

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 bank-

ruptcy. 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.

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.

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-

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 re-

place 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.

- o They may not be paid in full for insured losses.
- o They may lose some of their prepaid premiums, which are premiums paid in advance of insurance coverage, on property and casualty policies.
- o 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.
- o 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-

municipalities 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 estab-

lish 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 pull-back 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:

- o The lower prices on the assets sold at a discount;

- o A shift in the normal flow of funds from insurance companies to the credit markets; and
- o 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.

