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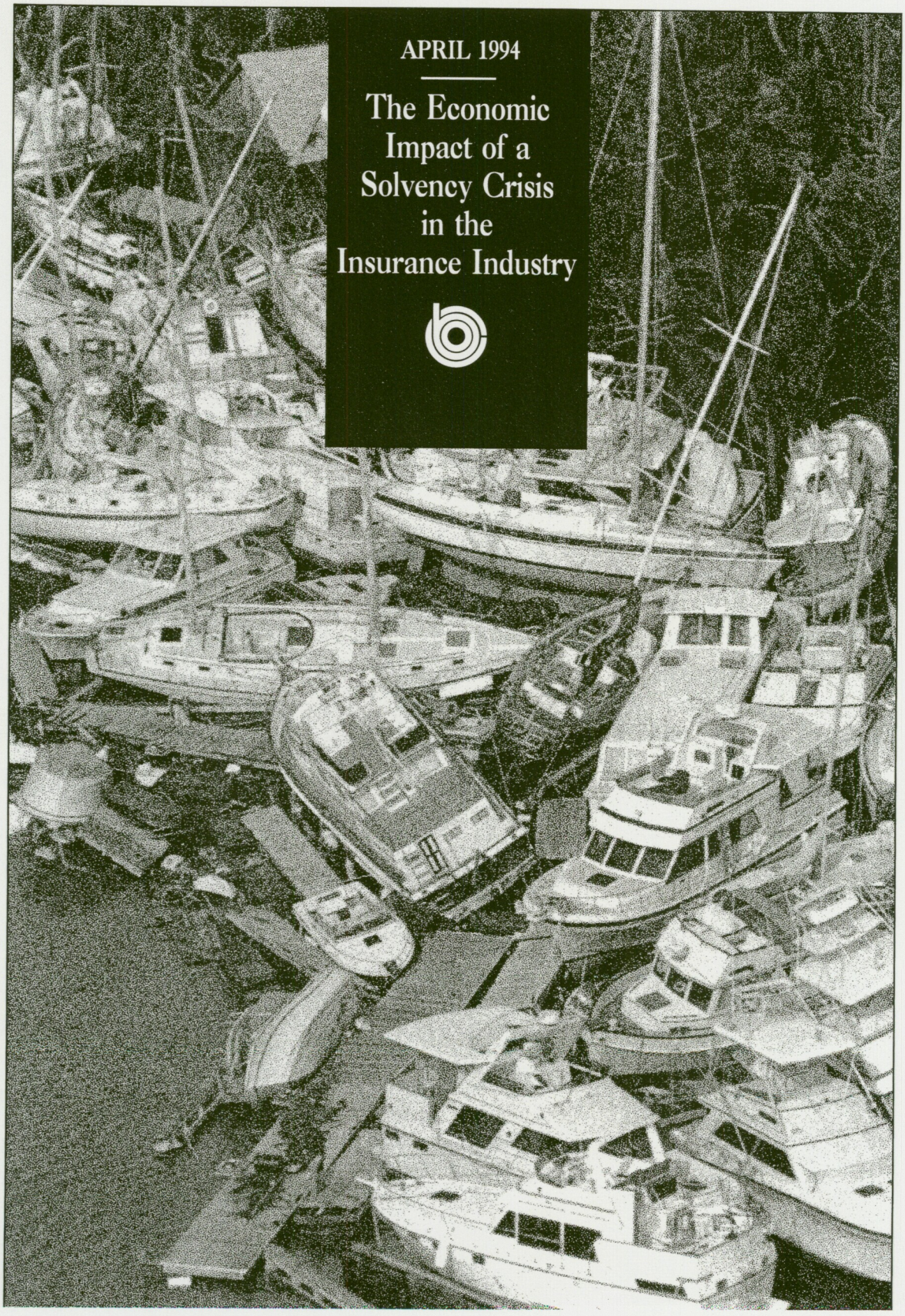

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# The Economic Impact of a Solvency Crisis in the Insurance Industry

# THE ECONOMIC IMPACT OF A SOLVENCY CRISIS IN THE INSURANCE INDUSTRY

The Congress of the United States
Congressional Budget Office

## NOTES

Unless otherwise indicated, all years are calendar years.

Numbers in the text and tables of this report may not add to totals because of rounding.

Cover photo: Pleasure boats in South Carolina wrecked by Hurricane Hugo in September 1989 (Reuters/Bettmann).

# Preface

With the savings and loan crisis and the problems of the banking industry fresh in its mind, the Congress has focused its attention in recent years on the financial problems in the insurance industry. The House Banking Committee requested that the Congressional Budget Office (CBO) examine what would happen to the economy in general and the financial system in particular if the insurance industry experienced a solvency crisis. This study addresses those issues.

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# Summary

During the past decade, the savings and loan crisis and the problems of the banking industry have focused the public's attention on the financial problems in the insurance industry and their implications for the overall economy. The life insurance industry suffered from some of the same competitive forces that hurt the savings and loan and banking industries. The property and casualty insurance industry experienced heavy losses on its underwriting activities. As a result, the number and size of insurance insolvencies have multiplied.

The financial problems of the insurance industry are now considerably smaller than those that existed in the savings and loan industry during the 1980s. Nevertheless, policymakers worry about what would happen to the economy in general and the financial system in particular if the financial problems of the insurance industry were to mushroom into a solvency crisis.

What is a solvency crisis--as opposed to the solvency problems that typically occur in a given year? The best way to answer this question is by referring to the extent of the damage to overall economic activity. Routine solvency problems do not have a significant impact on the overall economy. They are small in number and size, and state guaranty funds are able to fulfill their obligations to the policyholders of the insolvent insurers. A solvency crisis would have to be much more serious than that. It would have to swamp the capacity of the state guaranty funds and be large enough to disrupt established patterns in financial markets, thus harming the overall economy, as did the solvency crisis in the savings and loan industry.

This study considers the likely impacts to the overall economy if a solvency crisis arose in the insurance industry. It does not evaluate the likelihood of such a crisis. It hypothetically assumes a crisis and then lays out what the resulting overall economic impacts might be. The focus is not on the economic impacts of the event that precipitated the crisis in the first place, such as a natural disaster, but on the additional impacts that may arise solely from the solvency crisis itself. Not least, the study reviews some options for reducing the major risks of a solvency crisis.

## Events That Could Precipitate a Solvency Crisis in the Insurance Industry

A solvency crisis in the insurance industry could arise only as a consequence of an extraordinary set of events or circumstances. Analysts differ over whether the deterioration of the insurance industry's finances in the past decade threatens a crisis, but they do agree that the industry faces risks of a solvency crisis from other sources. Those sources include catastrophic increases in claims for losses

from, say, natural disasters; collapsing asset markets; runs on life insurers; and the underwriting cycle in the property and casualty industry. Because the financial health of the insurance industry has deteriorated in the past decade, even events or circumstances of a smaller scale could push some companies into insolvency or give them an incentive to adopt risky business strategies that would make a growing solvency crisis even worse.

## Catastrophic Increases in Claims by Policyholders

The most likely cause of a solvency crisis in the property and casualty industry is a catastrophic increase in claims by policyholders. Insured losses on property from catastrophes amounted to more than $38 billion in the past few years, mostly the result of Hurricanes Hugo, Andrew, and Iniki. These losses dealt a severe blow to the finances of the industry and forced more than a dozen small insurers into insolvency. The losses from a particularly catastrophic earthquake in California could amount to as much as $60 billion. Claims for environmental damage could amount to more than $100 billion in certain worst-case scenarios. Given that the capital and surplus of the whole property and casualty industry amounted to $163 billion at the end of 1992, such calamities could wipe out a significant portion of the net worth of the property and casualty industry.

## A Collapse of Markets for Assets Held by the Insurance Industry

In contrast with the property and casualty industry, the life insurance industry is more susceptible to a solvency crisis arising from a collapse of asset prices. Life insurers, like savings and loan associations and banks, responded to increased competitive pressures during the 1980s by taking greater risks in their investments, and the collapse of the junk bond and commercial real estate markets during the late 1980s came close to creating a solvency crisis in 1991. As a result, regulators have imposed stricter limits on investments and are phasing in stronger capital requirements, but some insurers may still be susceptible to the weakness in the commercial real estate market.

## Runs on Life Insurers

Life insurers, whose liabilities are generally more liquid than their assets, are particularly vulnerable to runs by policyholders. A report that an insurer has suffered large losses, such as happened to the Mutual Benefit Life Insurance Company in 1991, is the most likely cause of a run. Such news would raise fears among the insurer's policyholders of losing the portion of their assets not covered by the state guaranty funds or of having their assets frozen for some time should the state insurance regulator take over the insurer.

Consequently, some policyholders would try to protect themselves by canceling their investment contracts and policies, withdrawing their cash values, and asking for policy loans. If left unchecked, a run can drain liquid assets and turn into a solvency crisis as insurers are forced to sell other assets at a discount.

Thus far, state insurance regulators have been sensitive to signs of a run and have stepped in to protect besieged companies by preventing policyholders from redeeming their policies and taking out loans until the threat of a continuing run had subsided. Nevertheless, insurance regulators may be overwhelmed if runs occur at a greater frequency. Moreover, because the Federal Reserve does not deal directly with the life insurance industry, it is not clear how quickly and effectively it could move to exercise damage control on a run in the industry.

## The Underwriting Cycle in the Property and Casualty Industry

The underwriting cycle refers to the periodic rise and fall in the net underwriting income of

the property and casualty industry. The number of insolvencies in the industry varies inversely with this cycle--rising when income falls and vice versa. The cycle gets its name from the fact that swings in net income from underwriting activities--rather than swings in the income earned on asset holdings (net investment income)--create the cycle. In recent years, the industry's underwriting cycle appears to have changed: the periods of falling net income seemed to have lengthened, while those of rising net income appear to have shortened. Moreover, the industry has lost money on its underwriting activities since the late 1970s and has relied on investment income to remain profitable.

The shift in the sources of income has exposed the industry to greater risks. Large underwriting losses indicate that this insurance is underpriced; in other words, the property and casualty industry charges too little for the risk it assumes. At the same time, the industry's reliance on investment income for profitability has increased its exposure to risks in asset markets. These greater risks are reflected in the drop in the industry's profit rate during the 1980s, which has resulted in the recent increase in insolvencies of property and casualty insurers. Continued low profitability could lead insurers to undertake even greater risks in hopes of returning to profitability, and thus result in additional insolvencies.

# Economic Impacts of a Solvency Crisis in the Insurance Industry

A solvency crisis in the insurance industry could harm the overall economy, particularly in the short run. It would reduce the supply of insurance, thereby raising the price of insurance, and could shift the burden of paying for the losses from the insolvent insurance companies to others. A solvency crisis would also interrupt the normal flow of funds through insurance companies and perhaps other financial markets, raising the cost of borrowing for some and lowering the return on saving for others. Such impacts could lower output and income both directly and indirectly as they spread throughout the economy.

In most cases, the economic impact of a solvency crisis probably would not be particularly burdensome for the economy as a whole, though some individuals and businesses could suffer greatly. However, widespread insolvencies in the insurance industry could overwhelm regulators and force them into a policy of forbearance, which contributed to the large costs of the savings and loan crisis.

Although it is difficult to identify the economic effects of the collapse of financial intermediation by the industry, they are likely to be small. The funds that were once provided by insurers would be provided by other lenders, and the insurance industry would eventually regain its financial health.

## Impacts from a Higher Price for Insurance

A solvency crisis would at least temporarily reduce the capacity of the industry to write insurance, thereby raising the price of insurance. The industry's capacity to write insurance depends on its capital and surplus, or net worth. When abnormal losses reduce capital and surplus, the industry must reduce the amount of insurance it writes, as occurred in Florida in the wake of Hurricane Andrew. The price of insurance will then rise, and less profitable lines of insurance may be dropped. Such disruptions would force policyholders to assume greater amounts of risk or pay a higher price for insurance, both of which raise business costs and hurt consumer budgets and welfare.

Although a higher price of insurance would clearly harm social welfare, its impact on economic activity is more difficult to predict, but is likely to be small and short lived except in extreme cases. A higher price of insurance

would raise business costs and lower the overall supply of output in the short run. Resources would move out of risky activities that were no longer profitable under a higher price of insurance and into less risky activities. If the abandoned risky activities earned greater average returns than the less risky activities, then the overall level of output could be further reduced temporarily.

These short-run impacts could be relatively large if risk were a large component of costs for businesses. Nonetheless, available evidence suggests that the cost of risk is, on average, a small fraction of their costs. A higher price of insurance could noticeably hurt small businesses and those engaged in risky activities: they face a higher cost of risk, and small businesses have fewer opportunities to spread risks in other ways.

Higher prices for personal lines of insurance would also affect the level and composition of consumer spending. For example, available evidence suggests that consumers would reduce their purchase of insurance if its price rose. To the extent that businesses and consumers reduced their insurance coverage, they would need to increase their saving in low-risk assets in order to cover their greater exposure to risk.

## Impacts from Shifting the Burden of the Losses

A solvency crisis could also shift the burden of the losses that created the crisis. The groups that bear the burden of an insolvency include the owners of the insolvent insurance company, the policyholders of the insolvent insurer, and either the policyholders of the remaining solvent insurers in the state or state taxpayers. The latter two parties can share in the loss because insurers can pass the assessments by the guaranty funds on to policyholders through increases in premiums or to state taxpayers through future credits against their premium tax liabilities, depending on state law. If a solvency crisis were too large for the guaranty funds to handle, however, then the burden of the losses could be spread in different proportions because state taxpayers do not legally stand behind the guaranty funds.

One possibility is that insured losses might not be paid in full. Large and visible losses to the policyholders of the insolvent insurers would raise uncertainties in other policyholders' minds about the security of their insurance assets. These other policyholders might decide to lower their spending and increase their saving in order to reduce their chances of being wiped out by the possible failures of their insurers. Moreover, large losses could reduce the opportunities of the policyholders of the insolvent insurers to borrow--either to maintain their spending on consumption or to replace the losses on property formerly covered by the insolvent insurers.

If the state guaranty fund system does not collapse, however, the near-term decline in spending probably would be much smaller. Most likely, the guaranty funds would have to borrow from credit markets in order to indemnify the policyholders of the insolvent insurers. Those policyholders would receive payment for their losses up to the limits prescribed by the guaranty funds. They could then spend the money on current needs as well as on repairing or replacing their damaged property. Because the other policyholders and taxpayers would not begin repaying the borrowed amount until later, they would not reduce their spending by much.

How quickly the economy recovers the losses would also depend on who bore the burden of the losses. The recovery probably would be quicker if current policyholders bore the losses, rather than future policyholders and taxpayers. Although the near-term decline in spending would be greater, shifting the burden to current policyholders would spur additional saving and lower real interest rates, thereby promoting a quicker recovery of the lost capital than if the burden was shifted to future policyholders and taxpayers.

## Impacts from Upsetting Financial Markets

A solvency crisis could upset the flow of credit through the insurance industry, which could raise the cost of borrowing for those businesses and state and local governments that rely on insurers as a major source of their borrowing. It could also lower the prices of bonds and commercial mortgages and the returns to policyholders who save with life insurers. If a solvency crisis harmed the confidence of policyholders, runs on life insurers could occur, which, if left unchecked, would surely magnify the economic impacts in the short term.

**Credit Supply Problems for Some Borrowers.** Even if the credit markets experienced no disruptions, insolvencies of insurers could lead to credit problems for businesses and governments that rely on insurance companies as an important source of funds. Credit problems might occur because a solvency crisis could interrupt and destroy financial relationships that were established over time and could temporarily reduce the flows of funds to credit markets through insurance companies. Fewer funds could flow through the insurance industry if sales of insurance fell, especially those life insurance products with savings features. The same effect would occur if pension funds and businesses chose other intermediaries to manage their assets.

Higher borrowing costs for some borrowers would be temporary, however. Eventually, the funds that insurers once provided would reach the credit market through other channels. Businesses that once placed funds with insurers might insure themselves by placing funds in their own reserves to cover expected losses or by forming captive insurance companies. Individual policyholders could switch from saving with insurers to saving with depository institutions and mutual funds. Furthermore, those borrowers normally serviced by insurers would eventually obtain credit from other financial intermediaries, or directly from credit markets.

Nevertheless, the rechanneling of funds would not occur immediately. Borrowers who rely quite heavily on insurers could face temporary credit problems, forcing them to postpone their planned expenditures. At the same time, less risky borrowers could gain greater access to funds.

**Capital Losses on Bonds and Commercial Mortgages.** The financial repercussions of a solvency crisis could include capital losses on bonds and commercial mortgages, which could also reduce the amount of economic activity in the economy. These assets are important investments not only for insurers but also for many other individuals and institutions.

Large sales of such assets to meet large claims by policyholders or to liquidate insolvent insurers could push the prices of these assets down and force at least some of the asset holders to cut back their spending. For example, "fire sales" of commercial mortgages and real estate in the weak real estate market of the early 1990s could have been particularly damaging to banks, thrift institutions, and other insurers that were already struggling to recover from losses on these assets. Additional losses for these lenders could have forced them to scale back even further their lending for those and other risky loans until their capital positions had improved.

# Options for Reducing the Risks of a Solvency Crisis in the Insurance Industry

Although the risks of a solvency crisis in the insurance industry and their associated economic impacts can never be eliminated, they can be significantly reduced by appropriate policies. One important approach is to improve the effectiveness of solvency regulation. In recent years, analysts have criticized many aspects of the solvency regulation of the insurance industry, which is done entirely at the

state level. The states are working to strengthen their solvency regulations. However, some analysts believe that the states will never be able to fill all of the gaps and create a uniform system of minimum solvency regulations nationwide. Consequently, some policymakers have proposed larger roles for the federal government in regulating the solvency of insurers. Deciding on larger federal roles will require a careful balancing of the benefits and drawbacks of the various proposals.

Keeping solvency regulation and guaranty fund protection entirely at the state level has one important benefit: improvements would build on the existing system, which appears to have worked adequately for many years. Society would avoid the extra costs of adding and maintaining a second regulatory system. By keeping regulation on the state level, the federal government might also avoid assuming an implicit contingent liability to cover payments by the guaranty funds to policyholders should a solvency crisis in the industry occur. Nevertheless, some analysts would argue that the liability already exists.

The chief drawback to staying with the state system is the possibility that the states will not adopt a uniform set of minimum standards for effective solvency regulation. Weak insurers may fall through the cracks of an uneven state system, which would lead to greater losses than if the insurer's finances were corrected promptly. Some insurers may try to be chartered in states with weak solvency regulations in order to take advantage of the system. Some states may skimp on solvency regulation because they know that other states will help pay for some of the costs of the insolvency of a multistate insurer or because they believe that the federal government would pick up the pieces if a solvency crisis took place. Unfortunately, the magnitude of these risks is unknown.

The chief benefit of the proposed federal roles is that they would erase any doubt about the national uniformity of minimum solvency regulations for insurers and the provisions for guaranty funds. As with any regulatory system, however, doubts about the adequacy of these standards and provisions and their enforcement would remain.

A number of the proposals would create an extra layer of solvency regulation, which could paradoxically heighten the risk of a solvency crisis. An extra layer would remove the incentive for the states to regulate insurance premiums with an eye to the financial health of insurers; the states could set premiums, and the other regulator would have to handle any resulting solvency problems. The extra layer could also raise the costs of solvency regulation for society by adding at the very least administrative overhead and at the most a new regulatory system. These costs, of course, would be offset if insurers were able to reduce costs by complying with a single set of federal regulations.

Because even a sound insurance industry may be unable to cover catastrophic increases in claims arising from natural and other catastrophes, some proposals call for the federal government to help spread these risks. Property and casualty insurers do not hold sufficient reserves to cover truly catastrophic amounts of claims, and such claims would account for a significant fraction of the capital and surplus of the industry. Some proposals call for new, federally sponsored insurance, reinsurance, and mitigation programs. Although these programs might improve the way the risk of catastrophic losses is spread, other, less ambitious options may also achieve these benefits.

Finally, strong solvency regulation and the availability of temporary liquidity from the Federal Reserve could strengthen the ability of the life insurance industry to withstand runs. Moreover, life insurers could create a liquidity pool or market from which they could borrow when they face extraordinary demands by policyholders. A dangerously risky option would be a national guaranty fund backed by the full faith and credit of the federal government.

Chapter One

# Introduction

Economists have focused their attention in recent years on problems in the financial services industry and the implications these problems have for the overall economy. The causes of the solvency crisis in the savings and loan industry during the late 1970s and 1980s are well documented, but the impact of these difficulties on the economy is only now being more fully understood.[1] Although financial problems in the commercial banking industry have been less acute than those in the savings and loan industry, some policymakers cite them as being partly responsible for the slowdown in the growth of loans at banks during the early 1990s. Financial problems have also plagued the insurance industry, and policymakers worry about the possibility of a solvency crisis in the insurance industry and what costs it might impose on the economy.

This study considers the potential economic impacts of a possible solvency crisis in the insurance industry and various policy options for limiting these impacts. It does not evaluate the likelihood of such a crisis, though it reviews a variety of ways one could arise. Instead, the study hypothetically assumes that solvency problems could exist on a large enough scale to have significant impacts on the overall economy, and then lays out what these macroeconomic impacts might be. The focus is not on the economic impacts of the event that precipitated the problems in the first place, such as a natural disaster, but on what additional impacts may arise solely from a solvency crisis in the insurance industry.

## Solvency Problems in the Insurance Industry

Like those in the banking and savings and loan industries, the number of insolvencies in the insurance industry has grown during the past decade. Between 1976 and 1980, a total of 77 insurance companies failed. Between 1981 and 1985, the overall number more than doubled, to 165; and the number doubled again, to 333, between 1986 and 1990. In 1991, a record number of insolvencies (110) took place, but the number fell to 91 in 1992.[2] About 30 insolvencies in these two years combined resulted from stricter regulatory oversight in Louisiana and catastrophic claims on damages caused by Hurricanes Andrew and Iniki.

1. A Congressional Budget Office study estimated that the cost of the crisis could amount to $200 billion in lost output during the 1980s alone. See CBO, *The Economic Effects of the Savings & Loan Crisis* (January 1992).

2. The insolvency figures include firms that only became financially impaired, but most later became insolvent. A company can appear in more than one year if its financial status varied between impaired and healthy. Only a very small number of companies, however, are counted twice. The figures come from John H. Snyder, "The Year of the Cats," in A.M. Best Company, Inc., *Best's Review: Property/Casualty Insurance Edition* (Oldwick, N.J.: A.M. Best Company, Inc., February 1993); *Best's Insolvency Study: Life/Health Insurers, 1976-1991* (June 1992); and updates by A.M. Best Company, Inc.

Not only has the number of insolvencies increased during the past decade, but different types of insurance companies are now running into trouble. Before the 1980s, insolvencies were concentrated among small companies operating in a single state or on a limited regional basis; most of the insolvent property and casualty insurers were automobile insurers.[3] More recently, however, insolvencies have involved larger companies operating over a much wider, multistate area and selling different kinds of insurance policies. Between 1976 and 1991, more than 40 percent of the insolvencies in the life and health insurance industry occurred among health insurers.[4]

As the number and size of insolvencies have grown, so has the cost of resolving them. When an insurer becomes insolvent and the value of its assets is less than the value of its obligations to its policyholders, the remaining solvent insurers are assessed a percentage of their premium receipts to cover the claims of the insolvent firm's policyholders up to prescribed limits. The mechanisms for collecting and disbursing these assessments are the state guaranty funds--associations of licensed insurers in each state. During the 1980s, assessments for the insolvencies of both life and health insurers and property and casualty insurers grew rapidly. These assessments, or costs of failure, are shown in Table 1.

Although the solvency problems of the insurance industry have grown to worrisome levels during the past decade, they have been considerably smaller than those of the savings and loan industry. The failure rates in the insurance industry have been similar to those of the banking industry, but the dollar amount and the percentage of the industry's assets held by insolvent firms have been much smaller. The costs of failure have also been

**Table 1.**
**Various Measures of Solvency Problems Among Financial Institutions**

| | Insurance | | | |
|---|---|---|---|---|
| | Life and Health | Property and Casualty | Banks | Savings and Loans |
| **Failed Firms[a]** *Annual Average Number* | | | | |
| 1981-1985 | 12 | 21 | 60 | 36 |
| 1986-1990 | 28 | 39 | 189 | 130 |
| 1991 | 65 | 45 | 127 | 232 |
| 1992 | 31 | 60 | 122 | 69 |
| *Annual Average Percentage of Firms* | | | | |
| 1981-1985 | 0.51 | 0.62 | 0.41 | 1.09 |
| 1986-1990 | 1.05 | 1.01 | 1.44 | 4.96 |
| 1991 | 2.44 | 1.15 | 1.07 | 11.07 |
| 1992 | 1.20 | 1.54 | 1.06 | 3.72 |
| **Assets of Failed Firms** *Annual Average in Billions of Dollars* | | | | |
| 1981-1985 | 0.957 | 0.964 | 7.028 | 9.529 |
| 1986-1990 | 0.606 | 0.975 | 22.891 | 45.882 |
| 1991 | 42.576 | 0.590 | 63.300 | 75.947 |
| 1992 | n.a. | 1.724 | 44.231 | 35.339 |
| *Annual Average Percentage of Industry Assets* | | | | |
| 1981-1985 | 0.15 | 0.33 | 0.30 | 1.29 |
| 1986-1990 | 0.05 | 0.21 | 0.72 | 3.96 |
| 1991 | 2.83 | 0.10 | 1.80 | 8.67 |
| 1992 | n.a. | 0.27 | 1.26 | 4.45 |
| **Annual Average Costs of Failure[b] (Billions of dollars)** | | | | |
| 1981-1985 | 0.025 | 0.106 | 1.257 | 0.722 |
| 1986-1990 | 0.099 | 0.611 | 3.809 | 16.355 |
| 1991 | 0.773 | 0.435 | 7.400 | 34.506 |
| 1992 | 0.674 | 0.361 | 4.710 | 6.715 |

SOURCE: Congressional Budget Office based on data from A.M. Best Company, Inc.; National Conference of Insurance Guaranty Funds; National Organization of Life and Health Insurance Guaranty Associations; and Office of the Comptroller of the Currency, Bank Research Division.

NOTE: n.a. = not available.

a. For banks and savings and loans, failed firms are resolutions.

b. Costs of failure cover only the costs of meeting obligations to depositors and policyholders. For the insurance industry, they refer to net assessments collected by guaranty funds. They do not include any future assessments to be collected for past insolvencies. The figures for the savings and loan industry do not include conservatorships, which began in 1989.

3. General Accounting Office, *Insurer Failures, Property/Casualty Insurer Insolvencies and State Guaranty Funds*, GGD-87-100 (July 1987), p. 15.

4. A.M. Best Company, Inc., *Best's Insolvency Study: Life/Health Insurers, 1976-1991.*

much lower in the insurance industry than in the banking and savings and loan industries.

During the early 1990s, however, the solvency problems of the life insurance industry increased, climaxing in the failure in 1991 of several large insurers--Executive Life Insurance Company, First Capital Life Insurance Company, Fidelity Bankers Life Insurance Company, Monarch Life Insurance Company, and Mutual Benefit Life Insurance Company. Assessments for Executive Life are expected to total $2.1 billion over five years, with the bulk yet to be paid. Solvency problems among life and health insurers appear to have fallen considerably in 1993.

Of course, even though solvency problems of the insurance industry have been relatively small, they may not always stay that way. Indeed, the life and health industry arguably came close to a solvency crisis in 1991. Other unknown factors may also act to raise the chances of a solvency crisis over the next few years. For example, book-value accounting and other inadequacies in the solvency regulation of insurers may be hiding losses on commercial mortgages and real estate that threaten a solvency crisis. Determining that possibility, however, is beyond the scope of this study.

## What Would a Solvency Crisis in the Insurance Industry Look Like?

A solvency crisis would differ from the solvency problems that typically occur in a given year by the extent of the damage to overall economic activity. Routine solvency problems do not have a significant impact on the overall economy: they are small in number and size, and the state guaranty funds are able to fulfill obligations to the policyholders of the insolvent insurers.

A solvency crisis would be much more serious. For example, it could involve the simultaneous insolvency of many insurers in one of the industries, accounting for a significant fraction of the industry's assets. In this respect, it would be similar to the crisis in the savings and loan industry.[5] It could also entail the insolvency of one or several large insurers, thereby shaking the confidence of policyholders and possibly that of financial markets as well, as almost happened to the life insurance industry in 1991. It could encompass just one of the two industries, or both the life and health and property and casualty industries, since some insurance groups (multiline insurers) have affiliates in both industries. Or it could even be some combination of these forms. Whatever the form, a solvency crisis in the insurance industry would noticeably harm the overall economy, as did the solvency crisis in the savings and loan industry.

## How the Insurance Industry Affects Economic Activity

The insurance industry affects economic activity by selling financial assets that people want to buy and buying other financial assets that people want to sell. To put it another way, the insurance industry affects economic activity through its financial intermediation. The assets it sells--its liabilities--are insurance policies against a wide assortment of risks of economic loss and a variety of investment products such as annuities and guaranteed investment contracts (GICs) that life insurers sell. The assets it buys are mainly corporate stocks and bonds and commercial mortgages. This intermediation reduces the cost of avoid-

5. In 1990, for example, the insurance industry included about 6,000 companies, with 3,900 in the property and casualty industry. Because many insurance companies are affiliates of other companies (groups), the number of insurance organizations is much smaller. Of the 2,274 property and casualty companies examined by A.M. Best Company, Inc., in 1989, for example, 1,452 were affiliates of 371 groups, and 822 were individual companies.

ing risks and makes credit markets more liquid and efficient.

The insurance industry's financial intermediation is sizable according to a variety of measures. At the end of 1992, for example, the insurance industry ranked as the second largest financial intermediary in the United States, holding about $2,200 billion in assets, after U.S.-chartered commercial banks (about $2,800 billion) and tied with private pension funds. The life and health industry holds almost three-quarters of the insurance industry's assets, the size of which now surpasses the thrift industry, the fourth largest intermediary (about $1,347 billion). In 1992, the amount of life insurance in force in the United States totaled about $10,400 billion, and the payments to policyholders and beneficiaries of life insurance policies totaled about $57 billion. Payments by U.S. property and casualty insurers on claims for losses totaled about $199 billion in 1992. Moreover, the insurance industry has channeled more than $120 billion annually to credit markets in the United States in recent years. That amount averages about 22 percent of all funds supplied by private financial intermediaries.[6] Life insurers accounted for the lion's share--about 75 percent--of this total.

## Spreading Risks

One way that the insurance industry encourages economic activity is by pooling the risks of many policyholders. This insurance mechanism reduces the amount of resources necessary to provide a given level of protection and thereby frees up resources that can be used for other purposes.

**The Insurance Mechanism.** Insurance protects a policyholder from loss by spreading the policyholder's risk among the other policyholders and the owners of the insurance company. Policyholders pay premiums to insurance companies for protection during a specific period of time. These premiums add to the reserves of insurance companies, which are used to finance payments to policyholders. When a policyholder suffers an insured loss and files a claim for loss with his or her insurer, the insurer pays for the loss by drawing down its reserves by the amount of the claim. Because all policyholders typically do not suffer losses at the same time, the insurer can lower the amount of reserves it needs to hold against the potential losses of policyholders.

An insurer can also effectively spread these risks among policyholders of other insurers using "reinsurance." Insurance companies buy reinsurance to guard against the risks they have insured. Like individuals and businesses that wish to lower their exposure to the various risks of everyday life, an insurance company may wish to lower its exposure to the risks it has insured. This case is particularly true when a risk is large relative to the insurance company's capital and surplus and when many of its risks have similar chances of occurring.[7] An insurance company can spread some of its risks by paying other insurers, known as reinsurers, to assume these risks.

The reinsurance transaction is straightforward. A primary insurance company--one that writes life, health, property, or casualty insurance--pays for the reinsurance by giving or ceding a portion of the associated premium receipt to the reinsurer, which is willing to assume the risk. The reinsurer in turn pays the primary insurer a ceding commission as a payment for originating the policy and agrees to pay the primary insurer a portion of the loss associated with the risk. Note, however, that the primary insurer remains liable for paying all losses to insured parties in the event that the reinsurer does not pay.

6. Board of Governors of the Federal Reserve System, "Flow of Funds Accounts: Flows and Outstandings, Second Quarter 1993" (September 17, 1993).

7. The capital and surplus of an insurer is its net worth--its assets minus its liabilities--and is a measure of the capacity of an insurer to write insurance policies. The largest component is the surplus, which is the accumulated stock of the retained earnings of an insurer. Capital is the equity capital of stock-chartered insurance companies.

A risk insured by a primary insurer can be spread among a large number of reinsurers. After the primary insurer cedes the risk, the reinsurer may reinsure some of the risk with other insurance companies called "retrocessionaries," which in turn also may reinsure some of the risk with other insurers, and so on. In the terminology of the insurance industry, a reinsurer may "retrocede" its risks to other reinsurers.

Because property and casualty risks are generally more difficult to estimate than life and health risks, reinsurance is more prevalent among property and casualty insurers than among life and health insurers. For example, U.S. property and casualty companies ceded insurance premiums totaling about $160 billion, or about 67 percent of the $240 billion of direct premiums written in 1992. By contrast, U.S. life and health companies ceded about $35 billion, or about 18 percent of their direct premiums written in 1992.[8]

Reinsurance not only spreads risks more widely, but also increases the supply of insurance. A primary insurer cannot write policies beyond its underwriting capacity, the amount that its capital and surplus can support. By ceding risks to reinsurers, a primary insurer essentially frees up a portion of its surplus that can be used to support more insurance policies.

Apart from policyholders, the owners or equityholders of insurance companies also assume some of the insurance risks. In particular, they assume some of the risk of abnormally large losses by policyholders because the chances and the magnitudes of losses are not known with certainty. When insured losses are abnormally large, but not large enough to cause the insurance company to fail, the equityholders of the company must bear some of the burden of paying for the abnormal losses through lower dividends and a drop in the market value of the insurers' equity.

The protection given to a single policyholder arises because losses are spread widely, not because losses are eliminated for the whole economy. When a natural disaster destroys property, for example, this destruction is a permanent loss for the economy, which lowers the productive capacity of the economy. Property insurers pay policyholders for the insured losses they have suffered, but they do so by withdrawing funds from their resources: reserves and capital and surplus. The total loss of property to the economy is not changed. The lost property is replaced by reducing the financial capital of insurers.

**The Benefit of Pooling Risk.** Pooling risk enhances social welfare. It makes individuals and businesses better off not only because they generally do not like certain risks but also because pooling risk makes a wider assortment of goods and services available to individuals and businesses. Individuals are more willing to own houses and cars, for example, when they can buy insurance against costly accidents to, or created by, these items. Businesses are more willing to supply products such as medical drugs when they can buy product liability insurance. The larger supply of goods and services from these risky activities does not necessarily come at the expense of a smaller supply of low-risk activities. Risk pooling promotes a greater level of economic activity than would exist without insurance.[9] By pooling many risks, insurance companies can economize on the amount of resources necessary to provide a given level of risk pooling, and thereby free up resources that they can use for other purposes.[10]

8. The estimates for property and casualty reinsurance are taken from A.M. Best Company, Inc., *Best's Aggregates and Averages: Property-Casualty 1993* (Oldwick, N.J.: A.M. Best Company, Inc., 1993), p. 3. Those for life and health are from *Best's Aggregates and Averages: Life-Health 1993*, p. 47.

9. This point is made by Kenneth J. Arrow, *Essays in the Theory of Risk-Bearing* (Chicago: Markham Publishing Company, 1971), p. 137.

10. John M. Marshall, "Insurance Theory: Reserves Versus Mutuality," *Economic Inquiry*, vol. 12 (December 1974), pp. 476-492. See also James Tobin, "Financial Intermediaries," in John Eatwell, Murray Milgate, and Peter Newman, eds., *The New Palgrave: Finance* (New York: W.W. Norton & Company, Inc., 1989), p. 44.

## Improving the Liquidity and Efficiency of Credit Markets

As a financial intermediary, the insurance industry makes credit markets more liquid and efficient. Insurance companies buy an assortment of assets in existing financial markets; in the case of corporate bonds and commercial mortgages, they also buy directly from borrowers. The expertise and diversification of investment risks gained from ongoing participation in the credit markets lower the cost of borrowing, extend the opportunity for borrowing to a broader range of borrowers, and increase the range and return of investments for savers.

**Sources of Loanable Funds for Insurance Companies.** Insurance companies have two primary sources of funds: premium receipts from the sale of their insurance and investment products, and net investment income earned on their assets. The amount of funds that insurance companies have available for lending to financial markets is the sum of these two sources of funds less benefits and losses paid out to policyholders, less other policy-related expenses such as commissions, and less other normal costs of operating a business--including taxes. This amount varies according to several factors: the overall business climate; profitability and competitive pressures in the insurance industry; incidence of catastrophes; and, for life and health insurers, the competitiveness of their investment products with those of other financial institutions.

**Premium Receipts.** Insurance companies receive premiums from the sale of their products to households and businesses. For property and casualty insurers, premium receipts are derived solely from the sale of pure or term insurance policies; in 1992, such premiums totaled about $229 billion (see Table 2). The two largest types of premium receipts for the industry as a whole in 1992 were liability insurance for private-passenger automobiles (about 24 percent of premiums earned) and insurance against physical damage on private-passenger automobiles (about 14 percent).

Life insurers obtain premiums not only from the sale of pure or term insurance policies, but also from the sale of three types of investment products. The first type includes whole life, universal life, and endowment insurance policies. A portion of the premiums on these policies pays for life insurance coverage, and the remainder adds to the cash surrender value of the policy. This cash surrender value can be thought of as a type of savings account whose interest is not taxed as it accrues, whose balance receives only limited protection from the state guaranty funds, and whose deposits and withdrawals are restricted. Insurance companies invest this cash surrender value in income-earning financial assets, thereby providing funds to financial markets.

The second type of investment product that life insurers sell is the annuity. An annuity is a financial asset that makes a fixed payment

**Table 2.**
**Sources of Loanable Funds in 1992**
**(In billions of dollars)**

| | Life and Health | Property and Casualty |
|---|---|---|
| Premium Receipts | 281.6 | 229.3 |
| Plus Net Investment Income | 105.8 | 34.4 |
| Plus Other Income | 26.4 | 0 |
| Minus Benefits, Losses, Expenses, Commissions, Dividends, and Taxes | 330.0 | 243.7 |
| Equals Total Loanable Funds | 83.9 | 20.0 |

SOURCE: Congressional Budget Office based on data from A.M. Best Company, Inc., *Best's Aggregates and Averages: Life-Health 1993*, and *Best's Aggregates and Averages: Property-Casualty 1993* (Oldwick, N.J.: A.M. Best Company, Inc., 1993).

NOTE: Other income includes income earned from managing the assets owned by employee benefit, pension retirement, and profit-sharing plans. For example, life insurance companies managed $768 billion in assets of private pension and retirement plans in 1992, according to the *1993 Life Insurance Fact Book Update* (Washington, D.C.: American Council of Life Insurance, 1993), p. 26.

to the owner at regular intervals over a specified period of time, which can be several years or the remainder of the owner's life. It can be purchased by making a single payment or several payments over time. Individuals and companies typically buy annuities for retirement and pension purposes.

The third type of investment product life insurers sell is the guaranteed investment contract. GICs are much like time deposits at a depository institution, only without federal "deposit" insurance. Funds in the amount of $500,000 to more than $100 million are placed "on deposit" with an insurer for a specific period of time, during which the interest rate paid on the funds may be contractually fixed.[11] When the contract matures, the insurer pays the principal and interest to the owner and the contract is canceled. Life insurers invented GICs in order to compete for funds from pension funds and profit-sharing and savings plans.[12]

Sales of annuities and GICs are now the largest single source of funds for life insurers, reflecting a continuing shift in their product mix. In 1965, for example, premium receipts from sales of annuities were about 9 percent of total premiums; by 1978, they accounted for about 21 percent; and by 1992, they represented about 47 percent.[13]

**Net Investment Income.** Insurers receive income from the investment of their reserves and capital and surpluses. Policyholders typically pay their premiums before the period of their insurance coverage. Insurance regulators require that insurers place these advance premiums in an unearned premium reserve until they are earned as time passes and insurance coverage is provided. The funds in this reserve are invested in income-earning financial assets. After the premiums are earned, some may be placed in a loss reserve, which is used to pay for policyholders' future losses; some may be used to pay for insured losses and benefits, operating expenses, and dividends; some may be added to a reserve to cover unexpected declines in asset values; and the remainder is added to the surplus of the company. The capital and surplus and reserves remain invested in financial markets and generate investment income. Net investment income is gross income from investments minus related expenses.

**Changes in the Supply of Funds Provided by the Insurance Industry.** The share of funds that insurance companies supplied to the credit markets rose during the 1980s. By 1990, it had risen to more than 30 percent of all funds supplied by private financial intermediaries (see Figure 1).[14] This increase contrasts with the three economic expansions before 1982, when the share of funds supplied by insurance companies declined. The share fell when life insurers suffered financial problems in 1991. It also fell sharply in 1992 when property and casualty insurers suffered large losses from catastrophes.

Three factors may account for the greater share of funds supplied by insurance companies. The first is that solvency problems reduced the amount of financial intermediation by banks and savings institutions in recent years. The second is that life insurers introduced new products beginning in the late 1970s, such as universal life insurance policies, that offered more competitive yields than their earlier products.[15] Finally, property and

11. William Jackson and Jean Rosales, "Bank Investment Contracts and Guaranteed Investment Contracts in Pension Plan Finance," 90-203E (Congressional Research Service, April 15, 1990), p. 2.

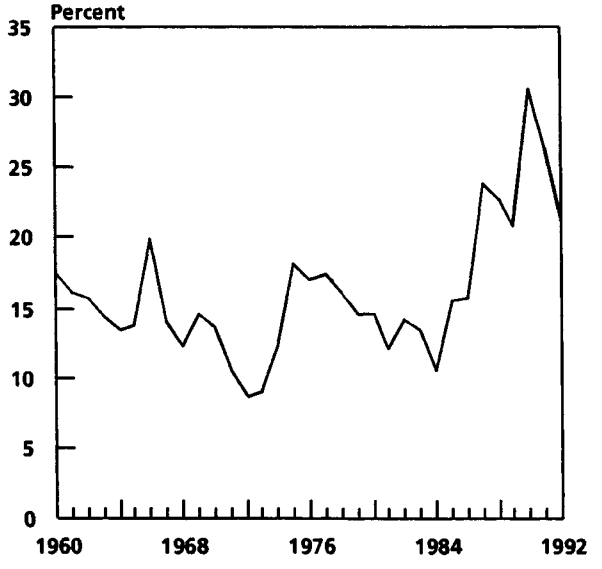
12. Everett Allen, Joseph Melone, and Jerry Rosenbloom, *Pension Planning: Pensions, Profit Sharing, and Other Deferred Compensation Plans* (Homewood, Ill.: Richard D. Irwin, Inc., 1981), pp. 236-237.

13. A change in reporting requirements accounts for some of the increase in the annuity share of premiums after 1985.

14. Private financial intermediaries (banks, thrifts, insurers, finance companies, pension funds, and credit unions) accounted for about 59 percent of all funds supplied to credit markets in recent years, according to the flow of funds accounts compiled by the Federal Reserve Board.

15. For a discussion of these new life insurance products, see Emmett J. Vaughan, *Fundamentals of Risk and Insurance* (New York: John Wiley and Sons, 1989), pp. 266-268.

**Figure 1.**
**The Insurance Industry's Share of Funds Supplied by Private Financial Intermediaries to the Credit Markets, 1960-1992**




SOURCE: Congressional Budget Office based on data from the Board of Governors of the Federal Reserve System.

casualty insurers raised their premium rates a great deal during the mid-1980s as their income from underwriting activities fell. During this time, a crisis in the liability insurance market arose, with sharp increases in premium rates and reductions in coverage.[16]

## Uses of Funds--Assets of the Insurance Industry

The insurance industry invests mostly in bonds, commercial mortgages, and stocks, but the nature of the insured risks and tax liabilities determines the composition of asset portfolios and the holdings of capital and surplus.[17] Life insurers, whose insurance risks are long term and relatively easy to estimate, invest more heavily in assets with long maturities and higher yields, such as corporate bonds and mortgage loans (Table 3).[18] In contrast, property and casualty companies, whose insurance risks are more difficult to estimate, tend to invest in very liquid, shorter-term assets such as short- and medium-term government bonds and stocks; they also hold tax-exempt securities because, unlike life insurers, all of their profits are taxable.

**Credit Markets Most Affected by the Insurance Industry.** The insurance industry has tended to have its greatest impact in the markets for corporate bonds, commercial mortgages, and tax-exempt securities. Its share of these markets has been significant and relatively stable since at least the early 1970s. Its share of residential mortgages has fallen over time, but its share of U.S. Treasury and government agency securities has risen (see Table 4).

The insurance industry--particularly the life and health segment--dominates the market for corporate bonds. Corporations rely quite heavily on bonds to finance investments in plant and equipment and for other purposes. For example, nonfinancial corporations obtained an average of about 57 percent of their credit-market funds from sales of bonds over the 1983-1989 period.[19] The insurance industry accounted for an average of about 45 percent of the purchases by U.S. residents of net issues of corporate and foreign bonds between 1982 and 1992. And at the end of 1992, the insurance industry held about 38 percent of the $1,966 billion of outstanding corporate and foreign bonds; private pension plans were the next largest holder with about 15 percent.

Most of the corporate bonds held by the insurance industry are public, investment-grade

16. For evidence on the liability crisis, see Scott E. Harrington, "A Retrospective on the Liability Insurance Crisis," *CPCU Journal* (March 1990), pp. 17-28.

17. State regulations also play a role by specifying the types of assets insurance companies may own.

18. Timothy Cury and Mark Warshawsky, "Life Insurance Companies in a Changing Environment," *Federal Reserve Bulletin*, vol. 72, no. 7 (July 1986), p. 455.

19. See Leland Crabbe, Margaret Pickering, and Stephen Prowse, "Recent Developments in Corporate Finance," *Federal Reserve Bulletin*, vol. 76, no. 8 (August 1990), pp. 593-603.

issues of large companies, and a significant fraction held by the life insurance industry are private placements, which are issues of mostly small and medium-sized businesses. These smaller companies depend on the life insurance industry for financing their longer-term needs because they have limited access to or cannot afford the public bond market, which is dominated by large companies.

The market for commercial mortgages also relies heavily on the insurance industry for funds. The insurance industry, particularly the life and health sector, has traditionally provided long-term financing for commercial properties such as office buildings, shopping centers, warehouses, and factories. At the end of 1992, the insurance industry was the second largest holder of commercial mortgages, accounting for about 29 percent of the $710 billion outstanding in the commercial mortgage market. Commercial banks were the largest holder, with $328 billion, or 46 percent.

Typically, the industry's mortgage loans are for completed projects, replacing the short-term financing used for construction and start-up costs. These loans generally carry lower risk than other commercial mortgage loans because insurers require that the cash flow from the project cover a multiple of the property's debt service before the loan is made.

In recent years, however, some life insurers have made large amounts of risky, short-term loans on commercial real estate. These loans have the potential to create financial problems for those insurers that invested heavily in them.

The market for tax-exempt securities relies on the property and casualty industry for a large amount of financing. This financing takes the form of obligations that state and local governments, nonprofit organizations, and nonfinancial corporations issue in the form of industrial revenue bonds; the interest income from these obligations is exempt from federal income taxes. Households are the primary source of funds for this market, both directly and indirectly through mutual funds and money market mutual funds, but the property and casualty industry is also an important participant. The market for tax-exempt securities had $1,197 billion outstanding at the end of 1992, and the property and casualty industry was the third largest holder, with about $134 billion, or 12 percent of the total.

Some issuers of tax-exempt securities also rely on the insurance industry to provide insurance, or guarantees, on their tax-exempt securities. The use of insurance coverage has been available since the early 1970s. By purchasing insurance, the issuers are probably able to reduce their interest costs because they can offer an extra layer of protection to investors against potential delays in interest payments or against defaults on interest and principal. An example of insured securities is those issued by state and local housing author-

**Table 3.**
**Consolidated Balance Sheets for the Life and Health Insurance and Property and Casualty Insurance Industries, 1992 (In billions of dollars)**

| | Life and Health[a] | Property and Casualty |
|---|---|---|
| Assets | | |
| Bonds | | |
| Corporate | 588.2 | 88.1 |
| U.S. government | 127.1 | 109.7 |
| Other government | 147.6 | 183.9 |
| Mortgage loans | 237.6 | 5.4 |
| Stocks | 48.2 | 71.4 |
| Other | 230.9 | 178.8 |
| Total | 1,379.6 | 637.3 |
| Liabilities | | |
| Reserves | 1,154.3 | 414.3 |
| Other | 134.5 | 59.9 |
| Total | 1,288.8 | 474.2 |
| Capital and Surplus | 90.8 | 163.1 |

SOURCE: Congressional Budget Office based on data from A.M. Best Company, Inc., *Best's Aggregates and Averages: Life-Health 1993*, and *Best's Aggregates and Averages: Property-Casualty 1993* (Oldwick, N.J.: A.M. Best Company, Inc., 1993).

a. "Separate account" assets, liabilities, and surplus are excluded from these totals. Separate accounts are assets managed by life insurers for corporate and other pension plans and other owners. The assets shown are known as "general account" assets, which back the industry's insurance and investment products.

ities to finance the construction of affordable housing projects.

Other mortgage markets directly receive relatively few of their funds from the insurance industry. The industry has reduced its share of home mortgages substantially, virtually abandoning the market for mortgages on one- to four-family structures. However, the industry indirectly supplies funds to this market by its purchases of mortgage-backed securities issued by government-sponsored enterprises, shown under Federal Agency in Table 4. The industry has also reduced its share of the market for multifamily mortgages from about 20 percent in the 1970s to about 10 percent in 1992.

**Ratios of Capital and Surplus to Assets.** The capital and surplus of an insurer is its capital base or cushion against extraordinary losses that threaten the health of the company. The life insurance industry, whose insurance risks are relatively easy to estimate, has held considerably less capital and surplus funds relative to assets than has the property and casualty industry. For example, at the end of 1992, the ratio of capital and surplus to assets, measured on a book- or amortized-value basis, was 8.1 percent in the life and health industry and 25.6 percent in the property and casualty industry (see Figure 2).

The increase in this ratio for life and health insurers in 1991 and 1992 does not necessarily suggest that the industry is moving to firmer financial ground. Much of the increase resulted from a sharp increase in capital gains, particularly net unrealized gains on their investments in bonds and corporate stocks, though these insurers also sharply increased their additions to surplus. A stronger financial position for the life and health industry still awaits a recovery in the market for commercial real estate.

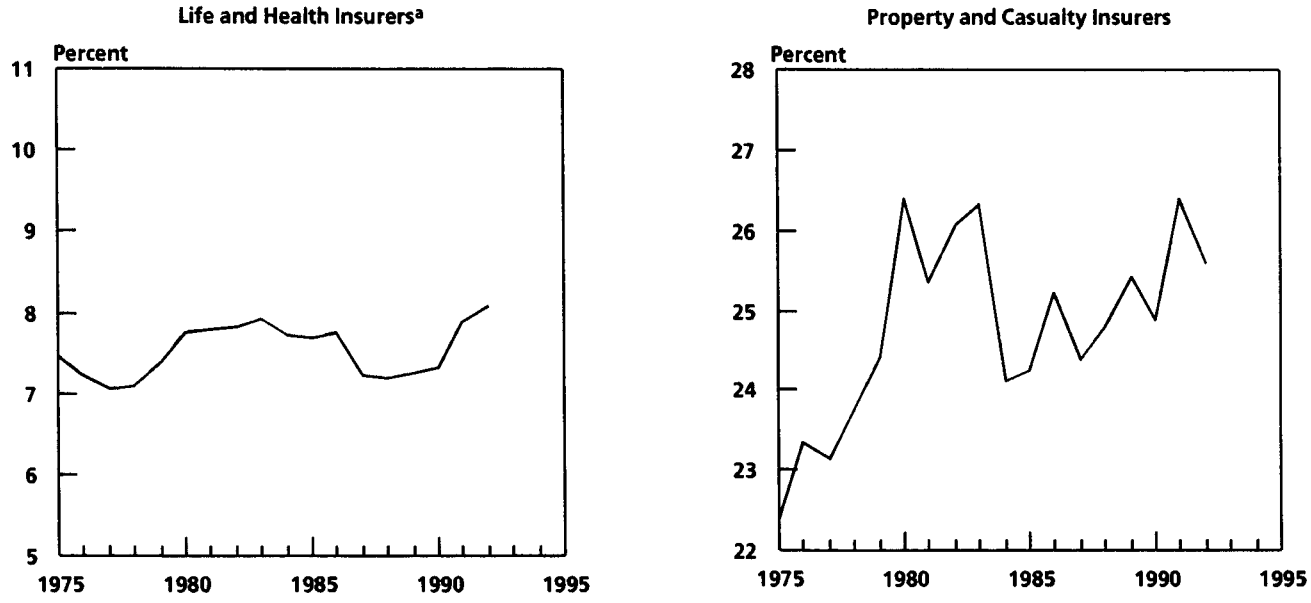
The financial strength of the property and casualty industry also can be questioned. This industry, too, benefited from strong capital gains in both 1991 and 1992, but it suffered a record amount of insured losses from catastrophes in 1992 that exceeded the increase in its capital and surplus in 1991. The industry has since attempted to reduce its exposure to future natural catastrophes, but it is too soon to know the success of this effort.

**Table 4.**
**Share of Outstanding Credit-Market Instruments Held by the Insurance Industry (In average percentages of total for each type)**

| Period | Corporate and Foreign Bonds | Equity | Mortgages | | Government Bonds | | |
|---|---|---|---|---|---|---|---|
| | | | Commercial | Multifamily Residential | U.S. Treasury | Federal Agency | Tax-Exempt |
| 1970-1979 | 38.5 | 4.5 | 29.0 | 19.9 | 2.3 | 4.8 | 17.5 |
| 1980-1984 | 38.9 | 5.3 | 30.7 | 12.7 | 3.2 | 7.2 | 21.3 |
| 1985-1990 | 36.2 | 4.9 | 27.3 | 8.7 | 5.5 | 10.0 | 14.8 |
| 1991 | 38.8 | 4.8 | 29.2 | 9.7 | 6.2 | 12.2 | 12.9 |
| 1992 | 38.2 | 4.5 | 29.0 | 9.6 | 6.5 | 13.4 | 12.2 |

SOURCE: Congressional Budget Office based on data from Board of Governors of the Federal Reserve System, "Flow of Funds Accounts: Flows and Outstandings, Second Quarter 1993" (September 17, 1993).

**Figure 2.**
**Capital and Surplus Relative to Assets for Life and Health Insurers and Property and Casualty Insurers, 1975-1992**




SOURCE: Congressional Budget Office based on data from the American Council of Life Insurance and the Insurance Information Institute.

a. The data for the life and health industry do not include the mandatory securities valuation reserve, which regulators require these insurers to hold against declines in the values of their securities. Including this reserve with the capital and surplus would raise the ratio by an average of about 1.3 percentage points over this period. The ratio also does not include separate account assets because they are not backed by the capital and surplus of the industry.

# Conclusion

A solvency crisis in the insurance industry could harm the economy because the industry is an important financial intermediary. It is the second largest intermediary, after U.S.-chartered commercial banks. In recent years, it has supplied about one-fifth of all the funds provided to credit markets by private financial intermediaries. A solvency crisis would harm the industry's ability to spread the risk of economic loss widely throughout the economy and supply credit to businesses and government.

Chapter Two

# How a Solvency Crisis Could Arise in the Insurance Industry

A solvency crisis in the insurance industry could arise only as a consequence of an extraordinary set of events or circumstances. Analysts may differ over whether the deterioration of the insurance industry's finances in the past decade threatens a solvency crisis, but they do agree that the industry faces risks of a solvency crisis from other sources. Some of the events and circumstances that have the potential to ignite a solvency crisis include catastrophic increases in claims for losses from, for example, natural disasters; collapses of asset markets; runs on life insurers; and the underwriting cycle in the property and casualty industry.

During the past few years, the industry has suffered an unusual amount of such losses. The industry's finances have been buffeted by catastrophic hurricanes along the East Coast and in Hawaii; tragic earthquakes and fire storms along the West Coast; floods, tornadoes, and ice storms in the Midwest; and the collapse of the junk bond and commercial real estate markets. Because the financial health of the insurance industry has declined in the past decade, even events or circumstances of a smaller scale could push some companies into insolvency or give them an incentive to adopt risky business strategies that could eventually lead to insolvency.

## Catastrophic Increases in Claims by Policyholders

Catastrophic increases in claims by policyholders refer to extraordinarily large losses typically arising from relatively infrequent events such as earthquakes and hurricanes. In some worst-case scenarios, these claims could amount to a sizable fraction of the capital and surplus of the property and casualty or life and health insurance industries. Because the property and casualty industry insures risks that are volatile and, in some cases, difficult to evaluate, catastrophic claims are more likely to precipitate a solvency crisis in the property and casualty industry than in the life and health industry Moreover, some analysts believe that the property and casualty industry does not hold sufficient reserves against truly catastrophic claims, in part because it cannot count additions to reserves against low-probability risks as expenses for tax purposes.[1]

For the property and casualty industry, catastrophic increases in claims for losses could arise from natural disasters, product liabilities, environmental impairments, and

1. See Robert E. Litan, "Earthquake! Planning and Paying for the 'Big One'," *The Brookings Review* (Fall 1990), pp. 42-48.

commercial accidents; the latter three are collectively known as general liabilities. Because the property and casualty industry uses reinsurance extensively, a collapse of reinsurance coverage could also create a solvency crisis in this industry, though the chances of such a collapse are not clear.

For life and health insurers, an unexpectedly rapid spread of the human immunodeficiency virus (HIV), which causes acquired immune deficiency syndrome (AIDS), could create financial problems for some insurers. Health and liability insurers are also susceptible to financial problems from unexpectedly rapid increases in the costs of medical care. However, like AIDS, it is an unlikely source of a solvency crisis.

## Natural Disasters

The last few years have dramatically revealed the exposure of the property and casualty insurance industry to losses from natural disasters. Between 1989 and 1992, the industry suffered the worst string of losses from catastrophes on record--a total of more than $38 billion of insured losses in 1992 dollars.[2] Hurricanes caused most of this destruction. Over 40 percent of these losses resulted from Hurricane Andrew, which hit Florida and Louisiana in 1992. Andrew was the most destructive hurricane ever to hit the United States, causing about four times the insured losses of the previous record holder, Hurricane Hugo in 1989. Total losses from catastrophes in 1992 were a record high, amounting to about 14.5 percent of the industry's surplus measured at the end of 1991; the losses from Andrew pushed close to a dozen small, Florida-based insurers into insolvency in 1992.

The potential losses from hurricanes are even greater. Meterologists expect the incidence of hurricanes in coming years to be greater than in the 1970s and most of the 1980s. Moreover, the losses could be many times greater if a hurricane hit a major city. If Andrew had struck Miami, some experts believe that it could have created losses of $50 billion.

Earthquakes also have the potential to create massive losses. The Insurance Research Council estimated that the insured losses from a hypothetical earthquake with a magnitude of 7.5 on the Richter scale hitting the greater Los Angeles area at 2 p.m. on a weekday would have amounted to $46 billion in 1987, or about $55 billion in 1992 dollars.[3] These losses would have consumed about 35 percent of the property and casualty industry's surplus, measured at year-end 1991. Of the total losses, about

- 41 percent would be attributable to residential and commercial fire policies;
- 32 percent to workers' compensation and general liability coverages; and
- 28 percent to residential and commercial earthquake damage policies.

The Research Council's study notes that additional insurance payments would be made under life and health insurance, auto insurance, and various business coverages on equipment, goods in transit, and losses from business interruptions, pushing the total insured losses from the earthquake closer to $60 billion in 1992 dollars. Total overall losses created by the earthquake would be even greater because uninsured property would also be damaged.

2. The property and casualty industry defines a catastrophe as any event that causes more than $5 million in insured property damage and includes a significant number of claims to various insurance companies. Most of the losses between 1989 and 1992 were caused by natural forces.

3. Don G. Friedman, *Earthquake Losses Under Workers Compensation and General Liability: Estimates for a "Worst Case" Event in Greater Los Angeles* (Oak Brook, Ill.: All-Industry Research Advisory Council, October 1988), p. 1. The All-Industry Research Advisory Council is now known as the Insurance Research Council. The Loma Prieta earthquake in California in 1989 measured 7.1 on the Richter scale.

Another study estimated similarly large losses from a severe earthquake hitting San Francisco.[4] If the earthquake that struck San Francisco in 1989 had been of the same magnitude as the 1906 earthquake, analysts estimate that it would have created more than $50 billion in insured losses in 1989 dollars, amounting to over one-third of the property and casualty insurance industry's capital and surplus measured at the end of 1989.

A third study estimates that possibly 30 insurance companies could have failed as a result of a severe earthquake, based on the exposure of companies to the types of losses the quake would create and using capital and surplus data for 1987.[5] The estimate assumed no failure of reinsurance. In other words, the number of insolvencies could be even greater should reinsurers default on their obligations.

## General Liabilities

Unlike natural disasters, losses under general liability insurance arise from the actions and omissions of businesses. General liabilities refer to a broad category of potential commercial liabilities. They include claims arising from injuries to others, damage to the property of others, the sale or distribution of faulty or dangerous products, and the failure to provide an acceptable level of professional services. Among the various general liabilities, product liabilities, environmental impairment liabilities, and commercial accidents appear to have the greatest potential to create solvency problems in the property and casualty industry.

These three general liabilities are particularly risky for insurers. In part, their riskiness exists because many products, services, and manufacturing techniques are technically sophisticated. New products incorporate greater numbers of things that can go wrong, individually or in combination with other products. Sophisticated products are manufactured with equally sophisticated techniques that may use hazardous substances and produce hazardous wastes that are difficult to dispose of properly. The magnitude of these liabilities can grow quite large if such products are widely adopted before their associated risks become known.

The average riskiness of these general liability policies has gone up in recent years because the smaller and less risky businesses have left the formal insurance market.[6] The crisis in the liability insurance market during the mid-1980s spurred this movement, which created some dramatic increases in the costs of these policies.[7] As a consequence, some firms facing relatively low-risk general liabilities dropped out of the formal insurance market; some decided to self-insure, and others joined together to self-insure in risk-retention groups. Commercial insurers were left to cover only the larger risks.

General liabilities have also become riskier as the courts have ruled that insurers are liable for losses that they did not think they had covered. For example, the courts have ruled that general liability policies can apply to seepage as a result of the intentional disposal of contaminants by a municipality, even though the policy specifically covered only "sudden and accidental" discharges.[8] This de-

4. Testimony of Franklin W. Nutter, Chairman of the Earthquake Project, before the Subcommittee on Policy Research and Insurance of the House Committee on Banking, Finance and Urban Affairs, February 7, 1990.

5. Stewart Economics, Inc., *The Economic Impact of a Major Earthquake* (New York: Stewart Economics, Inc., February 1989), p. 55.

6. Edward B. Rappaport, "Insurance Company Solvency," 89-470E (Congressional Research Service, July 13, 1989), p. 7.

7. Scott E. Harrington, "Prices and Profits in the Liability Insurance Market," in Robert E. Litan and Clifford Winston, eds., *Liability: Perspectives and Policy* (Washington, D.C.: Brookings Institution, 1988).

8. Rappaport, "Insurance Company Solvency," p. 18. A federal appeals court in Washington ruled that reimbursements to the government for repairing environmental damage are covered under comprehensive general liability policies. See Jonathan Moses and Wade Lambert, "Insurers Lose Round in Environmental Cleanup," *The Wall Street Journal*, September 16, 1991.

velopment is simply a reflection of the more general problems of the tort system.[9]

These factors have combined to increase the average length of time between the origination of a general liability policy and the eventual payment of a claim--a period known as the "tail" of the policy. For example, Aetna Life and Casualty incurred a $45 million after-tax charge in the second quarter of 1988 related to coverage it provided to A.H. Robbins from 1968 through March 1978 for the drug firm's Dalkon shield contraceptive device.[10] Long tails increase the difficulty of setting appropriate premiums and reserve levels for property and casualty insurers because uncontrollable and uncertain cost factors, such as medical costs, become more important as tails lengthen.

General liability insurers have taken steps to limit their exposures, but they still face potential ones. The forms in which recent policies are written have been crafted to narrow or better define coverages or to enable insurers to estimate their costs more accurately. For example, new policies cover only losses occurring during the policy year rather than retroactive occurrences.

The longer-run profitability of general liability insurance remains uncertain, however, because there is still an overhang of claims expected from coverages written, priced, and reserved long before current trends in the tort system emerged.[11] The lack of significant tort reform and continued sharp increases in the costs of health care also leave liability insurers exposed to potentially large and unexpected costs.

**Product Liabilities.** Product liability insurance covers injuries to people and damages to property from the use of commercial products. The insurance company agrees to be responsible for compensating an individual who has been injured by the product of an insured manufacturer, paying the costs of settling a liability suit and any punitive damage awards. The ultimate cost of product liability insurance is highly uncertain when the policy is written, especially because product liability claims generally lead to litigation.

Asbestos, the Dalkon shield, and Agent Orange are prominent examples of products that have caused enormous product liability claims. Asbestos claims accounted for almost 10,700 cases--or 63 percent of all new product liability cases opened in federal district courts in 1988.[12] By 1990, the number of new cases had ballooned to 12,822. In the early 1980s, estimates of financial liability from all asbestos claims expected to be filed ranged from $8 billion to $87 billion; at the time, the upper amount exceeded the combined net worth of the liable companies and their insurers.[13] As noted earlier, Aetna Life and Casualty incurred a $45 million after-tax charge in the second quarter of 1988 related to A.H. Robbins' Dalkon shield class-action lawsuit. Agent Orange suits against Dow Chemical Company and others involved 2.4 million Vietnam veterans and relatives. Although no settlement has been reached, the estimated liability as of January 1985 totaled $180 million.[14]

**Environmental Impairment Liabilities.** Massive claims from environmental damage represent still another widely publicized source of risk to the insurance industry. In-

9. See, for example, Robert E. Litan and Clifford Winston, eds., *Liability: Perspectives and Policy* (Washington, D.C.: Brookings Institution, 1988), and Peter W. Huber and Robert E. Litan, eds., *The Liability Maze: The Impact of Liability Law on Safety and Innovation* (Washington, D.C.: Brookings Institution, 1991).

10. Catherine Seifert, "Insurance and Investment, Basic Analysis," in *Standard and Poor's Industry Surveys* (New York: Standard and Poor's Corporation, July 12, 1990), p. I-20.

11. Rappaport, "Insurance Company Solvency," p. 18.

12. Insurance Information Institute, *1990 Property/Casualty Insurance Facts* (New York: Insurance Information Institute, 1990) pp. 50-51.

13. W. Kip Viscusi, "Liability for Occupational Accidents and Illnesses," in Litan and Winston, *Liability: Perspectives and Policy.*

14. Peter Huber, "Environmental Hazards and Liability Law," in Litan and Winston, *Liability: Perspectives and Policy.*

surance against environmental impairments covers losses from the release of hazardous wastes into the environment. A famous incident in Love Canal, New York, involved a judgment of $20 million against the Hooker Chemical Company and the city of Niagara Falls, New York. The suit was brought by 1,300 residents for chemical contamination of the soil and water of the Love Canal area of Niagara Falls. Although this example suggests relatively small losses for insurers, the potential losses are considerably greater. Estimates of the present-value cost for the clean-up of nonfederal Superfund sites alone range from $40 billion to $120 billion in 1991 dollars, a significant fraction of the $159 billion of capital and surplus that the property and casualty insurance industry held at the end of 1991.[15]

Despite these dramatic examples, environmental impairment liabilities do not clearly represent a likely source of a solvency crisis for property and casualty insurers. On the one hand, the exposure of property and casualty insurers to these liabilities may be limited. A 1987 General Accounting Office (GAO) study found that the courts have not consistently interpreted insurer liability.[16] This study also found that few insurers appear to be writing policies covering these liabilities. In a sample of 104 insurance companies, GAO's report noted that only one company was actively marketing policies, with a maximum annual coverage of only $12.5 million. GAO also noted that a consortium of 18 companies established in 1982 occasionally wrote environmental impairment liability policies to accommodate clients.

On the other hand, a recent study completed for the Insurance Information Institute, an organization of the property and casualty industry, argues that hazardous wastes could threaten the financial integrity of that industry.[17] According to the study, the risk is not on current policies, since insurers are not writing many policies covering these risks. Instead, the risk is on the policies that were written before the mid-1980s, for which the courts could hold insurers liable.

**Commercial Accidents.** Commercial accident liability insurance covers losses suffered by the clients and employees of a commercial enterprise. Various types of insurance coverage can come into play as a result--for example, fire and allied lines of insurance, workers' compensation, and aircraft, marine, and commercial multiple-peril insurance policies. Examples of commercial accidents include the gas leak in Bhopal, India, and crashes of commercial aircraft. The Bhopal accident created $470 million in damages, with at least $167 million covered by insurers.[18] The two largest commercial accidents in 1988 were a fire at a petroleum refinery in Louisiana that resulted in an estimated loss of $330 million, and a fire at a plant that manufactures hazardous chemicals that caused an estimated loss of $103 million. The 10 largest accidents in 1988 caused total losses of almost $800 million.[19]

Although commercial accidents could create large insured losses, they do not pose a serious threat of a solvency crisis for property and casualty insurers. Because such accidents affect a limited number of people, the chances of a costly class-action suit are relatively small. Moreover, the risks from commercial accidents are probably spread among many insurers through reinsurance arrangements.

15. Congressional Budget Office, *The Total Costs of Cleaning Up Nonfederal Superfund Sites* (January 1994).

16. General Accounting Office, *Hazardous Waste: Issues Surrounding Insurance Availability* (October 1987).

17. Orin Kramer, *Rating the Risks: Assessing the Solvency Threat in the Financial Services Industry* (New York: Insurance Information Institute, 1991).

18. See "Chemical Firm Wins Round on Bhopal Insurance Claims," *The Wall Street Journal*, February 6, 1991, p. B2.

19. Insurance Information Institute, *1991 Property/Casualty Insurance Facts* (New York: Insurance Information Institute, 1991), pp. 67-68.

## The Spread of the Human Immunodeficiency Virus

The spread of the human immunodeficiency virus, which causes AIDS, is a potential source of an explosive increase in payments for benefits for life and health insurers over the coming decade. HIV appeared suddenly and has spread rapidly. Between 1981, when the Centers for Disease Control and Prevention (CDC) first identified AIDS as a distinct disease, and September 1993, a total of 339,000 AIDS cases were reported in the United States.[20] (The actual number of AIDS cases is larger because a significant fraction of the cases are unreported.) Through 1994, the CDC expects the cumulative number of reported and unreported AIDS cases to be about 500,000, and the cumulative number of deaths from AIDS to be about 350,000.[21] The U.S. Public Health Service also estimates that the total number of people currently infected with HIV in the United States is about 1 million. Without a cure, almost all of these people will die from AIDS or HIV-related illnesses within 10 years after diagnosis.

Estimates of the cost of treating a person infected with HIV have risen lately. A recent estimate of the average lifetime cost of treating a person with AIDS is $102,000 in 1991 dollars, up from a previous estimate of $85,333 in 1990 dollars.[22] This new revision reflects longer hospital stays and higher costs per day of hospital care, as well as greater use of expensive drugs such as zidovudine (better known as AZT). Even for people infected with HIV but without AIDS, medical costs are hardly trivial. The estimated average yearly cost of treating such a person is $10,000, compared with an estimated $38,300 for treating a person with AIDS.

Nevertheless, HIV-related financial losses currently do not present a particularly great risk to the life and health insurance industry. AIDS-related claims paid represent a tiny fraction of all claims paid by life and health insurers. The CDC expects that the rate of increase in the number of people diagnosed with AIDS will slow. Life and health insurers now control their exposure to risk by rejecting applicants who test positive for HIV. Moreover, Medicaid appears to have covered a growing share of AIDS-related medical costs; the portion has risen, for example, from 25 percent between 1984 and 1985 to 41 percent between 1986 and 1987.[23] Although some states, with federal support, are shifting some of these costs back to insurers, they are currently not a likely source of significant financial problems for the insurance industry.

## Failure of Reinsurance Coverage

As noted in Chapter 1, reinsurance is insurance that insurance companies buy against the risks they have insured. Like individuals and businesses who wish to lower their exposure to the various risks of everyday life, an insurance company may wish to lower its exposure to the risks it has insured. This attitude is particularly true when one risk could be extremely large relative to the insurance company's capital and surplus, and when many of its risks are correlated. An insurance company can spread some of its risks by paying reinsurers to assume them.

Reinsurance is a double-edged sword for the solvency of insurers. One edge is the benefits of spreading risk created by reinsurance,

20. Department of Health and Human Services, Centers for Disease Control and Prevention, *HIV/AIDS Surveillance*, vol. 5, no. 3 (October 1993).

21. Centers for Disease Control and Prevention, "Projections of the Number of Persons Diagnosed with AIDS and the Number of Immunosuppressed HIV-Infected Persons--United States, 1992-1994," *Morbidity and Mortality Weekly Report*, vol. 41, no. RR-18 (December 25, 1992), p. 6.

22. Fred J. Hellinger, "Forecasts of the Costs of Medical Care for Persons with HIV: 1992-1995," *Inquiry*, vol. 29 (Fall 1992), pp. 356-365.

23. Jesse Green and Peter S. Arno, "The 'Medicaidization' of AIDS: Trends in the Financing of HIV-Related Medical Care," *Journal of the American Medical Association*, vol. 264, no. 10 (September 12, 1990), pp. 1,261-1,266.

which limits the exposure of an insurer to the risks it has insured. The other edge is the financial dependency that reinsurance creates between a primary insurer and its reinsurers. When a policyholder suffers an insured loss, the primary insurer covers the loss, according to its legal responsibility, and collects any payments (known as reinsurance recoverables) from its reinsurers. The reinsurers make their contractual payments to the primary insurer and, in turn, collect any payments from their reinsurers. This process continues until all of the contractual obligations among these insurers related to the initial loss are met.

This chain of related obligations, however, is only as strong as its weakest link. If one of the insurers in this chain is unable to meet its obligation, other insurers may become unable to meet their obligations, possibly creating problems for still other insurers. This sequence of defaulted obligations could lead all the way back to the primary insurer, who has already paid the insured loss in full.

Although such a contagion of insolvencies of insurers has not yet happened, the failure of reinsurance coverages is a risk for insurers. Standard and Poor's examined reinsurance recoverables at year-end 1989 for the top 30 property and casualty insurance groups, which account for about two-thirds of the industry's volume in premiums.[24] After certain adjustments, Standard and Poor's found that reinsurance recoverables amounted to 68 percent of the total capital and surplus of these 30 groups. It concluded that the potential inability to collect reinsurance is not likely to be a cause of "wholesale insolvency" in the property and casualty industry. Nevertheless, some of these large insurers were at risk. Five of the top 30 groups had reinsurance recoverables amounting to more than 200 percent of their capital and surplus, and 10 of the 30 had reinsurance recoverables amounting to more than 100 percent of their capital and surplus.

It is hard to know the risk behind existing reinsurance relationships because the financial condition of reinsurers has not been monitored as closely as that of primary insurers.[25] Although the domestically licensed reinsurers are regularly examined and subject to state regulation, a significant portion of reinsurance is supplied from abroad by carriers who are not subject to state examination or enforcement. States do require offshore reinsurers to provide some security, such as letters of credit, to back up their reinsurance contracts, but this security has not always proved to be especially great.[26]

It is also difficult to determine the magnitude of the liabilities of reinsurers. They tend to cover risks that have small chances of occurring, large potential losses, and long reporting delays. In addition, the extent of the retrocession chain is often unknown even to reinsurers until large claims are settled.[27]

## A Collapse of Markets for Assets Held by the Insurance Industry

As a financial intermediary, the insurance industry also faces risk on the asset side of its balance sheet. The solvency problems in the savings and loan and banking industries make the potential magnitude of this risk all too clear. The collapse of one or more of the markets for assets held by insurers could create a solvency crisis in this industry.

24. Shaun P. Flynn and Alan M. Levin, *Commentary--Reinsurance Recoverables: The Elusive Liability* (New York: Standard and Poor's Insurance Rating Services, February 1, 1991). This report examined newly available data on reinsurance transactions mandated by changes to the annual financial statement filed by insurers with their state regulators.

25. Rappaport, "Insurance Company Solvency," p. 17.

26. See, for example, House Committee on Energy and Commerce, Subcommittee on Oversight and Investigations, *Failed Promises: Insurance Company Insolvency*, Committee Print 101-P (February 1990).

27. Rappaport, "Insurance Company Solvency," p. 17.

For many years, insurers kept out of this kind of trouble. Asset markets rarely collapsed, especially during the postwar period. Moreover, insurers were conservative in their investment policies, generally holding high-quality assets and matching the maturities of their assets with those of their liabilities. State insurance regulators helped to enforce this conservatism by requiring life insurers to hold reserves against declines in the prices of their holdings of securities. Consequently, the collapse of an asset market ordinarily would not have more than a passing effect on the capital and surplus of the insurance industry.

The start of the 1990s, however, has not been ordinary. The collapse of the markets for junk bonds and commercial real estate pushed the life insurance industry to the brink of a solvency crisis in 1991. The exposure of the life insurance industry to these problems reflects a greater amount of competition in the market for financial services, which was spurred in the early 1980s by the deregulation of the interest rates that commercial banks and thrifts paid on their deposits.

Life insurers, whose main products include insurance and investments, tried hard to maintain their share of the market by offering high rates of return on their products. To pay these high returns, they needed to buy assets promising high returns. Higher returns, however, cannot be earned without taking greater risks, and life insurers obtained higher yields by buying riskier securities such as junk bonds and collateralized mortgage obligations, making riskier mortgage loans, and holding more real estate directly for investment purposes. They also tried to boost returns by not sufficiently increasing their capital reserves to buffer potential losses on these assets. Unfortunately, these risks turned out to be greater than expected, and a number of insurers suffered large losses when these markets collapsed.

In fact, 65 life and health insurers failed or became impaired in 1991, according to A. M. Best Company, a record in terms of both the number of insolvencies and the percentage of the industry's assets in default (see Chapter 1). The risk appeared to be concentrated among a handful of medium- to large-sized life insurers who became insolvent as a result of excessive investments in these assets, most notably Executive Life, First Capital Life, Fidelity Bankers Life, Monarch Life, and Mutual Benefit Life. Widespread insolvencies as a result of losses on these assets did not appear.

Prices of junk bonds have rebounded from their levels in 1990, but the ongoing weakness in the market for commercial real estate still threatens potential solvency problems for those firms with large holdings of assets related to commercial real estate. Many life insurers with a large exposure to the weak commercial real estate market are probably those that provided large amounts of "bullet" mortgages in the mid-1980s.[28]

A bullet mortgage is a short-term loan to a real estate developer who pays most of the initial balance of the loan when it matures, typically within 5 to 10 years. Because they are speculative loans, bullet mortgages are riskier than the traditional mortgages made by life insurers, which are long-term loans on completed projects that are earning enough revenues to more than cover the mortgage payments at the time the loan is made. Life insurers made a large number of bullet mortgages in the mid-1980s in order to pay high returns on their investment products, especially guaranteed investment contracts and thereby better compete in the market for financial services. For example, most of the $30 billion of new commercial mortgages extended by life insurers in 1986 were bullet loans, funded by sales of GICs.

28. Susan Pulliam and Mitchell Pacelle, "Loans May Burn Builders and Insurers," *The Wall Street Journal*, February 26, 1991, p. B1. Some small life insurers have also experienced financial difficulties arising from their holding of collateralized mortgage obligations, which are securities derived from the cash flows of mortgage-backed securities. See Laura Jereski, "Seized Insurers' Woes Reflect Perils of CMOs," *The Wall Street Journal*, May 12, 1993, p. C1.

The problem is that large numbers of these bullet mortgages will be maturing over the next few years in a weak real estate market. For example, roughly $15 billion of these loans were expected to mature in 1991 alone. Without a noticeable improvement in the market for commercial real estate, insurers may be forced to take substantial losses on these loans.

## Runs on Life Insurers

Runs are a somewhat paradoxical cause of a solvency crisis because they place stress on insurers by creating an unmanageable reduction in liabilities, the opposite of a catastrophic increase in claims for losses. A run on an insurer would most likely be ignited by reports that it had suffered large losses. Such news would raise fears among the insurer's policyholders of losing the portion of their assets not covered by the state guaranty funds or of having their assets frozen for some time in the event that the state insurance regulator took over the insurer.

Consequently, some policyholders would try to protect themselves by canceling their investment contracts and policies, taking out policy loans, and withdrawing their cash values. These demands would force the insurer to sell liquid assets. If left unchecked, such demands would eventually exhaust the liquid assets and force the insurer to sell other, less liquid assets quickly at reduced prices. These losses would only intensify the financial problems of the insurer and cause additional policyholders to demand the cash values of their policies. In the extreme, policyholders of other insurers could panic and run as well, possibly causing severe disruptions to financial markets.

Recent events illustrate that runs on life insurers are possible. Insurance regulators in New Jersey seized control of the Mutual Benefit Life Insurance Company in July 1991 after it suffered a flood of withdrawals and surrenders by policyholders. The run probably was exacerbated by the lack of a guaranty fund for life insurers in New Jersey at the time. Executive Life Insurance Company also suffered an increase in withdrawals and surrenders--on the order of $3.5 billion--in 1990 shortly before the insurance regulators in California took it over.[29]

Thus far, the life insurance industry has not suffered a contagious run, but the risk does exist. Conceivably, state insurance regulators could be overwhelmed if runs occurred with greater frequency. Although the Federal Reserve has the authority to provide emergency liquidity to forestall runs, how quickly and effectively it could move against a run in the life insurance industry is not clear. Before the Federal Reserve would be willing to lend to an insurer, it would need to evaluate the insurer's financial position and collateral for the loan. This process would take some time, allowing a run to proceed unchecked until the Federal Reserve had established adequate borrowing arrangements with the insurer.

## The Underwriting Cycle in the Property and Casualty Industry

The causes of a solvency crisis discussed up to this point have been unusual losses that generally occur infrequently and at irregular intervals. Solvency problems can also arise from significant losses of income that occur for other reasons. Losses of income consume as-

29. Figure cited in Frederick Rose, "First Executive Says Regulators Question Capital Level at Its Major Insurance Unit," *The Wall Street Journal*, April 3, 1991, p. A4. A.M. Best Company, Inc., also reports that First Capital Life and Fidelity Bankers Life were put into protective custody in May 1991 in order to prevent runs by their policyholders. See *Best's Insolvency Study: Life/Health Insurers, 1976-1991* (Oldwick, N.J.: A.M. Best Company, Inc., June 1992).

sets and hence reduce the capital and surplus of an insurer. They are an unlikely source of a solvency crisis, however, except when they affect a large segment of the industry. In the property and casualty industry, the underwriting cycle is this kind of an exceptional source of income loss.

The underwriting cycle is the periodic rise and fall of the industry's net income from underwriting activities (see Figure 3). The sources of this surprising cycle are not clear, though analysts have considered a variety of possibilities.[30] Because swings in the income earned on investments (net investment income) are relatively small for the industry as a whole, the cycle in net income from underwriting activities creates a cycle in total net income for the industry. The number of insolvencies in the property and casualty industry varies inversely with the cycle in income--rising when income falls and falling when income rises.

In recent years, the underwriting cycle appears to have grown worse, and with it, the risks of a solvency crisis in the property and casualty industry. The periods of falling net underwriting income have lengthened, while those of rising net income have shortened. Consequently, the industry has come to rely on investment income to offset persistently large losses from underwriting activities.

One reason for the apparent change may have been the crisis in the market for liability insurance, particularly general liability insurance, which accounts for much of the decline in net underwriting income during the mid-1980s.[31] Another reason may be the unusual increase in losses from catastrophes in recent years. Some analysts also believe that the industry deliberately abandoned conservative underwriting standards in pursuit of high interest rates in the early 1980s.

Regardless of the reasons for the change in the cycle, the shift in the sources of income has exposed the industry to greater risks. Large underwriting losses indicate that this insurance is underpriced--the industry charges too little relative to the risk assumed. At the same time, the industry's reliance on investment income for profitability has increased its exposure to risks in asset markets. These greater risks are reflected in the drop in the industry's profit rate during the 1980s, which has resulted in the recent increase in insolvencies of property and casualty insurers. If low profitability continues, insurers may have to undertake even greater risks in hopes of returning to profitability, creating additional insolvencies.

# Regulatory Efforts to Hold Down Insurance Premiums

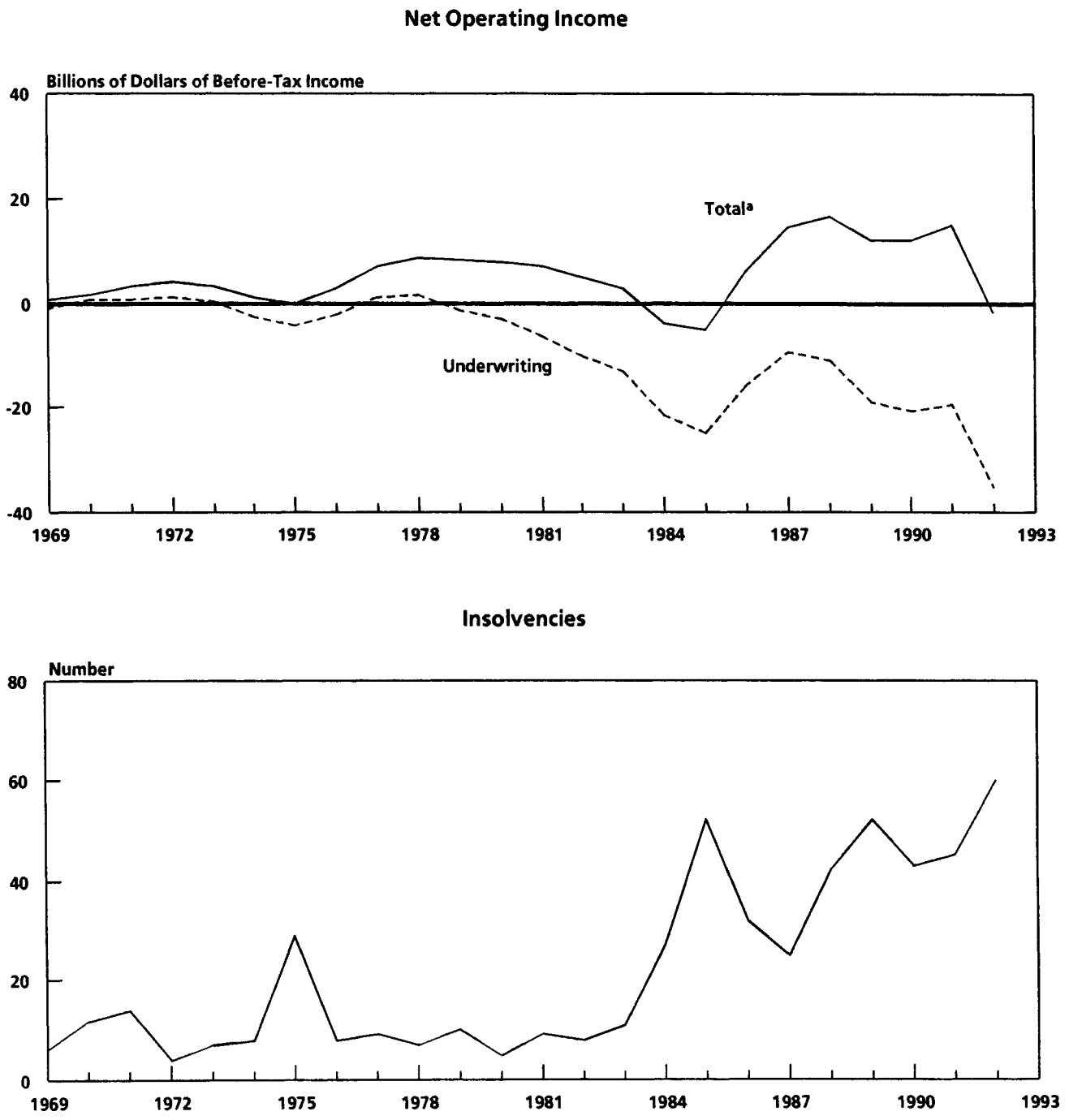
Current efforts by regulators in some states to hold down insurance premiums could create a number of problems, but the risk of a solvency crisis is not likely to be one of them. Some states, most noticeably California and New Jersey, have tried to restrain high and rising premium rates by capping or rolling them back to earlier levels, particularly for private-passenger automobile insurance. These restrictions, which are aimed at keeping insurance affordable for consumers, contrast with earlier efforts to maintain "adequate" premium levels in order to prevent competitive pressures from pushing down premiums and raising the number of insolvencies.

Many analysts would agree that restrictions on premiums can hurt the efficiency of the insurance market, result in some (for example, low-risk) policyholders subsidizing others (for example, high-risk), and reduce the

30. Many of the explanations for the underwriting cycle are reviewed in Harrington, "Prices and Profits in the Liability Insurance Market," pp. 77-82.

31. For a discussion of the crisis in the market for liability insurance, see Harrington, "Prices and Profits in the Liability Insurance Market."

**Figure 3.**
**The Underwriting Cycle in the Property and Casualty Industry, 1969-1992**




SOURCE: Congressional Budget Office based on data from the Insurance Information Institute and A.M. Best Company, Inc.

NOTE: The underwriting cycle is the periodic rise and fall in net income from the underwriting of insurance policies.

a. Includes net underwriting and net investment income.

supply of insurance.[32] Some analysts also believe that these restrictions have held premiums below levels implied by costs and have created losses for some insurers.[33]

Nevertheless, rate restrictions are unlikely to create a solvency crisis. Insurers may be able to offset any losses by raising their premiums for other lines of insurance or for other policyholders in the same lines, resulting in the cross-subsidization noted above. Or to limit their losses, insurers could reduce the amount of insurance they write in those lines that are subject to restrictions.

Some states impose penalties on insurers who stop writing insurance subject to rate restrictions, but a point will come at which the penalty and taking the losses from closing operations will be less than the expected losses from continuing lines subject to the caps. Only in the extreme case in which many states force insurers to take losses would the risk of a solvency crisis be worrisome.

# Inadequate Solvency Regulation

Inadequate solvency regulation can exacerbate a solvency crisis by permitting financial problems that arose for other reasons to fester and grow. Solvency regulation attempts to protect policyholders from losses stemming from the insolvency of their insurer by guarding against excessive risk taking and fraud. It does not create solvency crises because its requirements are largely similar to those that farsighted companies would use to remain profitable and in business over the long run. Nevertheless, solvency regulation can make a solvency crisis worse by failing to restrict the incentives for excessive risk taking that arise in a solvency crisis.

The savings and loan crisis is a dramatic example of how inadequate solvency regulation can exacerbate a solvency crisis.[34] This crisis had its roots in regulations that created a mismatch between the maturities of the industry's assets and liabilities. Regulations designed to promote home ownership required savings and loans to keep most of their assets in long-term mortgage loans. However, like other depository institutions, they funded their assets largely with short-term deposits. During the late 1970s and early 1980s, the high levels of short-term interest rates relative to the rates earned on existing mortgages created large losses for many savings and loans. Instead of closing the insolvent and weakly capitalized institutions, regulators turned to a policy called forbearance. They hoped to resuscitate the financially impaired institutions by keeping them open and giving the industry new freedoms to invest in a greater variety of assets and pay higher interest rates on its deposits. At the same time, regulators did not strengthen their oversight and standards of solvency in light of these new freedoms.

With little to lose, many of the weak and insolvent savings and loans used these new freedoms to adopt risky business plans in an attempt to return to profitability and restore lost capital. Unfortunately, most of these strategies failed, resulting in a greater waste of the economy's resources and an enormous bill for federal taxpayers, who stand behind the federal deposit insurance system.

32. See, for example, Scott E. Harrington, "Public Policy and Property-Liability Insurance," in Richard W. Kopcke and Richard E. Randall, eds., *The Financial Condition and Regulation of Insurance Companies*, Conference Series No. 35 (Boston: Federal Reserve Bank of Boston, 1991). Some analysts believe that restrictions on premium rates are not unambiguously bad, but can actually improve conditions in insurance markets in certain cases. See Eric Smith and Randall Wright, "Why Is Automobile Insurance in Philadelphia So Damned Expensive?" *The American Economic Review*, vol. 82 (September 1992), pp. 756-772.

33. See, for example, Orin S. Kramer, *Rate Suppression and Its Consequences: The Private Passenger Auto and Workers Compensation Experience* (New York: Insurance Information Institute, 1991).

34. For a discussion of the origins of the financial problems of the savings and loan industry and the regulatory failures that helped to create the solvency crisis in that industry, see Lawrence J. White, *The S&L Debacle* (New York: Oxford University Press, 1991).

Although forbearance does not appear to have been a serious problem in the insurance industry during the 1980s, the risk of forbearance does exist in the coming years. Some state regulators may be overwhelmed by a large number of insolvencies. Intentionally or otherwise, regulators may be compelled to resort to forbearance simply to manage the caseload. Even if regulators are not overwhelmed, forbearance could arise implicitly as a consequence of inadequate solvency regulations. The states are only now in the process of strengthening capital requirements for insurers and specifying stricter corrective actions that regulators must employ on financially impaired insurers, and it is not yet clear how effective these new regulations could or will be.

# Conclusion

Certain extraordinary events or circumstances have the potential to create a solvency crisis in the insurance industry, but the magnitude of this potential is difficult to determine. Most of the greatest threats of a solvency crisis in the property and casualty industry reside on the liability side of its balance sheet. Catastrophic increases in claims arising from natural disasters, certain general liabilities, and a collapse of reinsurance coverages could exhaust the financial resources of the property and casualty industry in the worst cases. A sharp downturn in the industry's underwriting cycle could also threaten a solvency crisis. For the life and health industry, collapses of asset markets and runs have created troubling threats of a solvency crisis in recent years. Although the junk bond market has rebounded from its lows of several years ago, the market for commercial real estate remains moribund and threatens to force insurers to realize additional losses.

Chapter Three

# The Effects of a Solvency Crisis on the Economy

A solvency crisis in the insurance industry could seriously disrupt the industry's contributions to overall economic activity. It could encompass a significant fraction of the industry's assets and overwhelm the ability of insurance regulators and the guaranty funds to protect policyholders and minimize its impact on the economy.

In contrast, the solvency problems that the insurance industry typically experiences in a given year have no measurable impact on the overall economy. The insolvencies are usually small in number and size, and the state guaranty funds are able to pay--up to their prescribed limits--the losses to the policyholders of the insolvent insurers. The distinction between typical solvency problems and a solvency crisis is perhaps most clear in the case of the solvency crisis in the savings and loan industry, which has created large costs for the economy.

The focus of this chapter is the economic effects of a solvency crisis alone, not the initial economic losses that precipitate the crisis. Earthquakes, commercial accidents, and environmental damage, for example, can hurt economic activity to varying degrees by damaging the stock of productive capital in the economy (see Box 1). These losses are clearly important because they may represent the largest impacts surrounding a solvency crisis. Apart from these initial impacts, however, additional economic effects could arise solely from the solvency crisis itself.

Any additional economic impacts would stem from a reduction in the insurance industry's normal function of spreading risk and an interruption of the normal flow of funds in financial markets. In principle, those impacts could change the magnitude of the decline in spending in the short run and the amount of time necessary for the economy to recover from the initial impacts in the longer run.

Damage to the normal function of risk spreading would raise the price of insurance, which could have wide-ranging impacts on different businesses and individuals. It could also shift the burden of the losses to the policyholders of the insolvent insurers or to other parties, who might react in different ways to the losses of wealth.

Interrupting the normal flow of funds in financial markets could temporarily reorient, and possibly reduce, the amount of financial intermediation in the economy, thereby raising the cost of borrowing and reducing capital formation for at least some borrowers. These impacts would compound as they spread throughout the economy.

## The Economic Impacts of a Higher Price of Insurance

One major impact of a solvency crisis in the insurance industry would be to raise the price of insurance. By definition, a solvency crisis implies a drastic reduction in the capital and surplus of the industry, which would overwhelm the ability of the companies to cover the losses of policyholders in full. With less capital and

**Box 1.**
**Economic Impacts of the Events That Create a Solvency Crisis in the Insurance Industry**

The events that could precipitate a solvency crisis in the insurance industry clearly harm the overall economy, apart from the damage that they may do by creating a solvency crisis in the insurance industry. The economic impacts of these events arise in different ways, and their magnitudes and timings are difficult to predict.

Natural disasters, damage to the environment, and commercial accidents destroy physical capital and consequently lower the welfare of many citizens and the maximum amount of output and income that the economy can generate. In 1992, a record amount of such losses took place; A.M. Best estimated that insured losses from all catastrophes amounted to about $23 billion, and they could be even larger once all of the loss claims have been processed. Although the loss of capital produces an immediate decline in output and income, it sows the seeds of eventual recovery. The loss of capital is equivalent to a loss of wealth, which discourages consumption and encourages saving to replace the lost wealth. Some of the additional saving may come from abroad if real (inflation-adjusted) interest rates increase, but the time necessary to recover the lost capital could be considerable for worst-case scenarios.

Although the economic impacts of most natural disasters usually are small for the economy as a whole, they can be devastating for individuals and businesses. Large businesses with substantial resources and geographically diversified operations might not suffer significantly or irreparably from such losses. But small businesses are not likely to have such advantages. Some small businesses might have to shut down--in some cases permanently--unless government assistance such as Small Business Administration loans were made available. Such shutdowns could force workers to find other jobs or even relocate, and some small business owners could be forced into unemployment and bankruptcy. These effects would precipitate a reduction in consumer and business spending.

Cleaning up environmental damage could be more burdensome for the economy as a whole. Paying these costs diverts resources from new, productive investments, thus lowering the potential growth of the country's future standard of living. The cleanup costs in present-value terms for nonfederal Superfund sites alone range between $40 billion and $120 billion in 1991 dollars.

To put these losses into perspective, they are smaller than the potential loss of capital created by the solvency crisis in the savings and loan industry during the 1980s. The Congressional Budget Office estimates that the loss of output caused by this crisis may amount to almost two-thirds of 1 percent of national output every year in the first half of the 1990s, slightly lowering the current standard of living.[1] The recovery from these losses could take more than 20 years.

The collapse of an asset market and inadequate solvency regulation do not destroy physical capital, but they still can harm economic activity in the short term. A collapse can reduce consumer spending and the supply of insurance and other financial services. Reducing these services, in turn, can indirectly reduce the supply of output in the economy by raising the costs of borrowing. If the collapse of an asset market reflects, or if solvency regulation has encouraged, mistaken credit extensions, the productive capital stock will be lower, and real interest rates higher, than if better loans had been made.

1. Congressional Budget Office, *The Economic Effects of the Savings & Loan Crisis* (January 1992).

surplus, the supply of insurance would immediately fall, and a higher price for insurance would be necessary to ration the smaller supply to the existing demand for insurance.

The price of insurance would probably rise for other reasons. Greater assessments on the remaining insurers by the guaranty funds to cover the policyholders of the insolvent insurers would help to raise the price of insurance. Some good insurance risks would drop out of the insurance market when the price of insurance rose, leaving relatively more poor risks in the market--a process known as adverse selection. With less spreading of risks among good risks, the price of insurance would increase.

Although a higher price of insurance would clearly harm the welfare of many citizens, its impact on economic activity is more difficult to predict, but is likely to be small and short lived except in extreme cases. A higher price of insurance would raise business costs and lower the overall supply of output in the short run, but it would also allow the insurance in-

dustry to rebuild and attract new capital that would eventually increase the supply of insurance and reduce its price.[1] Until that happened, resources would move out of those risky activities that were no longer profitable under a higher price of insurance and into sounder activities. If the abandoned risky activities earned greater average returns than the less risky activities, the overall level of output could be further reduced temporarily.

These short-run effects might be relatively large if risk were a large component of costs for businesses, but available evidence suggests that the cost of risk is, on average, a small fraction of their costs. Small businesses and those engaged in risky activities, however, could be noticeably hurt by a higher price of insurance because they face a higher cost of risk and because small businesses have fewer opportunities to spread risks in other ways.

Higher prices for personal lines of insurance would also affect the level and composition of consumer spending; available evidence suggests that consumers would reduce their purchases of insurance. Moreover, if businesses and consumers reduced their insurance coverages, they would need to increase their saving in low-risk assets in order to cover their greater exposures to risk.

## The Impacts of Higher Insurance Prices on Industries

It is impossible to know how high the price of insurance would rise in the event of a solvency crisis among companies writing insurance against business risks, but past events provide some indication of the increase that could be expected.

The most dramatic increase in the price of insurance against business risks in the past 30 years occurred during the "liability crisis" between 1984 and 1986, when net premiums written for general liability insurance rose by more than 78 percent in 1985 and almost 68 percent in 1986.[2] Increases for other commercial liability insurance were also quite large, though less dramatically so, than those for general liability insurance. Along with these "price" increases was an equally dramatic increase in the number of insolvencies of commercial liability insurers. During these three years, 33 commercial liability insurers became insolvent--more than the total number (27) during the previous 15 years.[3]

A 1989 survey by the Risk and Insurance Management Society shows that even with such large increases in the price of insurance, the impact of higher prices for all types of business insurance would vary greatly among industries and individual firms but would not seem to be great for the economy as a whole (see Table 5)[4]. This survey obtained estimates of the "cost of risk" for 27 industry groups, including governments such as states and municipalities.

The cost of risk includes not only net insurance premiums but also unreimbursed losses, related administrative costs, and the net cost or gain associated with a captive insurance company--all expressed as a percentage of rev-

1. Solvency regulation can impede the recovery of the industry, however, because regulators constrain the supply of insurance by limiting the amount of an insurer's premium revenue, rather than its anticipated loss claims, in relation to capital and surplus. See Ralph A. Winter, "The Liability Insurance Market," *Journal of Economic Perspectives*, vol. 5, no. 3 (Summer 1991), pp. 115-136.

2. The data for net premiums written represent premium income retained by insurance companies less payments made for reinsurance ceded to others; they come from A.M. Best Company, Inc., *Best's Aggregates and Averages: Property-Casualty, 1990* (Oldwick., N.J.: A.M. Best Company, Inc., 1990). This figure is typically used because meaningful price indexes for insurance are generally unavailable. Because net premiums written include the effect of changes in insurance coverage, the increase in the price of general liability insurance is greater than this figure. General liability insurance includes all commercial liability insurance except automobile, workers' compensation and employers' liability, liability coverage provided in commercial multiple peril, and medical malpractice insurance.

3. A.M Best Company, Inc., *Best's Insolvency Study, Property/Casualty Insurers, 1969-1990* (Oldwick, N.J.: A.M. Best Company, Inc., June 1991), p. 36.

4. Risk and Insurance Management Society, Inc., *Cost of Risk Survey* (New York: RIMS, Inc., 1990).

enues. Among its various components, liability and workers' compensation insurance premiums are the two largest. The cost of risk may overstate the direct impact of an increase in the price of insurance, but it also most likely understates what businesses would pay to manage their risks if the insurance industry did not spread risk.

**Table 5.**
**Cost of Risk, by Industry, 1989**

| Rank | Industry | Cost of Risk (Percentage of revenues) |
|---|---|---|
| 1. | Transportation Services | 2.81 |
| 2. | Health Care | 2.30 |
| 3. | Construction | 1.21 |
| 4. | Education, Nonprofit Institutions | 1.11 |
| 5. | Personal, Business Services | 0.82 |
| 6. | Combination Utility[a] | 0.82 |
| 7. | Transportation Equipment | 0.81 |
| 8. | Metal Products | 0.78 |
| 9. | Miscellaneous Manufacturing | 0.76 |
| 10. | Primary Metals, Leather, Stone | 0.64 |
| 11. | Natural Gas Utilities | 0.59 |
| 12. | Food, Tobacco, Textiles | 0.58 |
| 13. | Electric Utilities | 0.57 |
| 14. | Machinery | 0.54 |
| 15. | Retail Trade | 0.53 |
| 16. | Food, Agriculture | 0.52 |
| 17. | Printing, Publishing | 0.51 |
| 18. | Mining and Energy | 0.50 |
| 19. | Chemicals, Rubber, Plastic | 0.49 |
| 20. | Lumber, Furniture, Packaging | 0.46 |
| 21. | Government | 0.37 |
| 22. | Banks, Savings and Loans | 0.32 |
| 23. | Real Estate, Other Finance | 0.31 |
| 24. | Electrical Equipment, Instruments | 0.28 |
| 25. | Wholesale Trade | 0.28 |
| 26. | Telecommunications | 0.18 |
| 27. | Insurance | 0.13 |
| **Memorandum:** | | |
| All Industries | | 0.52 |

SOURCE: Congressional Budget Office using data from Risk and Insurance Management Society, Inc., *Cost of Risk Survey* (New York: RIMS, Inc., December 1990), Table 59, p. 68, and Table 65, p. 73.

NOTE: The cost of risk is defined as net insurance premiums, unreimbursed losses, related administrative expenses, and the net gain or loss with a captive insurance company. The cost of risk for the insurance industry does not include reinsurance and costs related to the risks it insures for its clients.

a. Combination utility is combined gas and electric utilities plus all other utilities.

By this measure, a higher price of insurance may have little impact on overall economic activity in most cases. None of the sectors listed has a cost of risk greater than 3 percent of revenues, and most have less than 1 percent. Only four industries had costs of risk that exceeded 1 percent of revenues in 1989: transportation services, health care, construction, and educational and nonprofit institutions. The prices and output levels of the businesses in these four industries appear to be the ones that would be most affected on average.

Nevertheless, a higher price for insurance could materially affect certain businesses and product lines. Because all of these risk-related costs are taken together and related to the total revenues of the business, the cost of risk is essentially an average cost for all risks of a business rather than a marginal cost for particular risks. As such, it does not indicate the importance of risk for individual products and activities. For example, the cost of product liability insurance may be a much larger factor in the (marginal) cost of selling certain health care products, especially early in the product cycle when the risks associated with using such products are probably considerable.

Thus, a higher cost of risk, either from higher insurance premiums or from the added cost of greater exposures to risk, could have a much greater impact on providing and developing new but initially risky products than what the average costs indicate. Indeed, during the liability crisis that took place between 1984 and 1986, many policies for general liability insurance were canceled, many insurers stopped writing some lines of general liability insurance, and some goods and services were taken off U.S. markets.[5]

Apart from scaling back risky activities, businesses might also respond in the near term to a greater cost of risk by raising their product prices or lowering their profits. A survey by the Conference Board of the reaction of businesses during the 1980s to increased costs

5. Winter, "The Liability Insurance Market," pp. 115-136.

of product liability, including the sharp price increases for liability insurance, offers one indication of the likely reactions.[6] About one-half of the surveyed companies felt compelled to accept lower profit margins by absorbing the additional costs of product liability; large firms had more flexibility in adapting to higher costs than did small firms. The survey also found that some manufacturers discontinued certain product lines because of the cost of product liability.

These average costs of risk also say little about the impact on individual businesses. Other evidence reported by the survey shows a wide dispersion in the cost of risk within an industry; in particular, the survey evidence suggests that an increase in the price of insurance would hurt small firms more than large firms. The survey found that property and liability insurance premiums plus unreimbursed losses, as a percentage of revenues, fell as the size of the firm increased. For the smallest firms in the sample (those with revenues no greater than $30 million), the cost was 5.2 percent of revenues in 1989. For the largest firms (those with revenues of at least $3 billion), the cost of risk was only 0.33 percent. This difference between large and small firms reflects not only economies of scale but also the greater ability of large firms to lower their costs of risk by self-insuring and by pooling their risks with other large firms outside the formal insurance market.

Over time, a higher cost of risk could lower the welfare of many citizens by reducing the availability and increasing the price of new and beneficial products. Even though the resources once devoted to risky enterprises would move to less risky ones, lower production of risky products could reduce the level of income and spending in the economy because the average return from initially risky products is greater than that for low-risk products.[7]

## The Impacts of Higher Insurance Prices on Consumers

Higher prices for personal lines of insurance undoubtedly would hurt consumer welfare by reducing opportunities for spreading risk, and they could have a modest but noticeable impact on the amount and composition of consumer spending. A general lack of research and experience with a solvency crisis, however, obscures the answers to the questions of how high prices of personal lines of insurance would rise and how spending on insurance would change in response to a solvency crisis.

For the same reason, it is difficult to determine the change in the level and composition of consumer spending given an increase in the price of personal lines of insurance. A shift in spending would most likely depend on the type of insurance experiencing the price increase. For example, some research shows that purchases of whole-life insurance would fall slightly in response to an increase in price.[8] The change in spending on goods and other services would depend on the sensitivity of the demand for these products given the change in the price of insurance, and in turn on how prices and consumer incomes changed in response to the various changes in demand.

For some types of property and casualty insurance, such as auto and homeowners' insurance, purchases may be relatively insensitive to price because such insurance is closely tied

6. E.P. McGuire, *The Impact of Product Liability*, Research Report No. 908 (New York: The Conference Board, 1988).

7. Although the available evidence is insufficient to offer general conclusions, some evidence suggests that product liability costs have deterred innovation in some industries. See, for example, W. Kip Viscusi and Michael J. Moore, "An Industrial Profile of the Links Between Product Liability and Innovation," in Peter W. Huber and Robert E. Litan, eds., *The Liability Maze: The Impact of Liability Law on Safety and Innovation* (Washington, D.C.: Brookings Institution, 1991).

8. David F. Babbel, "The Price Elasticity of Demand for Whole Life Insurance," *The Journal of Finance*, vol. 40, no. 1 (March 1985), pp. 225-239.

to ownership of these items.[9] Given price increases for these types of insurance, most consumers would probably maintain most of their coverage and reduce their purchase of other goods and services. A higher price for homeowners' insurance would also force some consumers out of the housing market, but the impact on new home construction and output would probably be minimal in most cases.

If consumers reduced their insurance coverage in the face of a higher price of insurance, they also might attempt to increase their saving in low-risk assets to cover their greater exposure to risk. This step would reduce the efficient spreading of risk in the economy. In turn, that development could lead to an increase in the demand for saving in the economy as the additional saving consumers seek more than offsets the drop in saving by insurance companies. The added demand for saving would then tend to lower interest rates and temporarily depress output.

The extent of these impacts would depend on how much the drop in risk spreading raises the total demand for saving, an area little studied by economists. Any redirection of loanable funds away from insurance companies could also have additional impacts.

## The Impacts of Higher Insurance Prices in the Long Run

The higher prices and reduced supply of insurance as a consequence of a solvency crisis in the insurance industry would be likely to last for some time. The remaining solvent insurers could probably not assume all the business of the insolvent insurers in the short run because they would not have enough underwriting capacity (capital and surplus) to do so. Higher prices for insurance would help to replace the lost capacity, but this process would take some time. Solvent insurers could grow if they could attract capital, but this might not be possible for some time after a solvency crisis arose. Newcomers, including foreign investors, might also not be eager to enter the industry, at least initially, especially in the likely event that assessments by guaranty funds were exceptionally large for an extended period. The assessments would reduce expected returns to potential investors until all obligations to policyholders were honored.

Even if insolvencies shrank the insurance industry, it probably would recover because the need for insurance is permanent. But how quickly the industry might recover would depend on many factors in addition to the state of demand. Such factors include the amount of losses that solvent insurers had to make up through the guaranty fund mechanism, regulatory policies toward the industry, and competitive pressures within the industry and between the insurance industry and other types of financial intermediaries.

Insurance customers, however, might make alternative arrangements to insure their risks while insurance was in short supply, and that could mean that demand for all types of formal insurance products might not recover completely. The industry, therefore, could remain smaller than it would have been if no solvency crisis had occurred. The total amount of risk spreading in the economy would probably not be too different, but the nature of the risk spreading could be affected if the better risks left the formal insurance market. In this case, the price of insurance in the formal market would be higher than before the solvency crisis.

# The Economic Impacts of Shifting the Burden of Unreimbursed Losses

A solvency crisis in the insurance industry could shift the burden of the initial loss of

9. Changes in price have little effect on purchases of bodily injury coverage for auto insurance, but they do affect those of collision and comprehensive insurance. See William A. Sherden, "An Analysis of the Determinants of the Demand for Automobile Insurance," *The Journal of Risk and Insurance*, vol. 51, no. 1 (March 1984), pp. 49-62.

wealth that precipitated the crisis. The owners of the insolvent insurance companies bear the loss only up to the value of their capital and surplus. These losses, of course, push the insurers into insolvency and contribute to an increase in the price of insurance. If this capital and surplus are insufficient to cover the insured losses in full, the remaining or unreimbursed losses fall on the policyholders of the insolvent insurers and others. In turn, because different parties to the losses may react in different ways, the manner in which these losses are ultimately distributed could affect both the size of the decline in spending and income and how quickly the economy recovers.

## How the Initial Losses Can Be Spread

The parties to the initial loss include policyholders, owners of insurance companies, and taxpayers. The policyholders and owners of the insolvent insurance companies are the most obvious parties to the initial loss, but they normally do not bear all of the loss. On account of limited liability laws, the owners of the insolvent companies lose only the capital they invested in the company. In principle, policyholders may suffer four types of losses when their insurer becomes insolvent.

- They may not be paid in full for insured losses.
- They may lose some of their prepaid premiums, which are premiums paid in advance of insurance coverage, on property and casualty policies.
- They may lose some portion of the cash surrender values of their life insurance policies and their annuities or may be forced to accept a lower return on these investments.
- They may be unable to replace their former life and health insurance coverage with equivalent coverage by a new insurer if the life and health guaranty funds are unable to maintain coverage for the policyholders.

In the absence of a solvency crisis, the policyholders of the insolvent insurers lose only an amount over and above that covered by their state guaranty funds. The policyholders and owners of the solvent companies and taxpayers bear the remainder of the loss. Depending on state law, the remaining solvent insurers can recover their assessments from policyholders by raising their premiums or from state taxpayers by taking a credit against their state premium taxes. Because the tax credits are given in the future, these insurers lose the time value of their money.

State taxpayers probably pay the largest share of the assessments by life and health guaranty funds because about 80 percent of the states allow offsets to state taxes. By contrast, they probably pay a smaller share of assessments by property and casualty guaranty funds because only about 35 percent of the states allow tax offsets.[10] Federal taxpayers also bear a share of the burden because insurance companies can treat assessments as a business expense for federal tax purposes. Whether insurers can pass their portion of the assessments on to their policyholders depends on how sensitive sales of insurance are to changes in insurance premiums; the less sensitive they are, the more the insurers must bear.

In some circumstances, the losses could be shifted to yet other groups. For example, some large employers seem to be willing to cover the losses their employees may suffer as a result of the insolvency of First Executive Corporation. These employers purchased guaranteed investment contracts from First Executive for their employees' defined contribution retirement plans. This willingness on the part of these firms is significant because the employ-

10. These figures were obtained from the testimony of Marty Leary, Research Director, Southern Finance Project, before the Subcommittee on Antitrust, Monopolies and Business Rights of the Senate Committee on the Judiciary, April 28, 1992.

ees bear the investment risk in defined contribution plans.[11]

If a solvency crisis arose in the insurance industry, the burden of the losses could be spread in different proportions. The policyholders of the insolvent insurers could be forced to bear a larger share of the burden if the guaranty funds were not able to meet their obligations or could do so only over time, in which case these policyholders would lose the time value of their money. If the guaranty funds were able to borrow against their future assessments, then current and future policyholders and taxpayers would bear a larger share of the burden. If the guaranty funds could not meet their obligations to policyholders, then federal taxpayers and state taxpayers in those states where assessments are recovered from policyholders might be called on to cover the bulk of these obligations. Neither the federal nor state governments have any statutory obligation to cover the shortfall, but political pressures or legal actions by policyholders could force them to do so.[12]

## How Shifting the Burden Affects the Economic Impacts

Unfortunately, shifting the burden of a solvency crisis among those various parties could magnify the damage to the economy in the near term or delay the economy's recovery from the loss. Consumers typically respond to a loss of wealth by trying to increase their saving to replace the lost assets. Greater saving means less spending on goods and services, which slows economic activity and can defeat attempts by consumers to increase their saving in the near term. Once economic activity recovers, however, greater saving promotes stronger investment spending and a quicker replacement of the loss by reducing interest rates. The timing and magnitude of the near-term decline in spending and the eventual increase in saving could depend on who experiences the loss.

**Near-Term Impacts.** When an insurer fails, the burden of the costs not paid by the insolvent company shifts in principle to state guaranty funds, which would then seek to recover their losses by assessments on solvent companies. If this process goes smoothly, it is likely to impose little additional economic cost. The losses would be spread widely, and policyholders would retain confidence in the value of their insurance policies. Coordination problems among the guaranty funds and state insurance departments, however, could delay payments to the policyholders of the insolvent insurers and hasten the decline in spending in the immediate term. Uncertainty about the eventual payments would also depress spending in the very near term.

Ensuring that the state guaranty funds pay up promptly and smoothly, however, may not be entirely straightforward. The guaranty funds in some states have used significant portions of their assessment capacity (the amount they can raise at the maximum statutory rate) for less serious solvency problems in the past. As a result, necessary funds to deal with many insolvencies would have to come from borrowing against future assessments or from legislative action to increase maximum assessments. In extreme cases, taxpayers may be asked to cover shortfalls in the guaranty funds directly, even though they have no statutory obligation to do so. In each of these cases, the burden of losses would be spread widely and would thus not impose serious additional impacts on the economy as a whole.

Failure to promptly compensate the policyholders of insolvent insurers could, however, have more serious economic effects, particularly in the short run. Economic losses would arise because a large burden, concentrated on a few policyholders, is likely to cause them liq-

11. James A. White, "Should the Company or the Employee Take the Hit on Troubled GIC Accounts?" *The Wall Street Journal*, May 7, 1991, p. C1.

12. This happened in the wake of the state banking crisis in Rhode Island during 1991. Although the state taxpayers did not have a statutory obligation to cover the shortfall in the Rhode Island Share and Deposit Indemnity Corporation, the state legislature pledged state excise tax revenues in order to cover any shortfall.

uidity problems and other financial difficulties and also because the failure of insurance could weaken the confidence of other insurance policyholders.

A large burden on the policyholders of the insolvent insurers would clearly cut into their currently available resources. But their financial problems might not end there: their opportunities to borrow in order to maintain their spending on consumption might also be reduced.[13] An example would be losses of homes that served as collateral behind second mortgages and home-equity lines of credit. Because these types of loans are secured by collateral, their interest rates are typically lower than those for other types of borrowing. If policyholders lost a significant portion of the wealth in their homes when their insurers failed, they might be temporarily unable to borrow enough money to maintain their spending for consumption or to cover their unreimbursed losses on property formerly covered by the insolvent insurers.

Large and visible losses to these policyholders would also raise uncertainties in the minds of other policyholders about the security of their own insurance assets. Faced with the possibility that their wealth could turn out to be less than they expect it to be, all policyholders might decide to lower their spending and increase their saving in order to reduce their chances of being wiped out by the failures of their insurers.[14] This uncertainty might also ignite runs at life insurance companies, with policyholders pulling funds out of their annuities and the cash values of their policies, or taking out policy loans. If such runs take place, they could be particularly damaging.

The near-term decline in spending probably would be smallest if future taxpayers and policyholders covered the losses through borrowing by the state guaranty funds. The policyholders of the insolvent insurers would receive payment for their losses to the limits prescribed by the guaranty funds and could spend the money on repairing or replacing their damaged property, for example. The other policyholders and taxpayers would not reduce their spending very much because they would not begin repaying the borrowing until later.

However, unlike the other cases in which current policyholders bear the burden of the loss, real interest rates could be higher if the losses were financed with borrowing. The change in interest rates would depend on the losses suffered by the policyholders of the insolvent insurers.

The impact on rates would be greatest if the losses were mostly on property, since the borrowings would be spent on new output to replace the losses. The impact on interest rates would be smallest if the losses were mostly on prepaid premiums and life insurance products with savings features such as whole-life policies and annuities. In this case, most of the borrowing would simply flow back to credit markets as replacement insurance policies and deposits with other financial intermediaries and would not be spent on new output. Although some analysts believe that borrowing would not affect the magnitude of the near-term decline in spending and the increase in real interest rates even if it was spent on new output, the evidence does not completely support this view.[15]

**Long-Term Impacts.** How quickly the economy recovers the initial losses also depends on who bears them. The recovery probably would

13. For evidence of such constraints on borrowing opportunities, see Stephen P. Zeldes, "Consumption and Liquidity Constraints: An Empirical Investigation," *Journal of Political Economy*, vol. 97, no. 2 (April 1989), pp. 305-346.

14. Some evidence in support of this possibility is given by N. Gregory Mankiw and Stephen P. Zeldes, "The Consumption of Stockholders and Non-Stockholders," Working Paper No. 3402 (National Bureau of Economic Research, Cambridge, Mass., July 1990). The authors find that stockholders increase their consumption when they are earning above-normal returns in the stock market and reduce their consumption when they are earning below-normal returns.

15. B. Douglas Bernheim, "Ricardian Equivalence: An Evaluation of Theory and Evidence," in Stanley Fischer, ed., *NBER Macroeconomics Annual 1987* (Cambridge, Mass.: MIT Press, 1987).

occur relatively quickly if the owners of insurance companies and current policyholders paid for the losses, but relatively slowly if the losses were to real property and financed by borrowing. Paying for the losses immediately would spur additional saving and lower real interest rates, thereby promoting a quicker recovery of the lost capital than if repaying the losses were postponed by borrowing.

# The Economic Impacts of Interrupting the Flow of Funds in Financial Markets

A solvency crisis in the insurance industry could also harm economic activity by interrupting the normal flow of funds in credit markets. It would reduce the amount of funds the insurance industry supplies to credit markets, which could lead to problems for some borrowers. It could lower the prices of existing bonds and commercial mortgages--the two principal assets owned by insurers--if the asset portfolios of insolvent insurers were liquidated unexpectedly. This effect would reduce the wealth of, and consequently the spending by, the owners of these assets. A solvency crisis could also reduce the confidence of policyholders in their life insurers, causing a potentially damaging run on these insurers.

The impacts on the overall economy from these changes in the credit markets are extremely difficult to judge. Nonetheless, they are not likely to be especially damaging except in extreme cases such as a massive run on life insurers.

## A Reduction in the Supply of Credit for Some Borrowers

A solvency crisis in the industry could reduce the amount of credit available to some corporations, commercial real estate developers, and state and local governments, but it would not create a serious credit crunch for the economy as a whole. A solvency crisis would not significantly reduce the total supply of credit in the economy. Rather, its impact on the distribution of credit would be much more evident. Some high-risk borrowers of insurers might have trouble securing new credit at any price. Other borrowers would obtain credit from different lenders. At the same time, less risky borrowers could actually benefit as insurers and possibly other lenders shifted their funds toward less risky investments in the wake of a solvency crisis.

A drop in premium receipts would restrict the supply of loanable funds from the industry after a solvency crisis. Premium receipts for the industry may fall because the remaining solvent insurers may not have enough capital and surplus to assume the business of the insolvent insurers immediately. Premium receipts could also fall if policyholders lose confidence in life insurers and redirect their savings to other financial intermediaries.

The supply of loanable funds from insurers could fall for other reasons. Insurance companies could have less money to lend if they needed to pay greater assessments to state guaranty funds or were forced to pay some of the costs of merging with insolvent insurers. In the very short run, a disruption in the flow of funds to credit markets could occur simply because insurance regulators might be overwhelmed by their task of moving existing assets and policies from insolvent to solvent firms.

A net reduction in the supply of funds to corporations, commercial real estate developers, and state and local governments would raise their borrowing costs and hurt the overall economy. Some corporations could be forced to scale down their planned investments in plant and equipment and postpone hiring decisions. Builders of major commercial structures might have to postpone planned construction because loans to finance construction hinge on obtaining longer-term loans, usually provided by insurers. Some local governments and mu-

nicipalities might have to delay various infrastructure projects or be forced to consider levying higher or new taxes and user fees to service higher debt costs.[16] The total economic impact would grow as these impacts spread to other sectors of the economy.

The reduction in credit available to corporations, commercial real estate developers, and state and local governments is likely to be relatively small, however, because other lenders would offset much of the reduction in lending by insurers. The funds that businesses once placed with insurers might instead enter credit markets through newly formed captive insurance companies, risk pools, or reserves built up for self-insuring. The funds that individuals and other investors once provided to insurers also would reach credit markets through savings deposits at banks, thrift institutions, and various types of mutual funds, such as bond funds, money market funds, and tax-exempt funds. Consequently, the funds that no longer flowed through insurance companies would reach the credit markets through different channels.

Although a solvency crisis generally would not greatly affect the total amount of credit available in the economy, it would shift the distribution of credit among borrowers for a time. Some riskier borrowers traditionally served by insurers could have trouble securing new funds at the same interest rate. These borrowers would include small and medium-sized businesses who rely on the private-placement market as a source of funds.[17] They could face temporary problems with raising funds, because they would need to establish relationships with new lenders. This process could take some time before normal borrowing could be reestablished. Some might not be able to borrow as much as they need from new lenders, might not receive the same favorable terms they had obtained from insurers, and might not be able--at least immediately--to obtain funds from other lenders.

At the same time, the shift of funds would actually benefit less risky borrowers. Because a solvency crisis has little impact on the total amount of credit, a reduction in lending to some borrowers means an increase in lending to others. Issuers of high-grade debt would gain as insurers and other lenders switched to less risky assets. Eventually, however, solvent insurers and new entrants into the insurance industry would assume the business of the insolvent insurers, and the flow of funds through the industry would return to more normal levels.

Although the motivating factors were different, such a shift in lending by life insurers occurred during the early 1990s. In the wake of a weak economy, losses on commercial real estate holdings and mortgages, and tighter regulation, life insurers shifted their lending toward less risky borrowers. For example, they generally pulled back from the private-placement market beginning in the second half of 1990. Analysts argued that the pullback created a void in private-placement financing, particularly for below-investment-grade risks, and may have forced some good companies to go without funds at least temporarily and others who could not postpone financing to pay much higher interest rates. Pension funds apparently expanded their lending in the private-placement market, but not enough at least initially to offset the reduced lending by insurers.[18]

16. Municipalities could also face higher borrowing costs from reduced availability of municipal bond insurance in the event of a solvency crisis. The owners of municipal bonds that lost insurance coverage also may suffer capital losses on these bonds. These possibilities were brought to light by the failure of Executive Life Insurance, which backed its insurance on these bonds with its own guaranteed investment contracts. See Jonathan R. Lang, "Flawed Policies, The Executive Life Story Goes from Bad to Worse," *Barron's*, September 2, 1991.

17. In the private-placement market, corporate securities are sold directly to institutional investors, bypassing the public securities markets.

18. See, for example, Mark S. Carey and others, "Recent Developments in the Market for Privately Placed Debt," *Federal Reserve Bulletin*, vol. 79, no. 2 (February 1993), pp. 77-92; and James A. White, "Pension Funds Fill Void in Private-Placement Market," *The Wall Street Journal*, March 10, 1992, p. C1.

## Capital Losses on Bonds and Commercial Mortgages

The interruption in the flow of funds through credit markets also could cause capital losses on bonds--and in the case of life insurers, on commercial mortgages--if many of these assets were sold unexpectedly and in a hurry to cover insured losses by policyholders. Large sales of bonds and commercial mortgages could push down the prices of these assets and harm other financial intermediaries and owners of these assets. For example, unexpected "fire sales" of commercial mortgages and real estate in the weak real estate market of the early 1990s could have been particularly burdensome to banks, thrift institutions, and other insurers that were struggling to recover from losses on these assets.[19] Owners of these assets would be likely to reduce their spending in order to recoup their losses. Some financial intermediaries might reduce their credit extensions particularly to risky borrowers for some time.

## Runs by Policyholders and Investors on Life Insurers

In order to meet heavy withdrawals of cash by policyholders and investors, life insurers may be forced to suffer heavy losses by quickly selling some of their less liquid assets at reduced prices. The financial health of these insurers would be further weakened because they would most likely sell their best assets first, which would be the easiest to sell in a hurry.

Although a large-scale run could have spillover effects that are difficult to foresee, the main economic impacts of a run would be likely to arise from:

- The lower prices on the assets sold at a discount;
- A shift in the normal flow of funds from insurance companies to the credit markets; and
- Losses by policyholders whose assets are frozen when regulators take over the insurers suffering a run.

The first two sources were discussed earlier in this section--asset holders might cut back their spending in order to recoup their losses, and some borrowers could face a minor credit crunch. The third is similar to the first--policyholders might cut back their spending because they do not have access to their funds. Their spending may be further reduced, at least temporarily, because they may be uncertain about the ultimate size of their losses.

All of these impacts could be magnified if the loss of confidence by policyholders spread to depositors in other financial institutions or to owners of other financial assets. A widespread collapse of confidence and asset values is unlikely in a financial market as large and diversified as that in the United States, but the possibility cannot be ruled out.

# Conclusion

A solvency crisis in the insurance industry could temporarily exacerbate the harm inflicted by the losses that created the crisis in the first place, but it is difficult to be very precise about the dimensions of these additional impacts. Total spending in the economy could fall temporarily as consumers and businesses rearrange their spending plans in the face of higher prices for insurance, as borrowers previously served by the insurance industry adjust to a higher cost of credit, and as some asset holders lower their spending plans in the face of capital losses. The near-term magnitude of the drop in spending could be larger if current policyholders bore a large share of the burden of the solvency crisis, but the time necessary for the economy to recover from the losses could be reduced.

19. In the extreme, price declines might even spread to other types of assets and further harm other intermediaries and assetholders.

If it undermined the confidence of policyholders, a solvency crisis could create runs on insurers, which, if left unchecked, could also worsen the near-term decline in spending. These initial declines in spending would grow as they spread to other sectors of the economy, but the total drop in spending would probably not be large for the economy as a whole, except possibly in some worst-case scenarios.

Chapter Four

# Options for Reducing the Risks of a Solvency Crisis in the Insurance Industry

Although the risks of a solvency crisis in the insurance industry can never be eliminated, appropriate policies can significantly reduce those risks. An important policy for reducing the magnitude of a possible solvency crisis is to regulate solvency effectively.

In recent years, analysts have criticized many aspects of the solvency regulation of the insurance industry, which is done entirely at the state level. The states are working to strengthen their solvency regulations, but some analysts believe that the states will never fill all of the gaps and create a uniform system of minimum standards for effective solvency regulation nationwide. Consequently, some policymakers have proposed a larger role for the federal government in regulating the solvency of insurers.

Even a sound insurance industry, however, may be unable to cover catastrophic increases in claims arising from natural disasters and other sources (see Chapter 2). Property and casualty insurers do not hold sufficient reserves to cover truly catastrophic amounts of claims, and such claims would account for a significant fraction of the capital and surplus of the industry. Policymakers have therefore considered options to help strengthen the ability of the industry to cover the losses from natural catastrophes, and these options also affect the chances of a solvency crisis.

Finally, the run on the Mutual Benefit Life Insurance Company in 1991 clearly showed that life insurers are exposed to the risk of runs by policyholders. Runs by nervous policyholders could force insurers to suffer losses from selling illiquid assets on short notice and create solvency problems for some insurers. As a result, policymakers are considering options designed to expand the liquidity of the life insurance industry and reduce the chances of destructive runs.

## Options for Improving Solvency Regulation and Strengthening the Guaranty Funds

Options run the gamut from letting the states continue their efforts to strengthen their system to creating a new federal agency to supervise and regulate the insurance industry. The federal options exist because some analysts doubt that the states will ultimately succeed in strengthening their systems. The doubts are not so much about whether the states can devise strong solvency regulations but whether all of the states will put in place and enforce a uniform system of effective minimum standards for solvency regulation nationwide. Such a system would limit the possibility that insurers, and even individual states, could take advantage of the current system of solvency regulation. The proposed federal roles could remove doubts about the uniformity of minimum standards nationwide,

but they would not eliminate the possibility that the states could force the federal government to pay for the costs of a future solvency crisis.

## The State System of Solvency Regulation and Guaranty Funds

The option of letting the states strengthen the existing system continues the history of state regulation of insurance companies. The first insurance companies were located and wrote policies in a single state and were subject to the regulations of that state. Later, as the nation and the insurance industry grew, state responsibility for regulating the solvency of insurance companies rested on an 1869 ruling by the Supreme Court that an insurance contract was not an instrument of commerce and, consequently, not interstate commerce subject to federal regulation, including federal antitrust law. The Supreme Court overturned this position in 1944, but in the McCarran-Ferguson Act of 1945, the Congress gave the states continued authority to be the primary regulators of the insurance industry.[1]

This act also granted the insurance industry a qualified exemption from federal antitrust scrutiny.[2] One rationale for this exemption is that it allows insurers to use standardized insurance contracts and to pool their information on losses to establish actuarially sound insurance premiums and reserve levels. Such information is especially important for property and casualty insurers covering risks that are difficult to underwrite, such as general liabilities. Critics charge that the exemption allows insurers to collude and set above-market premium rates, but this view is not widely shared.

**Regulation.** Each state, the District of Columbia, and Puerto Rico, American Samoa, Guam, and the Virgin Islands has its own insurance department, run by an elected or appointed commissioner, to enforce its own set of laws and regulations governing all aspects of its insurance market. These laws and regulations cover licensing insurance companies, setting premium rates, establishing standards for safe and sound business practices, examining insurers, determining actions that regulators can use to deal with financially impaired insurance companies, and operating the state guaranty funds. They also address complaints by consumers about other aspects of the operations of insurers, such as how quickly loss claims are paid. Partly because of the different circumstances in each state, such as the number and size of insurers licensed there, states employ different amounts of resources in their insurance departments.

Although the state insurance departments are independent of each other, they have worked out several voluntary, cooperative arrangements to exploit the overlap of their responsibilities. One arrangement concerns examining insurers.

Theoretically, an insurer licensed to operate in more than one state (a multistate insurer) is subject to the solvency regulations of every such state, meaning that each state would need to examine the insurer regularly. Because multiple examinations would be a burden on insurers and an unnecessary duplication of effort by state regulators, the state in which the insurer is legally chartered or domiciled (the home state) takes the lead in examining the insurer. Consequently, a multistate insurer effectively may be subject only to the solvency regulations of its home state, though it will face different regulations on other aspects of its business practices, such as premium rates.[3]

1. See David Whiteman, "Insurance Industry Regulation and Supervision: A Reexamination of the McCarran-Ferguson Act of 1945," 1B-86149 (Congressional Research Service, August 25, 1988), p. 1.

2. Stock-chartered insurance companies are subject to oversight by federal authorities, such as the Securities and Exchange Commission, that are responsible for monitoring corporate behavior.

3. General Accounting Office, *Insurance Regulation Problems in the State Monitoring of Property/Casualty Insurer Solvency*, GAO/GGD-89-129 (September 1989), p. 23.

Another arrangement is the National Association of Insurance Commissioners (NAIC), which includes the insurance commissioners of the 50 states, the District of Columbia, Puerto Rico, American Samoa, Guam, and the Virgin Islands. The NAIC supports state efforts by maintaining a central data base containing financial data and other relevant information on insurance companies and by analyzing the financial statements of insurers. The NAIC also recommends procedures for examining insurers and valuing assets, among others, and model laws and regulations for use by the states. The NAIC, however, has no authority to compel the states to adopt its recommendations, which critics view as a compelling argument in favor of a greater federal role in regulating the solvency of insurers.

**Guaranty Funds.** Guaranty funds attempt to limit the losses that policyholders may suffer when their insurer fails. In doing so, the funds also limit the potential for runs by policyholders. The funds were first started in the late 1960s in response to a rash of insolvencies of automobile insurers. Since then, every state and the District of Columbia has created funds covering various lines of property and casualty insurance as well as certain life and health insurance policies and products sold in its jurisdiction.

With the exception of New York, states collect monies to finance their guaranty funds only after an insolvency occurs; as discussed later, this method does not limit the potential for insurers to take advantage of the system. When an insurer that writes lines of business covered by the guaranty fund becomes insolvent, the fund estimates how much it will cost to cover the insolvent insurer's obligations to policyholders in that state. The fund then collects the necessary monies by assessing the remaining solvent companies (chartered in the United States and abroad) that are licensed in the state and write the same lines of business. Total assessments paid by an insurer in a given year to cover the costs of all relevant insolvencies in the state are capped at 2 percent of the insurer's annual premiums in most states. If the assessments are insufficient to cover the insolvent insurers' obligations to policyholders, the solvent insurers may be assessed in successive years. The NAIC's model law on guaranty funds allows a fund to borrow against future assessments, although it is difficult to know how easily funds could do so in the event of a solvency crisis.

Guaranty funds do not cover all policyholder losses in full, however. They do not cover all lines of business, and the amount of protection varies by state. Many states exclude certain types of property and casualty insurance such as financial guaranty and ocean marine insurance. Some life and health guaranty funds do not cover all types of annuities and guaranteed investment contracts. Guaranty funds cover only policyholders of licensed insurers; members of risk-retention groups and policyholders of surplus lines and other unlicensed insurers are not covered and would need to seek repayment by other means. Some state guaranty funds only cover policyholders who are residents of their state, as specified in the model laws of the NAIC, and other funds cover all policyholders of an insolvent insurer domiciled in the state.

Property and casualty guaranty funds in most states and the District of Columbia place the maximum protection for policyholders at the lesser of $300,000 or the amount of the insurance policy limit; except for California, the remaining states (including Puerto Rico) have lower maximums. A few states do not cover property and casualty claims of policyholders whose net worth exceeds a certain limit, generally $50 million. Most states, Puerto Rico, and the District of Columbia have deductibles for claims of losses filed on policies of insolvent property and casualty insurers. Most deductibles are $100, but they range between $10 and $200. Unearned premium payments on property and casualty policies are covered by almost every state, but a cap or deductible limits the amount covered in some states.

Life and health guaranty funds in most states cover direct life policies to a limit of $300,000 in death benefits, $100,000 in cash surrender value for life insurance, $100,000 in

present value of annuity benefits, and $100,000 in health benefits. Many life and health guaranty funds limit the total benefits payable to $300,000 per policyholder. Less than half of the states cover unallocated annuity contracts, which are a type of guaranteed investment contract; their maximum coverage is usually only $5 million on any one contract, which could effectively be owned by many beneficiaries. Unearned premiums on life and health policies are not returned to policyholders because the guaranty funds continue coverage for the full policy period, either directly or by transferring the policy to another insurer or administrator. In the event of a solvency crisis, however, policyholders could lose some or all of their unearned premiums.

Although the solvent insurers pay assessments to their guaranty fund, they do not take all of the assessments out of their profits. Insurers can pass the cost of the assessments onto state taxpayers through a credit on their premium taxes or to policyholders through higher premiums, depending on state law. Even federal taxpayers pay a small portion.

## Efforts by the States to Improve Solvency Regulation and Guaranty Funds

The option of letting the states strengthen their system relies on the efforts of the NAIC to create a stronger and uniform system of minimum standards. The NAIC's Financial Regulation Standards (FRS) is supposed to supply the strengthening, which the NAIC defines as the minimum standards for effective solvency regulation at the state level. The uniformity is supposed to come from the NAIC's accreditation program, which is designed to elicit the voluntary adoption of the FRS by every state.

Because the NAIC lacks the authority to require all states to adopt its FRS, it has included an incentive for states to become accredited in its model law on examinations. The incentive is that accredited states may not accept examinations of insurers by nonaccredited states except in limited circumstances. Consequently, multistate insurers operating in nonaccredited states will face the added costs of multiple examinations, which, in the NAIC's view, will put pressure on their home states to become accredited.

**The Accreditation Program.** This program is designed to establish uniform minimum standards for solvency regulation in all states. The program consists of two parts: a thorough, on-site review of state insurance departments every five years, and interim reviews every year.

The on-site review attempts to cover all of the relevant aspects of a state's regulatory function. The review team submits a report to the NAIC's Financial Regulation Standards and Accreditation Committee, which decides whether the state meets all of the requirements for accreditation.

The interim annual reviews are conducted on the first four anniversaries of the state's accreditation. The purpose of these interim reviews is not only to ensure that states are making all improvements recommended by the on-site review teams, but also to ensure that the states continually update their laws and regulations for changes in the FRS.

**Financial Regulation Standards.** The NAIC considers these standards to be the minimum ones for effectively regulating the solvency of insurers. They address all of the major aspects of solvency regulation and include the NAIC's current model laws and regulations and its recommended accounting, asset valuation, and examination procedures. In particular, the standards attempt to incorporate some important lessons learned from the solvency crisis in the savings and loan industry, including the importance of strong, risk-based capital requirements and early actions to correct problems of financially impaired

companies.[4] The standards are classified into three groups:

- Laws and regulations that states must have to define safe and sound business practices and reporting requirements for insurers and to establish the authority of the state insurance department to examine insurers;
- Regulatory practices and procedures for financial analyses and examinations of insurers and for dealing with financially impaired insurers; and
- Necessary organizational and personnel practices for an efficient and professional insurance department.

Although the FRS addresses all of the major areas necessary for effective solvency regulation, early forms of some standards have been criticized as too general to be useful in establishing a uniform system of effective nationwide solvency regulation. Of course, it is impossible to set specific or rigid requirements or conditions for all possible contingencies. Moreover, the lack of specificity in some cases may reflect a tension between a desire by the states for flexibility in setting their own regulations and the need to set up specific standards. But more specific guidelines are possible in some important areas.

One area in which the NAIC has provided more specificity is capital requirements for insurers. The NAIC adopted in December 1992 new, risk-based capital requirements for life and health insurers; those requirements include specific trigger points for early regulatory actions when capital levels fall below the required levels.

The requirements gear the amount of capital that an insurer must hold to the size of the various risks assumed by the insurer. These risks include not only those inherent in the insurer's assets, similar to the risk-based capital requirements for banks and thrift institutions, but also the insurance, interest rate, and business risks assumed by the insurer. These new requirements and trigger points may not be effective until the end of 1995, however, because the NAIC allows the states two years to adopt new model laws added to the FRS. In 1993, the NAIC proposed specific, risk-based capital requirements for property and casualty insurers, which are similar in spirit to those for life and health insurers. Those requirements may not be in place for several years.

**Progress of the Accreditation Program.** The accreditation program has had some early problems. The General Accounting Office found that the program suffered from inadequate documentation, procedural requirements, and attention to how well state regulators are implementing their existing regulatory authority and required practices.[6] These may have been only temporary start-up problems for the program that were or are being corrected, but GAO continued to criticize the program in a follow-up analysis.[7]

Moreover, the NAIC has not yet accredited all 50 states. By early December 1993, only 32 states had accreditation, with a number of important states, such as Connecticut and New York, still not accredited.

Nevertheless, apart from formal accreditation, the states have worked hard to improve

4. These and other lessons of the solvency crisis in the savings and loan industry are discussed in Lawrence J. White, *The S&L Debacle* (New York: Oxford University Press, 1991).

5. Charles Schmidt, "Regulators Adopt RBC Standards for Life/Health Insurers," in A.M. Best Company, Inc., *Best's Review: Life/Health Insurance Edition* (Oldwick, N.J.: A.M. Best Company, Inc., January 1993), pp. 105-107.

6. General Accounting Office, *Insurance Regulation: Assessment of the National Association of Insurance Commissioners*, GAO/T-GGD-91-37 (May 22, 1991); and General Accounting Office, *Insurance Regulation: The Financial Regulation Standards and Accreditation Program of the National Association of Insurance Commissioners*, GAO/T-GGD-92-27 (April 9, 1992.)

7. General Accounting Office, *Insurance Regulation: The National Association of Insurance Commissioners' Accreditation Program Continues to Exhibit Fundamental Problems*, GAO/T-GGD-93-26 (June 9, 1993).

their efforts at solvency regulation. For example, the NAIC noted that 42 states adopted changes consistent with its FRS in 1991.[8] In 1992, 40 states and the District of Columbia adopted changes consistent with the FRS; the average number of changes for those states was five. Without a formal review, however, it is difficult to know how effective and useful these changes may be.

## Concerns About the Current State System for Solvency Regulation

By accident or design, the state system for regulating the solvency of insurers has worked fairly well until recently. The number and cost of insolvencies have been relatively low for many years, especially when compared with the solvency crisis in the savings and loan industry, and have required little attention by federal policymakers. Strains in the system have appeared more recently, however. Although analysts debate the role played by the state system in intensifying these strains, concerns remain about the lack of uniform minimum standards for solvency regulations among states; the ability of the states to manage a solvency crisis; the ability of the states to regulate insurers chartered abroad (alien insurers); moral hazard in, and unequal coverage by, the state guaranty funds; and the extra costs of regulation imposed by multiple state jurisdictions.

**Lack of Uniform Minimum Standards for Effective Solvency Regulation.** A major concern is the ability of the states to establish and enforce a uniform system of minimum standards for effective solvency regulation. Certainly, the states have the power to do so. For example, in another context, every state except Louisiana has adopted the Uniform Commercial Code, and Louisiana's code is close enough that it has not hindered commerce with other states.

However, the incentives for the states to adopt uniform minimum standards for effective solvency regulation may not be very strong because an uneven state system contains two and possibly three important weaknesses. One is that insurers might be able to take advantage of, or "game," a system of uneven standards. As noted earlier, multistate insurers are effectively subject to the solvency regulations of their home states. If the minimum standards for solvency regulations vary among states, different insurers will be subject to solvency regulations of varying effectiveness. This diversity gives insurance companies an opportunity to avoid strong solvency regulations by locating their headquarters in states with weak regulations.

This problem would not arise if the costs and benefits of a state's solvency regulations remained solely within the state. In that case, the state would pay all of the costs of its weak solvency regulation. The problem exists because other states share the costs and benefits, chiefly through the workings of their guaranty funds. A state benefits from strong solvency regulations used by other states, and it may be forced to bear some of the costs of the insolvencies arising from weak solvency regulations used by others. This sharing of the costs and benefits creates a second weakness--individual states might also be able to game the system. The states may have an incentive to save on the administrative, enforcement, and other costs of solvency regulation by employing weak standards because other states pay some of the costs of reimbursing policyholders of insolvent insurers through the state guaranty fund system.

Some analysts worry that a third flaw is inherent in any state system of solvency regulation--the states together might be able to game the system against the federal government. The federal government has no explicit contingent liability to cover the costs of a possible solvency crisis in the insurance industry. However, some analysts believe that

8. Testimony of the National Association of Insurance Commissioners before the Subcommittee on Oversight and Investigations of the House Committee on Energy and Commerce, April 9, 1992, p. 9.

the federal government already has an implicit contingent liability to cover the costs because it has covered some of the costs of other large catastrophes in the past. Knowing that the federal government may respond to a solvency crisis, all of the states have an incentive to skimp on their efforts to regulate solvency.

Although these weaknesses exist in theory, their practical importance is difficult to ascertain. It is not clear that many, even any, insurers or states currently game the system in these ways; determining this probably would require a significant amount of research. Blunting these incentives are those for state regulators to maintain strong solvency regulations to avoid the political fallout arising from a spate of insolvencies whose costs were passed on to state policyholders and taxpayers. Nor is it clear that the federal government already has an implicit contingent liability to cover the costs of a solvency crisis in the insurance industry.

The NAIC also believes that peer pressure among state regulators, political support from multistate insurers, and incentives--such as the one already used by the NAIC--will be sufficient to compel every state to adopt and maintain uniform minimum standards. Indeed, with considerable attention focused on this issue, the states are working to bring their solvency regulations in accord with the NAIC's Financial Regulation Standards.

It is worth noting, however, that several oft-cited benefits of the state system are incapable of compensating for the lack of uniform minimum standards for effectively regulating solvency. The diversity of the state system can be viewed as a strength because the system can be diversified with 50 different regulators, which reduces the odds of a massive regulatory failure. Moreover, the states may be more likely to maintain a strong system of solvency regulation because they have introduced innovations in other areas of state concern, such as welfare reform. Insurers also may choose to locate in a state that has strong solvency regulations to gain an advantage in marketing their products. However great these benefits may be, they do not eliminate the potential problems created when the states use different minimum standards for regulating insurers.

**Ability to Manage a Solvency Crisis.** Another major concern is whether the state system can handle a solvency crisis involving a large number of insurers. The states have been straining to handle the large number of insolvencies of insurers in recent years, and the capacity of some guaranty funds has been equally strained. Numerous insolvencies in a crisis could overwhelm the states and cause long delays in resolving insurers and making payments to policyholders. In such circumstances, regulators may resort to forbearance to manage the caseload, as they did in the savings and loan crisis.

Forbearance is the policy of allowing financially impaired companies to remain in business without appropriate restrictions on risk taking in the hope that the companies will solve their financial problems. The policy is risky because it gives financially impaired companies an incentive to adopt a risky business plan that promises large gains. Because many of these risky business plans fail, however, forbearance simply raises the costs of the subsequent insolvencies. For example, the Congressional Budget Office has estimated that forbearance by the regulators of the savings and loan industry raised the taxpayers' cost of cleaning up the savings and loan crisis by $66 billion in 1990 dollars.[9]

Apart from simple delays in covering the losses of policyholders, some analysts have been concerned that the state guaranty funds do not have sufficient capacity to cover the costs of continued large numbers of insolvencies. Because the funds, except for New York's, do not hold reserves that can be drawn down in the event of an insolvency, the assessments resulting from the insolvency of a large insurer or from the insolvencies of many

9. Congressional Budget Office, "The Cost of Forbearance During the Thrift Crisis," CBO Staff Memorandum (June 1991).

smaller insurers could exceed the amount the remaining solvent insurers could be expected to pay over a reasonable period of time.

That possibility is particularly relevant in the case of a massive natural catastrophe, but also is relevant for the recent solvency problems in the life and health industry. For example, the National Organization of Life and Health Insurance Guaranty Associations estimated that the annual capacity of all life and health guaranty funds in 1992 was about $3 billion.[10] Yet, as noted in Chapter 1, the assessments for Executive Life alone are expected to total $2.1 billion. The simultaneous insolvency of several large life insurers would put a severe strain on the guaranty funds.

Some guaranty funds for the policyholders of property and casualty insurers have also faced some strains. In 1990, for example, 12 states were using at least 25 percent of the capacity of their property and casualty funds, seven states more than 50 percent, and two states 100 percent. The system has also faced large funding requirements for past insolvencies. The National Conference of Insurance Guaranty Funds estimated in 1991 that additional assessments needed for all past insolvencies of property and casualty insurers through 1989 amounted to more than $500 million.[11] This amount compares with total net assessments by all property and casualty guaranty funds in 1990 of about $450 million, and an estimated capacity for the system as a whole of about $2.8 billion using premium data for 1990.

**Problems Regulating Alien Insurers.** Another concern is whether the existing state system can effectively regulate insurers chartered abroad--known in the industry as alien insurers and reinsurers. The failure of an alien reinsurer could have severe consequences for U.S. insurers and policyholders because alien reinsurers write a significant amount of business in the United States. Although the states license branches and subsidiaries of alien insurers and reinsurers to write business in their jurisdictions, their ability to monitor them effectively is limited.

Whether alien insurers and reinsurers present a large risk of a solvency crisis in the United States is not clear, but alien insurers have caused losses for policyholders in the market for surplus lines in some states. This market handles lines of insurance that licensed insurers do not handle and hence is very small relative to the whole insurance market. Surplus-lines insurers must be licensed in their home state, but are not licensed to write surplus lines in other states. Although they must meet some minimum standards that vary by state, these standards have proved inadequate in some states, most recently in California. A number of policyholders in the riot-torn areas of Los Angeles in 1992 were unable to collect their claims on alien surplus-lines insurers.[12]

**Moral Hazard in the Guaranty Fund System.** A serious flaw in the guaranty fund system is the pricing method used to collect funds from the solvent insurers. Assessments by the guaranty funds are collected after an insolvency occurs; they are a fixed percentage of net premiums and do not depend on the amount of insolvency risk that insurers present to the fund. Consequently, an insurer has an incentive to undertake risky business and investment strategies, especially when its capital level is low. This situation raises the chances of insolvency and additional costs to the guaranty fund system. Such incentives

10. Testimony of Jack H. Blaine, Acting President, National Organization of Life and Health Insurance Guaranty Associations, before the Subcommittee on Antitrust, Monopolies and Business Rights of the Senate Committee on the Judiciary, April 28, 1992. Testimony of the American Council of Life Insurance at this hearing noted that this estimate is low because it does not include the capacities of the newly created guaranty funds in Colorado, Louisiana, and New Jersey.

11. A.M. Best Company, Inc., *Best's Insolvency Study: Property/Casualty Insurers, 1969-1990* (Oldwick, N.J.: A. M. Best Company, Inc., June 1991), p. 14.

12. Testimony of Donald J. Greene before the Subcommittee on Commerce, Consumer Protection, and Competitiveness of the House Committee on Energy and Commerce, April 28, 1993.

contributed to the enormous costs of the savings and loan crisis.

**Extra Costs of Multiple State Jurisdictions.** The multiplicity of state regulatory systems raises the costs of compliance for multistate insurers. Although this issue is unrelated to the risks of a solvency crisis, it does affect the price of insurance for consumers and businesses. Some of the added costs are blunted, since the home state takes the lead for solvency regulation. But these insurers still need to comply with other regulations regarding premium rates, guaranty fund assessments, and services to policyholders, for example. Some analysts question whether the extra costs are worth the benefits that accrue from allowing the states to determine the nature of their individual insurance markets.

**Unequal Coverage by the Guaranty Funds.** The unequal treatment of policyholders by the states, though not a factor in the risk of a solvency crisis, is a source of concern on grounds of equity. Some observers feel that it is unfair that policyholders insured by the same insurer but living in different states may receive different fixed-dollar amounts and types of protection by the guaranty funds, particularly in the case of annuities and other investment assets such as guaranteed investment contracts. They prefer uniform amounts of protection nationwide. The NAIC counters that substantial, though not complete, uniformity exists among the states.[13]

In some respects, such uniform treatment may not necessarily be desirable or efficient. The different fixed-dollar limits give the states the flexibility to tailor guaranty fund protection to their local costs of living and property values. States with a large population of retired people may also prefer more protection for investment assets than other states. Moreover, policyholders in states with relatively low levels of protection are not necessarily being shortchanged. In return for a lower level of protection, these policyholders presumably pay lower premiums or state taxes to finance their guaranty fund, depending on how their states allow insurers to treat the costs of assessments by the guaranty fund.

## Other Options for Creating a Stronger, More Uniform System of Solvency Regulation

Concerns such as these have spurred policymakers to propose other ways of strengthening the solvency regulation of insurers and the protection of policyholders. These proposals attempt to create a stronger and more uniform system of solvency regulation and uniform protection of policyholders nationwide, and some call for a larger role for the federal government in the solvency regulation of insurers by amending or repealing the McCarran-Ferguson Act. Although some of these proposals overcome one or more of the moral hazards mentioned earlier, none of the proposals eliminates the potential for the states to ignore solvency concerns when regulating insurance premiums.

Proposals for a larger federal role in solvency regulation are particularly worrisome because they could create an implicit contingent liability for the federal government to cover the costs of a solvency crisis. At this point, it is hard to predict how effective the proposed federal standards for solvency regulation would be, since the proposals do not spell all of them out in detail. In general, however, they cover the same ground as the NAIC's Financial Regulation Standards.

**Establishing an Interstate Compact.** An association of state legislators, the National Conference of Insurance Legislators, has proposed a compact among all of the states titled the Interstate Insurance Protection Compact. This compact is limited in scope. It would attempt to improve the process of resolving insolvent insurers and protecting policyholders

13. Testimony of William McCartney, President of the National Association of Insurance Commissioners, before the Subcommittee on Policy Research and Insurance of the House Committee on Banking, Finance and Urban Affairs, July 29, 1991.

by creating an interstate commission to establish and administer a uniform system for the administration of insolvencies of insurers. The commission would also oversee and coordinate the activities of the existing state guaranty funds or create and administer a national guaranty fund. Although the proposal addresses an important need to coordinate better the resolution of insolvent, multistate insurers, it does not go as far as it could in establishing and enforcing uniform standards for regulating solvency nationwide.

**Empower the NAIC.** This proposal would have the federal government empower the NAIC to act as a national regulatory body. The states would then be compelled to adopt all of the standards of the NAIC, removing all doubt about the uniformity of minimum standards for solvency regulation and guaranty funds nationwide. Of course, doubts might remain about how well the states would enforce the solvency regulations and resolve multistate insurers that were financially impaired. GAO questions the practicality of this option both because it feels that the option would create a conflict of interest by making the insurance commissioners accountable to both state and federal authorities and because the option may be unconstitutional.[14] Nonetheless, others disagree with this view.

**Create a Self-Regulatory Organization.** The proposal for a self-regulatory organization (SRO) would create an organization of insurers to set and enforce its own solvency regulations that the federal government would oversee. It would be similar to other SROs such as the National Association of Securities Dealers. Like other SROs, it might set tough standards as a way of distinguishing its member companies from other insurers and attracting customers. However, just how this SRO would handle financially impaired insurers and whether it would create its own guaranty fund is not at all clear.

The chief benefit of this proposal is that it would establish uniform, and presumably tougher, standards for solvency regulation for its members. However, in doing so, solvency regulation would be independent of other regulations imposed by the states on the SRO members. The SRO would regulate the solvency of its members, and the states would regulate the solvency of the remaining insurers and the business operations of all insurers.

A potentially important drawback of this proposal is that it could create a conflict between the SRO's solvency regulations and states' efforts to regulate insurance premiums. If the SRO were responsible for resolving its members that become insolvent, the states would have an incentive to hold down premiums with little regard for the financial health of the members of the SRO. If carried to the extreme, this conflict could create solvency problems in the industry.

Another drawback of this proposal is that it could raise the cost of solvency regulation. Members of the SRO might be forced to finance both the SRO and the state system; or if the members of the SRO were exempt from supporting the state system, the total costs of both systems might increase if economies of scale in the cost of the state system were lost. Because the costs of supporting these systems for solvency regulation are expenses for tax purposes, taxpayers would bear a small portion of any additional costs. These costs would be at least partly offset if insurers could reduce costs by complying with a single set of regulations.

**Set Standards for Federal Solvency Regulation.** All states would have to use the same set of minimum standards for solvency regulation under this proposal. The states would enforce these standards and regulate other busi-

14. These questions were expressed in "Insurance Regulation: Assessment of the National Association of Insurance Commissioners," statement of Richard L. Fogel, Assistant Comptroller General, General Government Programs, Government Accounting Office, before the Subcommittee on Oversight and Investigations of the House Committee on Energy and Commerce, May 22, 1991. The NAIC's written views are given in testimony by the National Association of Insurance Commissioners before the Subcommittee on Policy Research and Insurance of the House Committee on Banking, Finance and Urban Affairs, July 29, 1991.

ness practices of insurers, such as premium rates, as they do now. A federal commission would certify state insurance departments as meeting these minimum standards. This proposal contains a powerful incentive for the states to maintain their certification: a state needs federal certification to license domiciled insurers to write insurance in other states. If a state lost its certification, all domiciled insurers would be prohibited from writing business outside the home state. This proposal would also create a national guaranty fund that would be financed by federally certified insurers, but how the fund would operate is not clear because those details would be left up to the fund's board of directors.

The chief benefit of this proposal is that it would establish a uniform set of minimum standards for regulating solvency nationwide, although the adequacy of the provisions is unclear because the details are not specified in the proposal. The proposal, however, suffers from two potentially serious drawbacks. One problem is that the states would not have to deal with any insolvencies that resulted from strict regulations on premiums. The existence of a national guaranty fund could therefore give the states an incentive to ignore solvency issues when regulating insurance premiums.

The second drawback is that it may be difficult for the federal government to limit its liability to protect all policyholders in the event of a collapse of the national fund. Although the proposals do not back the national guaranty funds with the full faith and credit of the federal government, greater participation in solvency regulation may create an implicit contingent liability for the federal government to cover the costs of both the national and state guaranty funds in the event of a solvency crisis in the industry. Some analysts would argue that the implicit liability already exists given the federal government's past responses to national catastrophes, but that is far from clear.

The proposal could also raise the costs of solvency regulation for society by adding an extra layer of oversight and possibly another guaranty fund if the state funds were not phased out. Although the proposal requires insurers to pay the costs of the commission and the guaranty fund, taxpayers would bear part of these costs because they would be expenses for tax purposes. As with all efforts to regulate solvency, this proposal is not immune to inadequate standards and enforcement mechanisms.

**Add a Federal Regulatory Agency.** Two different proposals would add a federal regulator to state systems of solvency regulation. One would create a federal agency to regulate only alien insurers and reinsurers. These insurers would need to be federally certified to conduct business in the United States, and U.S. insurers would not be allowed to take credit for any reinsurance from alien reinsurers that did not have federal certification. Although the proposal does not specify whether alien insurers would continue to pay into the state guaranty funds, it does require them to maintain a capital reserve with the federal agency to secure the payment of claims by U.S. policyholders.

The benefit of this proposal is that it offers the potential to strengthen the oversight and regulation of alien insurers and reinsurers, though many details remain to be worked out. A potential drawback is that it could create an unlevel playing field for domestic and alien insurers. The proposal could give aliens a cost advantage by subjecting them to only one solvency regulator, or it could give domestic insurers the advantage if alien insurers were subjected to particularly strict and costly solvency regulations.

A second proposal would create a new federal agency to regulate alien insurers and reinsurers, U.S. multistate insurers, and all U.S. reinsurers. U.S. multistate insurers could be licensed and regulated at either the state or the federal level but would be required to meet the same set of solvency regulations in either case. Insurers that write policies in only one state would be licensed and regulated by that state, which could use a different set of solvency regulations for these insurers. Com-

panies that only write reinsurance (professional reinsurers) would be regulated solely at the federal level. All insurers would remain subject to other state provisions governing the state insurance market, such as rate regulations, unless those provisions interfered with the federal solvency standards.

This proposal would also create two nonprofit, self-regulatory corporations: a national guaranty fund, and a board to license insurance agents, brokers, and consultants to operate nationwide. All federally chartered insurers would be required to be members of the national guaranty fund, which would be refunded, but assessments by the fund would not be required to be risk-based. The licensing board would be funded by assessments paid by its members.

The chief benefit of this second proposal is that it would establish a nationwide, uniform set of solvency regulation standards for multistate insurers, with particular attention to both domestic and foreign reinsurers. Because the details of these provisions have not been settled yet, the adequacy of the standards remains in question.

An important drawback to this proposal is that it may create an implicit contingent liability for the federal government to cover the costs of a solvency crisis. Moreover, it does not give the states a strong incentive to account for the impact of their rate and other regulations on the solvency conditions of federally chartered insurers. Because it creates a full-blown federal regulatory agency, the costs of this system and the potential conflict with state efforts to suppress insurance premiums would probably be greater than for the systems created by either the SRO or the federal standards proposal. Moreover, as with all efforts to regulate solvency, this proposal could be susceptible to inadequate standards and enforcement over time.

**Reform the Guaranty Funds.** Several proposals have been made to protect policyholders from losses associated with the insolvency of their insurers. One that appears to have widespread support would limit the coverage of commercial policyholders while protecting third-party claims on these policyholders. The main benefit of this proposal would be to reduce the moral hazard in the guaranty fund system because commercial policyholders would have greater incentive to monitor the financial condition of insurers. Another proposal simply calls for making the coverage of guaranty funds uniform among the states to eliminate what some people view as the inequity of a system of different coverages.

Other proposals call for more radical changes to the system. One would prefund the state guaranty funds using assessments based on the risk of insolvency posed by the insurers. This proposal would expand the capacity of the system to the extent that sufficient reserves could be built up. More important, proper risk-based assessments would help to control the moral hazard problem by forcing insurers to balance the expected benefits of riskier business activities with higher assessments by the guaranty fund. The insurance industry may be somewhat wary of guaranty funds that require building reserves before insolvencies occur because state legislatures may be tempted to expropriate the reserves during periods of budgetary crises, as happened in New York State during the early 1970s.

Some insurers may also worry that insurance regulators would waste the funds by supporting weak insurance companies that eventually fail. But the stronger, better managed firms in the industry should welcome a more efficient allocation of the costs of the guaranty fund system.

As noted in the previous section, other proposals would do away with the state funds and create a national guaranty fund supervised at the federal level. A national system, of course, would standardize the amount of protection given to policyholders nationwide. It would also effectively expand the capacity of the system. Although multistate insurers might not pay any more in assessments than they do in the state system, policyholders would not be

restricted to receiving payments based on the assessments collected solely by their states but could draw from a national reserve.

Nevertheless, the system would be vulnerable to the moral hazard problem and the high costs that plagued the federal deposit insurance system if the premiums were not risk-based and if the solvency regulation of insurers--in particular, capital requirements--were inadequate. Moreover, federal taxpayers could be left holding the bag in the event of a collapse of the national fund. The system would also temporarily impose extra costs on insurers because at least one proposal requires insurers to pay into the system until a to-be-determined amount of reserves are raised.

## Options for Limiting Solvency Problems Arising from Natural Catastrophes

Record levels of losses from natural catastrophes in recent years have created sizable losses for the property and casualty industry, the insolvency of a number of small insurers, and large amounts of federal disaster assistance. The potential losses arising from a truly devastating earthquake or hurricane in a highly populated area are even greater and could create a solvency crisis in the property and casualty industry. Consequently, policymakers have examined a number of proposals aimed at expanding the nation's capacity to pay for these losses and do so more efficiently. The more ambitious proposals combine:

- A primary insurance program run by the federal government to cover losses on residential property from natural catastrophes; and
- A federal reinsurance program for property and casualty insurers to cover the bulk of their losses from natural catastrophes in excess of a threshold amount; with
- A broader federal program to encourage the private sector to mitigate the damage from natural disasters.

The primary insurance and mitigation programs attempt to improve the allocation of the risks of natural catastrophes. Currently, because many property owners do not adequately insure against these risks, federal taxpayers pay some of these losses through federal disaster assistance. This approach spreads the losses widely, but taxpayers facing small risks from such natural disasters are subsidizing other taxpayers who are facing large risks. The subsidy gives property owners in high-risk areas an incentive to underinsure and ignore ways to mitigate losses from these disasters, which increases the potential losses from these disasters and the cost to taxpayers. These programs attempt to reduce the value of this subsidy by encouraging property owners to purchase catastrophe insurance and undertake mitigation efforts, thereby better allocating risk and resources in the economy.[15]

Although these proposals could achieve a better allocation of the risks and costs of natural catastrophes and expand the availability of reinsurance, it might be possible to achieve these important benefits without full-scale federal programs. It is difficult to determine how successful the proposals could be because they do not specify the exact terms of the insurance and reinsurance programs and the requirements of the mitigation program. A risk of these proposals is that they could increase the amount of losses from natural catastrophes that the federal government bears if the insurance and reinsurance programs are not

15. Improving the allocation of the risks of natural catastrophes would also improve the ability of society to recover the losses from these catastrophes more quickly. Under current fiscal policies, a portion of federal disaster assistance typically adds to the federal deficit, which tends to raise interest rates and lower other investment. These federal proposals would help to make these impacts temporary because they require the insurance programs to be self-financing.

priced properly and if the mitigation program proves to be ineffective. To the extent that they do reduce the chance of such a solvency crisis, they do so by shifting many of the risks of catastrophic losses from insurers to the federal government.

## Establish a Federal Primary Insurance Program

Recent proposals for a federal primary insurance program vary in scope and in the requirements for participation. One proposal--H.R. 2806, the Earthquake Hazards Reduction Amendments Act--would only cover losses from earthquakes. It would require all homeowners in earthquake-prone states holding a federally related mortgage (which includes loans provided by federally insured financial institutions, those insured by federal agencies, and loans eligible for purchase by the Federal National Mortgage Association, the Government National Mortgage Association, or the Federal Home Loan Mortgage Corporation) to purchase the insurance from a private insurer or the federal government. Another proposal--H.R. 2873 and S. 1350, the Natural Disaster Protection Act--would extend the coverage to include losses from volcanic eruptions, though it would not require any homeowners to purchase the insurance. A third proposal--H.R. 935, the Earthquake, Volcanic Eruption, and Hurricane Hazards Insurance Act--would go even further and include coverage for losses from hurricanes. Like the first proposal, it would require homeowners holding a federally related mortgage to purchase the insurance from private insurers or the federal government.[16] All of these proposals require the federal insurance program to be self-financing and would allow the programs to borrow temporarily from the Treasury if their reserves were insufficient to cover their losses.

Although commercial property would not be covered, the proposals go some way toward expanding the purchase of this insurance by homeowners. Two of the proposals require many, but not all, homeowners in risk-prone areas to purchase the insurance. The other--H.R. 2873 and S. 1350--relies on an indirect incentive to expand the purchase of the insurance. It requires private insurers to provide the federal primary insurance or comparable private insurance to their policyholders in risk-prone areas in order to be eligible for the excess reinsurance program, which could be very attractive, as described below. Many insurers are likely to respond to this incentive and include the natural disaster insurance in their basic coverage for residential property, which many homeowners would probably buy.

With greater participation by homeowners, the program could improve the nation's capacity to handle these risks more efficiently. Currently, the cost of private earthquake insurance in particular is high partly because few homeowners buy this insurance, and the ones that do are mostly those facing the greatest risk of loss. When more homeowners buy it, the risks can be spread more widely, and the cost of the insurance can be reduced. A lower cost, in turn, encourages additional purchases of the insurance by homeowners facing lower risks.

The insurance program might, however, end up increasing the costs of natural catastrophes to the federal government. Unlike federal disaster assistance, the program puts the federal government on the hook to cover specific losses, and the exposure to risk increases with greater participation in the program. If the insurance is underpriced, perhaps because the terms of the insurance and the mitigation program fail to control the moral hazard that the insurance would create, the federal government may feel obligated to cover some of the losses, through either the program or federal disaster assistance. The potential underpricing problem also exists because the proposals give insurers selling the federal insurance little incentive to make sure

16. This proposal is similar in spirit to a proposal called "all-risk," "all-hazard," or "comprehensive disaster" insurance, which is discussed in Jean K. Rosales, "All-Risk Insurance" 92-348E (Congressional Research Service, February 28, 1992).

that homeowners have undertaken the appropriate mitigation efforts.

## Establish a Federal Excess Reinsurance Program

Proposals for this program are designed to increase the capacity of the reinsurance industry to cover risks from natural catastrophes. Analysts consider it likely that that capacity has fallen in the wake of the historic catastrophic losses that took place between 1989 and 1992. These proposals would attempt to remedy this problem by having the federal government sell reinsurance to property and casualty insurers and reinsurers. The reinsurance would cover 95 percent of the losses that arise from specified natural catastrophes in excess of a threshold amount but less than a cap. H.R. 935 and H.R. 2806 express the threshold amounts and caps as a percentage of the industry's and a single firm's net premiums written; H.R. 2873 and S. 1350 do so in terms of the industry's and a single firm's surplus. Premiums in all proposals would be actuarially based.

An important characteristic of all the proposals is that the program would cover the risks of related losses resulting from natural catastrophes, such as those from fire, and from workers' compensation. As discussed in Chapter 2, related losses can amount to a significant percentage of the total losses from a natural disaster.

However, it is not clear why a federal reinsurance program is necessary. Insurers and reinsurers may simply have underestimated the likelihood of natural catastrophes. Now that the industry has a better idea of that likelihood, it will price policies to cover losses in the long run, and the problem should eventually disappear. To argue that a federal program is desirable, one must show why a properly regulated private market for catastrophe reinsurance cannot provide sufficient capacity on its own.

Some observers might argue that the catastrophic losses in worst-case scenarios are simply too large for the insurance industry to handle. If this is true, then it would be more efficient for the federal government to insure those risks directly rather than reinsure them through the private sector. Given the high caps on losses covered by the reinsurance--200 percent of an insurer's surplus in the case of H.R. 2873 and S. 1350--the program is essentially insurance against insolvency arising from natural catastrophes. As a result, the program lowers the chances of a solvency crisis in the event of a natural catastrophe, but at the expense of reducing the incentives for the private sector to insure these losses efficiently, because the federal government would assume many of the risks.

Another potential problem with the reinsurance program, as with any insurance program, is the possibility of moral hazard. Once insurers have the reinsurance, they would have some incentive to avoid diversifying their risks completely or underwriting their risks carefully. Even policyholders would have less incentive to undertake mitigation efforts and monitor their insurer's financial strength when they know that their insurer has this reinsurance. This outcome would raise the risks of a solvency crisis in noncatastrophe situations.

As with the federal primary insurance program, this program could leave the federal government on the hook to cover large losses. The combination of a large catastrophe and underpriced federal reinsurance could make the federal government feel obligated to cover losses for which it has no reserves. Or federal disaster assistance might be provided, which would undercut future efforts to shift the risks to the beneficiaries.

## Establish a Federal Mitigation Program

Mitigation efforts are an important complement to the insurance and reinsurance pro-

grams because they can limit the moral hazards that raise the potential losses created by natural disasters. All of the proposals, however, only include provisions to strengthen building codes, although they allow the states to adopt other measures, such as retrofitting existing structures, as they see fit.

The major problem that a federal mitigation program faces is obtaining compliance from state and local governments and private property owners. Mitigation efforts can be costly, particularly for preexisting structures, and state and local governments are already strapped for funds. All of the proposals allocate a fraction of the premiums from disaster insurance to pay for mitigation efforts by state and local governments, but it is not clear that these funds would be adequate.

Moreover, the incentives built into the programs may not be adequate to achieve the necessary compliance. H.R. 935 and H.R. 2806 contain a strong incentive for many homeowners--federally related mortgages cannot be made on property that does not have the necessary mitigation standards in place. H.R. 2873 only disallows mitigation funds to states that do not comply, raises the premiums on the primary insurance for policyholders in noncompliant states, and prohibits federal assistance to any new federal building or certain new federal leased, assisted, or regulated buildings. S. 1350 includes those provisions of H.R. 2873 and bans federal disaster assistance to local communities that have not adopted the building codes required by the proposal.

## Other Options for Better Allocating the Risks of Natural Catastrophes

Other options short of a comprehensive federal program of primary insurance, reinsurance, and mitigation may also be able to allocate the risks of natural catastrophes. For example, it may be possible to restructure federal disaster assistance to increase the incentives for buying insurance against natural disasters and undertaking mitigation efforts. The degree of assistance, for instance, could be contingent on specific measures that property owners take to mitigate risk and purchase the appropriate insurance. This option is likely to cost less than the proposal for a comprehensive federal program.

Another option to encourage mitigation and the purchase of insurance against natural disasters is to make the payment of claims for losses not directly caused by the disasters conditional on mitigation efforts and the purchase of such insurance. Japan uses this approach for earthquake hazards. Homeowners can collect claims for fire and other nonshaking damage as a result of an earthquake only if they have earthquake insurance.

An option to encourage property and casualty insurers to hold more reserves against catastrophes is to allow them to treat additions to reserves to cover future catastrophes as tax-deductible expenses. Under current policy, these insurers can reserve only for losses and related expenses that have, or are likely to have, already occurred--a policy that reflects a desire to prevent insurers from using additions to reserves as a means of avoiding taxes. But some experts believe that the policy may discourage the industry from holding sufficient reserves to cover catastrophic levels of losses.[17] Changing this policy would encourage the industry to build additional reserves, thereby reducing the chances of a solvency crisis. It could lower the cost of natural disaster insurance.

Capacity problems in the reinsurance industry are being partly resolved by the new futures and options market for catastrophe risks at the Chicago Board of Trade. The market opened in December 1992 and volume has grown steadily, according to the board. At present, only large insurers and reinsurers appear to be using the market, but reinsurance brokers are likely to eventually pool together

17. Robert E. Litan, "Earthquake! Planning and Paying for the 'Big One'," *The Brookings Review* (Fall 1990), pp. 42-48.

smaller firms to spread their risks in this market.

Offering homeowners low-cost loans for mitigation efforts would encourage such efforts and reduce the potential losses from natural disasters. For low-income families, special subsidies could be offered.

## Options for Limiting Solvency Problems Arising from Runs on Life Insurers

The run on the Mutual Benefit Life Insurance Company in 1991 dramatized the threat of runs that life insurers face. Analysts agree that the threat of withdrawals by policyholders imposes a useful, market-based discipline on the operations of an insurer. However, massive withdrawals by policyholders can hurt the insurer's remaining policyholders if the regulator must shut the company down in order to stop the run. A greater danger is the possibility that a run could spread and hurt other insurers and policyholders and disrupt financial markets.

The vulnerability of the life insurance industry to runs has spawned proposals to create a backup source of liquidity, but buttressing the existing mechanisms could reduce this vulnerability. Because a run on an insurer typically begins when its policyholders learn that it has suffered a debilitating financial loss, a key policy option for reducing the chances of a run is to strengthen the solvency regulation of insurers.

If a run occurs, the Federal Reserve already has the authority to lend to insurers in its role of lender of last resort to prevent the run from spreading out of control. Insurers, however, must be sufficiently capitalized and have the necessary collateral to be eligible to tap this source. To be effective, the Federal Reserve would need to establish the necessary guidelines, procedures, and sources of information for this lending.

Another source of liquidity for insurers is available through membership in the Federal Home Loan Bank (FHLB) System, which extends collateralized loans called advances to its members. Insurers have been able to join the system since its founding in 1932.

Because the mission of the FHLB system is to promote home ownership, members must participate in the market for home finance. An insurer is eligible to become a member of the system if, among other things:

- It originates or purchases long-term home mortgage loans, which can include, for example, mortgage-backed securities;
- The characters of its management and its home-financing policy are consistent with sound and economical home financing; and
- The insurer has mortgage-related assets that reflect a commitment to housing finance, as determined by the Federal Housing Finance Board, which regulates the FHLB system.

Insurers face several other requirements as members in the system. They, like other members, must purchase stock in their FHLB, equal to at least 0.3 percent of their total assets or 1 percent of their home mortgage loans, whichever is greater. They may need to increase their holdings of FHLB stock from time to time depending on the amount of their outstanding advances; if they hold less than 65 percent of their total assets in housing-related assets, their stock requirements are greater than those of members holding at least 65 percent, who are known as qualified thrift lenders. Insurers must also meet the Federal Housing Finance Board's community-support requirements to maintain their access to long-term advances.

Two restrictions on advances, however, may limit the ability of the FHLB system to provide enough short-term liquidity to contain runs against life insurers. First, the total amount of advances held by an insurer cannot exceed the total amount of its assets financing residential housing. Second, the total amount of advances in the whole system to all members that are not qualified thrift lenders cannot exceed 30 percent of the total amount of advances in the system.

Another option would have the life insurance industry create an explicit liquidity mechanism that insurers could tap. The mechanism could be a pool of liquid assets established and maintained by only the large insurers, or by pro rata shares from every life insurer, and used only during severe liquidity problems. A more appealing mechanism in this regard would be a market in which life insurers borrow and lend funds among themselves for a set period of time, similar to the federal funds market for banks. If this option increased the overall liquidity of the industry, it would supplement the recent efforts by solvency regulators to do so. Nevertheless, it would still need to rely on the Federal Reserve to provide emergency liquidity if this source were tapped out.

A common, and perhaps unavoidable, problem with the non-market-based options is that they increase the risk of magnifying the costs of insolvencies. The difficulty with any such liquidity arrangements is in distinguishing a liquidity crisis from a solvency problem. Lending to a company with a fatal solvency problem may only increase the eventual losses when the company later fails. Policyholders and taxpayers would probably cover much of these extra losses through the guaranty funds. The existence of a liquidity pool would also tempt regulators to use forbearance because the liquidity would handle the immediate crisis, although without addressing any underlying financial problems.

A potentially disastrous option to prevent runs by policyholders would be to create a national guaranty fund backed by the full faith and credit of the federal government, similar to federal deposit insurance. This option would prevent runs because it would eliminate the risk of large losses for policyholders. However, such insurance would give weak insurers an incentive to adopt riskier business strategies, particularly if the assessments were not risk-based. This potential could create a catastrophically large liability for the federal government, as in the savings and loan crisis. Even without the backing of the full faith and credit of the federal government, as mentioned earlier, a national guaranty fund leaves open the question of who backs up the fund when it cannot pay, and could unintentionally make the federal government serve that role.

# Conclusion

Policymakers have a variety of options to reduce the chances of a costly solvency crisis in the insurance industry. Perhaps the most important, all-purpose option is stronger solvency regulation. Does the state system need to be strengthened? All analysts agree that it does. Is a larger federal role necessary to strengthen the solvency regulation of insurers? Here the answer is less certain. The danger of an expanded federal role is that it could create an implicit contingent liability for the federal government to cover the costs of a possible solvency crisis. The federal government would have the greatest justification for taking a larger role if it was already implicitly liable. At this point, however, it is not clear that the federal government is liable.

Even a strong insurance industry may be unable to cover catastrophic increases in claims arising from natural disasters and other sources. Current proposals call for federal insurance and reinsurance programs combined with a federal mitigation program. Although this program could improve the allocation of the risk of losses from natural catastrophes, other, less ambitious options may also achieve these benefits.

Finally, other policy options could strengthen the ability of the life insurance industry to withstand runs without suffering large losses by selling assets at a discount on short notice. An important option is to strengthen solvency regulation and employ the existing authority of the Federal Reserve to make emergency liquidity loans. Alternatively, life insurers could create a market for short-term loans of liquidity. In either case, guidelines for distinguishing liquidity problems from solvency problems would need to be developed.

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