peril is severe and spatially correlated enough that a large share of a book could be hit at once, sharper data improves the price but does not shrink the underlying risk to something that can be pooled affordably.

Forward-looking insurability indicators offer one way through this: combining physical-risk data with trends in pricing, exclusions, deductibles, and market appetite turns a binary yes-or-no assumption into something closer to an early-warning signal. Initiatives such as [ClimateWise's insurability matrix aim](#) to build exactly this kind of indicator.

Used this way, tools of this kind could let both insurers and banks move from reacting to withdrawal after the fact toward planning for resilience before cover disappears. It is also worth noting, separately, that insurance withdrawing from a location can itself function as an early-warning signal that certain infrastructure should not be built, or rebuilt, in a given high-risk area in the first place — though deciding where building should or should not happen is properly a matter for public authorities, land-use policy and climate-vulnerable communities and businesses, not for insurers.

⁴⁶ MSCI (2025), cited in CISL (2026).

⁴⁷ Business-interruption losses are typically classed as an indirect, second-order effect of a peril rather than direct property damage, and can arise without any damage to the borrower's own premises, through disruption to a supplier or customer.

⁴⁸ Swiss Re (2021).

Table 2. What determines whether affordable cover remains available

Factor	What it turns on
Type of risk	Perils that are severe and spatially correlated – wildfire in some locations, coastal flood – are the hardest to pool at any price, however good the data.
Confidence in the pricing	Where a hazard cannot be modelled with confidence, insurers either price for that uncertainty or decline the risk outright.
Hard or soft market	In a hard market, available insurance capacity contracts and terms tighten across the board; the same risk may be written cheaply in a soft one.
Geography	Concentration matters as much as hazard: an insurer already heavily exposed in a region may decline an otherwise acceptable risk there.
Policy exclusions	Cover can remain nominally available while the specific peril that matters to the borrower is excluded from it.
Insurer appetite	Appetite is set at portfolio level and can change at renewal for reasons unconnected to the individual asset.
Syndication structure	Where a risk is shared across a panel, the withdrawal of one participant can leave a layer unplaced even though the others remain.
Client type	Larger, diversified clients can negotiate terms, use captives or self-insure; smaller clients are more exposed to a change in appetite.

Source: D.A. Carlin and Company, drawing on the roundtable and interview evidence described in Section 3.

5.2 From Banking to Insurance

The reverse direction of transmission has been explored in the published literature far more thinly than the insurance-to-banking direction, though it is not undocumented: this report's own roundtable and interview evidence, together with CISL's Resilience-Adjusted Credit Risk work, begin to fill that gap and are set out below.

Bank credit conditions shape whether borrowers can finance the adaptation work that keeps an asset insurable in the first place. **Where credit tightens in an exposed area, rebuilding and resilience investment decrease; as those decrease, the pool of insurable risk deteriorates, and insurers face rising concentration risk.** Section 5.3 and Figure 3 set out where that leads: rising concentration prompts further repricing or withdrawal, which tightens credit again, and the loop closes on the places that were already most exposed. The clearest observed cases run in the insurance-to-banking direction described in Section 5.1, where insurer withdrawal in California and Florida pushed households onto residual-market insurers and coincided with falling property values and higher mortgage delinquency. The return leg, from tighter credit back into deteriorating insurability, is so far evidenced mainly through the roundtable and interview accounts gathered for this report rather than through published case studies. Banks also carry direct exposure to insurers and reinsurers, both as counterparties and as holders of insurer-issued instruments, and the pace and shape of bank decarbonisation (here, the pace and shape of banks' own reduction in financed emissions) shapes the transition risks that insurers themselves underwrite and invest against. The same point holds for insurers: the pace and shape of their own decarbonisation, or lack of it, shapes the transition risks that both they and the banks lending against the same exposures will eventually face.

A specific, practical data gap sharpens this channel further. Banks often cannot see how insurance premiums are moving in the exact locations where they are lending, a data gap independently confirmed by roundtable participants (Section 6.1). This is because physical hazard data and insurance pricing data are often tracked in entirely separate systems — physical hazard data such as catastrophe models, flood maps and geospatial risk scores sitting in different systems, and often different teams, from the insurance-pricing data such as premium filings, claims history and non-renewal patterns, breaking the signal before it ever reaches a credit model.

Because loan tenors run far longer than annual policy renewals, banks introduce a structural vulnerability into the financial system: their credit frameworks tend to assume insurance will stay available and affordable for the life of the loan.⁴⁹ By treating insurance as a static guarantee, banks fail to test how exclusions, deductibles, or shifting insurer appetite could erode collateral value along the way. This dynamic runs from banks to insurers in its origin, even though it is insurers who are left to react to it: when insurers subsequently respond to deteriorating conditions by pulling cover, the pre-existing banking assumptions about creditworthiness and valuation amplify the shock, turning what would otherwise be an ordinary insurance repricing event into potential credit and market losses.

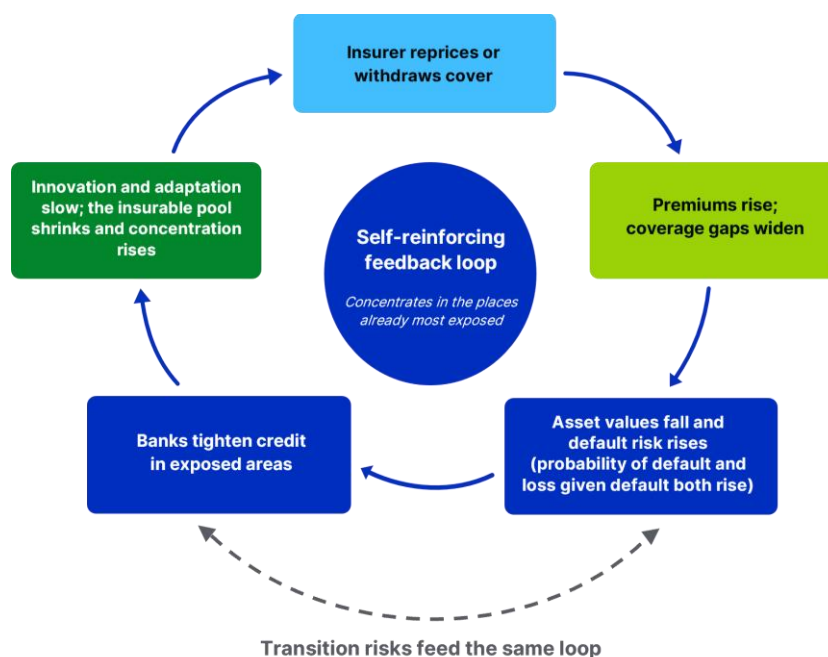
5.3 Interaction Between the Two Channels

These two channels matter most when they combine, because the separate decisions banks and insurers make can reinforce each other instead of simply adding up. An insurer withdraws; property values fall; default risk rises; banks tighten credit; as credit tightens, rebuilding slows; the insurable pool shrinks further; insurers face higher concentration, which prompts more repricing or withdrawal. Each institution is making decisions without fully factoring in the other's horizon, and the loop tends to concentrate in the places that were already most exposed to physical hazard in the first place. On the bank side, this amounts to a specific instance of that feedback loop: a form of wrong-way risk, where collateral value and borrower creditworthiness deteriorate at the same time as the insurance that was supposed to underpin them is retreating.

During the roundtable, one participant described a closely related dynamic as a self-reinforcing spiral: as data and modelling improve and firms gain a clearer view of the underlying risk, that clearer view does not necessarily reassure the market. Some actors withdraw even faster once the risk becomes visible, instead of staying in the market and pricing it accurately.

⁴⁹ CISL (2026).

Figure 3. The self-reinforcing feedback loop between insurance retreat and credit tightening



Source: adapted from D.A. Carlin and Company roundtable research, drawing on Financial Stability Board (2020).

Transition risk feeds into this same loop. A sudden policy shift, a faster-than-expected repricing of carbon-intensive assets, or a disorderly transition can itself set off the credit tightening and asset devaluation shown in 3. The loop is better read as a channel for both physical and transition shocks together, not a mechanism specific to physical risk alone.

Transition risk between insurance and banks has also been explored by supervisors and researchers. The BCBS's own mapping of climate risk drivers⁵⁰ treats an abrupt repricing of carbon-intensive assets as a transmission channel structurally similar to the physical-risk pathway described above: it lowers asset and collateral values, raises PD in carbon-intensive sectors, and can trigger correlated losses across a bank's and an insurer's shared exposures. The Network for Greening the Financial System (NGFS) developed its short-term climate scenarios⁵¹ specifically to test this dynamic over horizons that match lending and underwriting cycles, rather than the multi-decade horizons of earlier scenario work, precisely because a disorderly transition can move faster than physical hazards do.

Insurers carry transition risk chiefly on the asset side of the balance sheet, through the value of what they invest in, while banks carry it on both sides, as borrowers in carbon-intensive sectors face higher financing costs and declining collateral values at the same time. The disconnect this report documents for physical risk therefore extends to transition risk as well: neither sector effectively tracks how the other's transition exposure could show up in its own book.

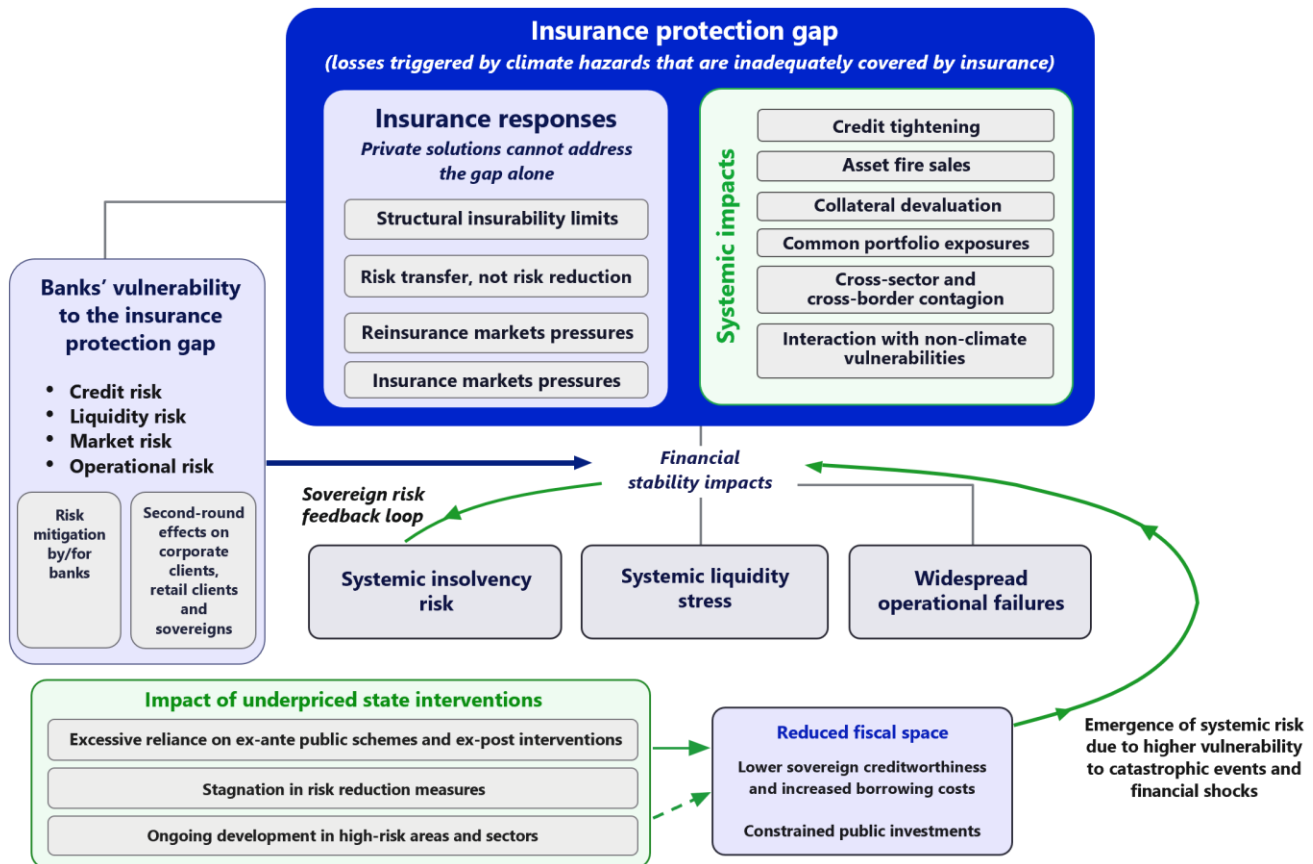
Scaled up across a whole system, these dynamics become macro-financial in nature. A widening protection gap moves through banks' credit, market, liquidity, and operational risk into asset

⁵⁰ Basel Committee on Banking Supervision (2021).

⁵¹ Network for Greening the Financial System (2025).

fire-sales, collateral devaluation and shared portfolio exposures, and outward again through supply chains and ultimately sovereigns. Where governments are expected to absorb the residual losses, the protection gap converts into fiscal pressure and then into sovereign risk that feeds back into the same banks and insurers that started the cycle. Private insurance cover alone is largely insufficient to close a gap of this size, which is a large part of why the Financial Stability Board and the European supervisors increasingly treat the protection gap as a financial-stability concern in its own right, and why both now envisage some form of layered public-private response.

Figure 4. The protection gap as a macro-financial transmission mechanism



Source: adapted from Menegat and Després (2026), which draws on Financial Stability Board (2025).

Table 3. How the banks-insurers disconnect shows up across Basel risk categories

Basel category	Direct impact	Indirect impact
Credit risk	The insurance "shield" weakens as premiums rise and cover is withdrawn in high-risk areas.	Uninsured borrowers face higher default rates, which erodes the collateral value behind the loan.
Market risk	Existing instruments offer limited protection and do not absorb systemic climate risk.	Sudden insurer repricing or market exit can trigger asset devaluation and portfolio volatility.
Liquidity risk	Insurance is less able to sustain asset tradability and credit quality through a widespread climate shock.	Post-disaster asset sales by insurers can reduce market depth and worsen liquidity conditions for banks.
Operational risk (compliance and liability)	Banks face potential legal liability for misjudging collateral coverage or financing highly vulnerable projects.	Rising regulatory scrutiny, disputes and contractual uncertainty follow from climate-related losses.

Source: adapted from Menegat and Després (2026), Table 3.1.

5.4 Differences and Complementarities Between the Two Sectors

Collaboration between the two sectors is difficult in part because they operate so differently. The key areas of difference include time horizon, information, business model and influence, regulation, and client relationships. A researcher familiar with publicly backed reinsurance arrangements, interviewed for this report, argued that a key diagnostic question is which institutions are unable to transfer their own risk elsewhere, since that inability will force change.

Table 4. Banks and insurers view the same risk through different lenses

Dimension	Insurers	Banks
Time horizon	Underwrite risk annually; can exit or reprice a risk at the next renewal.	Committed for years to decades; a mortgage or infrastructure loan outlives any insurance policy that supports it.
Information	Hold the most granular hazard-to-loss data, through claims records and catastrophe models.	Hold long-dated credit performance and direct, repeated relationships with the same borrowers.
Business model and influence	Shape behaviour through price and the availability of cover; move quickly (able to reprice or withdraw at the next annual renewal, unlike a bank locked into a multi-year loan) but have limited tenure.	Shape behaviour through the supply, price and conditions of credit; longer tenure but move more slowly.
Regulation	Supervised under Solvency II-type regimes; in the US, regulated at state level.	Supervised under Basel-based regimes; in the US, largely federal, with no shared supervisory forum.
Client relationships	Reassess pricing and terms annually, with less continuity in any single relationship; some insurers are reluctant to invest in understanding a specific client's risk if that client may switch insurer at the next renewal.	Maintain long-dated, repeated relationships with the same borrowers across multiple products, which supports relationship-based underwriting judgement over time.

Source: D.A. Carlin and Company analysis, drawing on the roundtable and interviews described in Section 3.

Considered together, the differences between insurers and banks can complement each other when it comes to potential solutions for managing risks. For instance, insurers hold the hazard and loss data that banks lack; banks have the client relationships and business model to finance resilience that insurers cannot provide alone. It may be that insurers are best positioned to price resilience, while banks are positioned to fund it. A shared view of the risk would enable each to act on the information the other possesses.

5.5 Within-Sector Differences: Size and Business Model

The differences described in Section 5.4 are not the only ones that matter: institutions of different sizes within the same sector also manage this risk differently, and that variation shapes how the two channels described above actually play out in practice.

Among banks, smaller, well-capitalised institutions can operate more like relationship lenders, adjusting terms in response to local adaptation or direct evidence of a borrower's cover. However, they may lack the systems needed to verify insurance after origination, which is its own operational blind spot that leaves them more exposed. Smaller banks are often regional, which can mean higher geographic concentration in exposed areas than a large, geographically diversified bank carries, and therefore greater exposure to an unnoticed change in coverage. Larger banks rely on standardised models that pick up local adaptation and insurance signals less well and tend to manage disaster exposure through portfolio-level risk transfer or securitisation instead of loan-level repricing. A large, geographically diversified bank absorbs a given local shock as a smaller share of its book, so smaller regional lenders are typically the more exposed to any single climate event, even where their loan-level judgement may be better informed.

Among insurers, a parallel divide exists. Large, diversified reinsurers absorb tail risk across many markets and geographies and are typically the first to reprice or withdraw capacity when catastrophe models are updated and, more directly, in the immediate aftermath of large losses; this decision then cascades down to primary insurers and, from there, to the banks lending against the same exposures. Smaller or regional primary insurers and mutuals have less capacity to diversify and can become insolvent or be forced to withdraw from a single concentrated market altogether rather than reprice within it — a similar pattern followed a run of severe hail losses across Iowa and the Midwestern US in recent years, where insurers tightened underwriting and, in some cases, withdrew from the market.⁵² The same logic applies on the banking side: credit tightening in an exposed area is also more likely to follow a major loss event than to happen pre-emptively. This removes insurance cover from an area in one step rather than through a gradual increase in premium, though it is not obvious that a gradual increase is actually easier for a lender to notice than a sudden withdrawal; both can go unremarked without active monitoring.

A reinsurance dimension sits behind both patterns: as reinsurers reprice tail risk, primary insurers tighten their own capacity in turn, and this reinsurance-driven repricing accounts for about 45 percent of the increase in the pass-through of disaster risk into premiums in the most exposed zip codes.⁵³ The practical implication for cross-sector collaboration is that a single standard for engagement between 'banks' and 'insurers' will not fit every institution: a large multinational bank and reinsurer face a

⁵² R Street Institute (2024), on insurer retrenchment following a run of severe hail losses in the US Midwest.

⁵³ Keys and Mulder (2024).

materially different version of this problem than a regional bank and a mutual insurer serving the same local market.

6. Structural Barriers to Cross-Sector Collaboration

Given everything Sections 4 and 5 cover, a clear question is why this misalignment has persisted. The answer is that five barriers reinforce one another:

- a **mismatch in time horizons** between annual insurance renewals and multi-year bank loans;
- a **data gap**: the granular, asset-level records insurers hold do not flow through to banks in the aggregated form their credit models use;
- a **blind spot** on the banking side toward insurance in which credit models assume cover will persist for the life of a loan;
- **regulatory frameworks that do not reward resilience** and can even penalise borrowers for financing adaptation; and
- **institutional silos** that keep climate expertise inside sustainability teams and away from the people making credit and underwriting decisions.

Taken together, these barriers explain why the market does not automatically price in, or financially reward, resilience investment on its own: the same barriers leave banks under-pricing credit risk and insurers under-pricing claims risk on their own books. They also give rise to two broader questions which Section 6.2 explores directly: who ultimately pays for resilience, and why is the market not able to address this issue on its own?

6.1 Structural and Operational Barriers

Each barrier below is described as primarily technical, regulatory, structural, policy, or cultural in nature, because that distinction is what determines who is best positioned to address it.

Time horizons (structural and policy). The most basic misalignment is between an insurance cycle that resets annually and credit that is committed for years or decades. Section 2.2 illustrates this concretely in the UK, where standard mortgage terms already extend past the point at which Flood Re is due to leave the market. The same basic mismatch, a multi-year or multi-decade loan committed against an insurance backstop that can change or disappear well within the loan's life, recurs across the markets this report examines.

Data, granularity, and methodology (largely technical). Insurers work at postcode and peril level; banks typically work with more aggregated exposure data, and hazard estimates for an identical asset can differ materially between vendors (the same third-party providers referenced in the next sentence), which banks struggle to represent inside a credit model. During the roundtable, one bank representative explained that the bank sources physical-location risk data from third-party providers but cannot easily see the forward-looking trend in rising premiums or link that trend to credit risk and pricing; consequently, its attention has leaned more heavily toward transition risk, since assigning a definitive score to physical risk remains difficult. With only a small share of banks folding climate risk into internal ratings-based models (see Section 4.2), and expert judgement still doing most of the work, this barrier looks more tractable than the others: it can plausibly be addressed through industry action and data-sharing instead of regulatory change, though one research and advocacy organisation at the

roundtable cautioned that any data-sharing expectations placed on insurers be designed carefully enough not to work against the sharing they are meant to encourage, given insurers' limited commercial incentive to release what they treat as proprietary underwriting information.

The public sector shows a related disconnect: physical-risk modelling tools such as the CLIMADA platform,⁵⁴ originally developed by ETH Zurich and since adopted by a range of public and private users, have generally been taken up separately by banking and insurance supervisors, not built or maintained jointly, which is itself a missed opportunity for the kind of shared tooling that would help align the two sectors operationally.

Divergent assumptions: the blind spot on the banking side toward insurance (technical and cultural). Most bank credit models assume insurance is in place and will stay in place; practitioners interviewed for this report described models that simply assume borrowers are insured and will be paid out in full. As cover withdraws, that assumption becomes a source of risk that has not yet been recognised as such. This may be a more consequential barrier than the others because it stays invisible until a loss forces it into view.

Regulatory and capital frameworks (regulatory). As one roundtable participant put it, the patchwork of regulation across the two sectors reflects their origin: Basel III and Solvency II were both finalised in the wake of the global financial crisis to stabilise the system, not to reward resilience, and the two are calibrated over different time horizons from one another. The two sectors are also constrained differently in how they set prices. A bank is generally free to price a loan as it judges appropriate, within its own risk appetite and conduct obligations. Insurance rates are more often subject to filing or approval requirements, most visibly in the US, where property and casualty rates are regulated state by state. Where an insurer cannot charge a rate that matches the risk it sees, reducing or withdrawing capacity becomes the available response, which is one reason repricing and withdrawal tend to appear together in the same markets. Two features of bank rules suppress the climate signal: capital requirements calibrated over a one-year window understate a hazard that is rare but severe, and models built on historical default data cannot capture a risk that has no historical precedent. The revenue paradox compounds this further: a loan taken out to fund adaptation raises a borrower's leverage, and so can worsen their credit score, at the same time as it makes them a safer borrower, because the avoided loss is not recognised as a benefit.

A related gap sits where the two sectors meet: insurance cover reduces real economic risk, but bank capital frameworks give it little recognition as a credit-risk mitigant, so its risk-reducing value stays largely invisible inside prudential frameworks. Addressing this falls to supervisors; firm-level effort alone cannot fix it.

Institutional and information barriers (structural). Commercial sensitivity, data-protection rules, and competition law all limit how much the two sectors can share with each other, particularly on a collective basis. The siloing also runs inside individual firms: climate-risk frameworks that are technically sound within a sustainability function rarely reach the operational workflows of front-office, credit and underwriting teams, so the people who model the risk and the people who originate the exposure end up working apart from one another. One interviewee, a senior sustainable-finance lead at a major UK bank, described this from the inside: the client-coverage (relationship) team dealing directly with clients sits

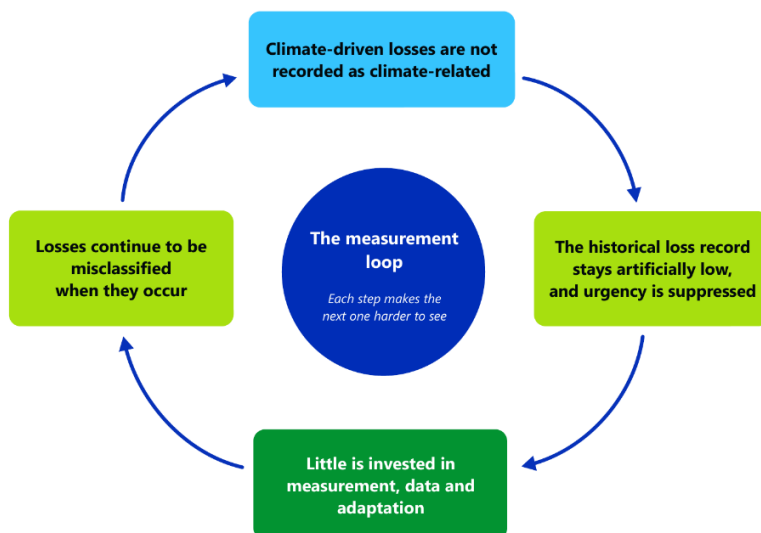
⁵⁴ CLIMADA (CLIMate ADaptation) is an open-source, global catastrophe risk modelling framework developed by ETH Zurich; see Aznar-Siguan and Bresch (2019).

apart from both the bank's group sustainability function and its climate-risk team within group risk, producing a translation gap right at origination, where a loan officer who never tests a collateral's insurance structure commits the institution to physical risk it has never priced.

An independent researcher working across the banking, insurance, and equity dimensions of the protection gap, interviewed for this report, described a related gap at the level of language itself: banks and insurers often use identical terms (resilience, adaptation, de-risking) to mean different things in practice, so two parties in the same room can leave convinced they agree when they do not. “De-risking”, for instance, can mean transferring an exposure to another balance sheet in one conversation and physically reducing the underlying hazard in the next, the distinction Menegat and Després draw between risk transfer and risk reduction.⁵⁵ “Resilience” can refer either to an asset’s ability to withstand a hazard or to an institution’s capital adequacy against it. An agreement to “de-risk” or to “build resilience” can therefore be read two ways in the same meeting. With few routine forums for technical exchange between the two sectors, this is the barrier best suited to a neutral convenor, since no single firm can convene its own competitors. The sectors are not starting from a blank page: CISL's ClimateWise programme, UNEP FI, the IAIS, the Institute of International Finance, Ceres, RMI, Resources for the Future, and the London School of Economics’ Centre for Economic Transition Expertise (CETEx), among others, each already hold relevant pieces of best practice, scattered across separate initiatives instead of gathered in one shared reference point, which is itself part of the barrier described here.

A further dynamic compounds these barriers: a loss that is never recorded as climate-related keeps the historical loss record artificially low; a low loss record suppresses urgency; low urgency suppresses investment in measurement and adaptation; and the resulting absence of measurement keeps the next set of losses misclassified in turn. Breaking that cycle sits beyond what any single institution can do alone, and any serious attempt runs straight into an unresolved structural question: who ultimately finances the cost of closing it.

Figure 5. The measurement loop that keeps climate losses out of the record



Source: D.A. Carlin and Company, drawing on CISL (2026), and the roundtable and interview evidence described in Section 3.

⁵⁵ Menegat and Després (2026).

6.2 The Economics of Resilience Financing

Future assessments of how to close this gap will depend on **who pays for resilience and what happens once cover retreats from an entire community, not just a single asset**. The evidence gathered in this report does not imply that the market will adequately reward resilience on its own. One insurer at the roundtable put the underlying difficulty plainly: it is not obvious how insurance and banking actors are meant to make progress on an issue that is not yet a priority for the wider market, including regulators, investors and asset owners.

The first difficulty is that resilience is not reliably rewarded today. Adaptation is not consistently repaid through a lower premium, and where a discount is available, it is often too small on its own to justify the outlay. The economics only work if tested from several perspectives at once: the client funding the measure, the bank whose collateral it protects, the insurer whose claims it reduces, and the public or development-finance actor who may value the avoided social cost more than any of the other three.

A resilience investment that fails a single private cost-benefit test can still be strongly positive once the bank's reduced LGD and the public's avoided loss are counted alongside it. That is why the difficulty here is chiefly about aligning who pays with who benefits, not simply a pricing problem: the party that pays is often not the one that benefits directly from the resilience measure. Development-finance resilience assessments are one route around this, using concessional capital or public guarantees so that private premiums or credit terms come closer to reflecting the benefits of resilience that are not fully captured by the market.

The second difficulty is distributional and challenges the contention that more insurance can address rising risks. Where the underlying problem is land use, inadequate adaptation, misaligned risk appetite or public policy, expanding insurance can entrench the exposure instead of reducing it, and insurance retreat can leave some communities worse off in ways pricing alone does not capture. When cover withdraws from a floodplain, the households least able to move or self-insure are the ones left most exposed, and a bank that follows the insurer out of the market can speed up that decline instead of slowing it. More cover is not the answer where the underlying problem is continued development in areas of rising risk. The misalignment of incentives that drives this problem also lies with public authorities' land-use and building-code decisions.

This concern is starkest when considering low-income countries and communities, and emerging financial markets. In many such places, 80 to 90 percent of catastrophe losses remain uninsured, with the Swiss Re Institute's catastrophe insurance resilience score for Emerging Asia, as it classifies the region, at around 5 percent, meaning only a small fraction of expected catastrophe losses is insured.⁵⁶ These are also the places where local banks, development-finance institutions, and sovereigns are exposed to the same risks simultaneously, with the least insurance and fiscal capacity to absorb them.

Blended and concessional finance has a role to play in addressing this risk exposure. Future moves toward a public-private approach for the protection gap need to be built with these vulnerable places in mind from the outset.

⁵⁶ Swiss Re Institute (2026a); Swiss Re Institute (2026b).

These challenges connect directly to political and sovereign risk. Governments' willingness to absorb losses is neither unlimited nor evenly spread: development permitted in a floodplain is an example of a public choice that later constrains what insurers and banks can prudently do. Questions of risk allocation, land use, and who ultimately funds resilience are not ones banks and insurers can settle among themselves; they require a wider public debate about resilience and risk.

Existing public backstops can address the symptoms of the protection gap without resolving its underlying cause. As Section 2.2 discusses, Flood Re keeps UK flood cover affordable, but is scheduled to end, which will remove the backstop it provides. In the US, public and quasi-public insurance schemes have taken on a growing share of catastrophe risk as private insurers pull back from the most exposed markets. Each of these mechanisms marks out where the gap is likely to widen next, not where it closes.

Entities designed to address the protection gap, from insurer schemes such as the California Earthquake Authority, to reinsurer schemes such as Flood Re, to market-wide arrangements such as Spain's Consorcio de Compensación de Seguros, remain important in smoothing premium volatility and protecting solvency, but the fiscal limits of these backstops are becoming increasingly clear. These schemes often shift risk onto public or quasi-public balance sheets instead of addressing the risk drivers directly, although some, including Flood Re through its Build Back Better scheme, are increasingly supporting risk reduction.⁵⁷ Ironically, an overreliance on backstops can encourage continued development in high-risk zones, and at that point the backstop label stops fitting: a scheme carrying this much of the risk, on an ongoing basis, has become a primary risk-bearer rather than a rarely-used safety net, without the pricing signal a primary risk-bearer would normally need.

Resilience can be financed, and it already is in some places. Sustainability-linked insurance is one clear case: in Hong Kong, Link Asset Management secured an 11.7 percent cut in property-insurance premiums for 2025 by demonstrating quantified risk reduction from a HK\$5 million investment in flood resilience.⁵⁸ This remains the exception, not the rule: for every US\$1 spent on climate-resilient infrastructure in flood- and drought-relevant sectors in 2019/20, US\$87 went to infrastructure projects that did not integrate climate resilience.⁵⁹ But it demonstrates that adaptation can be priced and financed once somebody is positioned to see it. Early supervisory signals point the same way: the ECB-EIOPA cooperation on natural-catastrophe risk discussed in Section 4.1 is one example of regulators beginning to explore how the treatment of resilience investment might change.

Turning innovative approaches like this into standard practice and deciding who is best placed to lead that work are among the areas that the recommendations in Section 7 explore.

⁵⁷ Flood Re (2022).

⁵⁸ Link, AXA and Marsh (2025).

⁵⁹ Climate Policy Initiative (2022), cited in CISL (2026).

7. Recommendations

The analysis in this report identifies a set of practical actions that could strengthen how climate-related risks are managed across the banking and insurance sectors. The recommendations that follow are organised according to the actors best positioned to address the different technical, structural and regulatory barriers identified in Section 6. Together, these recommendations aim to improve how changes in climate risk and insurability are identified, transmitted and acted upon, while also supporting greater investment in adaptation and resilience.

The recommendations draw on the three evidence streams used throughout the report. The recommendations focus on areas where the findings of this report suggest that action could most directly address the transmission channels and gaps identified in Sections 4 through 6.

7.1 Recommendations for Cross-Sector Action

Many of the transmission channels identified in this report arise because banks and insurers assess the same underlying risks using different information, methodologies and time horizons. These differences reflect legitimate differences in business models and cannot, and should not, be eliminated entirely. However, greater understanding across sectors could help both understand where assumptions diverge, identify changes in risk earlier, and develop approaches that better support resilience.

Develop greater alignment around approaches to assessing shared risks. Banks and insurers should increase technical dialogue on how they measure physical and transition risks, including the assumptions, time horizons, scenarios and methodologies used in their respective models. Both sectors need not use identical models, but greater transparency around approaches would identify where differences may lead to materially different assessments of the same asset or exposure.

One practical approach recommended by participants in our roundtable is to test bank and insurer methodologies against common hypothetical assets or portfolios, allowing each sector to understand how the other assesses risk and where important gaps or inconsistencies emerge. This could also support the development of more consistent definitions of concepts such as resilience, adaptation and insurability throughout the financial sector.

Develop practical mechanisms for sharing relevant risk information. Banks and insurers should explore how information that is material to the other sector's risk assessment can be exchanged more effectively, subject to commercial, data-protection, and competition law constraints. For banks, forward-looking information on changes in premiums, deductibles, exclusions and insurer appetite could provide an important signal of changing asset risk. Insurers may similarly benefit from information about adaptation measures, asset characteristics and financing of resilience investments that affects the underlying risk they insure.

Rather than seeking extensive data-sharing arrangements, efforts should focus on specific products or exposures where the information gap is material and already leading to impacts.

Collaborate on financial products that reward adaptation and resilience. Banks and insurers should work together to test products that create stronger financial incentives for clients to reduce underlying climate risk. This could include linking financing for adaptation measures with insurance

terms that recognise demonstrated reductions in expected losses, allowing the benefits of resilience to be reflected across both credit and insurance products.

Joint pilots could help establish which resilience measures produce sufficiently measurable risk reduction to support changes in lending terms, premiums, deductibles or coverage. Such collaboration is particularly necessary because banks and insurers each capture only part of the financial benefit created by resilience investment, while both have an interest in maintaining the long-term viability of the assets and communities they finance and insure.

7.2 Recommendations for Banks

The findings of this report point to three areas for banks specifically to strengthen their management of climate risks transmitted through insurance markets.

Keep information on insurance and underlying asset risk current. Banks should establish processes to update relevant information on the insurance coverage and climate risk of material underlying assets over the life of a loan. This is particularly important for longer-dated exposures, where insurance policies may be renewed annually while financing remains outstanding for years or decades. Depending on the product and exposure, this could include monitoring changes in coverage, premiums, deductibles, exclusions and other indicators of changing insurer appetite.

Closer engagement with insurers can also help banks understand how assessments of risk and insurability are evolving, while recognising the data-sharing constraints discussed above.

Test credit exposures against changes in insurance availability and cost. Where insurance is material to the creditworthiness of a borrower or the value of collateral, banks should consider a range of plausible scenarios rather than assuming that existing insurance coverage remains available.

For residential lending, this could include assessing how rising premiums or reduced availability affect household affordability, PD and collateral values. For commercial and corporate exposures, analysis should consider the potential effects of higher insurance costs, exclusions or withdrawal of cover on operating costs, asset values, business continuity and debt-servicing capacity.

These scenarios should be proportionate to the exposure, with greater analysis also focused on assets, sectors and geographies where insurance markets are already showing signs of stress.

Define actions to be taken when insurability or climate risks become material. Better information and scenario analysis only improve resilience if they feed into decisions. Banks should determine how changes in climate exposure or insurance conditions would affect credit policies, risk appetite, pricing, collateral requirements and portfolio management.

These considerations can also inform internal capital planning and decisions about whether additional risk mitigation or resilience investment is required. Establishing these actions in advance would allow banks to respond to deteriorating conditions before insurance withdrawal or a climate-related loss becomes a financial loss.

7.3 Recommendations for Insurers

Insurers are often among the first financial institutions to identify and price changes in climate risk. Given the unique challenges they face, there are also opportunities both analytically and commercially to strengthen practices in the face of rising climate risks.

Extend risk analysis to second-order effects, concentrations, and correlations. Insurers should conduct analysis beyond the direct losses associated with individual hazards to consider how climate impacts can propagate through the wider industry. This includes second-order effects through business interruption, supply chains, asset values and credit conditions, as well as correlations across geographies, sectors and common exposures. These interactions are especially relevant where individual underwriting decisions, such as repricing or withdrawing from exposed markets, occur across multiple institutions at the same time and potentially amplify the risks across the financial system.

Assess the scale of underwriting that could be impacted under different scenarios. Insurers should develop a forward-looking view of how much existing and prospective underwriting could be affected as physical and transition risks evolve. This should include scenarios in which risks remain insurable but premiums, deductibles or exclusions change significantly, as well as scenarios in which cover is substantially reduced or withdrawn.

Analysis can help identify concentrations by geography, sector, peril and customer segment and provide an earlier indication of where protection gaps could widen. It should not just cover physical risks, but also transition risks, where changes in policy, technology or asset values could affect both underwriting exposures and investment portfolios.

Use product design and underwriting to create stronger incentives for resilience. Insurers should continue to explore how insurance products can recognise credible adaptation and resilience measures that may reduce losses. This could include changes in premiums, deductibles, or coverage for better-adapted assets, alongside exploration of longer-term or multi-year structures.

Such approaches will not be suitable for every risk or market. However, more systematic recognition of resilience in underwriting can help differentiate between assets with different risk characteristics and create an additional financial incentive for investment in risk reduction and adaptation.

7.4 Recommendations for Policymakers and Regulators

While this report focused primarily on private sector actors, regulators and policymakers have a critical role to play in managing systemic risks. The findings of this report point in particular to the need for a more integrated view of the interaction between banks and insurers, alongside public policies that support effective risk management and address the consequences of private sector withdrawal from communities, and that incentivise investment in resilience.

Assess climate risk across the banking and insurance sectors as an interconnected system. Supervisory scenario analysis and stress testing should examine how actions taken by banks and insurers interact and reinforce one another. Existing exercises have substantially improved understanding of climate-related financial risks, but analysis has often focused on individual institutions or sectors rather than the financial system overall. This may miss important correlations and feedback effects.

Regulators should examine how insurance repricing or withdrawal could affect collateral values, credit losses and lending behaviour, and how subsequent changes in credit availability could affect investment, adaptation and the future pool of insurable assets. Where banking and insurance supervision sits within different authorities, this will require closer coordination between supervisors.

Extend scenario analysis to second-order effects and potential contagions. Regulators should complement analysis of direct physical and transition impacts with greater consideration of how initial shocks may propagate through the financial system and wider economy. This should include potential effects through business interruption and supply chains, correlated exposures, asset values, insurance availability, credit conditions and sovereign or public-sector balance sheets.

Especially relevant are areas where individually rational responses by institutions could collectively amplify the initial shock, including simultaneous insurance withdrawal or credit tightening in highly exposed markets.

Ensure regulatory frameworks support appropriate recognition of resilience and risk reduction. Supervisors should examine whether existing prudential and regulatory frameworks adequately reflect both changing climate risks and risk reduction measures. Current approaches may struggle to capture long-dated physical or transition risks within shorter regulatory horizons and may fail to recognise the risk-reducing (and risk-differentiating) effect of adaptation or insurance within credit and capital frameworks. Supervisors should also ensure that existing frameworks and requirements do not unnecessarily impede resilience-related product innovation.

Further work would be needed to determine where these effects are measurable and sufficiently robust to inform prudential treatment.

Anticipate the consequences of improved risk identification and market withdrawal. Better information about climate risk may lead insurers to reprice or withdraw coverage and banks to tighten credit as previously under-recognised risks become visible.

Policymakers must identify where these private sector responses could leave communities without access to insurance or capital and consider where targeted public intervention is needed. Such interventions need to be designed carefully so that they support risk management rather than the continued accumulation of exposure in areas where underlying risks are becoming unsustainable.

Strengthen public investment and incentives for adaptation and resilience. Some forms of adaptation provide benefits across entire communities or economies that cannot be fully captured by the private sector. Policymakers should provide clear signals and, where appropriate, financial support for these public goods, including resilient infrastructure and other measures that reduce underlying climate risks.

Public and blended finance can also help address cases where resilience investment produces substantial benefits but does not yet offer a market-appropriate return. Support should focus on reducing underlying risk and increasing resilience, rather than relying on mechanisms that simply transfer losses after they occur.

8. Conclusion

This report examined how climate-related physical and transition risks move between banks and insurers, drawing on regulatory and academic literature, a cross-sector roundtable, and interviews with practitioners. The analysis shows that the two sectors are exposed to many of the same assets and economic shocks, but assess and manage those risks using different information, time horizons, and assumptions. This disconnect can allow institutionally rational decisions, such as insurance withdrawal or credit tightening, to reinforce one another and amplify losses across the financial system and wider economy.

The transmission of insurance stress into credit risk is already visible through its effects on borrower affordability, collateral values, business continuity, and credit performance. These effects can become self-reinforcing where tighter credit constrains rebuilding and adaptation, further weakening insurability and local economic resilience. Regulatory frameworks have improved the identification of climate-related financial risk, but operational practices, cross-sector analysis, and incentives for resilience have developed more slowly.

Implementation of the recommendations in this report should begin with cross-sectoral work. Banks, insurers, and public authorities should prioritise products, exposures, and geographies where changing insurance conditions may have the greatest financial and social consequences. Technical work can be undertaken to assess bank and insurer methodologies against common hypothetical portfolios, develop shared definitions of resilience and insurability, and identify the information each sector needs to make informed decisions. A neutral convenor could help address commercial, data-protection, and competition considerations.

Successful adoption of these recommendations would not just generate new research but would quickly move into practical actions. Banks could test processes for monitoring insurance and underlying asset risk over the life of a loan and incorporate potential changes in coverage and availability into credit scenarios and pre-defined actions. Insurers could extend analysis of second-order effects and test how demonstrated risk reduction can be recognised through underwriting and product design. Joint pilots could assess whether resilience improvements can be reflected across lending terms and premiums.

Policymakers and regulators should use the resulting evidence to strengthen cross-sector scenario analysis, examine where measurable resilience can be recognised within regulatory frameworks, and anticipate where private-sector withdrawal may leave communities without access to insurance or capital. Public and blended finance will also be needed where adaptation produces broad economic and social benefits that are not well captured by market activities.

Taken together, these steps would allow banks and insurers to more effectively tackle rising physical and transition risks, leveraging insurers' ability to identify and price risk and banks' capacity to finance resilience through long-term client relationships.

Appendix A. Selected Regulatory and Industry Initiatives

This appendix is not exhaustive. It lists the frameworks, supervisory statements and industry initiatives most directly relevant to collaboration between banks and insurers on physical climate risk, selected for their bearing on the transmission channels and structural barriers discussed in Sections 4 to 6. It does not attempt to cover the full universe of climate-related regulation and voluntary standards now in force across both sectors.

Framework / initiative	Scope	Relevance to bank-insurer transmission
BCBS climate risk drivers (2021); 18 Principles (2022)	Banking	Common vocabulary and supervisory baseline for climate risk in credit, market, liquidity and operational risk.
ECB guide (2020); thematic review (2022)	Banking (EU)	Thirteen supervisory expectations; review found most banks falling short.
PRA SS5/25 (2025, replacing SS3/19)	Banks + insurers (UK)	Rare cross-sector statement; climate scenario analysis across the credit life cycle; stronger insurer reserving; flags Flood Re transition.
Solvency II review (2024); EIOPA prudential work	Insurance (EU)	Embeds climate as material risk driver; multi-decade ORSA scenarios; examines capital treatment of sustainability risk.
IAIS ICPs and GIMAR	Insurance (global)	Applies core principles to climate; treats nat-cat protection gaps as a supervisory concern.
ECB-EIOPA nat-cat work (2023-24)	Cross-sector (EU)	First substantive joint banking-insurance output; layered public-private response to the protection gap.
BoE Climate Biennial Exploratory Scenario (2021-22)	Cross-sector (UK)	One of the only cross-sector supervisory stress tests covering both banks and insurers.
NGFS scenarios; short-term scenarios (2025)	Cross-sector (global)	Common pathways underpinning stress tests; short-term set aligns to lending/underwriting horizons.
TCFD / ISSB IFRS S1 and S2; CSRD/ESRS; PCAF; CA SB 261	Cross-sector (global/EU/US)	Disclosure architecture and emissions-accounting methods now under regulation.
CISL Resilience-Adjusted Credit Risk	Research (academic)	Operationalises physical risk, insurance adequacy and adaptation in PD/LGD.

Appendix B. Detailed Methodology

B.1 Overall Approach

Three streams of evidence sources anchor this report:

- **A structured review of regulatory, supervisory and academic material** was used to establish the scale of the exposure and the shape of the regulatory landscape.
- **A cross-sector roundtable**, convened jointly by EDF and D.A. Carlin and Company, then tested an initial set of hypotheses about where the two sectors' approaches to governing climate risk diverge in practice.
- **In-depth industry interviews** followed, going deeper into the specific transmission channels and structural barriers the roundtable had surfaced.

B.2 Data Sources

B.2.1 Literature and Regulatory Review

The review covers macroeconomic and banking research, insurance-industry analytics, and the regulatory and voluntary frameworks now governing climate risk in both sectors, organised around three groups of sources: banking and insurance regulators and supervisors; insurers, brokers, and reinsurers publishing their own research and disclosures; and cross-sector market initiatives and standard-setters. A list of sources for the regulatory landscape is covered in Appendix A. This review set the outer boundaries of the problem; testing those boundaries against how the two sectors behave in practice required direct engagement with practitioners.

B.2.2 Cross-Sector Roundtable

EDF and D.A. Carlin and Company jointly convened a two-hour roundtable under an anonymity arrangement, so that participants could speak candidly about competitively sensitive material without it being attributed to them individually. The nearly two-dozen attendees included representatives of banks, insurers and the wider financial sector, alongside NGO and industry-body participants. They were brought together to pressure-test the project's preliminary findings on how climate risk moves between the two sectors.

The session ran in three parts: an opening discussion in which participants identified the barriers to closer collaboration between banking and insurance on climate risk that they saw as most significant, a breakout session, where smaller groups explored opportunities and potential solutions to address the banking-insurance disconnect, the outputs of which are summarised in the paragraph below, and a closing plenary that reconvened the room to develop a shared set of conclusions. Perspectives raised during the roundtable are integrated into the analysis in Sections 2, 4, 5 and 6, attributed by institution type, not by name, consistent with the anonymity agreement under which the session was convened.

The breakout groups and closing plenary converged on a short list of practical next steps that recur throughout this report: a shared taxonomy or data library defining the terms and areas of overlap between the two sectors; product-level case studies covering mortgages, commercial real estate, project finance, SME lending and syndicated corporate loans; testing bank and insurer assumptions against a common hypothetical portfolio; and convening regulators and supervisors from both sides to examine

where existing rules obstruct workable solutions. These themes run through Sections 4 to 6 above and inform the recommendations.

B.2.3 Interviews

In-depth interviews followed the roundtable, with senior climate-risk, sustainability, underwriting, and supervisory professionals drawn from banks, insurers, reinsurers, academic and policy institutions, and a banking supervisor, spanning the UK, the US and Australia. Interviewees were identified through the same stakeholder mapping used to build the roundtable, deliberately spanning a range of institutional roles and regional markets instead of a single vantage point. Sessions were semi-structured and conducted jointly by two interviewers per respondent. Names and identifying institutional detail have been withheld throughout this report; interviewees are described only by role and type of institution. Interview evidence is likewise woven into the analysis in Sections 4, 5 and 6 above, wherever it bears most directly on a specific channel or barrier.

B.3 Data Collection Methods

As the project progressed, the interview guide itself evolved. It began from the project's baseline hypotheses, was revised once the roundtable had surfaced additional operational barriers, and settled on a small number of core lines of inquiry: mapping risk-transmission pathways, identifying regulatory bottlenecks, testing whether frameworks such as SS5/25 adequately address systemic risk, exploring opportunities for reducing the disconnect between the banking and insurance sectors, and examining the direct working relationships between banks and insurers themselves, such as data-sharing arrangements, underwriting engagement, and contract terms. Interview candidates were chosen deliberately to span institutional roles and regional markets, not to concentrate on a single sector or geography.

B.4 Analytical Framework

The three evidence streams were explored together, but each had a particular area of focus. The literature and regulatory review established the scale of the exposure and mapped the regulatory landscape. The roundtable then tested some initial hypotheses around climate risks as well as exploring some ideas for potential solutions. Interviews validated and deepened the transmission channels and structural challenges surfaced by the review and roundtable, and more fully explored individual practitioner experience. Findings throughout the report are also classified as established, developing, or open questions (set out fully in [Table 2](#)), so that a reader can distinguish conclusions resting on well-established evidence from more provisional judgements drawn from a comparatively small evidence base.

B.5 Limitations of the Methodology

The semi-structured interview format allowed a more nuanced exploration of on-the-ground practice, but it limits how directly responses can be compared one-to-one, since interviewers had latitude to probe the specific expertise of each respondent. Participants who agreed to take part are unlikely to represent the full range of institutional practice, particularly among smaller or less engaged institutions.

B.6 Management of Limitations

Several design choices offset these constraints in part. Wherever possible, claims drawn from the roundtable and interviews were checked against independently published data, so that the quantitative claims in this report rest on supervisory or academic sources, not on practitioner testimony alone. Triangulating across three streams – literature, roundtable, and interviews – meant a theme raised in one setting could be tested and refined in the other two, which is what the established, developing, and open-questions classification was designed to capture. Anonymising all practitioner and organisational contributions throughout, including in the roundtable and interview material woven into Sections 2 and 4 through 6, was done to encourage an open and free exchange with participants.

References

Arlt, S., Gross, C., Rehbein, O. and Shala, I. (2026). Rising Waters, Falling Spreads: Climate Adaptation and Banks' Repricing of Disaster Risk. SSRN Working Paper No. 6541278.

Associated Press (2023). California's insurance market wobbles as two major companies pull out over wildfire risks and construction costs. Reported in Fortune, 6 June 2023.

Aznar-Siguan, G. and Bresch, D. N. (2019). CLIMADA v1: a global weather and climate risk assessment platform. *Geoscientific Model Development*, 12, 3085–3097.

Bank of England (2022). Results of the 2021 Climate Biennial Exploratory Scenario (CBES). London: Bank of England.

Banks, W. and Erçelik, K. (2026). Opening the floodgates? Modelling spillovers from flood insurance protection gaps to UK mortgages. *Bank Underground*, 5 May 2026. London: Bank of England.

Basel Committee on Banking Supervision (2021). Climate-related risk drivers and their transmission channels. Basel: BIS.

Basel Committee on Banking Supervision (2022). Principles for the effective management and supervision of climate-related financial risks. Basel: BIS.

Board of Governors of the Federal Reserve System (2024). Pilot Climate Scenario Analysis Exercise: Summary of Participant Responses. Washington, DC: Federal Reserve.

Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation and Office of the Comptroller of the Currency (2025). Agencies announce withdrawal of principles for climate-related financial risk management for large financial institutions. Joint press release, 16 October 2025.

Climate Policy Initiative (2022). Tracking Investments in Climate Resilient Infrastructure: Building Resilience Against Floods and Droughts. San Francisco: CPI.

European Central Bank (2020). Guide on climate-related and environmental risks. Frankfurt: ECB.

European Central Bank (2022). Thematic review on climate-related and environmental risks. Frankfurt: ECB.

European Central Bank and EIOPA (2023). Policy options to reduce the climate insurance protection gap (discussion paper). Frankfurt: ECB and EIOPA.

European Central Bank and EIOPA (2024). Towards a European system for natural catastrophe risk management. Frankfurt: ECB and EIOPA.

European Central Bank, EBA, EIOPA and ESMA (2024). Fit-for-55 climate scenario analysis of the EU financial system. Frankfurt: ECB.

European Insurance and Occupational Pensions Authority (2024). Prudential treatment of sustainability risks. Frankfurt: EIOPA.

European Union (2013). Regulation (EU) No 575/2013 on prudential requirements for credit institutions (Capital Requirements Regulation), Article 208(5).

European Union (2022). Corporate Sustainability Reporting Directive (CSRD) and European Sustainability Reporting Standards (ESRS).

European Union (2025). Directive (EU) 2025/2 of the European Parliament and of the Council amending Directive 2009/138/EC (Solvency II). Official Journal of the European Union, 8 January 2025.

Financial Stability Board (2020). The Implications of Climate Change for Financial Stability. Basel: FSB.

Financial Stability Board (2025). Assessment of Climate-Related Vulnerabilities: Analytical Framework and Toolkit. Basel: FSB.

Flood Re (2022). Build Back Better. London: Flood Re.

Flood Re (2024). Our future: Flood Re will remain in place until 2039. London: Flood Re.

Forum for Insurance Transition to Net Zero (2024). Successor initiative to the Net-Zero Insurance Alliance.

GARP Risk Institute (2023). Climate Risk Leadership: Lessons From Four Annual Surveys. Jersey City, NJ: GARP.

Ge, S., Johnson, S. and Tzur-Ilan, N. (2025). Climate Risk, Insurance Premiums and the Effects on Mortgage and Credit Outcomes. Federal Reserve Bank of Dallas Working Paper 2505.

Global Commission on Adaptation (2019). Adapt Now: A Global Call for Leadership on Climate Resilience. Rotterdam and Washington, DC: GCA and WRI.

International Association of Insurance Supervisors (2025a). Application Paper on the supervision of climate-related risks in the insurance sector. Basel: IAIS.

International Association of Insurance Supervisors (2025b). Global Insurance Market Report: natural catastrophe protection gaps. Basel: IAIS.

International Sustainability Standards Board (2023). IFRS S1 and IFRS S2. London: IFRS Foundation.

Keys, B. and Mulder, P. (2024, revised November 2025). Property Insurance and Disaster Risk: New Evidence from Mortgage Escrow Data. NBER Working Paper 32579.

Link, AXA and Marsh (2025). Sustainability-linked insurance: Rewarding climate risk adaptation.

Menegat, M. and Després, M. (2026). The insurance–bank nexus: the climate protection gap as a source of risk for the financial system. Policy Insight, June 2026. London: Centre for Economic Transition Expertise (CETEx), London School of Economics.

MSCI (2025). Hidden in Plain Sight: Physical Risk in Asset Owners’ Portfolios. New York: MSCI.

Net-Zero Banking Alliance (2025). Announcement on the cessation of the Alliance's operations.

Network for Greening the Financial System (2025). Short-term climate scenarios. Paris: NGFS.

Partnership for Carbon Accounting Financials (2022). The Global GHG Accounting and Reporting Standard for the Financial Industry, Part A.

PolitiFact (2024). Ron DeSantis said Citizens Property Insurance is not solvent. That's misleading. 14 March 2024.

Pozdyshev, V., Lobanov, A. and Ilinsky, K. (2025). Incorporating physical climate risks into banks' credit risk models. BIS Working Paper No. 1274. Basel: Bank for International Settlements.

Prudential Regulation Authority (2025). Supervisory Statement SS5/25: Enhancing banks' and insurers' approaches to managing climate-related risks (replacing SS3/19). London: Bank of England.

R Street Institute (2024). Insurance Companies Feeling the Pressure in Iowa and the Midwest. Washington, DC: R Street Institute.

State Farm General Insurance Company (2023). California New Business Update. 26 May 2023.

State of California (2023). Senate Bill 261: Greenhouse gases: climate-related financial risk. Sacramento: California State Legislature.

Swiss Re (2021). A decade on, learning from Thailand's devastating 2011 floods. Zurich: Swiss Re.

Swiss Re Institute (2025). sigma No 1/2025: Natural catastrophes: insured losses on trend to USD 145 billion in 2025. Zurich: Swiss Re Institute.

Swiss Re Institute (2026a). Natural catastrophes: the USD 424bn protection gap and adaptation to counter growing exposure (Natural Catastrophe Insurance Resilience Index). Zurich: Swiss Re Institute.

Swiss Re Institute (2026b). sigma No 1/2026: Natural catastrophes in 2025: the persistent rise of wildfire and storm risk. Zurich: Swiss Re Institute.

Task Force on Climate-related Financial Disclosures (2017). Recommendations of the Task Force on Climate-related Financial Disclosures.

UK Sustainable Investment and Finance Association (UKSIF) and Public First (2026). Flooding the Market: The Climate Mortgage Trap. London: UKSIF.

UNEP FI and Global Credit Data (2025). Bridging climate and credit risk: Current approaches and emerging trends for climate-related credit risk assessment methodologies. Geneva: UNEP Finance Initiative.

United States Code, 42 U.S.C. §4012a (Flood Disaster Protection Act of 1973, as amended).

University of Cambridge Institute for Sustainability Leadership (CISL) (2026). Resilience-Adjusted Credit Risk: operationalising climate adaptation in financial decision-making. Cambridge: CISL.

Waidelich, P., Batibeniz, F., Rising, J., Kikstra, J. S. and Seneviratne, S. I. (2024). Climate damage projections beyond annual temperature. *Nature Climate Change*, 14(6).