THE HAMILTON PROJECT

A proposal for a US federal property reinsurer

Benjamin L. Collier, Benjamin J. Keys, and Philip Mulder

MARCH 2026

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The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth.

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Our strategy calls for combining public investment, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers—based on credible evidence and experience, not ideology or doctrine—to introduce new and effective policy options into the national debate.

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Abstract

The U.S. homeowners insurance market faces mounting strain from severe climate risk, which is increasing claims and adding to volatile reinsurance costs. Across the U.S., inflation-adjusted premiums increased by an average of 28 percent between 2017 and 2024, while insurers have exited markets or gone insolvent, threatening household financial stability, housing markets, and disaster recovery. Existing responses shift risk onto households, states, and federal budgets and are unsustainable. This paper proposes a federal reinsurance entity, US Re, to stabilize financing for catastrophic losses. By leveraging federal borrowing capacity, such an entity could reduce costs and volatility, while preserving incentives for adaptation and supporting private markets. Lessons from existing programs highlight three guiding principles: price risk, target market failures, and maintain credibility. Properly constructed, US Re could improve resilience while maintaining the benefits of market incentives.

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1. Introduction

Over the past five years, the U.S. homeowners insurance market has come under increasing strain, in no small part due to increased pricing of climate-related risk. Between 2017 and 2024 average inflation-adjusted homeowners insurance premiums rose by 28 percent, from about $2,100 to $2,700 (in 2024 dollars; see figure 1) (Keys and Mulder 2024). This growth reflects a variety of factors, most notably years of mounting claims and declining insurer profitability (Flavelle and Rojanasakul 2024). In addition to raising prices, insurers are canceling policies, exiting markets, and, in some cases, going insolvent (Sastry, Sen, and Tenekedjieva 2023; U.S. Senate Committee on the Budget Majority Staff 2024). These pressures ripple outward, shaping households' ability to maintain coverage, the stability of real estate markets, the pace of post-disaster recovery, and the demand placed on state insurers of last resort and disaster aid programs (Collier et al. 2024; Cookson, Gallagher, and Mulder 2025; Deryugina 2017; Ge, Johnson, and Tzur-Ilan 2025; Sastry et al. 2024).

Growing climate risk plays a central role in the current homeowners insurance crunch (Pande 2023). The widening premium gap between areas with the highest and lowest climate-related risk is evidence that the relative costs of insuring severe climate events are rising (figure 2).[1] Importantly, this trend is not primarily driven by higher expected losses for individual homes. Rather, it reflects rising costs associated with catastrophic tail risk—events such as hurricanes that impose large, correlated losses on insurers' portfolios. Insurers manage this risk by purchasing reinsurance from global markets. The cost of reinsurance for U.S. catastrophes is high and volatile, both of which are being amplified by climate change. Looking forward, we can expect more of the same: Disaster risks will continue to worsen, perpetuating the challenges of insuring catastrophic events.

We propose a model for a public reinsurer to address the following home insurance market challenges: premium increases that exceed the increase in underlying risk, rising premium volatility, and lack of access to insurance coverage. A U.S. government reinsurer would have advantages that allow it to manage severe tails risks at a lower and more consistent cost than is the case with private reinsurers, facilitating catastrophe insurance markets. Indeed, a key motivation of our proposal is to focus the growing public attention on home insurance affordability toward the areas where the public sector can productively address harmful consequences of catastrophic risk, without insulating homeowners from the portion of premium increases that reflect rising expected losses.

Of course, growing climate risk increases expected losses to individual homes from hurricanes, wildfires, and other extreme weather events; it also contributes to rising home insurance premiums. In our view, it would be a mistake for governments to counteract these increases, which provide an important market signal of real changes in risk, motivating investments in mitigation and, in some cases, changing households' location decisions. Maintaining incentives to make homes resilient and build new homes out of harm's way is especially important given growing climate risk.

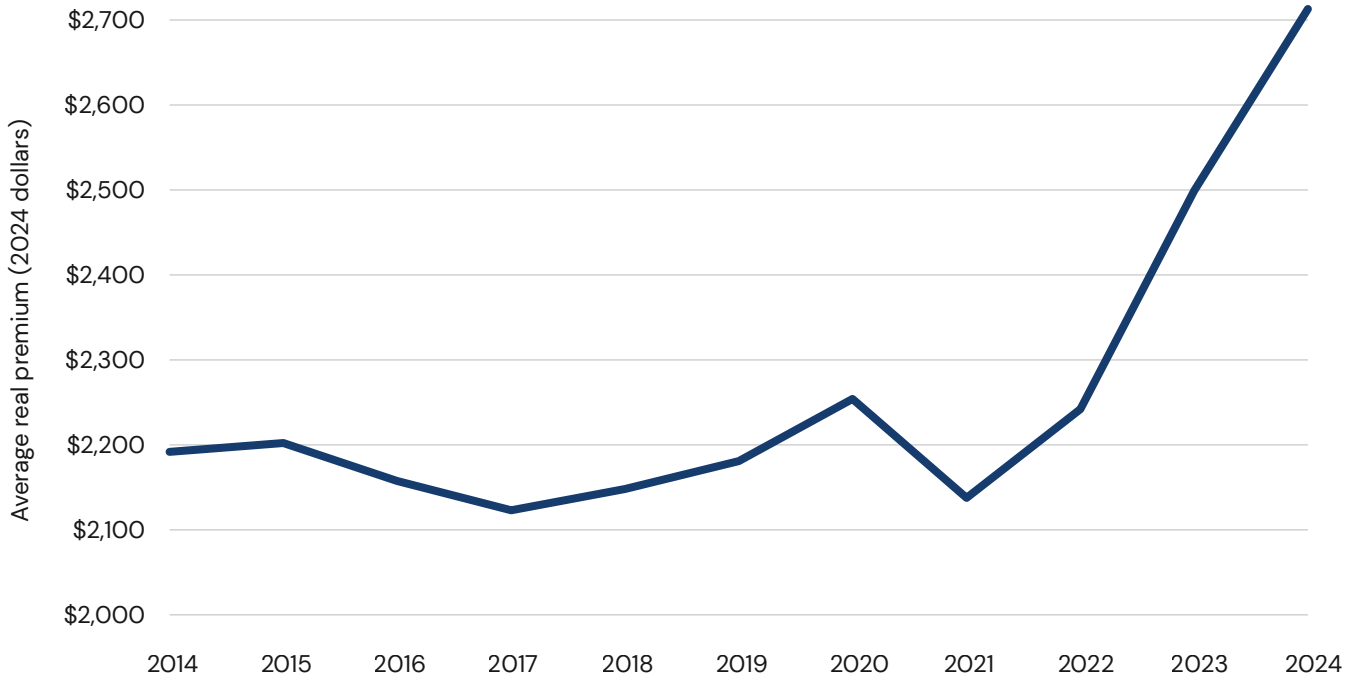
Understanding how a public reinsurer would help address these market challenges motivates a brief discussion of insurance pricing. Insurers price catastrophe insurance based on expected loss (property-level risk) plus a markup (the cost of capital and uncertainty loads).

Regarding cost of capital, insurers that cannot adequately diversify catastrophe risk use reinsurance to transfer catastrophe risks to global financial firms. Covering these risks requires reinsurers to hold large amounts of equity capital so that they can pay claims if a severe hurricane or wildfire occurs. Reinsurers must compensate the investors who provide this capital and pass on this expense in the reinsurance contract through a cost of capital load on top of expected losses. This critical market has come under stress, with the price of catastrophe reinsurance contracts approximately doubling between 2017 and 2024 in response to large losses and poor returns. Figure 3 shows the reinsurance rate-on-line, which is the price of reinsurance per dollar of coverage. This figure measures reinsurance prices relative to the 1990 price, illustrating both that reinsurance costs are volatile and have grown over time. The recent peak occurred in 2023 and 2024, when reinsurance prices were 280 percent of the 1990 price. Although reinsurance prices have started to show modest declines, this time insurers' cost of capital is likely to remain elevated as a result of climate risk.

Another component of the markup is uncertainty loads. Insurers and reinsurers charge premiums above

FIGURE 1

Average annual homeowners insurance premiums



Source: Keys and Mulder 2024.

Note: Premiums are in real 2024 dollars.

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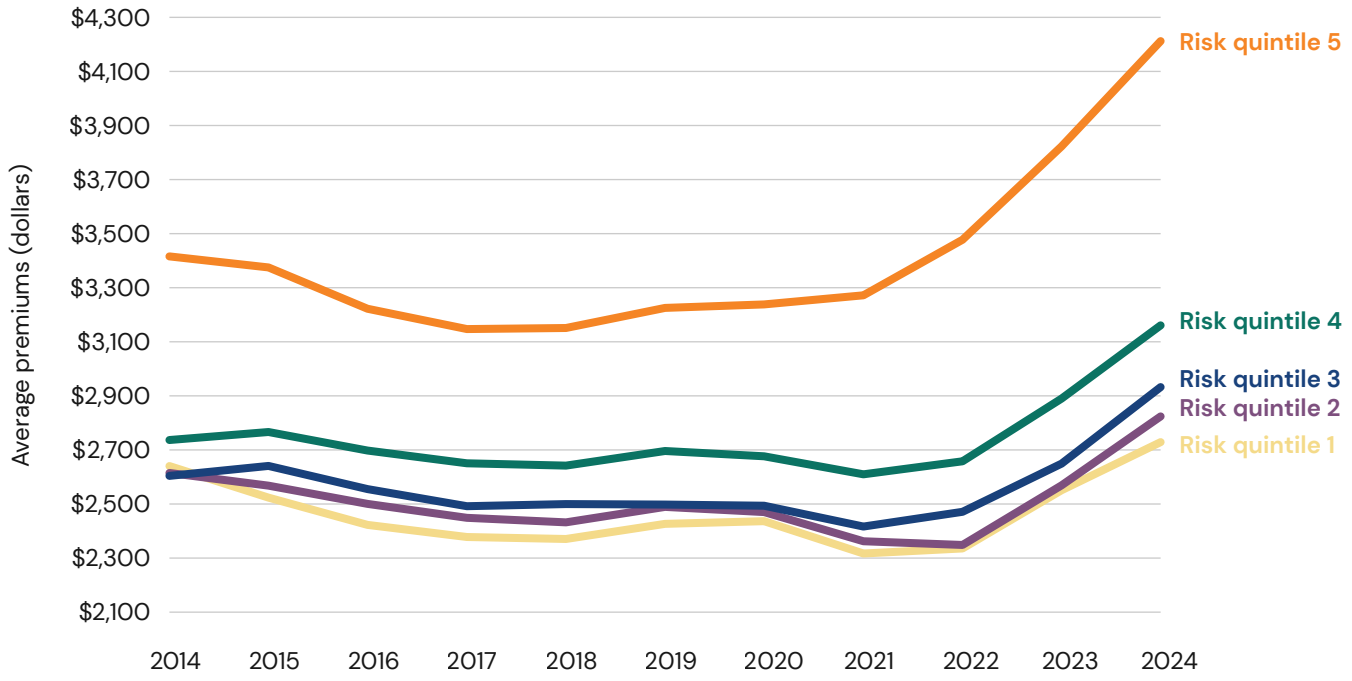
FIGURE 2

Average annual homeowners insurance premiums, by quintile of disaster risk exposure



Source: Keys and Mulder 2024.

Note: Premiums are in real 2024 dollars. Risk exposure is measured by ZIP code, based on the FEMA (n.d.) National Risk Index and First Street Foundation (n.d.) wildfire and hurricane wind models.

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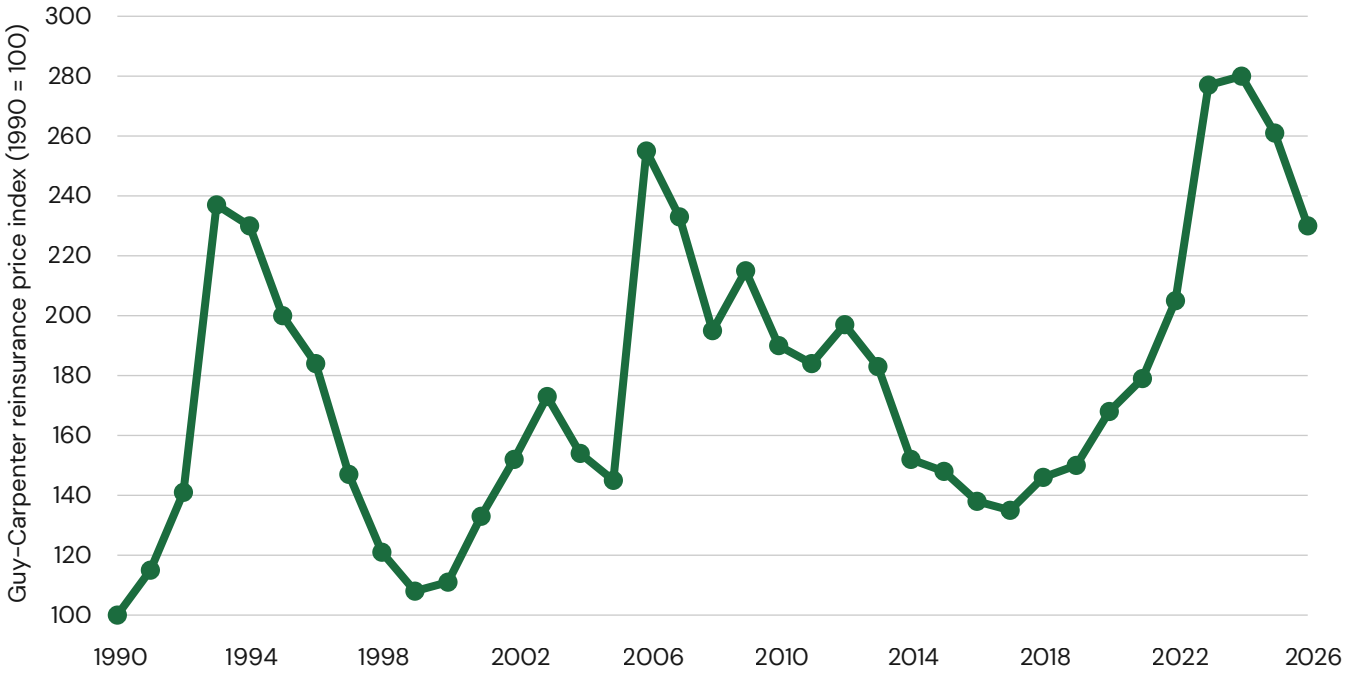
FIGURE 3

Guy-Carpenter US property catastrophe rate-on-line index, 1990–2026



Source: Artemis (n.d.).

Note: Data shows the rate-on-line, which describes the price of reinsurance per dollar of coverage, indexed to 1990. See Artemis (n.d.) for more information.

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expected losses to account for uncertainty, recognizing that larger-than-expected disasters can create severe financial distress or even lead to their insolvency (Cummins and Lewis 2003; Kunreuther et al. 1995). These charges reflect that the risk of a severe catastrophe cannot be precisely estimated, especially given a changing climate.

Robust, stable catastrophe insurance markets create positive spillovers for the rest of the economy by facilitating mortgage lending and property transactions, reducing the fiscal cost of disasters, and promoting post-disaster recovery (e.g., Collier et al. 2024; Cookson, Gallagher, and Mulder 2025; Deryugina 2017; Keys and Mulder 2024; Sastry et al. 2024). Large, cyclical markups erode the societal benefits of insurance. The high markups on homeowners insurance created by reinsurance capital frictions reduce insurance take-up. Moreover, the volatility in these markets creates additional problems, such as threatening homeowners' ability to pay their bills (Ge, Johnson, and Tzurllan 2025).

A federal reinsurer, which we call "US Re," could restore stability to homeowners insurance by providing a consistent source of capital to fund losses from the most extreme catastrophes, thereby lowering insurance markups relative to expected losses and reducing the markups' volatility. US Re would offer reinsurance contracts to U.S. homeowners insurance and reinsurance providers to cover extremely severe climate events. Because the federal government can borrow substantially and at attractive rates, US Re could credibly and reliably pay claims without being subject to the same high and volatile costs as the private reinsurance market. We argue that such a federal reinsurance entity would help households maintain more-consistent and more-affordable coverage, contribute to resilience and disaster recovery, and help stabilize the mortgage and housing markets. While it is difficult to precisely quantify the scale of US Re or its market effects, we expect that homeowners insurance premiums would decline and the quantity of privately written insurance would rise. Reducing solvency risk from (re)insurers' pricing equation would reduce markups and lead to more predictability of homeowners' premiums.

Public intervention in insurance markets runs the risk of distorting incentives, crowding out private competition, and undermining competitive forces. To develop a set of fundamental principles for US Re that mitigate these concerns, we present lessons learned from other public insurance and reinsurance entities. We largely focus on domestic programs such as the National Flood Insurance Program (NFIP), Terrorism

Risk Insurance Act (TRIA), and Florida's Hurricane Catastrophe Fund (FHCF).[2]

We recommend that US Re be designed to follow three main principles: (1) price risk, (2) target market failures, and (3) maintain credibility. Rather than subsidizing risk, US Re would set prices according to expected loss and other expenses while lowering costs through its more favorable cost of capital. Our proposed public reinsurer would maintain a substantial role for private insurers and reinsurers who provide valuable sources of innovation and market discipline. Finally, US Re should have clear authority to pay claims and political independence in setting prices. Experience with public insurers like the NFIP provides a cautionary example of how political pressure can interfere with the pricing of increasing climate risk, a concern that has only grown with the ongoing erosion of political independence across federal agencies and advisory boards.

Whether US Re succeeds depends on its fidelity to the design principles: independently setting prices and coverage in a way that aligns incentives and increases private catastrophe insurance participation in parts of the homeowners insurance market that insurers would otherwise exit. Ultimately the goal of a federal reinsurer should be to strike a better balance than that seen in the current marketplace: As insurers step back, households and state-run entities have filled the void in ways that are inefficient and ineffective.

Insurance cycles and their implications are not new. Substantial scholarship documents the insurance cycles following severe events including Hurricane Andrew in 1992 and the costly hurricane seasons of 2004 and 2005 (e.g., Cummins and Lewis 2003; Froot, Scharfstein, and Stein 1993; Lewis and Murdock 1996). These events led to insurance availability challenges echoed in today's crunch: premium increases, policy cancellations, and insurers exiting markets. They also led to proposed reforms (Congressional Research Service 2008), including for a federal reinsurer to cover disaster risks (Congressional Budget Office 2002; U.S. House of Representatives 1995). Since these prior cycles, a preponderance of evidence has emerged that climate risks are worsening and will continue to worsen, strengthening the case for policy reform. These mounting risks are a call to action.

The paper proceeds as follows. In section 2, The challenge, we discuss the difficulties of insuring catastrophes such as hurricanes and wildfires, connect these difficulties to the current insurance markets, describe their implications for households and the economy, and provide a rationale for policy intervention. In section 3, Lessons learned, we use the history of recent public interventions in property and casualty insurance markets to illustrate trade-offs faced by market intervention and to draw lessons to inform the design of a public catastrophe reinsurer. Section 4, The proposal, outlines the principles that a federal reinsurance entity should follow, along with specific recommendations regarding design. Section 5, Questions and concerns, discusses considerations and tradeoffs in the design of US Re, and section 6 concludes.

2. The challenge

In this section we discuss the difficulties of insuring catastrophes such as hurricanes and wildfires, describe the implications for households and the economy, and provide a rationale for public policy intervention.

2.1. Catastrophe risk and reinsurance: A primer

Risk pooling is the foundation of all insurance markets. By insuring many policyholders, insurers spread risk through diversification. This structure is most straightforward for independent risks such as in auto insurance. Car crashes are idiosyncratic events—few policyholders will experience a loss in a given year—so as the pool of policyholders grows, losses on this portfolio converge to the expected loss.

Pricing independent risks is mostly straightforward because insurers have information about claims risk that they can use to estimate the average loss. Financing independent risks is also mostly straightforward because insurers can set aside reserves from their premiums to cover the average loss. Insurers also hold capital (which, roughly speaking, is an insurer's equity or surplus) in case realized losses are larger than expected; but the required capital is small relative to the total risk pool because the insurer is managing a diversified portfolio of policyholders.

In sum, we can conceptualize the price of insurance in this independent risks setting as

$$\text{Premium} = \text{Expected Loss} + \text{Cost of Capital}$$

where Expected Loss is the expected value of the risk being transferred via the contract to the insurer. The Cost of Capital reflects insurers' cost of holding equity, but this cost is small for independent risks (Mahul and Cummins 2009).[3]

Weather events are not independent risks. Insuring catastrophes such as hurricanes, wildfires, and extreme weather is more complicated because losses from these events are experienced by many policyholders at once; in other words, these losses are correlated rather than independent. For insurers, losses from catastrophes make organizing financing and pricing more difficult.

Pricing catastrophe risk

Catastrophe risks are characterized by "fat tail" distributions, indicating that a wide range of extremely severe loss events is possible. These distributions can lead to highly volatile claims patterns. For example, insured losses from hurricanes in Florida totaled more than $17 billion in 2005, $0 from 2006 to 2016, and $24 billion in 2017 (State Board of Administration of Florida 2024).

This pattern of rare but severe correlated events complicates insurance pricing because insurers have few disasters from which they can learn and use to estimate losses directly from their own claims. Instead, insurers rely on proprietary catastrophe models to estimate and price risk. Several companies, such as Verisk, Moody's, and CoreLogic, own models that estimate risk by integrating data on historical events, topography, buildings, and repair costs. These models improve insurers' estimates relative to using historical loss data alone, but estimates of the risk can vary substantially across models (Boomhower et al. 2026). If insurers make an incorrect forecast of potential losses, a single disaster can lead to insolvency. For example, Hurricane Andrew, which in 1992 caused $15 billion of insured losses in southern Florida, led to the insolvency of 11 insurers (State Board of Administration of Florida 2024). Because misestimating tail risks can lead to insolvency, uncertainty regarding these risks may discourage insurers and reinsurers from participating in a market or, if they do participate, lead them to charge much higher rates, which we refer to as "uncertainty loads" (Cummins and Lewis 2003; Kunreuther et al. 1995; Moore 2025).

Financing catastrophe risk

Catastrophes require special financing arrangements to ensure that insurers can pay their claims obligations when they occur. Boomhower et al. (2024) show that insurers' losses sometimes exceed their premiums earned in a state by several orders of magnitude in any given year. Insurers incurred losses of roughly 100 percent of the premiums they raised in California during wildfires in both 2017 and 2018, losses from Hurricane Katrina that equaled 500 percent of premiums earned in Louisiana in 2005, and losses from Hurricane Andrew that equaled 700 percent of the premiums earned in Florida in 1992.

Home insurers operating only in particular local markets cannot leverage risk pooling to diversify catastrophe risks; for example, an insurer that operates only in Florida cannot pool risk with an inland state. Instead, these insurers transfer catastrophe risks to reinsurance companies, which pool them in a diversified, global portfolio. A reinsurance contract for catastrophic property and casualty risks will typically have some attachment point below which the primary insurer covers their losses; this point functions like a deductible. When losses exceed this attachment point, the reinsurer pays all or some portion of the insurer's losses up to some exhaustion point that limits the reinsurer's obligations. Insurers may contract with multiple reinsurers at overlapping attachment points and under different cost-sharing arrangements. Although reinsurance mitigates insolvency risk, it does not eliminate it, because insurers often retain a portion of the tail risk.

Revisiting the premium equation above, we can characterize the price of reinsurance for catastrophe risks as

Premium = Expected Loss + Cost of Capital + Uncertainty Loads.

In contrast to independent risks, the Cost of Capital for correlated risks can be large. Reinsurers require substantial capital to credibly pay multi-billion-dollar catastrophe claims. As of Q3 2025, total reinsurance capital was between $700 billion and $800 billion (Aon 2025; Gallagher Re 2025). This capital is the foundation of the entire reinsurance market, underlying policies from across business lines and around the world. While this capital base is large, so are losses from catastrophes. For reference, in 2024, global losses on natural disasters for insurers and reinsurers were $140 billion (Munich Re 2025). A large loss event can erode reinsurance capital, which affects the entire market.

The potential for such an event is perhaps greatest in the context of U.S. catastrophe risks. Despite their global reach, reinsurers have a limited capacity to diversify U.S. property risks because a large share of all the reinsured property in the world is in disasterprone parts of the U.S.

Catastrophe risks not only increase markups and therefore premiums on an ongoing basis, but they also increase volatility. As noted above, the challenges that insurers (and, in particular, reinsurers) face rebuilding their capital base after a large loss give rise to reinsurance cycles. In periods where there are few losses and strong returns, insurers can issue new equity and attract new market entrants. After large losses, however, returns fall and investor appetite weakens. It can be difficult for investors to determine the scale of exposure or the likelihood of insolvency following a severe event without transparency into insurers' portfolios. When reinsurers attempt to raise funds in the midst of losses,the costs of external capital become highly convex (Froot, Scharfstein, and Stein 1993). Reinsurance capital frictions add to the cost of reinsurance and make it more volatile. For example, reinsurance prices in 1993, the year following Hurricane Andrew, were between five and seven times the historical average from the prior two decades (Froot and O'Connell 1999). Using data on reinsurance prices and quantities between 1970 and 1994, Froot and O'Connell (1999) estimate that, during that time, "a $10 billion catastrophe loss raises average contract prices by between 19 and 40 percent (p. 197)."

These hard market conditions eventually attract new capital, allowing the market to stabilize. Historically, investors would form new reinsurers who could operate without legacy losses. In the last couple decades, however, reinsurers have increasingly used insurance linked securities (ILS) such as catastrophe bonds to access capital from a broader set of investors (e.g., pension funds and other asset managers; see The Nation 2015). ILS can help alleviate some of the volatile market cycle but have not removed it, especially because the capital frictions that generate barriers to entry can also create market power for incumbents. Indeed, as described above, the price of U.S. catastrophe reinsurance has roughly doubled since 2017 (Artemis n.d.).

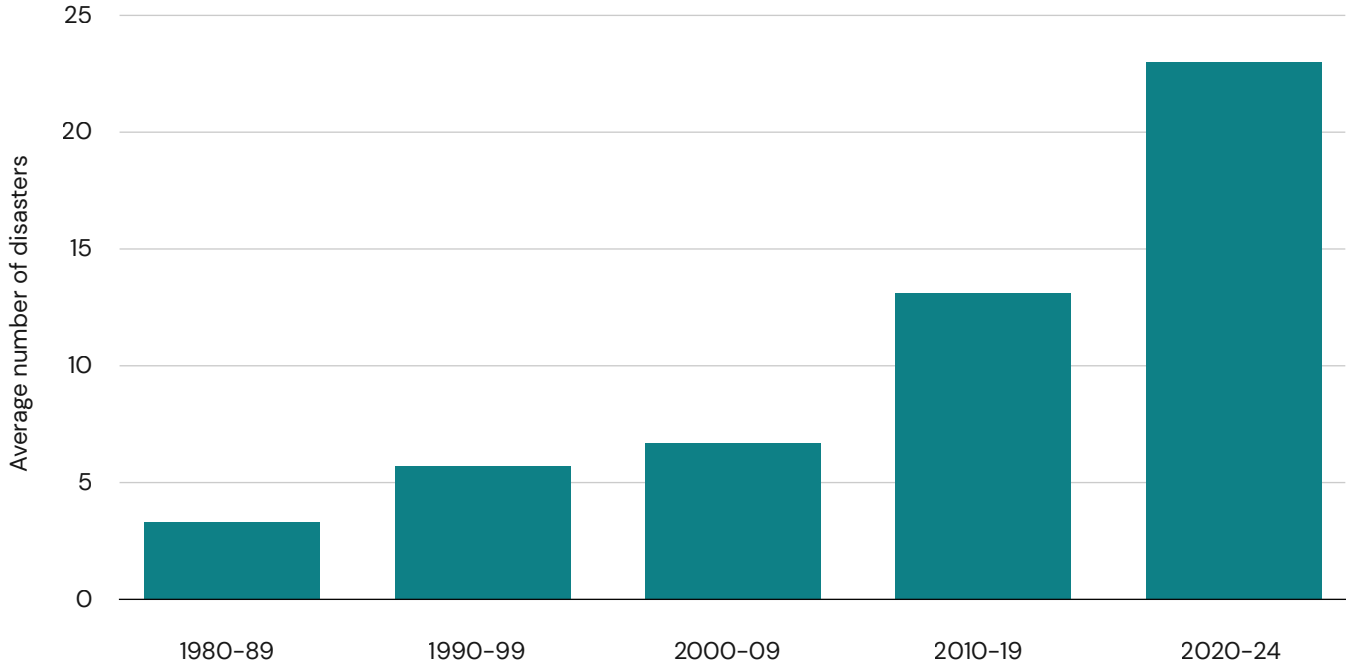
2.2. Why climate change is changing the market

Reinsurance cycles are not new. Over the past 30 years, Hurricane Andrew in 1992, the 9/11 attacks in 2001, and the hurricanes of 2004–05, including Hurricane Katrina, all contributed to periods of market hardening (The Nation 2015). Many of these events motivated academic research on insurance cycles (e.g., Cummins and Lewis 2003; Cutler and Zeckhauser 1999; Froot and O'Connell 1999) and proposals for public policy intervention. For example, Lewis and Murdock (1996) and the Congressional Budget Office (2002) discuss the case for a federal reinsurer and evaluate specific designs. In 1995 Representative Bill Emerson (R-Mo.) introduced the Natural Disaster Protection Partnership Act, which proposed creating the Natural Disaster Insurance Corporation, a federal entity that would provide insurance and reinsurance (U.S. House of Representatives 1995). Our paper is among several proposals recognizing the potential of public intervention in catastrophe insurance and reinsurance markets in response to the current market (e.g., Dixon, Clancy, and Marns 2025; U.S. Congress 2024).

We believe that the case for intervention is stronger now than it was in the past because of the growing uncertainty and concentration of catastrophic weather-related risk. Until recently the U.S. National Oceanic and Atmospheric Administration (NOAA) tracked the number of natural disasters that have exceeded at

FIGURE 4

Average number of natural disasters exceeding $1 billion, by decade



Source: National Oceanic and Atmospheric Administration (NOAA) 2025.

Note: Bars represent the average number of natural disasters exceeding $1 billion each year within the decade. Cost values are measured in real, CPI-adjusted dollars.

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least $1 billion (in today's dollars). On average, 3.3 billion-dollar disasters occurred each year in the 1980s, 5.7 occurred each year in the 1990s, 6.7 in the 2000s, 13.1 in the 2010s, and 23 each year so far in the 2020s (figure 4; NOAA 2025). Similarly, insured catastrophe losses have quadrupled in real terms over the past 25 years (Insurance Information Institute 2025). These increases reflect a combination of factors: greater frequency and severity of disasters due to climate change, the expansion of population and property in high-risk areas, and higher repair costs driven by construction inflation and rising labor expenses.

These trends complicate pricing catastrophic risk by adding uncertainty. How climate change is affecting tail risks is unclear and beyond current climate science to estimate precisely (Moore 2025). Even a modest shift in the distribution of potential disaster losses can imply large increases in tail-risk events (Weitzman 2009). The added difficulty in assessing the likelihood of events that could cause insurer insolvency can motivate insurers to charge larger uncertainty loads and could discourage them from offering coverage at all.

Increasing climate risk also complicates the financing of catastrophic risk. As disasters continue to increase in frequency, hard reinsurance markets will likely become more frequent. These pricing and financing dynamics tend to move together and amplify each other (Froot and O'Connell 1999). Payments from a new severe catastrophe will not only shrink the amount of reinsurance capital that can be used to pay claims in future events, but can also lead insurers to update their estimates on the probability of future events, since the event provides evidence that the tail risk is worse than expected.

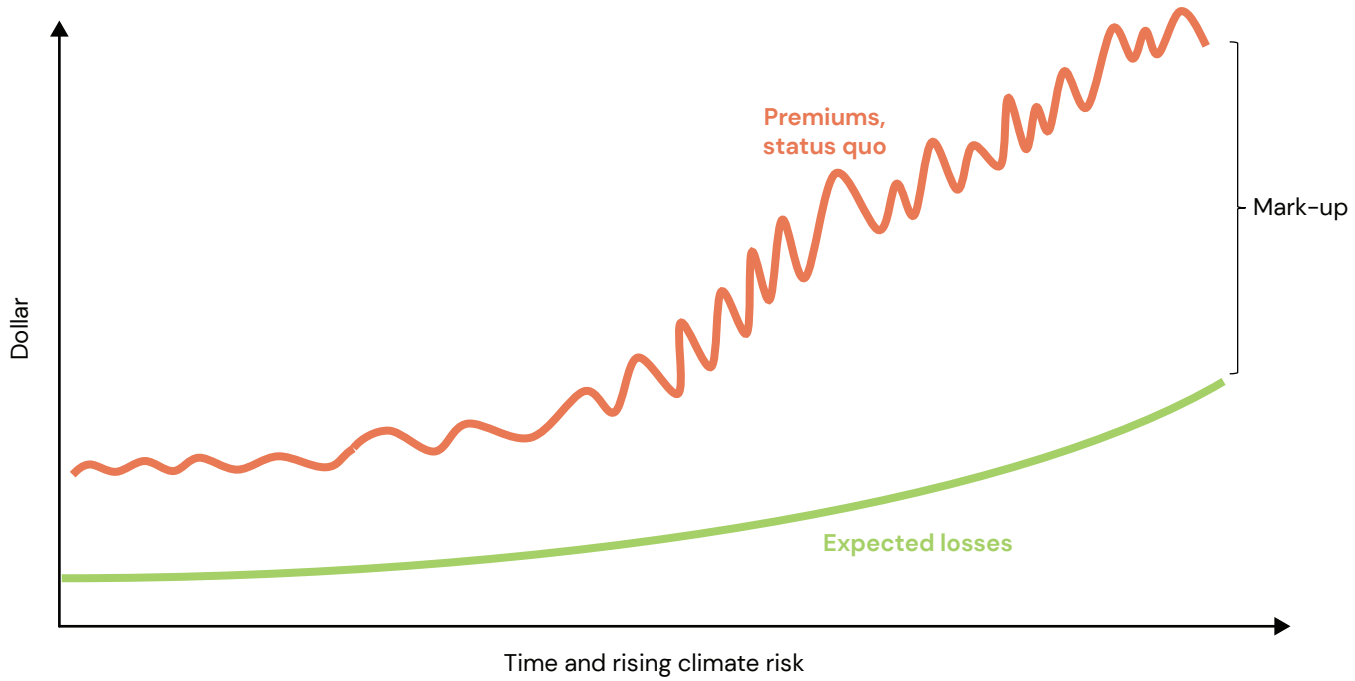
Figure 5 captures the insurance market trends that we expect in the coming years given the current system. Climate change is increasing the expected losses in many areas and will continue for the foreseeable future. Since expected losses are the foundation of insurance prices, insurers will pass on the costs of greater risk to policyholders through premium increases. However, premiums will also reflect insurers' cost of capital and uncertainty loads, which add large and volatile markups on top of expected losses. These volatile markups are a central component of current insurance market challenges and their economic consequences.

2.3. Insurer responses

The issues described above prevent reinsurers from fully diversifying portfolios of global catastrophic risks. Instead, reinsurers must limit their own tail-risk exposure while pricing their contracts above expected loss to account for the costs of capital and uncertainty. The limited risk sharing in the reinsurance market has

FIGURE 5

Illustration of expected insurance market trends under the current system



Source: Authors' analysis (Collier, Keys, and Mulder 2026).

downstream consequences on primary insurers and, ultimately, on policyholders. While such frictions are not new, they have reached a crisis point as reinsurers increasingly react to growing catastrophic risk by raising prices.

Primary insurers have two main options to respond to high reinsurance costs in disaster-prone regions. First, they can pass these costs on to policyholders. The pass-through of reinsurance costs into premiums can lead to substantial markups over a policyholder's expected loss.[4] These markups will be volatile around disaster events and reinsurance market cycles.

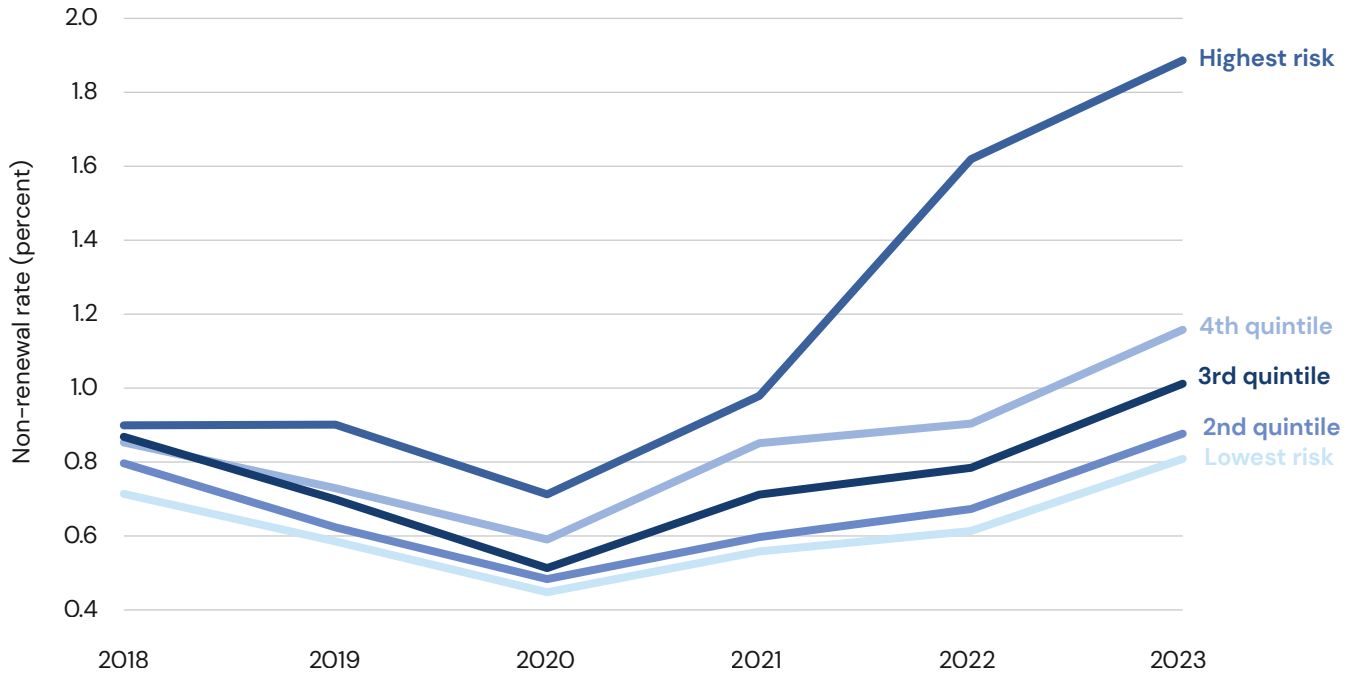
Second, insurers could ration insurance. This rationing may take several forms. For example, insurers can adjust contract terms to reduce exposure: They can raise deductibles, reduce coverage limits, and exclude more perils such as wind. Another way that insurers ration is by limiting the number of policies they write in a certain location (e.g., a ZIP code) to avoid portfolio concentration. Finally, insurers might exit disaster-prone areas, including entire states. This supply rationing, which reduces competition in the local market, contributes to premium increases for homeowners and, in some cases, can leave homeowners without private insurance options. Indeed, Keys and Mulder (2024) find that rising reinsurance costs between 2017 and 2024 led to rising premiums and policy nonrenewal rates in the parts of the U.S. that are most exposed to correlated catastrophic risks.

Private insurer rationing pushes more homeowners onto state-run Fair Access to Insurance Requirements (FAIR) plans, which are insurers of last resort (Sastry, Sen, and Tenekedjieva 2023). FAIR plans are typically more expensive and offer less coverage than those of private insurers. Moreover, expanding FAIR plans increases financial demands on state-level funds following a severe disaster.

State-level regulations can contribute to rationing and to a disconnect between premiums and risk (Oh, Sen, and Tenekedjieva 2026). Premium price caps can make offering insurance in a given state unprofitable, motivating insurers to exit the market. But while one might expect insurers to continue to offer coverage—at some premium—absent a state premium cap, insurers in markets without price regulation also ration (e.g., commercial insurers rationed terrorism coverage in the aftermath of the 9/11 attacks [Congressional Research Service 2022]). One motivation for such rationing is uncertainty about the nature of tail risks. If a recent loss event leads insurers to believe that tail risks are larger than they had estimated, then concerns about insolvency may lead insurers (and reinsurers) to exit a market rather than try to price an ambiguous risk—even absent government regulation. A recent U.S. Senate report shows widespread increases in home

FIGURE 6

Average annual nonrenewal rates, by quintile of disaster risk exposure



Source: U.S. Senate Committee on the Budget, Majority Staff 2024.

Note: Rate is the mean county rate weighted by the number of policies. Risk exposure is measured by ZIP code based on the FEMA (n.d.) National Risk Index and First Street Foundation (n.d.) wildfire and hurricane wind models.

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insurance nonrenewal rates, even in states with very little regulation restricting rates (U.S. Senate Committee on the Budget, Majority Staff 2024). The common factor is that nonrenewal rates have increased the most where climate risk is highest (figure 6). This pattern suggests that considerations beyond price regulation are driving declining insurance availability.

2.4. The economic consequences of volatile insurance markets

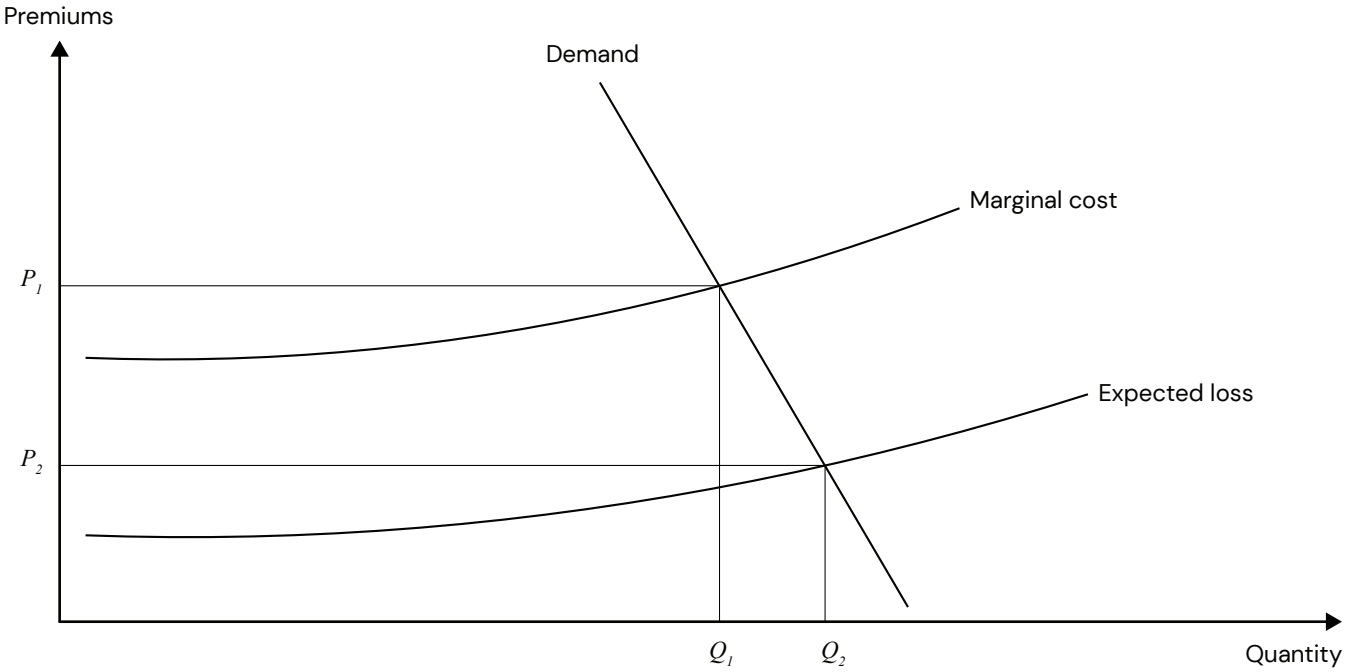
Volatility in access to and the price of home insurance has several economic implications. As discussed above, it is important to maintain the conceptual distinction between the policyholder's risk (the expected loss) and the additional challenges of insuring catastrophes, which are adding to premiums on an ongoing basis and also creating an ebb and flow in the cost and availability of insurance. Disentangling the portion of premium increases that are due to growing risk versus growing and volatile markups is empirically difficult, but a nascent research literature finds that the latter is meaningful. We discuss four consequences: (1) ex ante financial distress because some households cannot afford premium increases, (2) spillovers to mortgage and property markets, (3) ex post financial distress following a catastrophe, and (4) increased reliance on disaster assistance.

Rapidly changing insurance premiums can contribute to households' financial distress. While homeownership has historically allowed households to stabilize living costs (Sinai and Souleles 2005), premium volatility adds new risks for homeowners. For liquidity-constrained households, or for retirees on fixed incomes, higher premiums force difficult choices about which bills to pay and whether they can afford to stay in their home. Households exposed to larger premium increases are more likely to miss mortgage payments, accumulate higher credit card balances, and experience higher delinquency rates (Ge, Johnson, and Tzurllan 2025). These findings suggest that insurance costs, much like property taxes or health care expenses, can be an underappreciated channel of financial fragility.

Home insurance supply volatility in turn influences mortgage and housing markets. Keys and Mulder (2024) provide empirical evidence that the rise in homeowners insurance premiums due to increasing reinsurance prices has already slowed home price growth in risky areas. California recently instituted new home sale disclosure laws not only describing the wildfire exposure, but also, for homes in high-risk areas, noting that accessing insurance for the home may be difficult. These disclosures reduced home prices and shifted purchases to cash-buyers who could

FIGURE 7

Illustration of insurer's expected losses, marginal cost, and consumer demand



Source: Authors' analysis (Collier, Keys, and Mulder 2026).

Note: Stylized figure of an insurer's expected losses and marginal cost curve plotted against consumer demand.

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choose to forgo insurance (Bass and Fogarty 2025; Ma et al. 2024).

Rising premiums reduce insurance take-up, which makes disaster survivors more vulnerable. Households adjust to rising premiums by altering their insurance coverage. While mortgage lenders require a minimum level of coverage, beyond that mandate many households reduce their coverage by raising deductibles, lowering coverage limits, or shifting from replacementcost to market-value coverage (Cookson, Gallagher, and Mulder 2025; Sastry et al. 2024). For homeowners not bound by a mortgage requirement, some choose not to have home insurance at all. According to the Financial Stability Oversight Council (2024), 12 percent of homeowners did not purchase coverage in 2023. Going without home insurance is most common among liquidity-constrained households who are least able to absorb disaster losses themselves, raising concerns about equity and resilience. Without adequate insurance coverage, communities will struggle to rebuild following disasters (Fu and Gregory 2019).

Finally, low insurance take-up creates many problems when a disaster occurs. Households turn to government assistance including FEMA grants and disaster recovery loans as well as other safety nets (Collier and Ellis 2024; Deryugina 2017). Resulting federal, state, and local costs for what would otherwise have been insured losses can be significant. Households also rely on charity funding, including crowdfunding (Cookson, Gallagher, and Mulder 2023). Across the board, better-off households tend to have greater access to government disaster assistance, charity funding, and other sources of recovery funds (Billings, Gallagher, and Ricketts 2022; Collier and Kousky 2024). These public and private disaster safety nets are incomplete, leading to increasing financial distress and bankruptcy filings among underinsured households in the years after a severe event (Collier et al. 2024).

2.5. Rationale for public policy intervention

The frictional costs in (re)insurance markets can lead to high insurance markups relative to expected loss that reduce insurance market efficiency. The logic of demand and supply curves illustrates this point, and is shown in figure 7. Consumers' willingness to pay (WTP) for insurance is large (but bounded) because of the bundle of benefits it provides: financial protection from property damages but also access to homeownership for consumers needing a mortgage. This demand curve, *D*, is inelastic: Large changes in prices

have small effects on quantities because homeowners insurance is required for any homebuyer with a mortgage.

Now consider the supply curve. As described above, the insurance contract's expected loss, $E(L)$, is the foundational cost of insurance. The large costs of uncertainty and capital are added on top, which shifts the supply curve upward to marginal cost, *MC*. This upward shift above the expected loss from (Q_2, P_2) to (Q_1, P_1) has two socially undesirable effects. The first is that it reduces the equilibrium quantity of insurance. The second is that the high equilibrium price of insurance transfers much of the welfare benefits of insuring from U.S. consumers to global reinsurance investors.

A public reinsurer could improve welfare by reducing the size of markups above expected loss. Through its ability to borrow at low interest rates, the federal government has access to capital at a lower cost than private reinsurers. Moreover, it has access to more capital, allowing it to absorb losses that traditionally disrupt the entire reinsurance industry. This larger capital base also reduces the implications of climate uncertainty. With the ability to spread risk across the broader public balance sheet, a government program could set prices that reflect risk without adding as large an uncertainty premium. By internalizing the positive externalities of stable insurance markets, a public reinsurer could reduce volatility both on the intensive margin (premium levels) and the extensive margin (availability of coverage), avoiding the hardening that often follows large disaster losses. In turn, a robust, stable insurance market creates economic benefits. As described above, those markets strengthen mortgage and housing markets, reduce household financial distress, and decrease reliance on disaster aid.

In summary, although private reinsurance markets have increasingly sophisticated tools to price and finance global catastrophe risk, they are still ultimately limited by the supply of capital and uncertainty around changing climate risks. The implications of high markups and volatility of catastrophe reinsurance create rationales for policy intervention. Intervention in insurance markets requires care: If not well designed, public programs can distort private incentives to manage risk. In the next section, we review several public interventions in property and casualty insurance markets.

3. Lessons learned from public insurance and reinsurance programs

Section 2 describes the challenges that catastrophe risks pose for insurance markets, why climate change appears to be exacerbating those challenges, and motivation for public policy intervention. In this section, we review several public insurance and reinsurance programs for catastrophe risks. We use these cases to illustrate some of the trade-offs that can come with insurance market intervention and draw lessons to inform the design of a federal catastrophe reinsurer.

In each case, a catastrophe or set of catastrophes precipitated an insurance supply crunch, which led to a policy response intended to stabilize the market. The first and oldest program that we review is the NFIP, through which the U.S. federal government became the primary insurer of flood risk. The second two programs are in response to terrorist events: the U.K.'s Pool Re, which is a government-organized reinsurer, and the U.S.' TRIA, which is a federal backstop. The final program that we discuss is a state-level public reinsurer for hurricanes, the FHCF.

3.1. Public primary insurer: Flood/hurricane

Any proposal for public provision of disaster insurance invites comparisons with the NFIP. The NFIP is a public U.S. insurance program that is the primary provider of residential flood insurance in the United States, writing 4.7 million policies with $1.3 trillion of insured value (Congressional Research Service 2025a). The program has frequently been criticized for setting rates that are below actuarially fair levels and insensitive to risk, leading to an unsustainable financial position while encouraging development in flood-prone areas (Kousky, Lingle, and Shabman 2017).

The origins of the NFIP can be traced back to devastating floods along the Mississippi River in 1927 and 1928 that caused multiple failures among private flood insurers.[5] The result was the exclusion of flood coverage from standard homeowners policies, a contract design that persists to this day. The dilemma of underinsured flood risk prior to the creation of the NFIP closely resembles the stress on insurance coverage for wildfire and hurricane risk today. Population growth in at-risk areas made the magnitude and concentration of flood losses increasingly difficult for the private market to insure, while the lack of flood coverage contributed to the fiscal burden imposed by disaster aid (White 1945). These challenges came to a head with the devastating effects of Hurricane Betsy on New Orleans in 1965, and in 1968 President Lyndon Johnson signed the National Flood Insurance Act that created the NFIP.

The NFIP was designed with the intent of providing voluntary coverage with subsidized rates for existing homes and actuarially fair rates for new construction to discourage further floodplain development. The U.S. Army Corps of Engineers (USACE) was tasked with the daunting task of identifying and mapping flood risk across the entire United States based on little prior data or studies. The flood mapping effort led to the creation of flood insurance rate maps, or flood maps, that identify Special Flood Hazard Areas (floodplains) as land with at least a 1 percent annual chance of experiencing flooding. To this day, updating flood maps in a timely manner to reflect changing land use and updated flood data and models remains a substantial challenge for the USACE (Kousky 2022).

The limitations of its flood maps meant that the NFIP's actual pricing of flood risk was coarse at best. Furthermore, the binary in-or-out floodplain standard meant that the substantial variation in flood risk outside the floodplain went mostly unpriced. In addition, the delay in producing and updating flood maps meant that many areas were incorrectly classified as being inside or outside the floodplain (Weill 2023). Finally, individuals and communities routinely challenged and delayed floodplain designation, leading many ostensibly high-risk areas to be classified as low-risk areas (Pralle 2018). Meanwhile, the NFIP's subsidies for older homes, intended as a temporary political expedient, proved more durable than anticipated. Emblematic of these issues are the NFIP's "severe repetitive loss properties," a small number of frequently flooded homes that make up a disproportionate share of the program's claims but nonetheless are continually rebuilt (Collier et al. 2023).

The NFIP's coarse pricing of risk and ongoing subsidies had several negative consequences. The first was a precarious fiscal position. Although the program frequently found itself relying on its authority to borrow funds from the U.S. Department of the Treasury (Treasury) to pay its claims in its first three decades, the devastation of Hurricane Katrina created a fiscal crisis for the NFIP. At the end of the 2007, the U.S. flood insurer owed $17.7 billion. Congress's temporary and incomplete solution to these accumulated debts was to cancel $16 billion of the NFIP's debt in 2017. A steady pulse of losses from the catastrophic events of Hurricane Sandy in 2012 and Hurricanes Harvey, Irma, and Maria in 2017 have kept its balance sheet in the red ever since. As of March 2025, the program stood at $22.5 billion in debt (Congressional Research Service 2025b).

Its negative fiscal position had a further downstream consequence: increasing politicization of the program. The NFIP's debts created the momentum for the Biggert-Waters congressional reforms of 2012, which began eliminating the NFIP's subsidization of older homes. This reform, however, led to backlash from coastal-state politicians and prompted the Homeowners Flood Insurance Affordability Act of 2014, which slowed or walked back many of those price increases. In short, the NFIP's pricing of risk was increasingly influenced not by loss trends and models, but by Congress. Epitomizing this political dysfunction are the program's recent lapses following failures by Congress to reauthorize or fund the program—most recently a 43-day period from October to November 2025 when homeowners were unable to buy policies (Congressional Research Service 2025c).

As it became increasingly clear that the NFIP's rates were not adequate to pay its claims, policymakers and analysts began to look at the booming population along the U.S. coasts as an unsustainable fiscal burden. At best, the NFIP represented a transfer from U.S. taxpayers to the minority of residents with high flood risk. At worst, the NFIP's low rates were encouraging reckless development in otherwise economically unviable places. Climate change, which is expected to especially increase coastal flood risk, puts further pressure on these dynamics.

The first two decades of the 21st century paint a grim picture of the NFIP and its economic effects. However, it is worth tempering such negativity with a more holistic assessment of the program's overall accomplishments and the relative success of its most recent reforms. First, the NFIP succeeded in one of its primary objectives: to restore flood insurance coverage to the United States. Although take-up remains low, flood insurance coverage reduces the negative financial impacts of flooding with positive spillover effects for housing markets (Billings, Gallagher, and Ricketts 2022; Kousky, Palim, and Pan 2020). The program's second goal, to increase resiliency, is certainly more of a mixedbag but not an unqualified failure: Research findings indicate that the NFIP's floodplain building standards have been effective at reducing flood losses, have redirected at least some development away from risky areas, and that, where the NFIP does price risk, it encourages yet further investments in adaptation (Mulder 2021; Ostriker and Russo 2026; Wagner 2022).

Finally, one cannot judge the NFIP without taking account of its recent "Risk Rating 2.0" (RR2) reforms. RR2 represents the most ambitious financial repricing of climate risk in U.S. history. These reforms, which came into effect in 2022, continue the phase-out of NFIP subsidies and now price individual properties based on their specific flood risk and cost of rebuilding, among other factors (Congressional Research Service 2024). Despite congressional objections, these reforms have not, as of this writing, been rolled back by Congress.

Key takeaways

The NFIP demonstrates that public provision of insurance can succeed at increasing coverage where private markets will not cover catastrophic risks. However, the program also illustrates the severe limitations of the public sector acting as primary insurer, because the NFIP's role in setting the cost of flood insurance is salient to the public and responsive to elected officials. This role creates demand for political interventions that distort its pricing and coverage options. The NFIP's historical pricing distortions also demonstrate the importance of pricing risk: The program's failure to set rates according to expected losses not only is financially nonviable, but also exacerbates the problems of climate risk by spurring more construction in high-risk areas.

The limitations of the NFIP suggest that the public provision of disaster insurance is better focused on reinsurance than on serving as a primary insurer. The NFIP's comparative advantage over private insurers is its ability to bear correlated flood losses, not its ability to design and underwrite individual policies. Furthermore, any public entity needs to maintain a layer of political independence with a clear mandate to price risk. At the same time, the NFIP's recent RR2 reforms show that the growing sophistication of catastrophe risk models could allow a public reinsurer to more objectively set prices to reflect risk.

3.2. Public reinsurer: Terrorism

The 1990s and early 2000s was a period of substantial innovation regarding public-private risk financing arrangements for high-severity risks. During this time, terrorist attacks led to a decline in the supply of reinsurance for commercial property and casualty coverage against terrorism, which in turn limited the supply of primary insurance coverage for such risks.

Policymakers deemed terrorism coverage important for maintaining robust, economically productive cities, and thus intervened to expand supply. Relative to prior insurance market interventions, terrorism financing structures created a larger role for the private sector in pricing, selling, and holding terrorism risk—with the government managing tail risks from severe events, such as the 9/11 attacks.

In this subsection we provide an overview of these public–private structures, focusing on two models. The first model is a risk-pooling arrangement in which private insurers can use a national reinsurance facility to cover terrorism risks. This structure was pioneered by the United Kingdom, which created Pool Re, and was then adopted by several other countries following the 9/11 attacks. The second model is the structure created by the TRIA. While also covering extreme terrorism risks, TRIA is an industry back-stop in contrast to Pool Re's national reinsurance model.

The United Kingdom's Pool Re

The U.K. established Pool Re in 1993.[6] The Provisional Irish Republican Army (IRA) had engaged in a series of bombings focused on city centers and financial districts (e.g., the City of London) in the U.K. In response, commercial property and casualty insurers stopped offering coverage for terrorism. Pool Re intended to expand the supply of terrorism insurance by assuming the financial risk of large attacks. Its mission is "to ensure that every business in Great Britain can access affordable and comprehensive terrorism insurance, fostering confidence and resilience in the British economy and insulating the taxpayer from the financial impacts of catastrophic terrorist attacks" (Pool Re 2025).

Pool Re is a mutual reinsurance company. Primary insurers who are authorized to sell terrorism insurance in the U.K. can join Pool Re; membership is voluntary. Members pay premiums to cede the terrorism risks of their policies to Pool Re. The premiums that insurers pay are based on the postcode of the policyholder.

Pool Re uses these ceded funds to organize financing for potential severe loss events, including a combination of reserves, private reinsurance, and backing from His Majesty's Treasury (Government Accountability Office 2016; Pool Re 2025; Willis Towers Watson 2022). These funds are organized in layers. Losses up to an industry retention level are paid by the insurance members of Pool Re as a type of deductible. The size of retention for each member depends on the number of members that year and is known: As of 2022 this retention was £260 million for an individual attack. Thus, an event resulting in losses below this amount would be paid entirely by private insurers. Losses above this amount, up to £9.5 billion, are funded through a combination of Pool Re reserve funds (held in an investment account to pay potential claims) and private reinsurance purchased by Pool Re. The final layer is an uncapped commitment from HM Treasury to pay remaining claims. An event that created losses exceeding £9 billion would exhaust all of Pool Re's funds and then rely on the government-provided backstop. HM Treasury would provide a loan to Pool Re to cover the remaining obligations, which Pool Re would repay over the following years.

Pool Re insures a total of £2.2 trillion in commercial assets. Since its inception, it has paid £1.25 billion in claims from 17 terrorist events. Pool Re has paid £1.4 billion in premiums to HM Treasury to cover the uncapped government backstop (Pool Re 2025).

Following the 9/11 attacks, many medium- and high-income countries created government-supported insurance schemes and used Pool Re as a model. Australia, Austria, Belgium, Denmark, Finland, Germany, India, the Netherlands, and others developed similar national terrorism insurance risk pools (Willis Towers Watson 2022).

Key takeaways

The structure of Pool Re is attractive for several reasons.

- It targets market frictions. The insurance industry describes pricing and financing severe terrorist events as central barriers to providing terrorism coverage. This program addresses these barriers by taking financial responsibility for these tail risks.
- It aligns incentives. The program's use of retention is consistent with other insurance markets that use mechanisms such as deductibles and co-insurance to create "skin in the game" for insurers participating in the program.
- It leverages market competition. With coverage in place for rare but catastrophic events, the market is positioned to cover the remainder of the risk. This structure gives primary insurers a large role in administering terrorism coverage, which is typically bundled with other commercial property and casualty insurance. In doing so, a public entity leverages market forces that encourage insurers to innovate by improving the financial services that they provide.
- Its prices vary with risk. The program incorporates risk-sensitive pricing in several ways, which may contribute to its sustainability. Examples include insurers paying location-varying premiums to Pool Re, and Pool Re paying HM Treasury premiums for its guarantee funds. Another example is the program's use of private reinsurance, which could add additional market discipline to Pool Re's operations.

U.S. TRIA

Following 9/11 the United States adopted an approach that was different from Pool Re. The TRIA of 2002 established a federal backstop to provide funds for insurance claims in the event of a severe terrorist attack. Unlike the national risk pools mentioned above, TRIA does not collect premiums from the insurance industry. Instead, TRIA commits to providing a mixture of loans to the industry and taxpayer funds to cover large loss events. TRIA organizes funding for insured losses from terrorism of up to $100 billion. In exchange for this commitment, TRIA requires that insurers selling commercial property and casualty insurance in the U.S. offer terrorism coverage to their clients. Insurers charge additional premiums for this coverage, and their commercial clients decide whether to purchase it. Notably, TRIA has never been triggered. Only terrorism events creating at least $200 million in insured losses are eligible for TRIA, and, thankfully, no event since 9/11 has exceeded this amount.[7]

Key takeaways

While structured differently, TRIA addresses many of the same goals as Pool Re: It targets market frictions by covering extreme tail events, uses insurance-like mechanisms (e.g., co-payments) that align incentives, and creates a large role for the private sector that encourages competition. The biggest distinction between TRIA and Pool RE is that TRIA is a backstop, not an insurance mechanism—insurers do not pay ex ante premiums to the federal government for its guarantees. We view this backstop structure as less attractive in the context of a federal entity intending to provide risk financing for severe climate risks since it does not directly incorporate risk-based pricing.

3.3. Public reinsurer: Florida Hurricane Catastrophe Fund

Florida maintains a public reinsurer for hurricanes to expand the supply of property insurance in the state.[8] The FHCF was established in 1993 following Hurricane Andrew the previous year. State legislators recognized that "an unstable market for property insurance threatened the state's economy (p. 4)" (State Board of Administration of Florida 2024).

Participation in the FHCF is mandatory for residential property insurers in the state. Insurers pay an actuarially indicated premium to the FHCF, which depends on hurricane catastrophe model estimates, line of business, and the ZIP codes of the insurer's policies. The fund uses a blend of estimates from several of the leading hurricane catastrophe models (Kousky and Medders 2024). The FHCF relies on a deductible and coinsurance structure for participating insurers. Insurers exclusively pay for losses up to a certain amount; after that level is met, the FHCF covers a share of losses. Insurers choose between three coverage options: The FHCF will cover 90 percent, 75 percent, or 45 percent of losses in this layer. The FHCF sets a maximum payout, and insurers are exclusively obligated for losses above this level.

An insurer's retention and maximum potential payout depend on a statutory formula and vary each contract year (June 1–May 31). For the 2024–25 contract year, an insurer who pays $1 million in premiums and selects a 90 percent coverage level would have had a retention of $6.3 million and a maximum FHCF payout of $11.9 million. Thus, this structure requires insurers to organize funding for losses both below and above the FHCF coverage. Kousky and Medders (2024) note that insurers spend "up to half of their total reinsurance budgets on coverage that operates below the retention of FHCF (p. 14)." The aggregate industry retention for contract year 2024–25 was $9.9 billion. By statute, the maximum payout capacity of the FHCF is $17 billion for a single contract year.

Like Pool Re, the FHCF relies on a tiered approach to finance increasingly severe losses.[9] It holds a reserve fund from collected premiums. As of 2024, this fund balance was $7 billion. The FHCF can use a combination of reinsurance and borrowing to fund losses that exceed this reserve. The FHCF elected not to use reinsurance in 2024, citing hardening market conditions that led to high reinsurance prices. Instead, the FHCF can borrow by issuing bonds, doing so through a combination of pre-event and post-event bonding. FHCF bonds are not a full-faith-and-credit obligation for the state, meaning that the liability of the state to these bondholders is limited. Pre-event bonds allow the FHCF to maintain cash on hand, which is important for paying claims quickly, when its reserve funds have been depleted by a recent storm. In 2024 the FHCF had $2.25 billion in funds from pre-event bonds issued in 2020 (following large payouts from Hurricane Michael in 2018) and $1 billion from 2024 pre-event bonds (following large payouts from Hurricane Ian in 2022). The FHCF can also issue post-event bonds in response to a specific severe event (or events) and estimates that it has the capacity to issue post-event bonds for up to almost $15 billion in the 24 months following a very severe event. The FHCF can charge assessments on property and casualty insurance to fund payments to its bondholders.

The FHCF reports that it has "generated significant premium savings for Florida policyholders by making FHCF protection available to insurers, typically at a lower cost than the market price for comparable reinsurance (p. 4)" (State Board of Administration of Florida 2024). The FHCF notes that its costs to insurers are low because, unlike private reinsurers, it does not charge a

risk load or profit factor in its rates and is exempt from federal taxes. The fund also appears attractive to insurers. While participation is mandatory, 90 percent of insurers, representing 96 percent of total premiums in the state, select the highest offered coverage limit (State Board of Administration of Florida 2024).

Key takeaways

The FCHF is structured similarly to Pool Re and shares many of its strengths: targeting severe events, riskbased pricing, and facilitating competition among primary insurers. An important distinction and potential limitation of the FHCF is that its coverage addresses a middle layer of hurricane risk, leaving the most severe risks for the private sector to manage. For reference, the FHCF organizes around $29 billion in coverage for losses in 2025.[10] Hurricane Andrew in 1992 was the impetus for the FHCF and led to $35 billion in insuredlosses in today's dollars. Since then, seven hurricanes have occurred in the U.S. that exceeded the cost of Andrew (Insurance Information Institute 2024). Hurricane Katrina, the costliest hurricane to date, created $67 billion (2025 dollars) in losses for private insurers plus almost $27 billion (2025 dollars) from NFIP flood insurance claims (Insurance Information Institute 2010).

This structure covering the middle layer is understandable given the limited capacity of the FHCF and the state to hold and diversify the risk of an extreme hurricane. However, as we describe above, insurance market barriers are likely greatest for the most extreme events, which have both the largest pricing uncertainty and the greatest capital costs. A national entity similar to the FHCF could better diversify its risks, and we believe that providing coverage for the most extreme tail events would have the greatest effect on stabilizing markets.

4. A proposal for a US federal property reinsurer: US Re

We propose a federal reinsurance entity, US Re, that would sell reinsurance contracts to U.S. homeowners insurance and reinsurance providers to cover the most severe potential disaster losses. The goal of such a public reinsurer would be to help private insurers manage their disaster tail risk and smooth reinsurance cycles by offering a stable, low-cost supply of capital. By dampening insurance market volatility, US Re would reduce growing home insurance costs for homeowners, strengthen housing markets, reduce trends toward underinsurance, lessen reliance on subsidized federal disaster aid, and promote sensible post-disaster recovery.

Much like the structure of private excess-of-loss reinsurance contracts, US Re would sell reinsurance contracts to private (re)insurers covering aggregate portfolio losses that exceed some amount (attachment point). Working out the details of US Re's pricing, structure, legislative authority, and reinsurance contracts would require thoughtful and open collaboration between industry experts, policymakers, and researchers. We do not aim to resolve all details, but rather to lay out the broad principles that we believe any public reinsurer should follow in order to best accomplish the goal of strengthening U.S. homeowners insurance markets. These principles are to (1) price risk, (2) target market failures, and (3) maintain credibility.

To facilitate the discussion of principles, we return to the premium components for catastrophe reinsurance described above:

Premium = Expected Loss + Cost of Capital + Uncertainty Loads.

We propose that US Re use the same components, which we discuss in more detail below.[11]

(1) Price risk

First and foremost, the government-backed reinsurer should seek to set prices that accurately reflect risk by using property-level measures of expected loss. The program should use the frontier of actuarial standards and a suite of proprietary catastrophe risk models to determine highly granular estimates of risk. These standards and models should be regularly reviewed, with revisions recommended by an independent panel of experts. Continuous review of standards and modeling is necessary because, due to climate change, underlying assumptions made only a very short time ago might soon be implausible.

There are existing models for public insurance entities using catastrophe models and following actuarial guidelines to set rates. The FHCF uses a set of proprietary hurricane models to determine rates (State Board of Administration of Florida 2024). Under the NFIP's recent Risk Rating 2.0 reforms, the agency sets rates using a blend of catastrophe models and actuarial data analysis. As we discuss under our third principle, maintain credibility, enacting a rigorous pricing methodology will require a clear legislative mandate and institutional independence.

Pricing property-level expected losses is essential for preserving incentives for policyholders to mitigate risk and should be a nonnegotiable item for US Re. Growing climate risk creates several challenges, such as whether homeowners can afford to pay the expected loss for their home, and how to fund mitigation and relocation when needed. These are important challenges. They are also distinct from the specific market failures that US Re intends to address, so would be better targeted through separate policy initiatives.

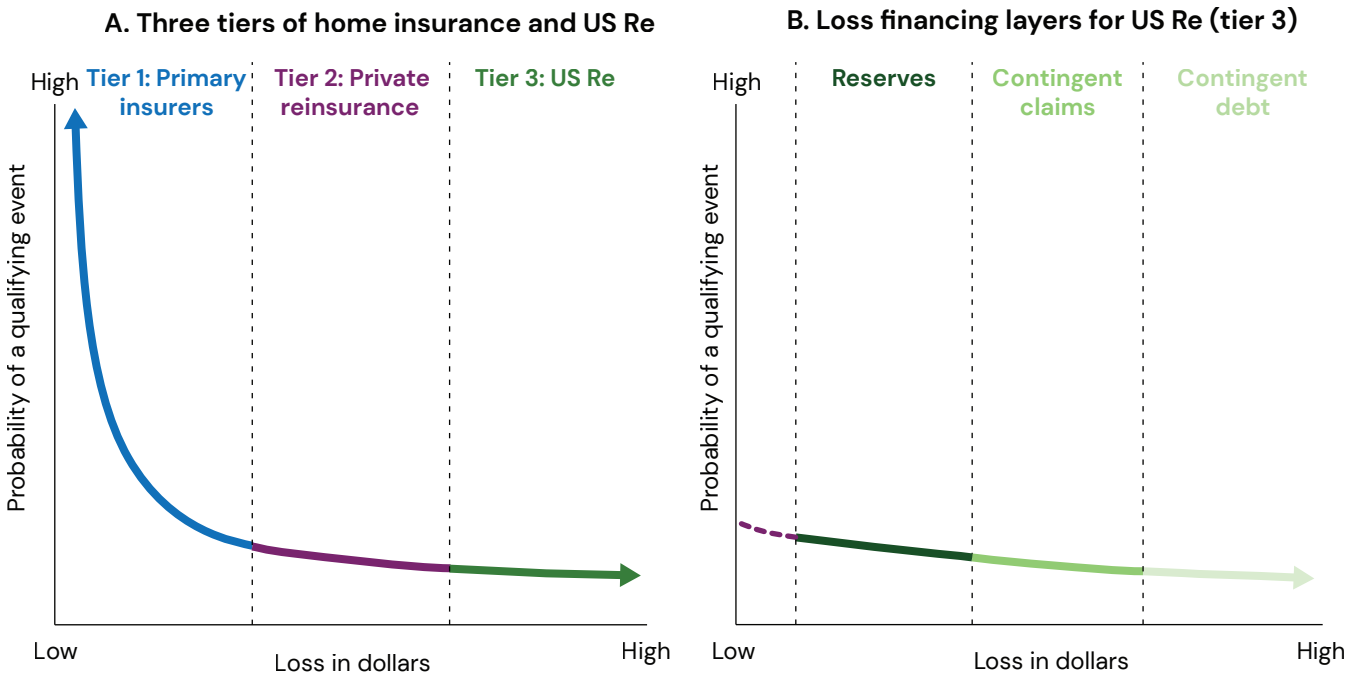
(2) Target market failures

US Re would focus on providing financing for severe tail-risk events, which are difficult for private markets to manage. US Re would not replace private reinsurance. Rather, by protecting against tail risk, US Re could "crowd in" private (re)insurers—in other words, spur new entry and investment. Greater competition among private firms benefits consumers in numerous ways, including by encouraging innovation.

Private insurance markets have several advantages relative to publicly provided reinsurance. Private insurers and reinsurers have contributed to the modeling of catastrophic risk and climate change. Private insurers are uniquely suited to design policies that best meet

FIGURE 8

Loss tiers and financing between private reinsurance and US Re



Source: Authors' analysis (Collier, Keys, and Mulder 2026).

Note: Panel A provides a conceptual framing of how the responsibility for losses is allocated among primary insurers, private reinsurers, and the public reinsurer US Re. US Re would cover low-frequency, high-severity events. Panel B provides a conceptual framing of US Re's loss layering, zooming in on the right-hand side of panel A. US Re would cover losses through a combination of its own reserves and insurance-like contingent claims contracts with Treasury. It might also use contingent debt contracts with Treasury for the extremely rare but severe part of the risk distribution.

consumers' needs while balancing risk and moral hazard concerns. Competitive markets also create natural price discipline and encourage innovation in a way that would be difficult to replicate in a public reinsurer. Thus, it is desirable that private insurance and reinsurance markets continue to bear a substantial share of U.S. disaster risk.

US Re's role is to hold severe catastrophe risk at a lower cost than any other entity ever could, which creates two benefits in the premium calculation that will lower and stabilize the cost of home insurance. The first benefit is that it lowers and stabilizes the cost of capital charge. The U.S. government can raise more funds and at a lower rate than the reinsurance industry. Moreover, even severe natural disasters do not threaten the solvency of the federal government. Second, US Re could take a risk-neutral role regarding climate uncertainty, reducing or eliminating uncertainty loads.

US Re adds a new tier for the home insurance market, in which entities bear and price different parts of the disaster risk distribution (figure 8A). In the first tier are primary insurers, who price and design the individual homeowners insurance contracts while also directly bearing the risk of idiosyncratic claims with sufficient reserves and buffers of equity. In the second tier are private reinsurers, who can bear a substantial share of the correlated disaster losses with their access to global capital markets. US Re's role would create a new third tier, at the most extreme tail of the loss distribution. Its entry, with its lower capital costs and insulation from insolvency risk, provides the greatest price-reducing benefits.

Like other (re)insurers, US Re should be required to organize funding to cover its obligations. For example, Pool Re develops its own arm's length financing and is regulated for financial soundness by the Prudential Regulation Authority (U.K.). Figure 8B illustrates a proposed layering approach for US Re's financing, focusing on the portion of the loss distribution that would be allocated to US Re.

US Re could use reserves as the first tier of its loss financing and contract with the U.S. Department of the Treasury to fund larger losses. Contracting with Treasury should be priced in an actuarially sound, revenue-neutral way; regardless of its exact financing structure, US Re should set prices that reflect geographic variation in its additional cost of capital.[12]

One option is an insurance-like contingent claims structure in which funds are transferred from Treasury to US Re if a loss of a certain magnitude occurs. The price of this contract should be the expected loss taken on by Treasury plus the cost to Treasury of providing this funding immediately if a disaster occurs, which requires rapid response. Alternatively, instead of a contingent claims structure, the contract might be a debt instrument, allowing US Re to borrow from Treasury, similar to Pool Re. The revenue-neutral price of this type of contingent credit contract would similarly account for risk and capital costs. US Re might layer financing, starting with reserves at the base, then contingent claims, and then contingent debt covering the extreme tail.[13]

To achieve this three-tier design, US Re should set relatively high attachment points in its reinsurance contracts so that insurer retention remains high enough to leave a meaningful role for private reinsurance. This feature ensures that private reinsurers would retain substantial "skin in the game," imposing discipline on private sector pricing and maintaining incentives for innovation. While it is difficult to say what the design of these attachment points might look like without a thorough review of existing reinsurance contracts, it is possible that, rather than competing with private reinsurers, US Re would primarily write reinsurance contracts for extreme losses that they are already reluctant or unwilling to cover.

The federal government's unique ability to handle tail risk and maintain a steady cost of capital will lead it to play a bigger role during hard market cycles when capital is scarce relative to soft market cycles when the cost of capital is lower. While large loss events routinely drive up the cost of capital in private reinsurance markets, a public reinsurer would face no such constraints and should be able to offer comparatively constant rates. As a result, US Re would be able to smooth insurance market volatility and reduce insurance cost shocks that would otherwise create negative spillovers for household budgets, housing and mortgage markets, and public budgets.

US Re should act as a reinsurer rather than a primary insurer. This design choice stands in contrast to both state-run insurers of last resort (FAIR plans) and, most prominently, the NFIP. Although the NFIP has been instrumental in providing flood insurance when no private insurer would, it has also struggled to attract customers or to offer flexible policy options relative to private insurers. The NFIP long struggled to attract customers until it moved to the Write Your Own system that partners with private insurance agents to underwrite and sell policies (Knowles and Kunreuther 2014). Furthermore, the NFIP offers narrow policy options with a maximum structure coverage limit of only $250,000. Rather than come between insurance agents and homeowners or dictate the terms of policies, US Re would enable private insurers to serve customers more affordably.

By operating only in the secondary market, US Re would enable primary insurers to re-enter markets that have been deemed too expensive to operate in, reducing the exposure of state-level FAIR plans. Shifting the highest risks away from the primary market and from state governments toward the secondary market and the federal government allows for market forces to better price risk and for risks to be pooled and diversified across a wider set of perils and climate conditions.

Given that US Re will have a lower cost of capital than the private market, a natural question is: What are the limiting principles of government involvement? As we discuss above, there are both private-market and public-market frictions that are at play in insurance markets. The private market's inability to provide stable prices of tail risks due to uncertainty and solvency risk represents the critical friction that leads to negative spillovers to households and the mortgage and housing markets. This friction can be addressed through a public reinsurance entity. The government can diversify these risks and exploit economies of scale to better manage risk and deliver market stability. Additionally, at present the federal government implicitly provides partial tail-risk support through ex post disaster aid programs and the potential for FAIR plan bailouts (U.S. Senate Committee on the Budget 2023). Providing explicit tail risk financed by premiums (from reinsurers) could therefore reduce federal costs in this case.

However, if the public mandate was broadened beyond solving this private-market friction, a variety of public-market frictions, most notably political pressure to set prices below actuarially fair rates, would arise. In the next section, we discuss concerns around crowding out competitive forces and maintaining credibility that limit the reasonable scope of government involvement in the insurance market.

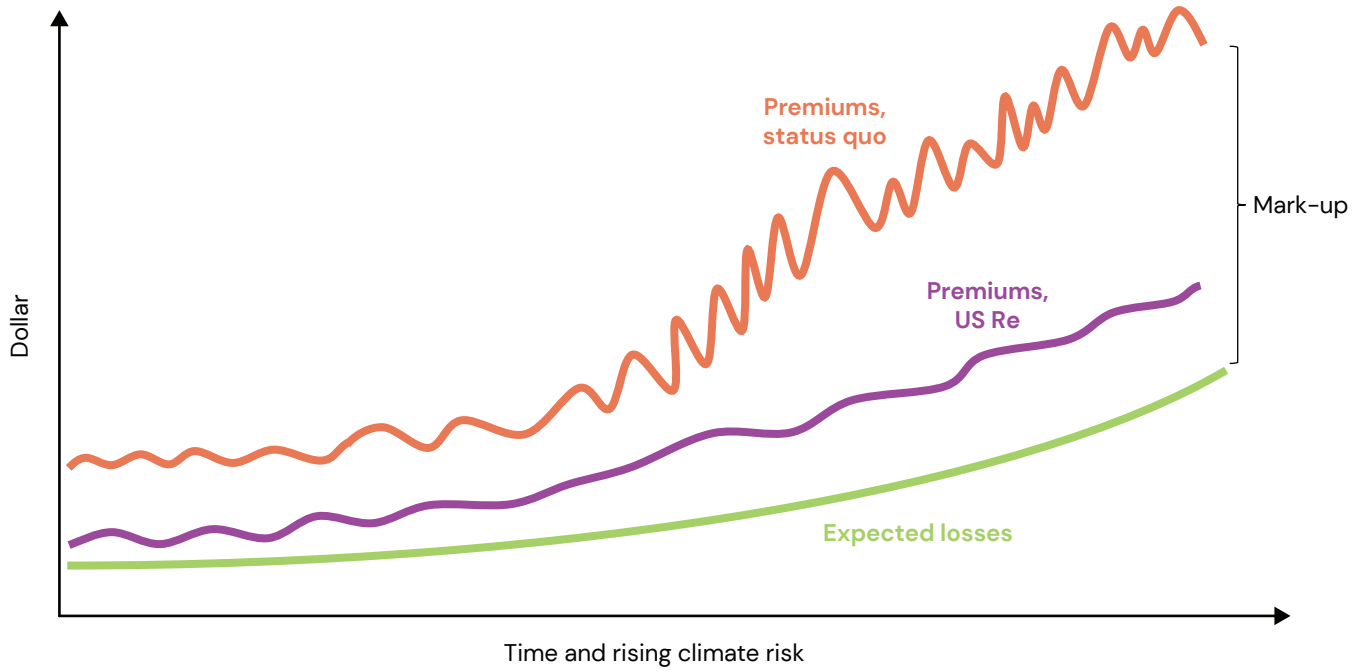
(3) Maintain credibility

The third guiding principle for US Re is credibility. As a reinsurer, US Re needs clear authority to set premiums, pay claims, and borrow in years with outsized losses. Bearing tail risks means that, in some years, claims will be greater than premiums. This is not a failing of the entity; it is by design.

To ensure that the program is free to set appropriately risk-adjusted prices, US Re should have layers of independence to avoid the politicization of insurance pricing or availability. We can learn from the experience of the NFIP, which faces regular requirements for congressional reauthorization. Reauthorization requirements have created opportunities for

FIGURE 9

Illustration of expected insurance market trends with US Re



Source: Authors' analysis (Collier, Keys, and Mulder 2026).

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Congress to introduce subsidies and roll back pricing reforms that benefit specific jurisdictions at the expense of other taxpayers. Based on this experience, US Re would benefit from long-term authorization and institutional permanence. In addition, it should have a scientific board with staggered terms, and any further oversight should be conducted on a regularly scheduled basis. This remove from interacting directly with either consumers or election cycles should allow US Re to set prices guided by actuarial science.

Regardless of the precise statutory language and design, no publicly run reinsurer could be completely immune from political pressure. This is especially true given the executive branch's growing authority. Even without full independence, however, US Re offers many advantages over other potential policy interventions in the homeowners insurance market (figure 9). Concerns about political interference highlight the need to establish US Re with autonomy and a design that is difficult for policymakers to change.

Potential effects of US Re

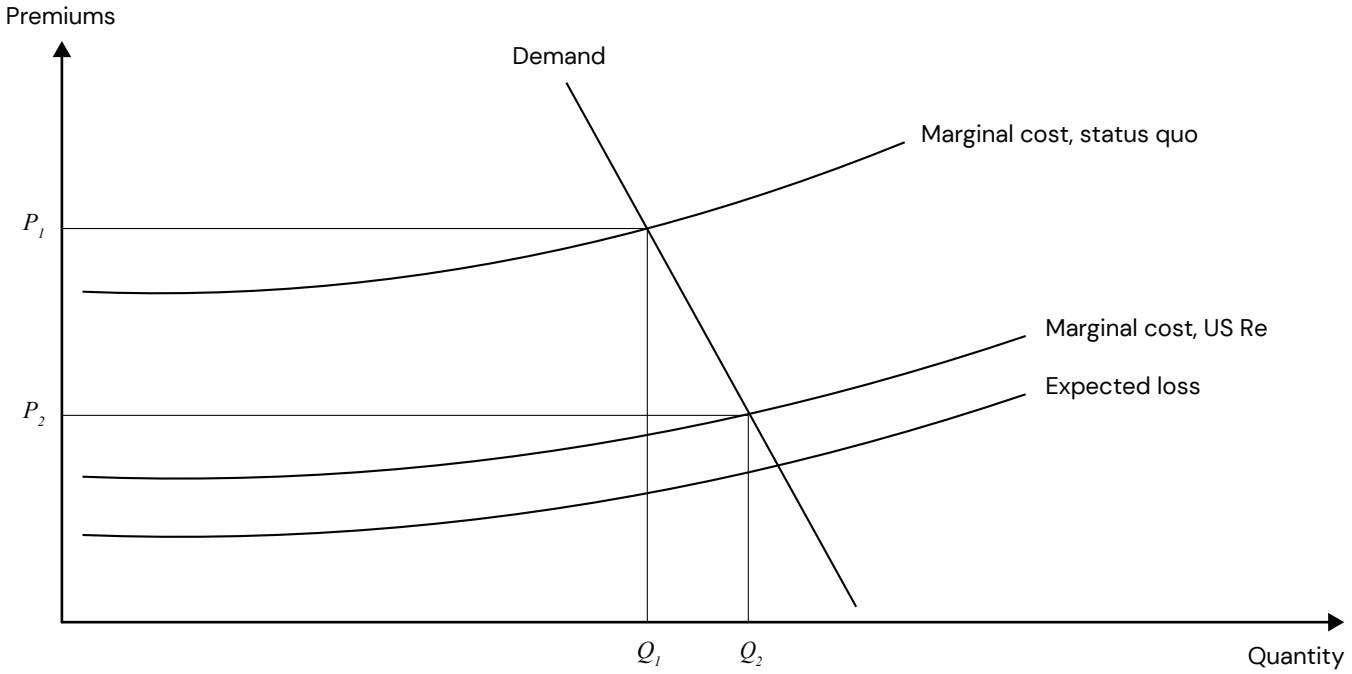
With a national reinsurer, the federal government would explicitly bear tail risk and charge only a modest markup above expected loss to account for capital costs that the users would pay ex ante. The government would hold these risks to minimize capital costs in the system, and could increase private sector entry and investment through the rest of the risk distribution. Private insurers would set prices, keep skin in the game to align incentives, and continue to innovate on data, models, and product design.

Returning to our previous figures, figure 9 illustrates how US Re could affect the level and volatility of insurance premiums. Because of growing climate risk, expected losses are likely to continue increasing over time. Insurance prices increase with expected losses, preserving households' incentives to adapt to growing risk. However, relative to the status quo, we anticipate that the markups that insurers would charge above expected loss would be smaller and less volatile with US Re. Figure 10 illustrates the potential market equilibrium. By reducing markups, we anticipate that US Re would increase those benefits of insuring for U.S. households and expand coverage.

Without better data on the details of reinsurance contracts and losses, it is difficult to precisely quantify the scale of US Re or how it would affect home insurance premiums and availability. However, recent volatility in the reinsurance market and the example of other programs provide some guidance. Keys and Mulder (2024) find that the doubling of reinsurance costs between 2017 and 2024 increased average annual

FIGURE 10

Potential effect of US Re on market equilibrium



Source: Authors' analysis (Collier, Keys, and Mulder 2026).

Note: Stylized figure of an insurer's expected losses and consumer demand, D. The figure contrasts marginal cost curves, MC, under the status quo versus the potential curve with US Re. In this scenario, US Re reduces prices for households and expands insurance take-up.

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homeowners insurance premiums by approximately 15 percent above and beyond the rise in expected losses over this period and policy nonrenewals by 30 percent among markets in the top decile of catastrophe exposure. Studying the roll-out of Australia's public cyclone reinsurance, Solomon (2024) finds that the program reduced premiums by 21 percent and increased availability by 11 percent. These two examples illustrate the potential magnitude of US Re's impact on insurance affordability and availability.

5. Questions and concerns

The implementation of US Re would require a thorough engagement with the actual details of practical implementation and design. Such details are critically important, but, without more data and studies of the existing private reinsurance market, it is difficult to make strong statements about how exactly US Re should structure its contracts or set prices. Nonetheless, we offer general thoughts about the trade-offs policymakers would face in making some of these decisions.

Should purchasing reinsurance from US Re be mandatory, and, if so, who should be subject to that mandate?

A mandatory program would have several advantages, most notably in addressing concerns related to adverse selection. If purchasing reinsurance from US Re is voluntary, then insurers may seek to reinsure the riskiest aspects of their portfolio, or permit only the insurers with the riskiest portfolios to participate. If insurers have private information about how risky their portfolios are, or if the perception is that US Re is not setting prices commensurate with risk, then US Re could face a significant "lemons problem." Requiring that all insurers participate to some degree would address these issues. A potential drawback of mandatory purchase is that, depending on where US Re's attachment points are set, it could crowd out private markets.

Drawing on lessons from other programs, the FHCF offers a blended design, where all insurers operating in the state must participate to some extent; nevertheless, there are voluntary degrees of participation on the intensive margin. Insurer participation in the U.K.'s terrorism reinsurer, Pool Re, is voluntary, while insurer participation in U.S. TRIA is mandatory (although insurers can set their own prices for terrorism coverage). The U.K.'s Flood Re lets the primary insurer decide on a policy-by-policy basis whether to cede the risk to the public reinsurer.

Ultimately, the choice to make participation mandatory depends on the degree of adverse selection and risk appetite in the market. Measuring potential adverse selection requires policy-specific data from existing private reinsurers to understand the scope of information asymmetry. Like the FHCF design, a promising approach could be to set a relatively high attachment point for the mandatory highest layers of coverage, while allowing insurers to voluntarily buy at lower layers. Given that the benefits of US Re's coverage might vary across insurers and across potential losses, a one-size-fits-all approach is less likely to work.

How should US Re set prices?

In order to set its prices, US Re will need to estimate the expected losses of insurers' portfolios. This will require modeling not only the average losses, but also the correlations across multiple perils and geographies. Such an exercise, while certainly complex and prone to uncertainty, is done regularly by private reinsurers and is one of the key problems addressed by actuarial science and through ongoing innovation in the modeling of catastrophic risks.

While the practicalities of price setting would merit an exhaustive review during any actual implementation of US Re, we note a few trade-offs and issues to spur further discussion. One approach to pricing would be for US Re to use the expertise of actuarial consulting firms and existing catastrophe models. This approach is similar to the approaches taken by the NFIP in its Risk Rating 2.0 reforms and by the FHCF.

Nonetheless, one might still be concerned that US Re would systematically underestimate risk, particularly given political pressures to lower premiums. As discussed above, US Re could also face adverse selection if insurers can selectively offload their most correlated risks in a way not captured by US Re's pricing. This possibility is one reason why we advocate for US Re to only underwrite the most extreme loss tail, which will require primary insurers and reinsurers to have some skin in the game that will limit adverse selection. In addition, the possibility of adverse selection is one reason why US Re may mandate some degree of participation, as described above.

One approach to pricing would be for US Re to use market prices to infer expected losses. For example, US Re could issue a catastrophe bond to private investors for a small share of its portfolio and use the resulting market rates as a basis for setting its own prices. This approach—while a tempting way to utilize market prices—may ultimately run into the same capital market frictions that motivate US Re in the first place. The rates on any catastrophe bonds US Re issues would reflect both expected losses and capital costs, making those rates an inappropriate benchmark given US Re's lower cost of capital.

What types of events and property should US Re cover?

As described above, we propose that US Re offer portfolio reinsurance for losses associated with severe disasters. As a reinsurer, US Re would not cover perils that are generally excluded from U.S. homeowners insurance contracts, such as flood and earthquake. Moreover, the focus of this proposal is addressing market failures in homeowners insurance, rather than in commercial property risks.

Nonetheless, adding other catastrophe risks and business lines could be worthwhile. We think broader federal reinsurance coverage should be considered as a longer-term possibility. There are at least two benefits of broader coverage.

The first benefit is that similar challenges seem to exist in these markets regarding high costs of capital and uncertainty (Kim, Mahajan, and Wang 2025); US Re might similarly reduce costs and expand insurance coverage in these markets. Second, introducing distinct risks could offer some diversification benefits to US Re's portfolio. That said, losses in these other markets are not always independent from those in homeowners insurance. For example, a single catastrophe typically causes both residential and commercial property damage. Similarly, a hurricane or severe storm typically leads to a combination of homeowners insurance and flood insurance claims. These loss correlations create ambiguity regarding how expanding (vs. concentrating) US Re's purview would affect portfolio diversification.

How does US Re relate to other insurance market issues and challenges?

The above focuses on principles to guide US Re given the specific market failures it would address. A variety of other challenges currently affect insurance markets. Addressing these challenges would have social value but are not directly related to US Re's primary function as a reinsurer, and would likely be better tackled with separate policy solutions. Nonetheless, we note that a federal reinsurance entity could be beneficial beyond its risk-bearing capacity.

First, clearer risk communication and contract standardization would help homeowners better understand their risks and the steps they can take to mitigate them. U.S. insurance regulation is largely organized at the state level, which has led to a patchwork of approaches to disclosure. In terms of US Re's involvement, there are clear parallels to federal programs like Fannie Mae and Freddie Mac. Federal involvement in the mortgage market has led to more transparency around standardizing mortgage contracts and communication with borrowers. It is also notable that the data landscape for mortgages is vastly different from insurance, with information about lending and delinquencies made available through Home Mortgage Disclosure Act requirements and reporting from Fannie Mae and Freddie Mac about the mortgages they acquire. Working with insurers and state regulators, US Re could drive similar initiatives to make more data on (re)insurance contracts and claims available to consumers, industry participants, and researchers. Beyond their broader benefits, such standardization and disclosure could be used to help US Re run a more efficient operation while managing its portfolio and accurately pricing risk.

Second, longer-term insurance contracts might better align household, community, and government incentives to mitigate. A public reinsurer could play an important role here, but because the motivation seems distinct from the challenge of insuring correlated risks, we do not include this element in the core principles that we have outlined. However, a public reinsurer could align short- and long-run interests by making longer-term commitments, including writing multiyear reinsurance contracts, thereby communicating long-term risk while providing more premium stability.[14] Importantly, this entity could provide clearer price signals to mortgage markets about the climate risks associated with 30-year loans, while also guaranteeing more stable coverage beyond annual contracts.

Finally, one may be concerned that reducing insurance premiums for catastrophic risks in the United States—whatever the mechanism—is socially undesirable given that housing is increasingly concentrated in risky areas. A growing literature documents that the costs of natural disasters often fall on public budgets, and that households do not invest enough in adaptation (Hovekamp and Wagner 2023; Ostriker and Russo 2026). Despite their merit, we argue that addressing such concerns by pricing reinsurance above expected loss is a suboptimal policy response for several reasons. First, making insurance more affordable would likely decrease underinsurance, and thus reduce the public burden of disasters (Sastry et al. 2024). Second, so long as primary insurers set prices according to expected losses, they will still send appropriate price signals to housing developers and buyers about where and how to build. Third, rather than distorting insurance premiums to influence homeowners' behavior, information and regulation have both been shown to be effective tools for increasing investment in adaptation (Baylis and Boomhower 2025; Mulder 2021).

6. Conclusion

The U.S. homeowners insurance market is under unprecedented stress from severe climate risks that are increasing claims and adding to volatile reinsurance costs. Insurers are responding by raising premiums, tightening coverage, and exiting high-risk markets, shifting greater financial exposure onto households and public budgets. Facilitating a consistent supply of catastrophe insurance has been a longstanding public policy challenge that is needed now more than ever (e.g., Congressional Budget Office 2002; Kunreuther and Michel-Kerjan 2009; Lewis and Murdock 1996). The current policy response—a patchwork of state programs, rate regulation, and disaster aid—is incomplete and unsustainable.

We propose the creation of a federal property reinsurer, US Re, to stabilize catastrophe financing by leveraging the government's unique capacity to bear tail risk while keeping private markets central for innovation and risk pricing. The success of US Re would depend on accurate risk pricing, a focused intervention targeting the cost of capital and uncertainty, and sufficient institutional independence to maintain credibility. Lessons from the NFIP, TRIA, Pool Re, and the FHCF reinforce the idea that designing US Re to the standards laid out in this proposal is ultimately critical to avoid distorting incentives by mispricing risk.

A federal reinsurer like US Re cannot resolve all the challenges facing today's insurance markets. Issues of affordability, climate change, adaptation, and more-equitable outcomes will require complementary policies that reduce risk exposure and improve communication with homeowners. Policies implemented in parallel to US Re that prioritize robust investments in resilience and adaptation could lower expected losses and prevent households from becoming trapped in high-risk areas. With sound governance and proper coordination across public and private sectors, a welldesigned federal reinsurer would serve as a critical step toward restoring stability and resilience in the U.S. homeowners insurance market.

Endnotes

1. As shown in Keys and Mulder (2024), rising repair costs and coverage limits explain a large share of recently rising premiums, especially in lower-risk areas. However, they show that accounting for changes in construction costs cannot explain the faster premium growth in high-risk areas.
2. See also Solomon (2024) for an analysis of the impact of Australia's public cyclone reinsurance scheme on insurance premiums and availability.
3. Administrative costs also add to the price of insurance, which we ignore to simplify the narrative.
4. Adding to these markups could be the primary insurer's own cost of capital and uncertainty loads since the primary insurer retains a portion of the tail risk.
5. Much of this summary of the NFIP draws on Knowles and Kunreuther (2014).
6. This summary is based on information from Pool Re (2025) and Government Accountability Office (2016).
7. The costliest terrorism event since 9/11 was the Boston Marathon bombing, which caused $25 million in insured losses (Simpson 2023).
8. This summary is based on information from State Board of Administration of Florida (2024).
9. Because claims from hurricane losses can take months or even years to resolve, the FHCF must organize funding that exceeds the maximum payout capacity of $17 billion for a single year. For example, the fund's 2024 annual report notes that it continues to pay claims related to Hurricane Ian, which occurred in 2022 (State Board of Administration of Florida 2024).
10. This number includes $9.9 billion in industry retention, $17 billion in the fund's capacity, and around $2 billion in insurer co-payments when the fund is triggered.
11. As described in section 2, administrative costs add to the price of insurance. Like a private reinsurer, US Re would need to set prices that cover the costs of collecting data; modeling risk; employing actuaries, underwriters, and other relevant experts; and resolving claims.
12. Similar to private reinsurers, US Re would account for the diversification benefits that a new contract offers when calculating its cost of capital. These calculations result in higher cost-of-capital charges for areas where catastrophe risk is concentrated. Accounting for concentration is consistent with the revenue-neutral neutral pricing described above because it reduces the likelihood that areas with low concentrations of catastrophe risk subsidize the capital costs of the high concentration areas.
13. Some public reinsurers such as Pool Re also incorporate private contracts when layering risk financing, including reinsurance and catastrophe bonds. Such options would also be available to US Re. An advantage of contingent claims relative to debt contracts is that it avoids shifting the cost of realized losses onto future policyholders. Nonetheless, ex post debt financing can be priced *ex ante* and used sparingly in the most extreme portion of the tail.
14. Private catastrophe reinsurance contracts often have an annual duration but are sometimes offered as a multiyear contract. This multiyear structure provides more pricing stability to the ceding insurer, but transfers additional risk to the reinsurer. Multiyear contracts are typical for catastrophe bonds (PwC 2024).

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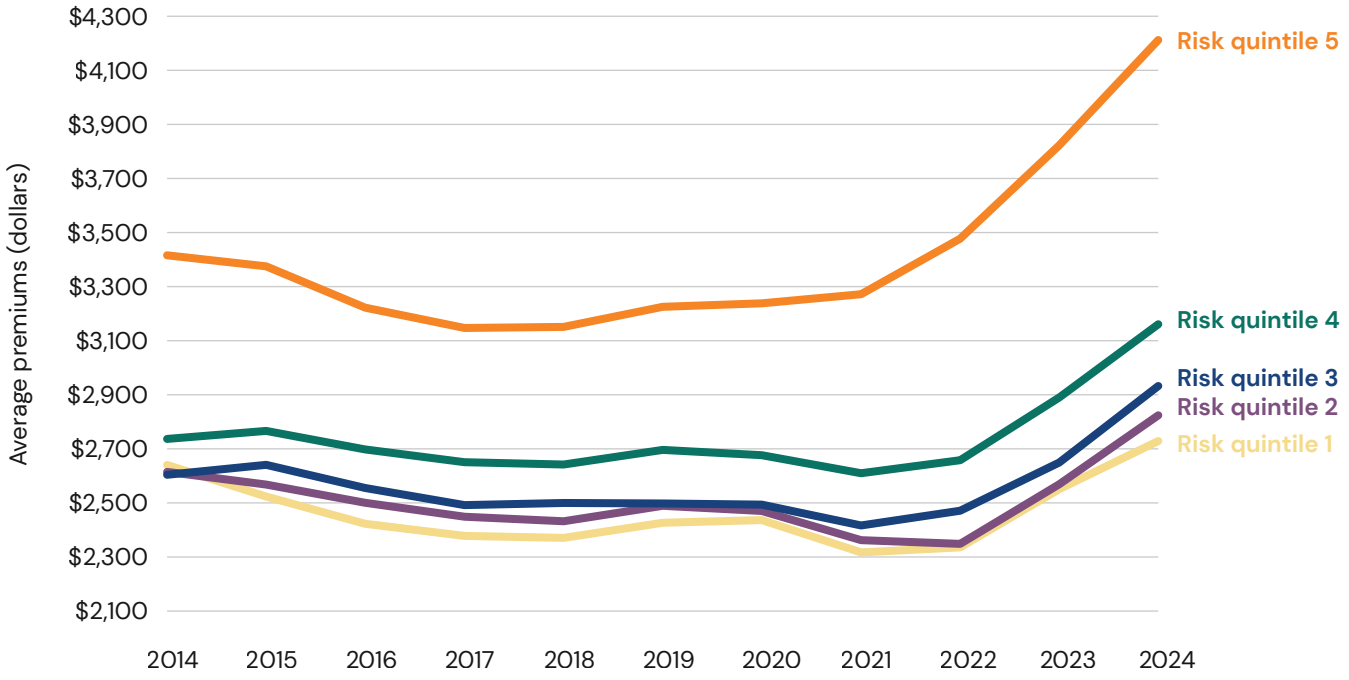
The U.S. homeowners insurance market faces mounting strain from severe climate risk, which is increasing claims and adding to volatile reinsurance costs. Across the U.S., inflation-adjusted premiums increased by an average of 28 percent between 2017 and 2024, while insurers have exited markets or gone insolvent, threatening household financial stability, housing markets, and disaster recovery. Existing responses shift risk onto households, states, and federal budgets and are unsustainable. This paper proposes a federal reinsurance entity, US Re, to stabilize financing for catastrophic losses. By leveraging federal borrowing capacity, such an entity could reduce costs and volatility, while preserving incentives for adaptation and supporting private markets. Lessons from existing programs highlight three guiding principles: price risk, target market failures, and maintain credibility. Properly constructed, US Re could improve resilience while maintaining the benefits of market incentives.

Average annual homeowners insurance premiums, by quintile of disaster risk exposure



Source: Keys and Mulder 2024.

Note: Premiums are in real 2024 dollars. Risk exposure is measured by ZIP code, based on the FEMA (n.d.) National Risk Index and First Street Foundation (n.d.) wildfire and hurricane wind models.

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