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# **The Case for a Federal Disaster Reinsurance Program**

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HR 21: The Homeowners Insurance Availability Act

Home Insurance Federation of America (HIFA)  
June 1999

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## The Case for a Federal Disaster Reinsurance Program

### What Natural Disasters Cost

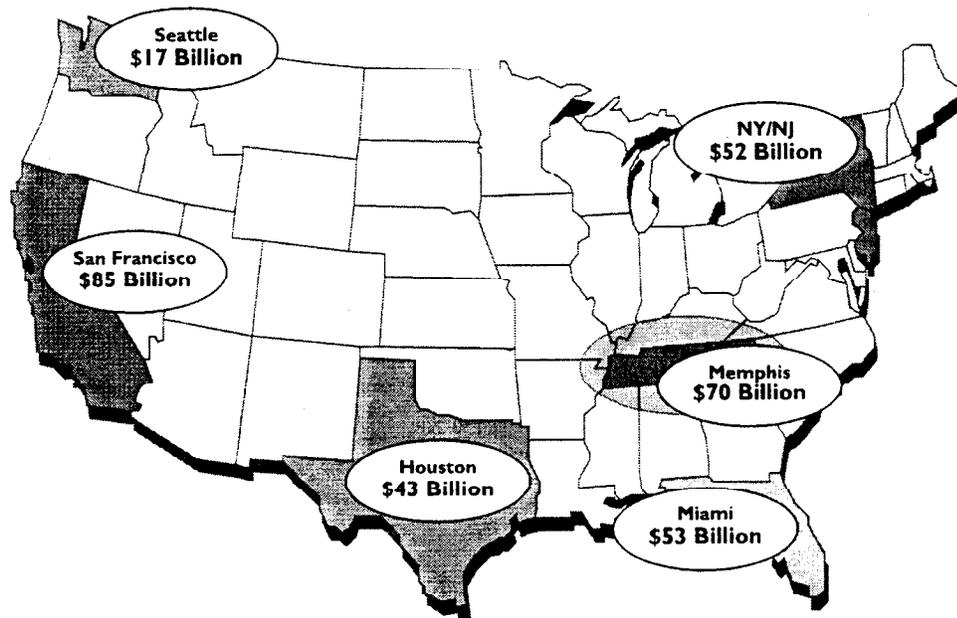
#### The Ten Costliest Insured Catastrophes in U.S. History

<b>Hurricane Georges</b>	1998	\$ 2.5 billion
<b>Hurricane Fran</b>	1996	\$ 1.6 billion
<b>Hailstorms</b>	1995	\$ 1.1 billion
<b>Hurricane Opal</b>	1995	\$ 2.1 billion
<b>Northridge Earthquake</b>	1994	\$12.5 billion
<b>Winter Storms</b>	1993	\$ 1.7 billion
<b>Hurricane Iniki</b>	1992	\$ 1.6 billion
<b>Hurricane Andrew</b>	1992	\$16.5 billion
<b>Oakland Fire</b>	1991	\$ 1.7 billion
<b>Hurricane Hugo</b>	1989	\$ 4.2 billion

Whether it is because of a changing global climate, a huge shift in population to coastal and earthquake-prone areas, or simply a string of bad luck, the United States has experienced an unprecedented rise in the severity and cost of natural disasters.

- Eight of the 10 most costly disasters in American history have occurred in the last 10 years.
- The two worst events, Hurricane Andrew (1992) and the Northridge Earthquake (1994) caused combined insured losses of more than \$28 billion.
- 1998 was the first time ever that there were four hurricanes simultaneously active in the Atlantic.
- More than 400 deaths were attributed to natural disasters in the United States during 1998, while Hurricane Mitch and the Colombian earthquake killed nearly 14,000 in Honduras, Nicaragua, El Salvador and Colombia.
- 1998 was the warmest year, worldwide, ever recorded.

## Potential Costs of Future Natural Disasters



### Disturbing Projections

Perhaps more disturbing than what has happened to date is what *may* occur in the years ahead. Scientists cannot say with precision when a particular event may happen, but they can make educated guesses based on historical records, probability analysis and modeling. They can also calculate the impact of an event by considering population density, real estate values, and the kind of construction typically found in a region.

- Projections for a worst-case event range from more than \$50 billion for a hurricane which strikes Long Island or Miami to more than \$70 billion for an earthquake in the New Madrid region (Missouri/Tennessee), and more than \$80 billion in Northern California.
- As massive as these projections sound, they are *conservative* estimates. In 1995, a moderate-sized earthquake that struck Japan's second largest city, Kobe, caused more than \$100 billion in damages.
- Scientists at the U.S. Geological Survey estimate that the San Francisco area has a 67 percent chance of a major quake by 2020. The last one in 1906 reduced most of the city to burning rubble.
- Hurricane Andrew, with sustained winds of 155 mph, *missed* population centers, as did Hurricane Camille in 1969. Camille battered a relatively sparsely populated shoreline in Louisiana, Alabama and Mississippi with winds over 200 mph and a 24-foot storm surge. Since a comparable event has never struck a major city, experts can only speculate on the likely damage.

## The Rising Costs of Natural Disasters

### Insurance Industry's Combined Ratio For Homeowners Insurance

YEAR	COMBINED RATIO*
1989	108.8
1990	107.8
1991	112.3
1992	155.6
1993	113.5
1994	117.9
1995	112.6
1996	121.7
1997	100.4

\*A combined ratio of 108.8 means that for every \$1 in premium collected insurers paid \$1.08 in claims and expenses. Conversely, a combined ratio of 98.4 means that for every \$1 in premium, the industry paid 98.4 cents in claims and expenses.  
Source: Insurance Information Institute

The rising cost of natural disasters has created a growing problem for the companies that insure America's homes. Natural disasters have seriously eroded the profitability of homeowners insurance coverage. The industry's combined ratio, the amount paid in claims and expenses compared to the premiums collected, has been negative in eight of the last nine years.

The largest homeowners insurance company in the United States, State Farm, lost more than \$3.5 billion in Hurricane Andrew, wiping out the company's *nationwide* surplus. The second largest homeowners insurance company, Allstate, lost \$1.9 billion in the same event, more than all the premiums the company had collected in the state of Florida over the previous 53 years.

The results were even more dramatic in California where insurers collected \$3.4 billion in earthquake insurance premiums from 1970 to 1994, yet paid \$12.5 billion in claims from the Northridge Earthquake in 1994.

## The Problem with Nature's Unpredictability

<b>Actuarial Analysis of a Worst Case Disaster</b>		
<b>IF AN EVENT IS LIKELY TO OCCUR...</b>	<b>IT WILL COST</b>	<b>THE ACTUARIAL PREMIUM FOR FUTURE LOSS SHOULD BE</b> (excluding insurer expense and risk provisions)
Once every 10 years (10%)	\$100 million	\$10 million per year (\$100 million ÷ 10)
Once every 500 years (0.2%)	\$20 billion	\$40 million per year (\$20 billion ÷ 500)

The natural catastrophe problem is unlike problems that arise insuring other types of risk. Losses associated with life insurance, auto coverage or commercial liability are fairly stable and predictable. This allows insurers to factor expected losses into pricing coverage in a way that makes good business sense. By contrast, losses from major catastrophes are highly infrequent, but can be ruinous when they happen. This makes them extremely difficult to price accurately.

For example, in the illustration above, if a \$100 million disaster is expected to occur once every 10 years, the actuarial premium that should be charged is \$10 million ( $\$100 \text{ million} \div 10 \text{ years} = \$10 \text{ million/year}$ ). On the other hand, for an event that occurs once every 500 years and causes \$20 billion in losses, the actuarial premium is only \$40 million ( $\$20 \text{ billion} \div 500 \text{ years} = \$40 \text{ million/year}$ ).

This \$40 million dollars a year is more than sufficient, should the predicted event occur 500 years in the future. However, should the \$20 billion catastrophe occur *next* year, the \$40 million would be woefully inadequate.

Hence, the problem. No one knows for sure when the next colossal catastrophe will occur. Events like Hurricane Andrew or the Northridge earthquake are so much larger than the expected losses that are likely to occur in any given year that insurers cannot collect enough premium in a short enough time to pay all the losses.

## Offering Products Consumers Want

Fifty or 100 years ago, the problem of natural disasters was not as critical to insurance companies. Most people did not live in coastal or earthquake-prone areas. Real estate values were relatively modest, and houses were constructed to better withstand the threats. Perhaps even more significant, insurance coverage was not offered for earthquakes, hurricanes and similar acts of nature.

Today, the situation is vastly different. The standard homeowners insurance policy—mandated by the housing credit markets—includes most natural disaster perils. (Flood insurance and earthquake coverage are separate policies that are added to standard coverage where applicable.)

The dilemma for insurers is how to offer a product that consumers want and real estate markets demand, but which is characterized by huge swings in profitability that in worst cases threatens the insurer's survival.

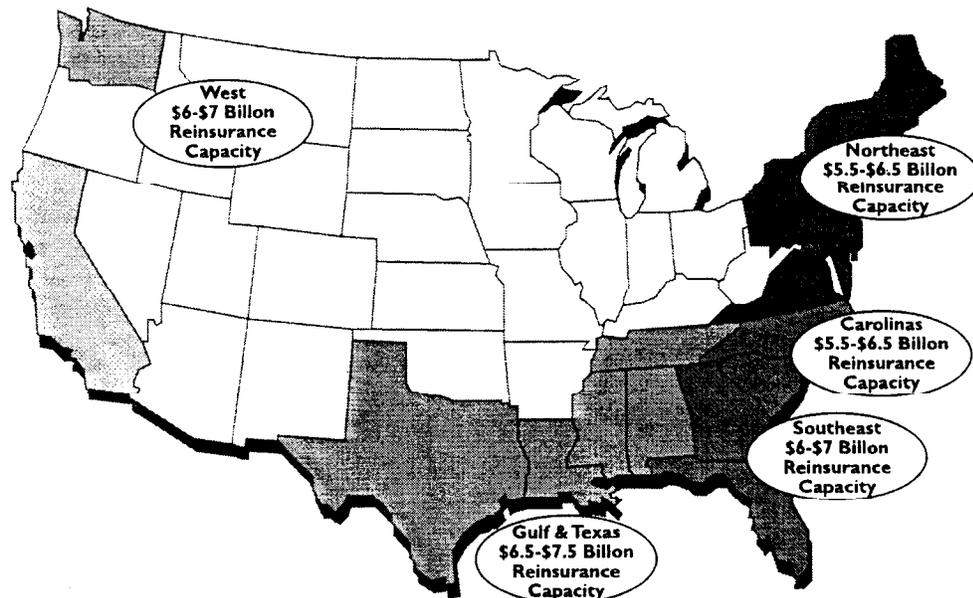


*Hurricane Andrew, 1992 (NOAA)*

## How Reinsurance Works

### Why the Traditional Reinsurance Process Isn't Working

#### Reinsurance Availability



The traditional tool that insurers have used to manage unpredictable risks is reinsurance, literally the insurance of insurance. In return for a percentage of the premium it collects, an insurer is able to transfer a portion of its risk to a reinsurance entity, which, in turn, is obligated to reimburse the insurance company for losses that exceed certain predetermined levels. Reinsurance is a valuable financial tool, but there are limits to its usefulness, due to cost and availability.

- In practice, private reinsurance capacity in any given disaster-prone region of the United States is in the range of \$6 to \$10 billion.
- But, even this capacity is allocated among all lines of property exposure so that the amount available to cover *homeowners* insurance is closer to the range of \$3 to \$6 billion.
- There is simply not enough private reinsurance available for insurers to adequately manage the risk of worst-case disasters.

## Private Reinsurance has its Limits

### California Earthquake Authority: A Case Study

<b>Potential Exposure</b>	\$162 billion
<b>Total CEA Premiums</b>	\$783 million
<b>Reinsurance Purchased</b>	\$2.508 billion
<b>Total Cost of Reinsurance</b>	\$591 million
<b>Total CEA Claims-Paying Capacity</b>	\$7.2 billion

The limits of private insurance are best illustrated by the largest layer of reinsurance purchased anywhere in the world—the \$2.5 billion of coverage provided to the California Earthquake Authority (CEA). Established by the California legislature when the private market for earthquake coverage disappeared after the 1994 Northridge Earthquake, the CEA provides earthquake coverage to more than 75 percent of the state's homeowners insurance market.

The CEA collects an actuarially sound premium from consumers, which was \$783 million in 1997 and 1998 combined. This premium level reflects the best estimates from experts on the probability and cost of future disasters. Even though rates charged by the CEA are much higher than the private market rates before Northridge, the CEA spent 75 percent of its 1997 and 1998 gross revenues to purchase \$2.5 billion in reinsurance coverage. The CEA's claims-paying capacity stands at \$7.2 billion, so this reinsurance provides only 35 percent of the CEA's claims paying capacity.

## How Reinsurance is Priced

### **A Closer Look at a CEA Reinsurance Contract “The Warren Buffet Layer”**

**\$1.075 billion of reinsurance coverage**

**\$115 million premium**

**1 percent risk of claim**

The differences between pricing reinsurance and primary insurance are dramatically illustrated by a closer examination of one of the CEA's reinsurance contracts.

Consider the deal between the CEA and financier Warren Buffett. Mr. Buffett sells the CEA slightly more than \$1 billion of reinsurance coverage, for which he charges an annual premium of \$115 million\*. That figure represents a return on his capital at risk of approximately 13 percent—a reasonable return and certainly not out of line considering his investment alternatives.

Buffet's 13 percent return, while justifiable by capital market standards, is high relative to the probability of a reinsurance claim. This risk is estimated at one claim per 100 years (1 percent). In other words, if the loss history of the CEA performs as expected, Buffet will theoretically earn \$115 million in premium each year for 99 years, plus additional investment income, while paying a \$1 billion reinsurance claim only once.

An insurance regulator would never allow an insurance company to charge rates to consumers based on the same premise, since doing so would amount to a premium that is more than 10 times the loss which can reasonably be expected to occur in any given year. The regulator would be more inclined to allow a primary rate equal to the \$10.75 million average loss, plus factors for reasonable operating expenses and profit.

The CEA example illustrates the problems faced in any property insurance market prone to low-frequency, high-cost disasters. Contrary to actuarial principles, limits are imposed by regulatory and market realities on the premium that can be collected from consumers for events that occur only rarely. Though regulatory and market constraints allow a premium that is more than sufficient to cover losses in most years, on very rare occasions a loss many times the statistical average can occur. Reinsurers are not willing to cover losses at these levels for anything less than a rate of return comparable to what could be earned in other investments. And, this rate of return is many times higher than what is being collected by the primary insurer. Consequently, the primary insurer can afford to reinsure only a small fraction of its worst-case exposure.

*\*The annual \$115 million premium was earned for coverage made available over a four-year period.*

*A fifth year has recently been added at \$64.5 million.*

## Private Reinsurance Can't Meet the Need

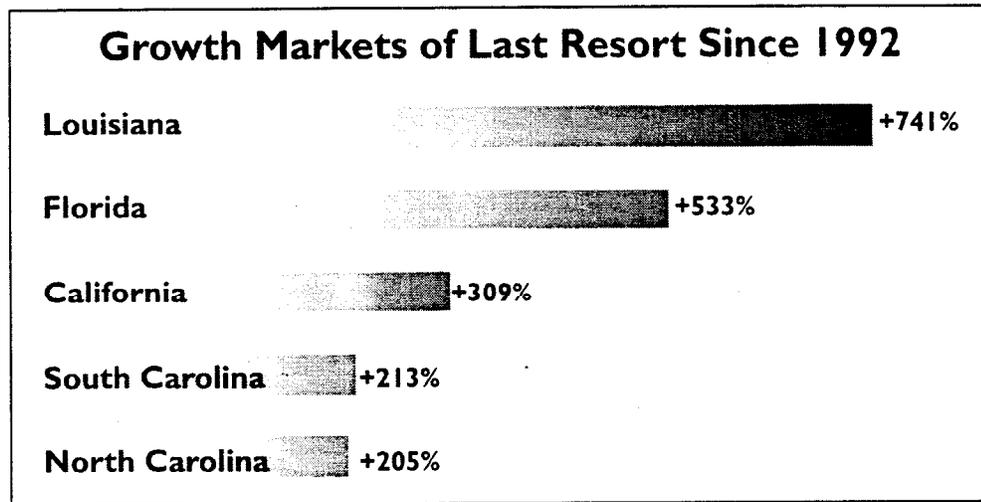
Some have suggested that new developments in the financial markets will someday supplant private reinsurance capacity. While there has been some progress to date, the number of financial market transactions have been few and the costs comparable to alternatives that have been around for years.

- Only one major catastrophe bond deal of any consequence has been transacted over the last two years—USAA's \$500 million cat bond offering—and no other deals have been structured by major homeowners' insurance companies.
- Activity in catastrophe futures at the Chicago Board of Trade has not grown significantly since 1992 because of the lack of sellers.
- Despite more than 300 listings posted at the Catastrophe Risk Exchange since 1996, the vast bulk of transactions has been small and inconsequential.
- Growth in "capital market natural catastrophe risk transfer" products is limited by the same forces plaguing traditional reinsurance sectors—the relatively high opportunity costs of capital compared to the manner in which primary insurance is priced.



*Hurricane Andrew, 1992 (NOAA)*

## Insurance Needs in Risk-Prone Regions



By the year 2010, it is projected that 75 percent of the U.S. population will live within 60 miles of a coastline. Faced with the prospect of growing concentrations of people and property in risk-prone regions, the likelihood of even higher losses from future disasters and the inability of private reinsurance and capital markets to manage a greater proportion of the risk, insurers are seeking alternative ways to reduce exposures.

- State residual markets of last resort for homeowners unable to find coverage from insurance companies have grown at high rates through 1997. Figures for 1998, when they become available, are likely to show the trend continuing.
- In Florida, the collective value of properties covered by the state joint underwriting authority (JUA) is more than \$70 billion.
- In California, following the huge losses from the Northridge Earthquake, insurers that wrote 96 percent of the homeowners premiums in the state during 1995 stopped underwriting *any* new homeowners insurance policies, a situation only resolved by the creation of the CEA.
- In Hawaii, virtually the entire market for coverage against hurricanes disappeared in the aftermath of Hurricane Iniki, a situation remedied only by the creation of the Hawaii Hurricane Relief Fund.
- In North Carolina, the state hurricane "wind pool" has been expanded three times and now includes 18 counties of the state. The geographic boundary of the program now includes properties located as far as 70 miles from the Atlantic coastline.

## States Step In

Three states have intervened to prevent a complete meltdown in private homeowners insurance markets.

- In 1993, the Florida Legislature created the Florida Hurricane Catastrophe Fund, a state operated reinsurance mechanism that provides insurers a lower-cost, more comprehensive reinsurance backstop against hurricanes than is available in the private market. The Fund collects more than \$450 million per year from insurers doing business in the state. The assessments are placed in a state-managed, tax-exempt fund and held in reserve for claims from future storms.
- In 1994, the state of Hawaii created the Hawaii Hurricane Relief Fund, a state-managed entity that has become nearly the sole source of hurricane insurance coverage for homeowners in the state. The fund, which is publicly managed, relies on a combination of insurance industry assessments, user fees and private reinsurance to cover anticipated losses.
- In California, the Governor and state legislature enacted the California Earthquake Authority (CEA) in 1996, a state owned and operated venture which includes the voluntary participation of companies with total homeowners market share greater than 70 percent. The CEA provides insurance coverage for shake damage caused by earthquakes to any state resident wishing to buy the protection. The CEA relies on assessments from participating insurers of more than \$4 billion, plus private reinsurance and policyholder assessments to cover the bulk of expected losses.



*Temporary housing during the 1994 Northridge Earthquake  
(Federal Emergency Management Agency)*

## State Reinsurance Plays Important Role

### Capacity of State Insurance Programs is Limited

<b>California Earthquake Authority (CEA)</b>	\$7.5 billion
<b>Florida Catastrophe Fund (FCF)</b>	\$16 billion
<b>Hawaii Hurricane Relief Fund</b>	\$1.75 billion

It is important to emphasize that without state-backed programs, homeowners insurance markets in these regions would remain highly dysfunctional. Nevertheless, no state program has the financial resources, or a sufficient backstop from private reinsurers, to cover worst-case events.

- The Florida fund can presently cover a storm of approximately \$16 billion, which equates to an event likely to occur once every 70 years. A worst-case Florida storm is projected at nearly \$60 billion.
- The Hawaii fund can only cover a storm that causes losses of \$1.75 billion. By contrast, a worst-case storm that hits Honolulu is expected to inflict up to \$20 billion in losses. Policyholders with claims exceeding the capacity of the fund would receive prorated payments on their losses.
- In California, the CEA has the financial resources to cover up to a 400-year event (\$7 billion), but must pro-rate claims for losses that exceed these levels.

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## Solutions to the Catastrophe Insurance Problem

### Options for Funding Natural Disasters

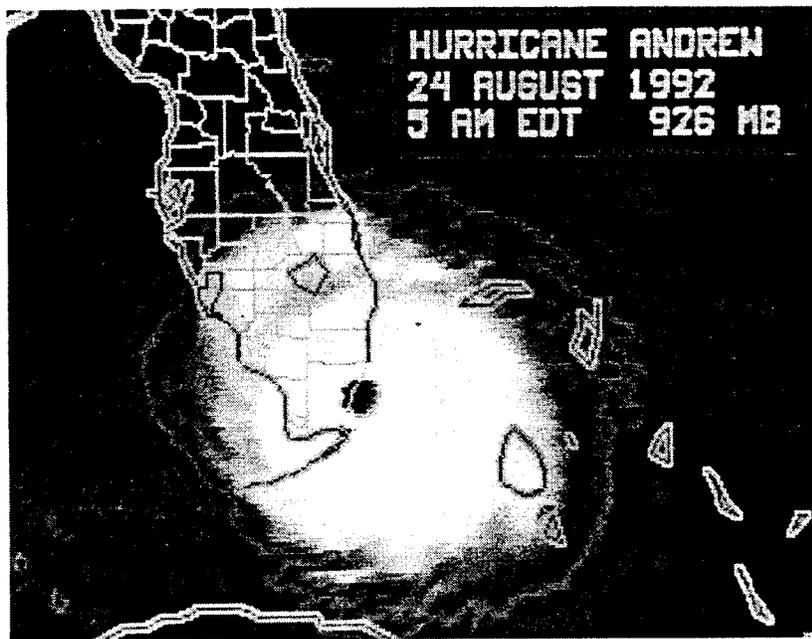


Individual property owners, insurance companies, capital markets, reinsurers, and state and local governments should all bear a certain amount of responsibility for future disaster costs.

- Insurance companies are in the business of helping consumers rebuild from the ravages of nature.
- Capital markets always seek profitable investment opportunities and reinsurers earn money by providing viable products that their insurance customers need and can afford.
- States and localities have taken steps to assure the availability of homeowners insurance where it would not otherwise be available.
- Consumers have been forced to assume a higher burden of disaster losses through higher premiums and less generous coverage.
- In Florida, homeowners insurance rates increased more than 80 percent from the date of Hurricane Andrew in 1992 until January 1997.
- In California, earthquake insurance deductibles are 15 percent. Coverage for contents, additional living expenses after a loss, and for unattached structures has been nearly eliminated, placing an increased burden on individual property owners.

But there are also limits to what any of these entities and consumers can do.

- Insurance companies cannot be expected to cover losses if, over the long run, the business is not profitable.
- Capital markets and reinsurers similarly cannot sell a product that does not return a profit commensurate with other investment alternatives.
- The tax base in any given state or community will never be large enough to shoulder the burden of a mega-catastrophe alone.
- There is a limit to what consumers can reasonably pay for coverage from an event that in all probability will not occur in their lifetime.
- If deductions are too large and prices too high, insurance no longer becomes a practical alternative for managing risk.



*Hurricane Andrew, 1992 (NOAA)*

## Option 1: Let Private Markets Handle It



*Hurricane Andrew, 1992 (NOAA)*

As a matter of public policy, what should we do? One alternative is to allow the private market to proceed as it has been doing. Under this scenario, the price of homeowners insurance will continue to rise, benefits will erode, and the trend towards reduced insurance market capacity will accelerate.

From an economic standpoint, these developments would be a logical reaction to a business model that does not appear viable in the face of the potential losses from a worst-case catastrophe.

If consumers cannot find appropriate insurance coverage, or if insurance companies do not wish to sell it, what is the harm?

- None at all, so long as major disaster losses do not occur.
- Realtors, mortgage lenders, insurance companies, reinsurers, state governments and consumers will all find a way to keep going while ignoring the possibility of a major event.
- Such was the case in Japan. After a devastating quake that nearly wiped out Tokyo in the 1920's, insurance companies generally abandoned the market, the government was content with the status quo and there was no uproar from consumers. All went well until 1995 when a major quake struck Japan's second largest city, Kobe. Losses totaled more than \$100 billion. Less than 1 percent of the loss was insured. The burden of rebuilding focused almost exclusively on devastated victims and the government of Japan.

## The Price of Doing Nothing



Northridge Earthquake 1994 (Federal Emergency Management Agency)

If we do nothing, no one will particularly notice or care *until* the inevitable happens. When it does, the cost of ignoring the problem will suddenly come due with interest.

- Insurers will fail in record numbers, leaving their customers with potentially unpaid claims.
- Guaranty funds, designed to protect against the occasional failure of an insurer will be overwhelmed, triggering even more defaults.
- Reinsurance will cover only a part of the loss, and following a historical pattern, the cost of reinsurance will explode, causing further contractions in the primary insurance market.
- State programs will be overwhelmed, leaving policyholders no right of redress and likely to be reimbursed for only a portion of their claims.
- Worst of all, those homeowners who could neither find adequate coverage or afford it will find themselves in the midst of a personal catastrophe from which they will have no means to recover on their own.
- Who will be called upon when there is no one left to take care of this mess? The federal government, of course.

## Why We Must Prepare



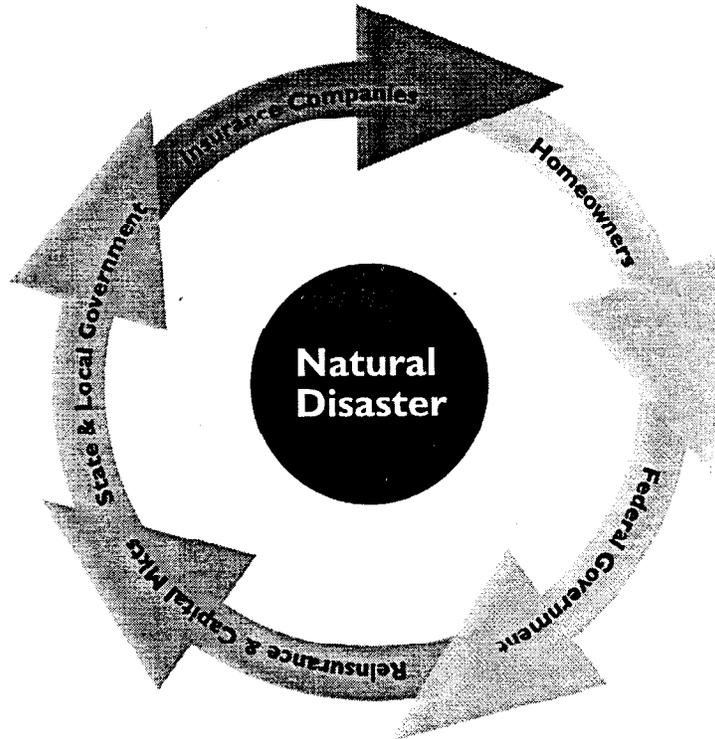
*Northridge Earthquake 1994 (Federal Emergency Management Agency)*

The President, the Congress and the American people will not tolerate a crisis with such a large and staggering human and economic toll. Indeed, much as it would if the attack had come from a missile or bomb, the federal government will immediately step into action, regardless of the cost.

This is as it should be, since it is precisely for such purposes that a federal government exists...to work in the public interest when there is no one better suited to perform the task. And yet, we pay a huge price for this "after-the-fact" solution.

- Because we have not prepared in advance, the costs will be much higher.
- Because the federal government cannot absorb the entire loss, many families will be ruined financially.
- The secondary effect on mortgage markets, banking and financial institutions and real estate values will be extremely severe.
- The private homeowners insurance market may be permanently ruined.
- And, the bulk of recovery costs will be borne nationally by taxpayers who live nowhere near the disaster site.

## Option 2: Federal Reinsurance

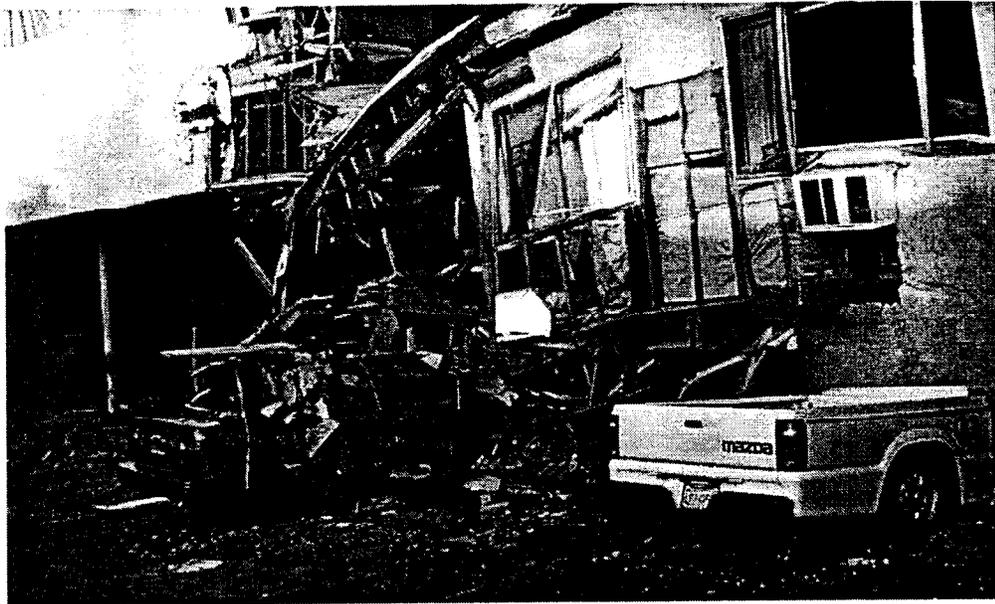


There is a better way. The federal government can encourage every other entity to take on as much of the burden as can reasonably be expected, and then, where there are gaps, use its unique power and capacity to finish the job.

- Insurers are more than able to cover the lion's share of losses from natural catastrophes. It is only the very large and extremely rare events that pose the problem.
- Reinsurers and capital markets are constantly evolving to serve their customers more efficiently. A portion of disaster losses will always be absorbed by these mechanisms.
- Where private insurance markets are not sufficient and reinsurance capacity inadequate, state insurance regulators are the logical first line of defense for consumers, and they have shown a willingness to respond when needed.
- Thus, it is only the rare and extremely large disaster that poses the problem. Leave this problem unresolved and the entire safety net crumbles for everyone. Insurers abandon markets. Consumers go without protection. Underfinanced state solutions are poised for failure.

## The HR 21 Solution

### What it is, How it Works



*Northridge Earthquake 1994 (Federal Emergency Management Agency)*

HR 21, the Homeowners Insurance Availability Act, is the logical answer to how the federal government can be responsive. This legislation seeks to encourage the private insurance industry, capital markets, reinsurers, state government, consumers and the federal government to collectively shoulder the burden of natural disaster risk.

It does this by ignoring the bulk of natural disasters, and stepping in only for those rare events that exceed the reasonable financial limits of market forces and state governments. For these catastrophic events, the federal government will *share* the risk by selling actuarially priced reinsurance that is either not presently available in the private marketplace or cannot reasonably be expected to be offered in the private marketplace in the foreseeable future.

Under HR 21:

- Reinsurance pricing will initially be set by a group of independent experts.
- Coverage will be offered to *qualified* state insurance programs and to the private market on a voluntary basis in two ways:
  - Private insurers, reinsurers and other entities may purchase coverage via competitive auctions, which will be conducted regionally to provide comparable benefits in all parts of the United States. Coverage will be sold to the highest bidders at each auction to assure the best price to the government.
  - Qualified state programs may purchase coverage directly from the government for events that *exceed* the state's claims-paying capacity.
- Federal reinsurance will only be offered for events that exceed the capacity of private insurance markets and state programs. These are events that are expected to occur less than once every 100 years (1 percent) in a particular state or region, but in no case cause less than \$2 billion in damages.
- In most cases, the 100-year threshold is extremely high. For example, the figure for Florida is \$21 billion. In fact, the threshold is so high that there has not yet been an event in this century that would have qualified for federal reinsurance anywhere as contemplated under HR 21.
- It is important to note that the 100-year threshold is not the same in every part of the country. The federal program is designed to recognize these differences.

"The market for securitized catastrophic risk is in its early days yet. This market still only represents, at most, a small portion of the domestic catastrophic insurance market as a whole. So important gaps and problems remain a feature of today's markets. Notably: reinsurance and cat market prices are still high and purchases of high-level protection is limited. On balance, we believe that these considerations constitute a strong case for prudent participation of the federal government in the market for disaster reinsurance ..."

Lawrence Summers  
Deputy Secretary of the Treasury

## How It Would Work

### Determining the Cost

Under the provisions of HR 21, the Secretary of the Treasury would establish an advisory commission of actuarial experts to help determine prices for federal reinsurance. The secretary would have final pricing authority, except that the prices could not be less than levels recommended by the commission. There would be three components to pricing:

- **Risk-based price.** A sum that reflects the anticipated annualized payout of the contract according to actuarial analysis and commission recommendations, *plus*
- **Risk-load.** An amount that is not less than the risk-based price, *plus*
- **Administrative costs.** A sum sufficient to provide for the operation of the commission and the administrative expenses incurred by the Secretary.

### Federal Reinsurance for State Programs

Under HR 21, state-run programs such as the CEA, FHCF and HHRF would be able to purchase reinsurance coverage for events that exceed their claims-paying capacity. This means that the state's "retained losses"—the minimum amount it must pay out before federal reinsurance kicks in—would be based on an amount that is the greater of:

- \$2 billion
- The claims-paying capacity of the eligible state program as determined by the Secretary, or
- An amount determined by the Secretary that is sufficient to cover eligible losses in the state during a 12-month period for all events having a likelihood of occurring once every 100 years.

### A Scenario for Regional Auctions

In a regional auction, the trigger for federal reinsurance is tied to the residential insured loss likely to occur once every 100 years. Experts advising the Secretary of the Treasury would estimate the 100-year loss threshold in each region.

It is also up to the Secretary to determine how many contracts will be sold at each auction, and the states that will comprise a particular region. The law requires the Secretary to conduct at least six regional auctions per year, including separate auctions for the states of Florida and California.

The total payout cannot exceed \$25 billion per year from all contracts sold nationwide. If there were a particularly bad year, available funds would be distributed proportionately. However, the statistical probability of such an occurrence is in the range of 1/10,000.

## Establishing a Price

Let us assume that for the Pacific Northwest, the Secretary decides to auction 1,000 contracts, each with a value of \$20 million. For illustration purposes only, we will assume that a 100-year event in the region is \$4 billion. Here are the pricing steps:

- Using input from actuaries and other experts, the Secretary determines the number and severity of catastrophes that are anticipated to occur in the region above the 100-year threshold. There will be many years when there are no losses, and there may be one or two years when losses might be very large. The *average* of these losses is known as the *average annual loss* (AAL) and is the first step in determining a risk-based price for each reinsurance contract.

For our example, we will assume that the AAL in the Pacific Northwest for events that exceed \$4 billion is \$100 million per year. The risk-based price for each contract then becomes a simple calculation.

**Step One: Determine  
Risk-Based Price**

$$\begin{array}{r} \$100 \text{ million (AAL)} \\ \div 1,000 \text{ contracts} \\ \hline \mathbf{\$100,000 \text{ per contract}} \end{array}$$

- Next, the Secretary must add an additional charge or "load" in an effort to collect enough premium if a catastrophe occurs sooner than expected. This load factor must be at least as high as the AAL. Thus, the \$100,000 figure established in the first step is doubled to at least \$200,000.

**Step Two: Add Load**

$$\begin{array}{r} \$100,000 \text{ (from first step)} \\ + \underline{\$100,000 \text{ (load)}} \\ \hline \text{subtotal} = \mathbf{\$200,000} \end{array}$$

- Finally, the Secretary adds an additional cost to reflect the administrative expense of running the federal reinsurance program. For illustrative purposes, we will assume these administrative costs add 5 percent to the cost of each contract, or approximately \$10,000. Therefore, the *minimum* bid price of each contract sold in the Pacific Northwest auction would be no less than \$210,000.

**Step Three: Add  
Administrative Costs**

$$\begin{array}{r} \$200,000 \text{ (from second step)} \\ + \underline{\$10,000 \text{ (5\% of subtotal)}} \\ \hline = \mathbf{\$210,000} \end{array}$$

Through the auction process, it is likely that the price of federal reinsurance contracts would rise as insurers, reinsurers and other investors competitively bid. Thus, while \$210,000 might be the opening price for each contract, it is possible that the final price would be considerably more.

## After a Catastrophe

To collect federal reinsurance, it would be necessary for a catastrophic event to occur in the Pacific Northwest during the one-year contract term, which causes losses that exceed the 100-year trigger threshold (\$4 billion).

For purposes of our example, let us assume that all the contracts have been sold, and an event occurs in the Pacific Northwest that causes \$7 billion in total residential insured losses. According to the calculations described below, the portion of the total loss eligible for federal reinsurance coverage would be \$3 billion:

$$\begin{aligned} & \$7 \text{ billion (insured losses from catastrophe)} \\ - & \text{ \$4 billion (trigger for federal reinsurance) } \\ = & \text{ **\$3 billion** (losses eligible for federal reinsurance) } \end{aligned}$$

Each federal contract covers 50 percent of eligible losses—in this case, 50 percent of \$3 billion. So, since there were 1,000 contracts sold at auction, each contract would have a value of \$1.5 million based upon the following calculation:

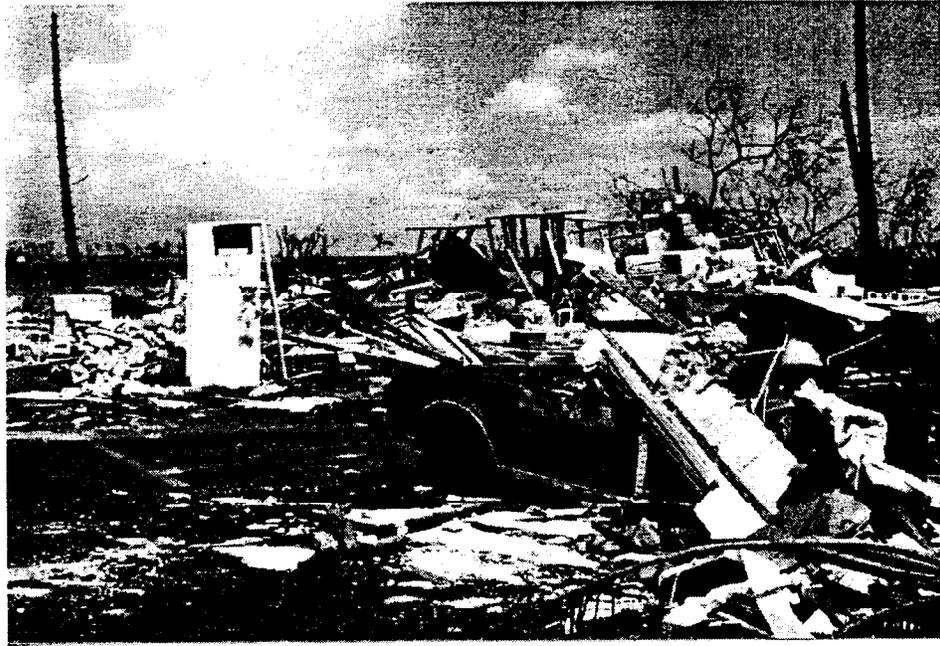
$$\begin{aligned} & \$3 \text{ billion eligible losses} \\ & \text{ X 50% } \\ = & \text{ **\$1.5 billion** (total payout for all federal contracts) } \\ \div & \text{ 1,000 contracts sold at auction } \\ = & \text{ **\$1,500,000 payout per contract** } \end{aligned}$$

Using this example, an insurer that purchased 100 contracts would be able to make federal reinsurance claims of \$150 million (\$1,500,000 x 100).



*Northridge Earthquake 1994 (Federal Emergency Management Agency)*

## Safeguards to Encourage and Promote Private Markets



*Hurricane Andrew, 1992 (NOAA)*

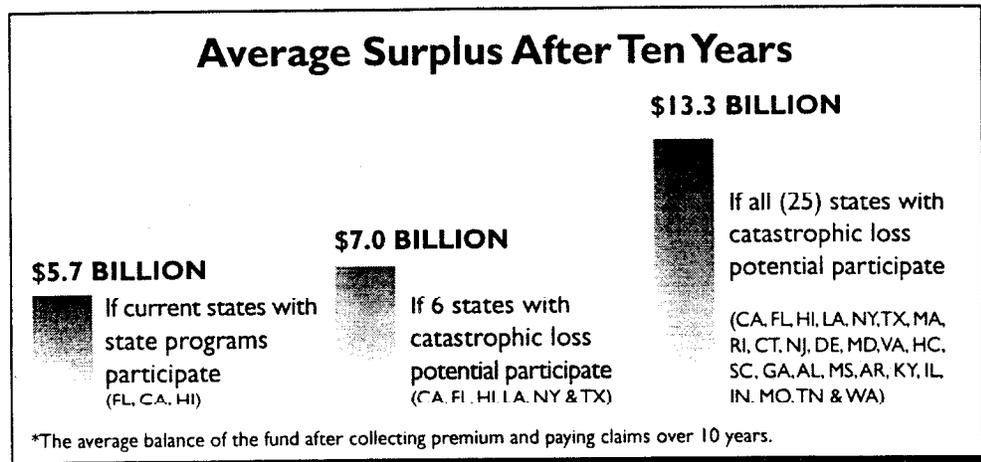
The federal reinsurance offered by HR 21 is not intended to replace or compete with private insurance or reinsurance markets. In fact, it is hoped that the federal program will actually *encourage* the private market to absorb an even greater share of catastrophe exposures over time.

The best analogy might be federal backing of private mortgage securities. An unheard of concept thirty years ago, Congressional support led to a stable and thriving secondary market for mortgage-backed investments that has increased homeownership and the affordability of housing across the United States.

### Key Features:

- Reinsurance contracts sold at auction are fully transferable and divisible.
- The goal is to create an active secondary market that will ultimately attract new sources of investment capital.
- The Secretary of the Treasury cannot sell contracts at prices or levels of coverage that are duplicated in the private market.
- Federal reinsurance will only cover 50 percent of eligible losses, forcing those who buy the coverage to seek alternative sources to cover the balance of their risk.
- The program includes an automatic 10-year sunset provided new sources of capital develop to supplant federal coverage.

## A Common-sense Approach



H.R. 21 is a common sense approach to preparing for future disasters.

- It charges actuarially based premiums to those states and insurance markets where extreme future losses are most likely.
- Those premiums accumulate in a federal disaster trust fund that build over time (tax-free) in a manner that pre-funds possible future claims.
- When claims do occur, they are paid for from accumulated premiums, not general tax revenues. In this way, those at risk pay for their protection directly, instead of relying on taxpayers that do not live in risk-prone areas.
- Studies show that the federal reinsurance program is most likely to generate a federal budgetary surplus over time.

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**Who supports H.R. 21?**

Insurance Companies and Organizations:

- State Farm Insurance
- Allstate Insurance
- Farmers Insurance
- SAFECO Insurance
- Met Life Auto & Home
- The Hartford
- Chubb Insurance
- Independent Insurance Agents of America
- National Association of Independent Insurers

Financial and Real Estate Organizations:

- Washington Mutual
- Western League of Savings Institutions
- National Association of Homebuilders
- National Association of Realtors
- Fannie Mae
- Freddie Mac

Government Leaders:

- Deputy Treasury Secretary Lawrence Summers
- Insurance Commissioners from New York, California, Florida, Louisiana, etc.
- House Banking Committee Chairman Jim Leach
- House Banking Committee Ranking Minority Member John LaFalce

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## Q&A

### Frequently Asked Questions About HR 21

#### How do auctions work?

The Treasury will conduct at least six auctions per year. Each auction will target a part of the country prone to potentially catastrophic disasters.

For each region, the department will determine the appropriate level at which federal reinsurance will be available. This level or "index" will be defined for each region, but the Secretary is guided by certain requirements.

The index cannot be set at levels below which the probability of an event is 1 percent. In other words, federal reinsurance will only be available for events that occur less than once every 100 years. The index also cannot compete with levels of coverage typically offered in private reinsurance markets.

Once the regional index is established, the Secretary will set an appropriate minimum bid or reserve price for each contract. The Treasury Department will determine the precise number and denominations of contracts in a region, but the total value of *all* contracts cannot exceed \$25 billion. Interested parties, including insurance companies, reinsurers and other investors may submit bids above the reserve price for any of the contracts offered for sale.

If a catastrophe occurs in the region during the contract term and insured losses exceed the minimum levels established as the index, the owner of a reinsurance contract is entitled to payment according to a predetermined formula. That formula is designed to pay 50 percent of losses that exceed the index.

For example, Company "A" purchases a federal reinsurance contract for natural disasters that might occur in the region above an index of \$10 billion. An earthquake occurs that causes \$14 billion in insured losses. Consequently, the loss above the \$10 billion index is \$4 billion. Fifty percent or \$2 billion of this loss is covered by federal reinsurance, which is allocated proportionately among owners of federal reinsurance contracts including Company "A."

#### Why can state insurance programs buy directly from the federal government instead of participating in the auctions?

The public interest would not be served by state-governed entities competing with one another for a limited number of federal contracts. In addition, since states vary in population and disaster risk, certain states would be able to dominate the auctions at the expense of their smaller rivals.

### **Won't the bill encourage the proliferation of state programs?**

It is unlikely. Unless there is a private insurance market crisis, there is little incentive for a state to create a program. In fact, it is hoped that the regional auctions made available by the Treasury Department will obviate the need for additional state programs

To date, only three states have created such plans, in large part because of the failure of the private homeowners insurance market. There are also certain eligibility criteria *before* a state program can qualify for federal reinsurance.

These include:

- A finding by state regulators that the program is necessary to provide continuing coverage for consumers.
- The program is operated as a not-for-profit, tax-exempt organization.
- All surpluses are retained for future events that may occur.
- Ten percent of the program's net income is used for programs that reduce the cost of future disasters.
- The program does not involve cross-subsidies.
- Premiums charged by the program reflect full actuarial costs.
- Publicly appointed representatives administer the program.
- Coverage made available by the program does not compete with coverage available in the private market.
- Coverage is available on a non-discriminatory basis.
- The state has building codes consistent with recommendations by FEMA.
- The state has laws to prohibit price gouging following a major disaster.

### **Why not let disaster-prone states and insurance companies fend for themselves?**

This question is often posed rhetorically by asking, "What's in it for Wisconsin or Iowa?" The fact is that the biggest risk to U.S. taxpayers is the growing population of uninsured or underinsured homeowners in coastal areas and earthquake zones. That is because, if a large event does occur, uninsured victims will almost surely demand federal relief. Under such a scenario, taxpayers across America, regardless of where they live, will pay for this relief. It is far better to assure that insurance markets are functioning properly in these high-risk areas. Federal disaster assistance is directly offset by private insurance claims. A program that assures a solvent and well-functioning market in disaster-prone areas reduces the problem of uninsured victims demanding government handouts.

### **What about the risk to taxpayers from an event, which exceeds the financial capacity of the federal reinsurance program?**

Under HR 21, the regions most likely to need government assistance will be paying into a system to *pre-fund* a large share of the costs and preserve private insurance markets. Should losses occur that exceed the financial capacity of the federal reinsurance (highly unlikely since *no* event in U.S. history has yet to cause losses sufficient enough to trigger the program), the Treasury may issue bonds to raise sufficient capital, which must be repaid with interest from future premiums. This is far preferable to a "do-nothing" approach that will force the government to allocate funds through disaster relief programs which pose no possibility of being pre-funded or repaid.

### **I've heard that the insurance industry has a \$300 billion surplus. Why can't they cover these events out of their own pockets?**

The \$300 billion surplus figure applies to all types of insurance, not *homeowners* insurance. In fact, only about 10 percent of insurance industry premiums cover exposures to residential property. The truth is that the amount of surplus that can be reasonably allocated to residential property exposures is closer to \$30 billion than \$300 billion. And, this figure applies to policies sold throughout the United States. The amount of surplus backing insurers who write in specific parts of the country is much lower.



Hurricane Georges, 1998 (NOAA)