Climate risk and insurance: the case for resilience

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Building climate resilience: Insurers can guide the way

The fundamental purpose of insurance is to provide protection and transfer risk. But this is proving increasingly difficult in a time of more widespread, acute and severe weather events. Solutions to mitigate climate risk are going to be expensive and no single group — insurers included — has the wherewithal to address it alone.

But insurers can signal the direction of travel. They have more experience analyzing and pricing climate risk than anyone. By actively sharing their insights and working with key stakeholders, they can contribute to a comprehensive climate risk mitigation roadmap and the actions that make it real. Insurers can lead the way, help identify needed interventions and prevent any one group — including carriers and their customers — from bearing the full brunt of the cost to build a more climate resilient society.

Insurers have priced weather risk for decades. But the increasing frequency and severity of weather events is putting carriers under strain and compensating policyholders for increasingly costly damage to property and health is becoming unviable. In fact, in 2023, natural catastrophes globally resulted in $380 billion in total losses and $118 billion in insured losses.

In part because of regulatory challenges that make risk transfer increasingly difficult for carriers financially, the insurance industry has commonly responded to severe climate risks by no longer covering them. While this pullback may help short-term financial performance, it can't continue unabated without undermining the entire purpose of insurance. A lack of affordable insurance solutions portends "insurance deserts" where risk protection as we know it will disappear. To close a growing protection gap without significantly increasing the cost of insurance, carriers need to focus on the causes of losses, enabling prevention and greater resilience.

To be clear, many resilient solutions to combat these challenges exist today (sea walls and concrete home construction, for example), but customer adoption has been slow due to compounding factors of affordability, awareness and availability. To drive adoption, investment by carriers and other impacted constituents (builders, financers, government) would provide long-term benefit — but little has been done to date.

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Addressing climate risk is a huge challenge, but we believe the industry can adapt to meet it. The associated costs are clear — with the homeowner's insurance market alone exceeding $100 billion in written premium, a change in loss ratio of just 100 basis points equates to over $1 billion in claims avoided. With centuries of experience managing climate and longevity risks and trillions of dollars in assets, the industry has the wherewithal to play a critical role by directing capital to where it can help mitigate risk. But to do so effectively, insurers will need to:

- Understand their climate risk exposure on both sides of the balance sheet.
- Create innovative new products to turn those risks into opportunities.
- Invest in driving adoption of existing risk prevention solutions such as proper home elevation in flood plains, steel roofing, roof tie-downs and flame-retardant solutions.
- And, because no one constituency can affect these far-ranging and costly changes alone, collaborate with a variety of stakeholders to chart a viable path to a more resilient future for industry and society at large.

Unsustainable risks, declining resilience

To help address this growing climate resilience crisis, carriers need a comprehensive understanding of the physical, investment, liability and transition risks creating the shocks for which they and society need to prepare.

Property and physical risk

Evidence of the property insurance market's low resilience is abundant. Over the last five years, premiums in states with significant climate exposure — notably Florida and California — have generally increased more rapidly than the national average. At the same time, severe weather events have affected all parts of the country in recent years, which is contributing to widespread premium increases. These higher premiums are forcing some consumers to forego homeowners insurance, which can lead to catastrophic results. For instance, consider the Texas wildfires of early 2024, where many damaged or destroyed homes were uninsured.

Many of the challenges of risk transfer in property insurance markets can be attributed to the fact that our physical infrastructure is not resilient. Most US property, infrastructure design and construction assume a less volatile climate. As a result, physical assets are highly vulnerable to increasingly frequent and severe weather events. Exacerbating this problem is rapid development in lower cost, high hazard geographies such as the San Bernardino/Inland Empire area of California. This has resulted in higher risks to not only property but also human mortality and morbidity.

Despite higher risk profiles, the models insurers use to price premiums don't fully account for rapidly changing climate risks and the tipping points that can lead to market exits. And regulators face a dilemma in that approving models and methodologies allowing insurers to charge premiums reflecting inherent risks could lead to steep premium increases, fueling the emergence of insurance deserts as insurance becomes unavailable or unaffordable for consumers.

Unsustainable risks, declining resilience

Using PwC's geospatial climate intelligence model ...

We predict a continued increase in severity of frequency of severe perils going forward. As an example, we looked at the possibility of landfalling US hurricanes for each decade between now and 2050 across "low" and "high" warming climate scenarios. In each instance, our geospatial climate intelligence model predicted continued increases in both frequency and severity of hurricanes making landfall compared to historical levels. This underscores that insurers cannot plan for reduced burdens from catastrophe losses without taking significant measures to promote resiliency.

Investment risk

Increasingly acute and severe weather events also contribute to asset devaluation. Municipal and corporate bonds make up a significant portion of insurer investment portfolios — the NAIC estimated that the US insurance industry held approximately $500 billion in municipal bonds and $2.8 trillion in corporate bonds as of December 31, 2022, totaling 39% of its total assets. These instruments have long been central to duration matching strategies, but these assets' increasing risk profiles will challenge carriers' ability to meet capital requirements.

In the case of municipal bonds, more intense storms, wildfires, droughts, heatwaves and floods impose higher costs on state and local governments, raising spending. In addition, storm damage and resulting declines in property value (coupled with climate-induced migration) can undermine the municipal tax base on the revenue side. In fact, climate change is already making it more difficult for some municipalities to service their bond payments and raise new capital for needed climate investments. And bond markets are watching. Fifteen- and 30-year municipal bonds have declined in appeal and ratings agencies have already noted weather-related challenges for coastal communities. For carriers, this could have knock-on effects related to asset portfolio management and risk-based capital requirements should bonds face climate-driven credit downgrades.

Unsustainable risks, declining resilience

Legal risk

Climate-related litigation is increasing and insurers are under public pressure for providing coverage to carbon-intensive fossil fuel companies under suit. Carriers also are facing legal action for denying litigation expense claims in climate-related cases. Litigation risk also manifests itself among carriers' clients with the potential for increased D&O, E&O and general liability exposure, which carriers may be expected to cover.

Reputational risk

Who carriers do and don't insure is becoming a market flashpoint. Recent market exits from California and Florida and rate increases by major carriers have received significant press. Furthermore, providing coverage to carbon intensive industries and projects while exiting markets suffering the most from the effects of climate change sends stakeholders and the wider public conflicting messages and increases reputational risk for the industry.

Regulatory risk

As regulators increase their focus on climate transition and climate risk, carriers may be subject to a myriad of climate-related regulations on public disclosure, including requirements from the SEC, the state of California, the EU Corporate Sustainability Reporting Directive (CSRD) and the International Sustainability Standards Board (IISB). Of specific relevance to insurers is how to measure Scope 3 GHG emissions, including financed and insured emissions. Further challenges include differing approaches to measuring financed emissions, the nascent nature of insured emissions standards and the fact that emissions data for all asset classes isn't available yet.

Unsustainable risks, declining resilience

Transition risk

The world isn't standing still in the face of climate risks. However, efforts to address them are introducing new ones for insurers. As initiatives to transition to lower greenhouse gas (GHG) emissions have become more far-reaching, such as the Inflation Reduction Act's earmarking of approximately $370 billion in tax credits, incentives and other financing to halve GHG emissions by 2030 (compared to 2005 levels), carriers face increasing pressure from regulators and new underwriting requirements for more energy efficient technologies.

In response to climate risk, insureds are developing and adopting more climate-friendly technologies. But for insurers this creates both pricing disincentives and reserving uncertainty. Solar panels, for example, increase the overall insured value of a home, therefore increasing premiums compared to the same home without solar panels. Additionally, electric vehicles have different claims development and costs than their internal combustion counterparts. Without new underwriting and reserving approaches, insureds may be disincentivized to invest in more energy efficient solutions as the cost of insurance may be higher for such products.

The risk of inaction

As we experience more severe impacts of climate change, there's genuine risk in following existing playbooks to prepare for them. The status quo isn't sustainable. Even if we're able to avoid the worst physical impacts of climate change, there's still a pressing need for greater resiliency to withstand the effects we've experienced already.

Incentivizing the transition to new risk transfer solutions and loss prevention

Carriers are developing new products and solutions that are beginning to move the industry from of-the-moment, post-claims mitigation to longer-term prevention. As we described in our earlier report on climate change and P&C insurers, this includes underwriting mitigating technologies essential to the transition (like solar panel warranties in P&C) and incorporating them into coverage (such as wearables in life and health). Considering increasingly severe weather trends, carriers may need to rethink traditional admitted insurance products to contemplate multi-year policies and other types of products such as parametric insurance.

Parametric insurance

Insurers are starting to redefine the nature of coverage via the burgeoning parametric market. Parametric policies — which determine whether a claims payment is warranted based on a pre-defined "trigger" such as amount of rainfall in a given time — offer insureds a way to accept more risk for specific perils. This means that coverage is available, generally at lower cost than traditional products, and that the claims process is faster and more efficient for everyone.

Moreover, parametric insurance can be more than just restitutive and promote sustainability. A prominent example is the Nature Conservancy's use of parametric insurance to protect Hawaii's coral reefs. If hurricanes or tropical storms damage the reefs, then a parametric payout goes directly to restoring them. This also has a long-term benefit for insurers because a healthy ecosystem can significantly mitigate storm damage over the longer term. Carriers and their stakeholders are increasingly seeing the promise in this kind of coverage, evidenced by a significant recent increase in parametric policy issuance and the United Nations Development Programme's move to join forces with a leading global insurer to launch a parametric program for developing countries.

$29B

estimated size of the parametric insurance market by 2031
(from $12 billion in 2021)
Source: Insurance Journal, April 12, 2023

Incentivizing the transition to new risk transfer solutions and loss prevention

Insurance Linked Securities

Another increasingly popular product is insurance linked securities (ILS). Generally taking the form of a catastrophe bond and providing insurers an alternative form of risk transfer, these securities are typically purchased by institutional investors in other financial sectors. Making use of such products enables the industry to reduce the financial burden from catastrophes and frees up capital that can be invested in technologies or products that increase resilience. For example, a large global insurer recently issued an ILS that also embedded innovative green features, including investment of the collateral into reconstruction and development projects.

Another new product is sustainability-linked insurance, which is similar to sustainability-linked loans and green bonds. Sustainability-linked coverage offers premium incentives and rebates if policyholders meet stated environmental goals. This type of coverage is especially relevant for climate-resilient and clean energy transition projects as well as companies, communities and even individuals who are looking to lower their carbon footprint.

$16B

New catastrophe bond issues in 2023, with an estimated total market size of $45 billion

Source: Insurance Journal, January 18, 2024

Loss prevention to promote resiliency

Besides product innovation, insurers can lead the way in driving greater adoption of more resilient solutions for existing and new buildings. Investment in more resilient communities could benefit high-impact areas such as hurricane-exposed coasts and wildfire prone counties, as well as other areas that may experience severe weather events. While homeowners can take resilient steps through flame retardant protection, steel roofing/tie-downs and elevated homes, community-wide efforts could drive greater scale and adoption. Such efforts include resilient home building codes and build/retrofit requirements.

Incentivizing the transition to new risk transfer solutions and loss prevention

Moreover, utility companies could invest in storm-resistant grids and infrastructure to mitigate catastrophic impacts like we've seen in Texas, while simultaneously promoting energy efficiency. Building these kinds of resilient communities requires investment, common goals and collaboration among private, public and governmental constituencies.

Multi-year property coverages

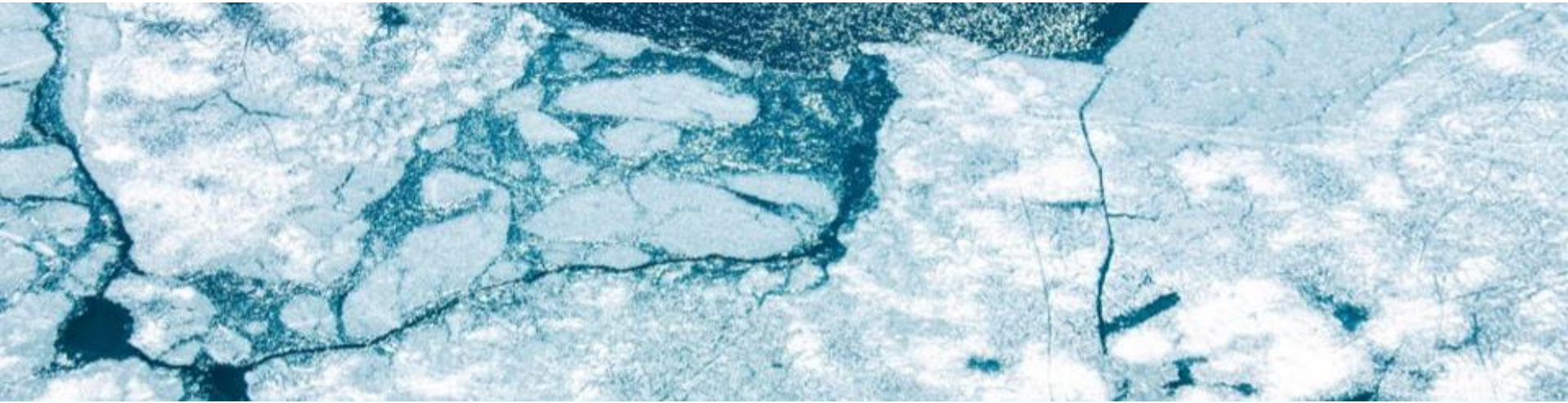
The property market may be able to borrow a trick from the life insurance industry by introducing longer-term coverages for certain types of risks, such as wildfires, that emerge similarly to mortality events. The risk of a property experiencing a significant loss from wildfire in a given year decreases in subsequent years after an event has occurred. But based on current conventions, it's likely that the premium for that property will increase after the initial loss.

By spreading risks over multiple years, insurers may be able to offer policyholders more rate stability. The premium and earnings stability from locking in customers for a longer period of time could benefit the carrier. Carriers would need to develop new pricing and reserving strategies to support this and other new product variations — and they'd need to invest in educating customers and regulators about it — but the benefits may outweigh the costs.

Incentivizing the transition to new risk transfer solutions and loss prevention

Life and health enhancements

We've previously noted the benefits of making coverage and product enhancements available for at-risk individuals and groups based on where acute heat stress is most likely. As components in this coverage, sensors and wearables can help carriers collect and assess data in a real-time feedback loop to better assess, mitigate and price risk at both an ecological and human level. Insurers also can offer incentives for policyholders who adopt personal decarbonization strategies that also improve health outcomes (cycling to work, for instance), as well as offer employee group health benefits that help them manage climate-related crises.



Collaboration: The key to managing climate risks and closing the protection gap

Despite their promise, the resilience actions we describe here have yet to be widely adopted and most activity has occurred in siloes. This is not only because it's difficult to move away from long-established ways of living and doing business, but also because addressing climate risk and driving towards greater resilience requires substantial time and resource commitments.

In fact, no single constituency can build climate resilience on its own. Accordingly, collaboration among many different stakeholders must occur to encourage wider effort and adoption. This includes active, ongoing carrier interaction with policymakers, regulators, other industries, customers and others.

- **Regulators:** First and foremost, insurers and regulators need to work together on the serious risks climate change poses to the insurance industry and policyholders. Greater transparency in this regard can build acceptance of regulatory action, as well as encourage wider efforts to address climate-related challenges. As part of this effort, carriers should encourage regulators to account for the financial and economic costs of regulation and disclosures. To promote a robust insurance market and prevent taxpayers from becoming claims backstops, insurers and regulators need to arrive at solutions that enable the insurance industry to offer coverage to all potential customers and reduce the burden on "carriers of last resort," which are increasingly becoming the only choice in many markets. A promising recent development in this area is the NAIC's March 2024 issuance of its National Climate Resilience Strategy for Insurance plan, which sets clear goals and direction for solvency.
- **Policymakers:** Mitigating climate risk will be expensive for everyone. Governments can incentivize resilience by offering meaningful funding for and tax concessions on a wide variety of resilience interventions and emissions lowering initiatives. While there has been some progress in this area, insurers can do more to influence policy that helps mitigate climate risk and supports resilient communities.
- **Lenders and banks:** Insurers should collaborate with lenders and banks to incorporate resilient property incentives. Potential rate modifications or discounts for resilient home builds or retrofitting could incentivize adoption by both consumers and builders. Frequent monitoring and reappraisal that offers customers incentives could increase property longevity. Additionally, green bonds and other investments in the larger community could increase resiliency program reach and adoption.
- **Builders**: Carriers should work with the construction industry to actively monitor and assess leading edge codes and standards, materials and construction/refurbishment techniques. This will help builders and property owners make more climate resilient choices and comply with local regulations while enabling insurers to more accurately price loss patterns and potential costs.

Collaboration: The key to managing climate risks and closing the protection gap

- **Climate and clean energy technology providers:** Some carriers already collaborate with a variety of stakeholders to develop new products and services that facilitate the clean energy transition and support economic and community development. This includes entering clean energy and climate tech markets, offering coverage enhancements for green buildings and resilient building materials, establishing partnerships that offer embedded insurance, and offering climate risk management and retrofit solutions that promote resilience against climate events. In fact, a major global insurer recently announced that it will strengthen its services to "insure" climate transition by increasing its support for renewable energy installations and infrastructure as well as by expanding sustainable claims management options and other climate risk mitigation interventions, including nature-based solutions.
- **The scientific community:** Climate science and climatology are sophisticated disciplines that produce increasingly practical historical data insights that inform future scenario modelling. Scientific input, assessment and perspective are vital for all stakeholders to understand what has happened under similar climate conditions, what is happening now and what could occur in the future. Even more importantly, the scientific community also can inform viable solutions to mitigate climate risk.
- **Customers:** Insurers and all stakeholders should do more to educate customers on the property and health risks of climate change and the underlying reasons for premium increases. They also should provide customers greater encouragement to take mitigation steps that can reduce coverage costs and availability. As one example, a large insurer is informing its retail customers about sustainable mobility and electric vehicle transition. Another example is the California Department of Insurance, which recently released standards on wildfire safety and how individual properties stack up. Because California law makes property risk an insurer rating consideration, this has given carriers, brokers and agents strong incentive to educate homeowners on following property risk mitigation guidelines.

The underlying goal: Maintaining the purpose and value of insurance

Insurance exists to provide protection, but more severe weather is making it increasingly difficult to write policies and making some policies prohibitively expensive. To stay true to their purpose and avoid eroding the value of insurance, insurers will need new risk transfer and risk mitigation solutions. They can lead the way by sharing their risk expertise and collaborating with a broad set of stakeholders to jointly invest in building a more resilient path forward for the industry and for all of us.

Acknowledgements

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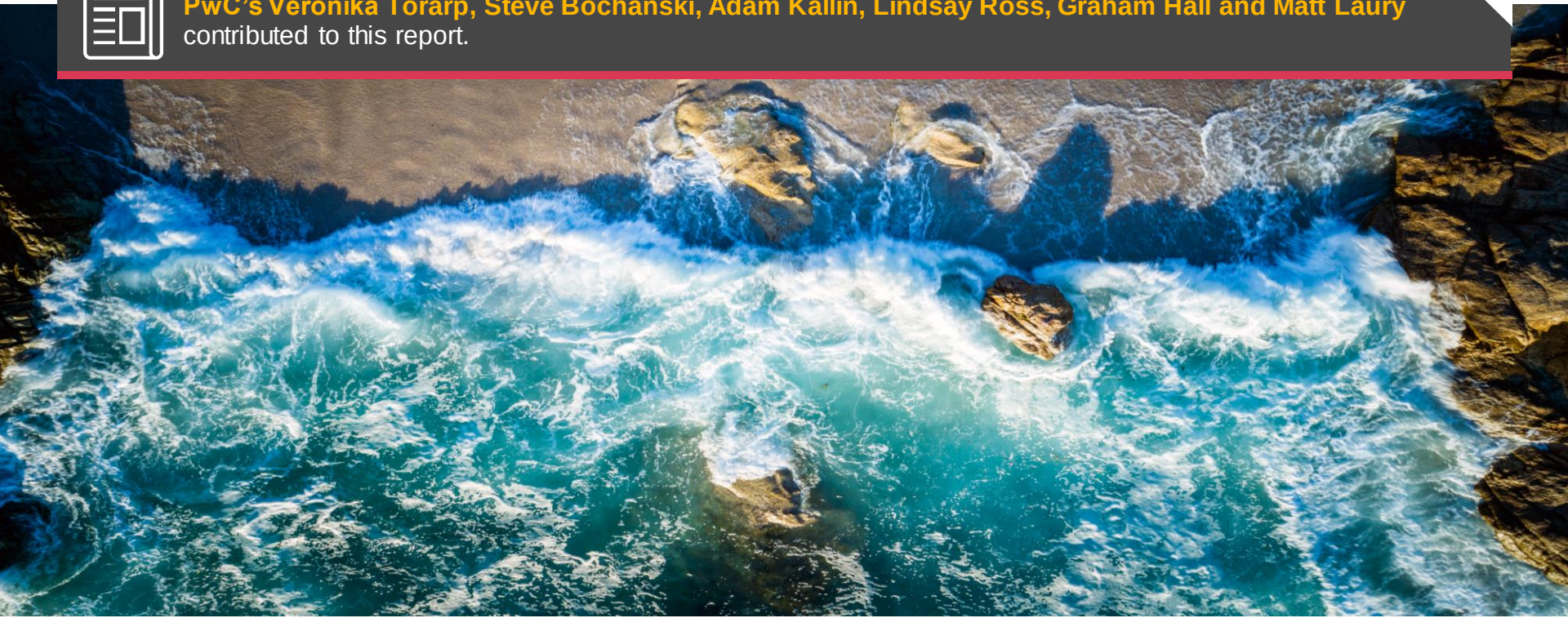

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