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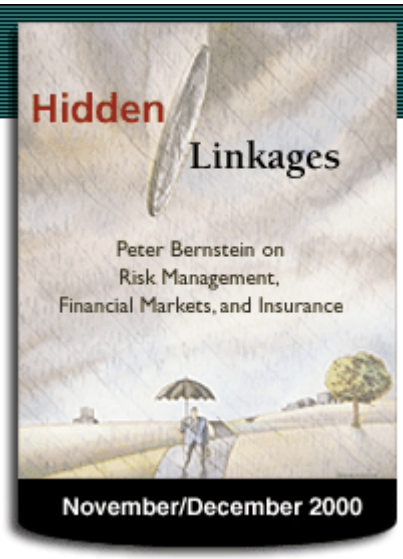


Would a Federal Role in Disaster Protection Be a Catastrophe?

By Rade T. Musulin

Some areas of the country are just plain risky to live in. Is it the federal government's job to assume the risk for the people who decide to live there?

A major turning point in my life occurred on Aug. 24, 1992, when Hurricane Andrew made landfall in South Florida. As the chief actuary for a Florida property insurer, I saw firsthand the devastation that storm wrought on the Florida property insurance market. I have spent much of the past eight years dealing with the storm's aftermath.

Florida's government, consumers, and property insurers have paid a heavy price for their lack of preparedness for a loss of this size. Loss funding mechanisms, building codes, insurance ratemaking, solvency regulation, and the structure of residual markets, among other things, have had to be completely rethought.

But Florida was lucky. Had Andrew made landfall over Miami or Fort Lauderdale, losses could have exceeded $80 billion and led to severe economic problems, both local and national. With insured losses of around $17 billion, Andrew still led to 12 insolvencies and the placement of almost 1 million policyholders into the Florida Residential Property Casualty Joint Underwriting Association (FRPCJUA), a state-created insurer of last resort.

Florida's problems are not unique. Several other parts of the country are exposed to natural disasters that could lead to major social and economic disruption. Market upheaval followed several recent events, including Hurricane Iniki in Hawaii and the Northridge earthquake in California. These problems have led some large national property insurers to suggest that natural disasters are uninsurable in the private market.

Congress is currently considering several bills addressing natural disasters. Their proponents claim they'll bolster the current system and make property insurance more available and affordable in high-risk areas. Two major initiatives are H.R. 2749, the Policyholder Disaster Protection Act, and H.R. 21, the Homeowners' Insurance Availability Act. The House bills have Senate counterparts (S. 1914 for H.R. 2749 and S. 1361 for H.R. 21). H.R. 2749 focuses on tax policy, allowing insurers to create tax-deferred reserves to fund future catastrophic losses from natural disasters. H.R. 21 represents a more proactive approach, whereby the federal government would provide reinsurance to state funds and private insurers.

Both bills have generated controversy. H.R. 21 has been criticized as benefiting only insurance companies writing business in disaster-prone areas, encouraging home

construction in high-risk areas, and as an unnecessary government intrusion into markets being adequately served by private entities. H.R. 2749 has been criticized as a tax giveaway to rich insurers.

Notwithstanding objections to these specific initiatives, huge natural disasters represent a clear and present danger to the nation's property insurance system. Such events would lead to market chaos in the affected state(s) and send economic shock waves through the nation's financial system. Millions of consumers could face unpaid claims, non-renewal, or large premium increases. After such an event voters would demand rapid government action, which could result in poorly thought out policies at the federal or state level.

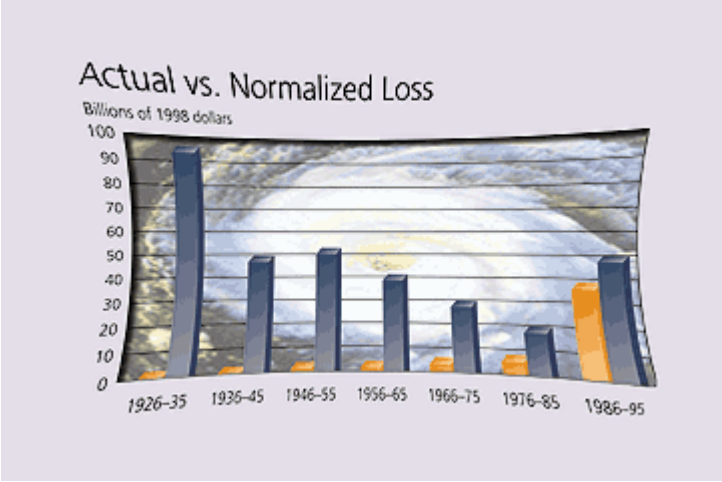
The Role of Actuaries in the Debate

In Florida, actuaries have played an important role in the formulation of public policy initiatives to address natural disasters. They've helped to develop the rating language for the Florida Hurricane Catastrophe Fund and participated in the Florida Commission on Hurricane Loss Projection Methodology (which evaluates private catastrophe models). Actuaries have also helped to design the residual market assessment and rating structures, and provided input on the benefits of the (recently passed) statewide building code. Actuaries have regularly testified before the state legislature and addressed the media on these issues. Actuarial involvement has helped Florida build a more financially sound system for funding hurricane losses.

Actuaries have important interests in the natural disaster insurance initiatives before Congress. If either proposal is enacted into law, actuaries will have to assess the effect on insurers' pricing, tax liabilities, and reinsurance programs. Both H.R. 21 and its Senate companion call for extensive actuarial input in setting prices for contracts, with the Senate version explicitly creating an "Independent Board of Actuaries" to provide pricing recommendations.

Demographics Are the Problem

Figure 1 shows historical U.S. Atlantic hurricane losses. Raw loss data (shown in green) seems to show that losses have exploded in recent years. However, when adjusted for changes in population, wealth, inflation, and the proliferation of vacation homes in coastal areas, the data shows that losses in recent years are about average by historical standards, and that several decades earlier in the century had larger losses (shown in red). (See Pielke, et al., "Evaluation of Catastrophe Models Using a Normalized Historical Record: Why It Is Needed and How to Do It," Journal of Insurance Regulation, Winter 1999.)



Skyrocketing coastal populations and a tendency for coastal development to consist of more expensive properties are driving the growth in raw losses. The Insurance Services Office found that "from 1970 to 1990, the Southeast Atlantic Coast had a nearly 75 percent increase in population density—far surpassing the countrywide increase of more than 20 percent." A recent Florida study showed that the median property value in areas eligible for coverage in the state windstorm pool (comprising properties close to the coastline) was almost 70 percent higher than the statewide average.

These trends are likely to continue. When combined with a return to a more normal frequency of hurricanes (from the historically low levels of the late '60s through the mid '80s), they will

place increasing stress on the property insurance system. Larger population in coastal areas also means more voters have an interest in seeing someone (usually the government) act to assure "available and affordable" coverage. Therefore, pressure is likely to build for public intervention in the property insurance market unless huge strides are made in improving construction quality, so that increasing populations don't generate a proportional increase in losses.

Capital—The Raw Material for Property Insurance

Capital, whether provided by an insurer's surplus, reinsurance agreements, or securitization, is the key ingredient needed to underwrite property insurance. There's a cost to committing capital, and it increases with the loss exposures the capital supports. In the 1990s it became clear that enormous amounts of capital are required to underwrite exposures in disaster-prone areas and that shortages of capital were driving shortages of supply for retail consumers of insurance.

At first glance, it would appear that the insurance industry is flush with capital to underwrite property insurance. According to a General Accounting Office study released in February 2000, "between 1990 and 1998, the total consolidated industry surplus grew in nominal terms from $138.4 billion to $333.5 billion." This capital, however, must support all lines of insurance, and many carriers with considerable surplus don't even write property insurance.

Furthermore, capital devoted to property insurance has been reduced by the creation of state funds in several states, by the formation of single-state subsidiaries, and by a shift in market share from large, mature companies to thinly capitalized start-ups.

Why would insurers not commit more capital to underwriting property insurance, a product in high demand? Put simply, regulatory constraints have led to inadequate returns to attract sufficient capital. If an insurer is allowed the same rate of return on capital on a stable book of automobile insurance and a property insurance book subject to random catastrophes, it has every incentive to shun property. The idea that rate of return is related to risk is not unique to insurance. Investors in financial markets expect higher returns from stocks than from Treasury bills because stock prices are more volatile.

Retail supply shortages induced by capital shortages led California, Florida, and Hawaii to form state funds, and have prompted a number of other states to consider doing so. State funds (and a federal program as proposed in H.R. 21) offer two fundamental advantages over private sources of capital. First, they can accumulate funds free of federal income taxes (provided they receive tax-exempt status). Second, unlike insurers that must pre-fund potential losses on their risk portfolio (and charge for the cost of capital up front), state funds can use the government's taxation authority to issue debt to pay losses, supported by future assessments against the citizenry, deferring part of the cost.

The Federal Tax Problem

As noted above, tax-free accumulation of funds has made state funds very attractive to public-policy planners. If tax-free catastrophe reserves are a good idea for state funds, why aren't they a good idea for insurers?

There are two basic problems with current federal tax policy for insurers—a mismatch in the time period measuring taxable income with that underlying the catastrophe provisions in rates, and double taxation of investment income. An extreme example will illustrate both points.

Consider an insurer that underwrites only large earthquakes and is subject to a $100 billion loss every 100 years. (That means it must collect $1 billion per year to fund losses.) If the insurer incurs the loss in year 1, it's allowed to carry forward the loss for 15 years, but for years 16-100 it will pay income taxes on its $1 billion of annual income.

If, on the other hand, the insurer incurs the loss in year 100, it will have paid taxes on $1 billion of income for 99 years, but will be able to carry back losses for only two years, losing taxes on income for years 1-97. Whether the loss occurs in year 1, year 100, or somewhere in between, the insurer will incur tax liabilities even though it collected only exactly enough revenue to cover its long-term loss costs.

Insurers pay taxes on investment income, and investors in insurers are also subject to taxes on dividends received and capital gains. In this example, the insurer would need $99 billion of capital in year 1. An investor considering pre-funding the capital requirement of the insurer before year 1would face a lower after-tax yield because the investment gains would be taxed when earned by the insurer, then taxed again when returned to the investor. Any regulatory

restrictions on insurer investments would exacerbate the differential.

Empirical effects might appear less dramatic due to consolidation of income from disaster-prone lines with income from more stable business, or use of reinsurance to spread losses. Nonetheless, it's clear that federal tax policy significantly increases the cost of underwriting catastrophic perils, and the problem intensifies as the event frequency decreases. The financial markets' response to current tax law has been the proliferation of offshore reinsurance vehicles that export sizeable sums of U.S. capital overseas, with attendant transaction costs ultimately passed on to U.S. consumers.

H.R. 2749—Policyholder Disaster Protection Act

H.R. 2749 is designed to overcome some of the problems with federal tax law by allowing insurers to accumulate tax-deferred reserves for catastrophic perils. Figure 2 highlights the key provisions of this bill.

Figure 2—Summary of H.R. 2749

Insurers could set aside a proportion of countrywide net written premiums (NWP) in a tax-deferred disaster protection fund.

Ultimate size of the fund is determined as a percentage of countrywide NWP, with varying factors of premium allowed by line of business. Eligible lines are Fire, Allied, Farm-owners, Homeowners, Commercial Multi-Peril, Earthquake, and Inland Marine. Significantly, premium booked on reinsurance lines is excluded.

Fund is phased in over 20 years, with 5% of the ultimate factor allowed in year 1, 10% in year 2, and so on, to 100% in year 20.

Insurers are required to transfer assets in the fund to the custody of a third party.

Investment income on the fund balance is taxed in the year earned. Insurers are allowed to draw down the fund if certain loss thresholds are met. Such drawdowns would be considered taxable income, thus matching the recognition of income with the loss event.

Proponents of H.R. 2749 argue that the bill would:

- Reduce the penalty associated with building catastrophe reserves, improving capacity and reducing the cost of coverage.
- Represent a far less invasive solution, with minimal administrative and transaction costs.
- Decrease reliance on public disaster assistance.
- Reduce pressure to create state funds or to enact a federal reinsurance program.

While the bill would ameliorate a serious flaw in the current tax system, it does have several drawbacks:

- It has negative "budget scoring" (net decrease in federal tax revenue).
- It doesn't address the immediate problem of funding a large loss. Reserves would accumulate very slowly, and real relief would only accrue over decades.
- It limits the ability of reinsurers, who provide considerable capacity now, to build these reserves. This could create market distortions among companies using various levels of reinsurance.
- It doesn't address the double taxation of investment income on catastrophe reserves.
- It bases the amount of the reserve deduction on an insurer's countrywide net property premiums, without reflecting the insurer's real exposure to catastrophes.

The last point requires elaboration. Establishing a reserve based on national factors that don't reflect an insurer's actual exposure to catastrophic loss could disrupt the competitive market. Consider a situation where a Florida-only insurer has premiums containing a large catastrophe component and another insurer has a large volume of premium in noncatastrophe- prone states with a small volume in Florida. The second insurer could build a large reserve relatively quickly by taking a percentage of its aggregate premium base and earmarking the resulting reserve for Florida, while the Florida-only insurer could only build a reserve based on its Florida writings.

H.R. 21—The Homeowners' Insurance Availability Act

H.R. 21 represents a much more ambitious attempt to solve the property insurance capacity problem by creating a federal program to provide reinsurance against natural disasters. The bill is a culmination of several past efforts.

The first natural disaster bill was introduced in 1993. In 1995, Sens. Stevens (R-AK) and Inouye (D-HI) introduced S. 1043, which was amended to incorporate the concept of excess of loss (XOL) contract auctions proposed by the Treasury Department. In the 105th Congress, Rep. McCollum (R-FL) introduced H.R. 230, which was largely based on S. 1043. At the same time, Rep. Lazio (R-NY) introduced H.R. 219, which proposed providing federal reinsurance for state funds like those in California, Florida, and Hawaii. Eventually, H.R. 230 was merged into H.R. 219, and the resulting bill is currently known as H.R. 21.

Figure 3 highlights the major provisions of this bill. Proponents of H.R. 21 argue that the bill would:

- Provide immediate relief from capacity problems.
- Limit post-event market dislocation at a reasonable exposure to taxpayers.
- Form a public-private partnership that preserves the primary role of private insurers in the market.
- Mandate actuarially sound and risk-adjusted prices for contracts.
- Have expected positive budget scoring (due to the risk load in the price).

Figure 3—Summary of H.R.21

Creates a federal reinsurance program covering earthquakes and fires following, hurricanes, tsunamis, volcanic eruptions, and tornadoes.

Covers eligible state programs and private insurers/reinsurers.

The secretary of treasury sets minimum contract prices based on recommendations from a National Commission on Catastrophe Risks and Insurance Loss Costs (the Senate companion calls for price recommendations by an Independent Board of Actuaries). The minimum price consists of a risk-based price (loss cost), risk load at least equal to the risk-based price, and an administrative expense load.

Contracts are auctioned in at least six regions, including Florida and California.

Coverage trigger (retention) per region is set at the greater of the difference between a 1-in-100-year and a 1-in-250-year event, the current claims-paying capacity of a state program (state programs only; the trigger could be lowered if the state fund were depleted), and $2 billion$5 billion (as determined by the secretary of the Treasury).

50% of losses in excess of the trigger are covered.

Total program coverage is limited so that losses are unlikely to result in liability that exceeds $25 billion.

The program sunsets in 10 years, with a 5-year extension if necessary.

Mitigation programs are funded from a portion of contract sale proceeds.

In previous drafts, the bill had a $25 billion trigger and $25 billion in capacity for a national contract. This posed two major problems: Many states couldn't have a loss that large, making it difficult to generate widespread support; and many single-state and regional insurers felt the national nature of the contract and the high trigger meant that purchasers would be limited to reinsurers and very large national insurers.

The sponsors attempted to overcome these objections by specifying regional auctions with much lower triggers. Regional auctions, however, carry their own problems, including the possibility that triggers can be set too low (which would crowd out private capital) and the need to allocate the capacity between regions.

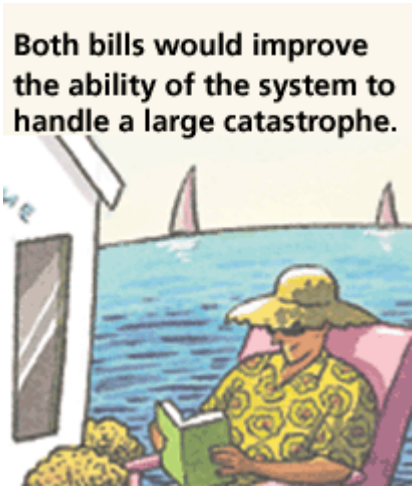
Critics have raised several questions about H.R. 21:

- Will federal reinsurance duplicate private-sector reinsurance and capital market mechanisms?
- How will capacity be allocated between state programs and private insurer auctions?
- Will the bill encourage the creation of state programs and crowd out private capital?
- Will political interference depress prices and expand coverage?

- Will it lead to greater federal involvement in the pricing and underwriting of property insurance?

Conclusions

There's no question that both bills, particularly H.R. 21, have a host of unanswered questions about how they would be implemented. This is partially by design, to give the Treasury Department needed flexibility in administering the program. H.R. 21 has been a "work in progress" for some time, and further changes are likely before the bill or some successor reaches the president's desk. For example, a House committee recently deleted its provision for separate reinsurance of state funds (but preserved their eligibility for XOL auctions), a major change in the structure of the legislation.



Most experts believe that both bills are dead for this Congress, particularly in light of the upcoming elections. However, I believe that some version of one or both bills will eventually become law. There's a strong case for both a change in federal tax law and a high-end federal backstop to reduce post-disaster market chaos. Notwithstanding the opponents' arguments and the proposed legislation's imperfections, both bills would improve the ability of the system to handle a large catastrophe.

Even if both bills were enacted this year and none of the issues noted above emerged as real problems, many difficulties in today's property insurance market would persist. Population growth in high-risk areas continues unabated. Homebuilders and development interests are likely to resist efforts to mandate better building practices. Encouraging consumers to mitigate losses will continue to be difficult due to inadequate information on the condition of individual structures, subsidies for high-risk consumers through residual markets or state funds, and rate regulation

Actuaries have an important role to play in the development and implementation of public-policy initiatives to address this serious national problem.

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