

Insurance Companies as Financial Intermediaries: Risk and Return

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Insurance companies, by their nature, bear risks. These risks partly depend on insurers' ability to anticipate the frequency and magnitude of the losses that they promise to cover. Because insurers manage portfolios of assets to pay these obligations, they also bear risks similar to those of other financial intermediaries, risks that depend on changes in the value of their assets compared to that of their contractual liabilities.

Because the capacity of insurance companies to absorb losses is limited, their customers also bear some risk. In order to limit this risk, a variety of public agencies examine and regulate insurers. Often contracts also are covered by guaranty funds, which essentially allow the customers of failing insurance companies to transfer a portion of their unsatisfied claims to the other participating insurers. But, this safety network can fail if too many insurance companies have assumed similar risks.

Recently, some highly publicized failures of insurers, following the difficulties of the thrift and banking industries, have drawn attention to the financial condition of the insurance industries.¹ Because the insurance business differs substantially from that of depository institutions, most of the specific problems of these industries are not comparable.

In one general respect, however, the same challenge confronts

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¹ See, for example, IDS (1990); U.S. Congress (1990); Stevenson (1990); Laing (1990); American Council of Life Insurance (1990); and Kramer (1990).

insurers, thrift institutions, banks, and most other intermediaries. The financial strategies of intermediaries in the United States presumed a stability of interest rates that began to break down in the late 1960s. These intermediaries assumed a bet that yields and differences among yields would not change greatly for prolonged intervals of time. Consequently, the rising interest rates of the past two decades are taking their toll. From the point of view of many financial institutions, a principal "failed promise" during these years has been the bout of persistent inflation responsible for increasing rates of interest.

In order to cope, many financial institutions assumed new bets by reaching for riskier assets offering higher yields or by operating with less capital per dollar of assets. To varying degrees, many insurance companies have adopted these strategies. Life insurance companies holding one-sixth of their industry's assets have relatively low capitalization, and companies holding as much as three-quarters of industry assets have substantial investments in assets that currently are considered risky. Property-liability companies representing approximately one-fifth of that industry's assets have comparatively little capital by historical standards, and companies representing three-fifths of industry assets would have low capital if interest rates were to rise substantially in the near future.

Of all the remedies inspired by the recent investigations of the insurance industries, none appears to be more important than raising more capital. With the increasing volatility of interest rates and the increasing competition among financial intermediaries during the last three decades, insurers need to carry more capital per dollar of assets if insurance contracts are to be as secure as they were supposed to be prior to the late 1960s. Because guaranty funds inherently are no stronger than the capital of participating insurers, these funds, alone, cannot compensate for insurers' lack of capital unless these funds commit the government to indemnifying customers of insurance companies.

Regulatory reforms could do much to limit the risks borne by insurers and those holding insurance contracts, but the potential efficacy of these reforms is limited. As financial intermediaries, insurers invest in some assets whose risks and returns are difficult for "outsiders" to assess. Furthermore, much of the risk borne by an insurance company arises from the blends of both assets and liabilities that constitute the company's balance sheet. Successful regulation could foster an "adequate" diversification of assets or the "proper" matching of assets and liabilities; yet, after a point, assessing "adequacy" and "propriety" requires the oversight and skills of a resident shadow management.

The analysis in this paper proceeds from the general to the specific. The first section discusses the risks inherent in financial intermediation. The second section describes the roles of life and property-liability insurance industries in credit markets, discussing some of the changes

in their aggregate balance sheets during the last three decades. The third section, using reports submitted to the National Association of Insurance Commissioners for 1989, examines the distribution of assets, capital, and liabilities among life insurance companies and among property-liability insurance companies. The fourth section, using public information, discusses the risks entailed by the asset concentrations of insurance companies and the similarities between the recent experiences of insurers and banking institutions. This paper concludes that many insurers must increase their capital to cope safely with the consequences of a significant slump in the value of commercial real estate, a substantial decline in corporate profits, or a significant rise in credit market yields.

Financial Intermediation and Risk

Economic development and capital formation depend on the efficient transfer of resources from those who would save to those who would invest. In the United States, more than three-quarters of the funds transferred to investors in the form of credit market instruments or loans flow through financial intermediaries. On one hand, insurance companies, depository institutions, pension funds, and other intermediaries issue financial claims with features that appeal to savers; on the other hand, these intermediaries accept financial obligations from borrowers on terms that appeal to borrowers. Without this intermediation, each financial contract must accommodate at once the frequently disparate motives of savers and investors. Intermediaries also serve savers and investors by evaluating investors' prospects, monitoring their performance, and providing both savers and investors a dependable access to funds on terms commensurate with their risks and returns.²

By design, intermediaries, which transform primary securities issued by investors into assets valued by savers, manage an unmatched book. To compensate for this risk, these intermediaries expect to receive a sufficiently large margin between the effective yields they offer savers and the effective yields they earn on their assets. Savers may be willing to earn a yield below that prevailing in financial markets or to sacrifice liquidity in order to receive services not offered by primary securities or by mutual funds. Investors who are not recognized in public credit markets may be willing to pay greater yields or to accept terms more stringent than those prevailing in financial markets in order to cultivate

² See Gurley and Shaw (1955, 1956, 1960); Navin and Sears (1955); Baskin (1988); Jensen and Meckling (1976); Leland and Pyle (1977); Smith and Warner (1979); Diamond and Dybvig (1983); Diamond (1984); Fama (1985); Bernanke and Gertler (1987); Gertler (1988); and Hoshi, Kashyap, and Scharfstein (1989).

a reliable source of funds. The more savers value competitive yields and the more investors can avail themselves of competitive yields, the more intermediaries' expected profit and capacity for bearing risk shrink.

The capacity of intermediaries to bear risk also depends on their leverage. With more equity capital and surplus per dollar of assets, intermediaries can honor their contracts despite deeper or more prolonged financial setbacks. In principle, more capital could increase the odds of survival when expected profit margins are low compared to the volatility of profits. Yet, with lower profit margins, intermediaries ordinarily require greater leverage to maintain a competitive return on capital. From the viewpoint of their customers, increasing leverage under these circumstances would compromise safety and soundness.

Extraordinary losses or competitive pressures encourage insurance companies, like other intermediaries, to acquire assets promising greater yields and risks or to increase the volume of their underwriting relative to their surplus. These strategies increase both the odds that the contracts of weak insurers will not be honored in full and the odds that failing insurers will not recover. These risky strategies often are the most appealing for imperiled intermediaries, because the price of obtaining new capital can appear to be too expensive for the existing owners.

Regulation and Guaranty Funds

Because the interests of those who own and manage financial institutions do not necessarily coincide with the interests of their customers, intermediaries typically are regulated by public agencies. But this reliance on oversight by outsiders also can pose risks. Assessing the specific values of insurers' assets and liabilities or their inherent risks and returns is difficult for both customers and regulators.³

Many insurance contracts are covered to some degree by guaranty funds in most states. Like the guaranty funds for depository institutions, the strength of these funds depends on the ability of their members to pay the necessary assessments. And, like the guaranty funds for depository institutions, the failure of these funds may uncover an implicit "put" written on state or federal governments. In cases when the federal government provides disaster relief or catastrophic insurance coverage, insurers, their customers, and their guaranty funds possess an explicit put option. Sometimes this put is less obvious: insurers may be able to claim tax deductions or tax credit for assessments paid to guaranty funds. Because of the ambivalent status of guaranty funds, governments that bear the potential burden of this put option attempt to

³ See Randall (1989). Assessing these risks also may be difficult for insiders; see Simons (1991).

design regulations that limit the inevitable failure of insurers to isolated, manageable cases.

This put option on the government also has deeper consequences for regulation and economic policy. Even if intermediaries hold well-diversified portfolios of assets, their financial condition is contingent on the stability of the prices of capital assets. For example, if economic policy does not ratify the expectations of investors who install an "excessive" number of factories or develop an "excessive" amount of real estate, then the subsequent collapse in the prices of capital assets could entail extraordinary losses among financial intermediaries. Accordingly, the success of "deposit insurance" ultimately depends on the ability of economic policy and financial regulation to avoid binges and purges, to foster a flow of investments generally consistent with the potential growth of the economy.

Neither regulation nor guaranty funds necessarily promote safety and soundness. At times, regulations limit either the assets intermediaries hold or the variety of liabilities they issue in a fashion that diminishes their efficiency, perhaps reducing their expected returns more than the potential variability of their returns.⁴ At other times, intermediaries reporting substantial current returns (by undertaking a risky investment strategy) may appeal strongly to customers and may not be examined closely by regulators; these institutions also may be allowed to carry less capital or surplus than their competitors.⁵ To the degree customers believe that regulated intermediaries bear an "underwriters' laboratory seal of approval," and to the degree that intermediaries are covered by explicit guarantees or by an implicit put option onto the government, financial institutions can become less sound, unless regulators can assess accurately their financial strategies.

Insurance Companies as Financial Intermediaries

Insurance companies manage approximately 16 percent of all the financial assets held by intermediaries in the United States (Table 1). The share of assets under their control is nearly as great as the share of assets held by the thrift institutions; only the share of commercial banks is significantly higher.

Since the 1950s, property-liability insurers' share of all financial assets held by intermediaries has remained constant, while the share

⁴ Regulations designed to make intermediaries more secure by limiting the liabilities they may issue and the assets they may hold might instead make both the economy and intermediaries less stable; see Kopcke and Rosengren (1989).

⁵ See, for example, U.S. Department of the Treasury (1991).

Table 1
Assets of Financial Intermediaries
Percent of Total

Financial Intermediary	1900	1912	1922	1929	1952– 1955	1956– 1960	1961– 1965	1966– 1970	1971– 1975	1976– 1980	1981– 1985	1986– 1990
Life Insurance Companies	10.1	13.0	12.2	14.4	21.1	20.2	18.0	16.0	13.4	12.1	11.4	11.6
Property–Liability Insurance Companies	2.9	3.2	4.1	6.2	4.4	4.4	4.3	3.8	3.7	4.1	4.1	4.5
Commercial Banks	64.1	65.5	64.7	52.7	47.2	40.8	37.1	37.5	39.2	37.9	34.8	30.9
Thrift Institutions	19.1	15.2	13.6	14.8	15.4	18.4	20.9	20.5	21.0	22.3	20.3	17.9
Pension Funds	*	*	.1	.4	5.6	8.4	10.8	12.4	13.5	15.3	17.1	17.6
Private	n.a.	n.a.	n.a.	n.a.	3.4	5.4	7.2	8.3	8.9	10.4	11.6	11.3
State & Local Government	n.a.	n.a.	n.a.	n.a.	2.2	3.0	3.6	4.1	4.6	4.8	5.5	6.3
Investment Trusts	*	*	.2	2.6	1.4	2.3	3.3	4.0	3.4	1.8	2.1	6.6
Mutual Funds	n.a.	n.a.	n.a.	n.a.	1.4	2.3	3.3	3.9	2.8	1.6	2.0	5.2
Finance Companies	*	*	*	2.2	3.7	4.3	4.6	4.7	4.7	4.8	4.9	5.1
Securities Brokers and Dealers	3.8	3.1	5.1	6.7	1.2	1.1	1.1	1.2	1.0	1.1	1.5	1.9
Money Market Mutual Funds	n.a.	n.a.	n.a.	n.a.	0	0	0	0	*	.7	3.8	3.8

* = less than 0.05%

n.a. = not applicable

Source: All data 1900 to 1929 from Goldsmith (1955) and Goldsmith (1958).

All data 1952 to 1990 from the Board of Governors, Federal Reserve System, *Flow of Funds*.

Table 2
Insurance Companies' Holdings of Selected Financial Assets
Percent of Total Value Outstanding of Each Security

Asset	1960– 1964	1965– 1969	1970– 1974	1975– 1979	1980– 1984	1985– 1989
Tax-Exempt Bonds						
Life Companies	4.8	2.9	2.0	2.2	2.0	1.3
Property–Liability Cos.	11.9	11.7	13.9	19.4	21.0	18.0
Corporate Bonds						
Life Companies	51.4	45.1	35.8	34.4	34.1	32.0
Property–Liability Cos.	1.8	2.8	3.4	4.4	4.0	4.4
Corporate Equities						
Life Companies	1.2	1.2	1.6	2.2	2.0	1.5
Property–Liability Cos.	2.3	1.9	2.4	2.5	2.4	1.4
Commercial Mortgages						
Life Companies	30.5	31.2	29.4	29.6	30.4	26.8
Property–Liability Cos.	.3	.3	.2	.2	.6	.8
Multifamily Mortgages						
Life Companies	19.0	25.4	23.0	17.5	12.8	8.9
Home Mortgages						
Life Companies	16.6	12.6	7.0	2.8	1.6	.8

Source: Board of Governors, Federal Reserve System, *Flow of Funds*; A.M. Best Company, *Best's Aggregates and Averages—Life/Health*, various years; and A.M. Best Company, *Best's Aggregates and Averages—Property/Casualty*, various years.

managed by life companies has fallen by almost one-half. During the early 1950s, life companies alone managed about 21 percent of intermediaries' assets. Currently, their share is under 12 percent. About two-thirds of this decline occurred in the late 1960s and in the 1970s; since then, the share of life insurers has changed little.

The presence of insurance companies traditionally has been greatest in the bond and mortgage markets (Table 2). During the 1960s life insurers held about one-half of the outstanding corporate bonds. Although this share has fallen with the advent of mutual funds and the growth of pension plans, life companies still hold approximately one-third of corporate bonds. During the past thirty years, life insurers consistently have held approximately 30 percent of commercial mortgages, while their shares of residential mortgages have declined because of the growth of the thrift industry. Property–liability insurers hold approximately one-fifth of the outstanding municipal bonds.

Both life and property–liability insurers invest more than one-half of their assets in longer-term securities bearing fixed yields (Table 3). Bonds account for almost 50 percent of life insurers' assets, and mortgage loans, four-fifths of which were commercial mortgages in 1989, account for another 20 percent. Together, real estate holdings and corporate equities, mostly the common stock of affiliates, represent less

Table 3
Balance Sheet of Life and Property–Liability Companies
Percent of Total Assets

	1960– 1964	1965– 1969	1970– 1974	1975– 1979	1980– 1984	1985– 1989
Life Insurance Companies						
Assets						
Bonds	47.4	42.6	40.2	43.4	40.7	46.5
Government Bonds	9.2	6.4	4.8	6.2	8.6	12.9
US	n.a.	n.a.	n.a.	n.a.	5.0	8.4
Special Revenue	n.a.	n.a.	n.a.	n.a.	1.9	3.1
Corporate Bonds	38.2	36.2	35.5	37.2	32.1	33.7
Utility	n.a.	n.a.	n.a.	n.a.	9.2	7.8
Industrial	n.a.	n.a.	n.a.	n.a.	21.7	25.0
Corporate Stock	4.8	5.6	6.5	6.4	6.0	4.9
Preferred Stock	n.a.	n.a.	n.a.	n.a.	2.1	.9
Common Stock	n.a.	n.a.	n.a.	n.a.	3.9	4.0
Industrial	n.a.	n.a.	n.a.	n.a.	1.6	1.2
Affiliates	n.a.	n.a.	n.a.	n.a.	1.7	2.4
Mortgage Loans	35.5	37.5	33.3	28.2	23.9	19.8
Commercial Mortgages	9.2	11.3	13.3	15.4	15.6	15.2
Real Estate	3.1	2.9	3.0	2.9	2.5	2.4
Policy Loans	4.6	5.8	7.9	8.0	8.5	5.3
Separate Account Assets	n.a.	1.2	3.5	5.1	9.0	10.4
Other Assets	4.5	4.8	5.5	6.0	9.4	10.7
Liabilities						
Reserves	81.4	80.2	81.0	81.6	79.0	82.4
Other Liabilities	10.2	11.0	11.0	11.4	12.9	9.7
Capital and Surplus	8.4	8.8	7.8	6.9	8.2	8.0
Property–Liability Companies						
Assets						
Bonds	50.3	50.0	51.4	62.2	58.0	57.8
US Government	16.9	12.2	7.1	9.8	10.7	15.3
State and Municipal	16.0	14.0	15.2	13.8	11.2	9.2
Special Revenue	11.5	14.3	17.2	24.5	25.7	21.0
Industrial	5.2	8.8	11.1	13.1	9.7	11.6
Common Stocks	32.0	31.7	28.2	17.2	14.0	9.4
Preferred Stocks	2.6	2.7	3.4	3.2	3.9	2.1
Other Invested Assets	*	*	.1	.3	.6	.6
Mortgage Loans	.4	.4	.3	.3	.7	1.1
Real Estate	1.5	1.6	1.6	1.4	.8	.2
Other Assets	13.1	13.6	15.0	15.4	22.0	28.7
Liabilities						
Losses	25.9	30.7	36.5	44.4	46.0	43.0
Loss Adjustment Expense	n.a.	n.a.	n.a.	n.a.	6.6	7.2
Unearned Premiums	25.9	25.4	23.9	21.4	17.5	16.9
Reinsurance Funds	1.1	1.4	1.3	1.2	1.4	1.4
Other Liabilities	5.3	5.8	6.7	7.7	6.8	6.3
Capital and Surplus	41.8	36.7	31.6	25.2	25.7	24.9

* = less than 0.05%.

n.a. = not available.

For 1960 to 1976, data for the property and casualty companies are on a nonconsolidated basis.

Source: For life insurance companies from 1960 to 1979, American Council of Life Insurance, *Life Insurance Fact Book*, various years. For life insurance companies from 1980 to 1989, A.M. Best Company, *Best's Aggregates and Averages—Life/Health*, various years. For property and casualty insurance companies, A.M. Best Company, *Best's Aggregates and Averages—Property/Casualty*, various years.

than 8 percent of life insurance assets. Property-liability or casualty insurers invest almost 60 percent of their assets in bonds and another 10 percent in equities, while their holdings of mortgage loans and real estate are minimal. The average maturity of bonds in both life and property-liability insurers' portfolios exceeds 10 years, and the average maturity of mortgages is approximately one-half that of bonds.

The Correspondence between Assets and Liabilities

The invested assets of insurance companies are financed principally by the premiums they have collected for writing their contracts and by capital or surplus, which represents the contribution of those who own the companies. Most of the assets of insurance companies are held in reserves to pay the claims of those holding their contracts.

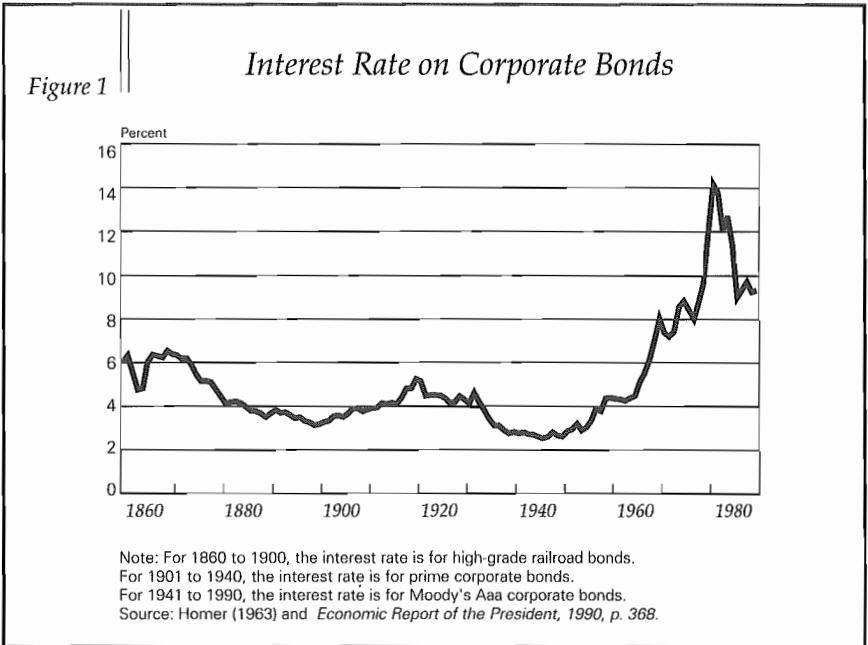
Although life insurers anticipate paying most of their claims only after their contracts have been in force for many years, those who own these contracts often possess the option to borrow against their reserves (frequently at favorable rates of interest) or to cancel their contracts for cash. Recently, some life insurers have aggressively sold guaranteed investment contracts (GICs) in addition to their more traditional insurance and annuity products. Because GICs are comparatively short-term liabilities, which appeal to buyers mainly by offering a competitive rate of interest, insurers relying on these contracts reduce the average "maturity" of their liabilities.

The reserves of property-liability companies are held mainly against homeowner, automobile, and commercial policies. Casualty insurers ordinarily expect to pay most of their claims within a few years of writing their contracts. Yet, when casualty companies can replace expiring contracts with new contracts and cover their claims by their flow of premium receipts, they may manage a relatively stable portfolio of assets over many years.

If yields on securities are relatively stable, insurers can comfortably regard their liabilities as being of long duration and invest them in long-term assets. Indeed, when the yields on longer-term securities exceed those on shorter-term securities, insurers can price their contracts most attractively by investing their assets in longer-term securities.

Should all yields rise significantly and remain high, however, established insurers cannot continue to offer competitive terms on existing contracts without diminishing their return on surplus. Property-liability insurers, especially, may depend on the flow of premiums to pay claims should the values of their assets fall at the same time that the magnitude of their losses unexpectedly rises. Under these circumstances, insurers could find themselves relying on comparatively short-term liabilities to finance long-term assets.

Although the history of interest rates during the century ending



with the 1960s encouraged insurance companies to invest their reserves in long-term assets, their experience during the subsequent two decades undermined their confidence in this strategy. Between 1860 and 1960, interest rates on bonds were relatively stable (Figure 1). During the past three decades, however, a doubling of yields brought many changes to the insurance industries.

The Performance of the Life Insurance Industry

Since the 1950s, the capitalization of life insurance companies as a whole has varied little, remaining near 8 percent of the value of their assets as reported on their books. But at times during the 1970s and 1980s, the yields on their bonds and mortgages were sufficiently below yields prevailing in credit markets that their capitalization would have been below zero had their assets alone been marked to market.

Although policy lapse rates and loans to policyholders increased during this interval, the vast majority of policyholders left their funds on deposit with life insurers through 1985, when the returns on insurers' assets once again compared favorably with the yields prevailing in credit markets. Nonetheless, life insurance companies' share of the flow of funds into intermediaries fell significantly beginning in the late 1960s.

Established insurers coped by promoting new liabilities or new lines

of business, while new companies, unburdened by investments bearing low yields, expanded their share of the life insurance, annuity, and pension businesses. Life insurers also acquired new assets promising greater or more flexible returns, often accompanied by more risk. As a result of this experience of the past two decades, life insurers increasingly are promoting their liabilities as investment contracts, and those purchasing these liabilities increasingly value them mainly as financial investments. These innovations may diminish life insurers' ability to bear risk in the future.

The Performance of the Property–Liability Insurance Industry

During the past three decades, the capitalization of property–liability or casualty insurance companies fell more than two-fifths. In the early 1960s, the capital and surplus of these insurers averaged more than 40 percent of assets. After earning a low rate of return on surplus in both the mid 1960s and the mid 1970s, their capital and surplus fell below one-fourth of assets.

Though the average capitalization of property–liability companies as reported on their books has not changed greatly since the 1970s, at times during the 1980s their capital would not have exceeded one-sixth of assets, had their assets alone been marked to market. Customers of property–liability insurers cannot cash in their policies, so marking only the assets of these insurers to market understates their capital and surplus. Nevertheless, during the 1980s persistent underwriting losses substantially depressed the return on surplus for casualty insurers as a whole. Since 1980, for example, the average return on surplus for casualty insurers has been less than that of banks (10 percent versus 13 percent), even though the return on surplus for casualty insurers has been more volatile. This performance may be attributed partly to established insurers' pricing existing and new contracts attractively in order to maintain their flow of premium receipts.

Financial Characteristics of Insurance Companies in 1989

Within the life and property–liability insurance industries, the financial characteristics of the individual companies can differ considerably from those for their industry. Though the aggregate statistics for life insurers show that the industry as a whole has not assumed great risks, companies holding one-sixth of the industry's assets have relatively low capitalization, and companies holding as much as three-quarters of assets have substantial investments in risky assets. Property–liability companies holding one-fifth of that industry's assets have relatively little capital by historical standards. If interest rates were to rise

substantially in the near future, the capitalization of property-liability companies holding more than three-fifths of the industry's assets would be less than one-half of recent industry averages.

In retrospect, many insurance companies carried too little capital in the 1970s to cover adequately the risks inherent in their balance sheets. The capitalization of these insurers is now less than that of the 1970s, while their risks have not diminished. By this standard, rather than any minimum acceptable ratio of capital to assets, the capital of many life and casualty insurers appears to be too low given the risks they are bearing.

Life Insurance Companies

Table 4 describes the distribution of assets in 1989 for the 62 largest life insurance groups, representing about 80 percent of the industry's assets. One-sixth of the sample's assets were held by companies with capital less than 5 percent of assets (column 1). Approximately three-quarters of the sample's assets are held by companies for which capital and surplus is no more than 6 percent of assets.

The table subdivides this sample further, according to each company's investments in real estate, equity, low-grade bonds, and mortgages. For example, companies with capital to asset ratios below 5 percent hold 16.2 percent of the sample's assets. The entries in the first row of columns 2, 3, and 4 (which sum to 16.2 percent) partition this share according to investments in risky assets: 13.6 percent of assets are held by companies for which capitalization is less than 5 percent *and* for which investments in real estate, equity, low-grade bonds, and mortgages are greater than three times capital and surplus. Similarly, the entries in the first row of columns 5, 6, and 7, columns 8, 9, and 10, or columns 11, 12, and 13 (each group of three columns summing to 16.2 percent) partition the share of assets held by the companies with low capitalization according to their investments in specific assets: 10.4 percent of assets are held by companies for which capitalization is less than 5 percent *and* for which investments in real estate and equity are less than one-half of capital and surplus.

Most of the assets of life insurers are held by companies for which capital and surplus is between 5 and 6 percent of assets (Table 4, row 2). Although these companies have assets invested in real estate, equities, and low-grade bonds, these investments generally are not as great as their investments in mortgages, four-fifths of which are commercial loans. Whereas together these companies hold 58.5 percent of the industry's assets, 43.0 percent of assets are held by insurers for which mortgages are at least three times capital and surplus (row 2, last column); only 6.7 percent of assets are held by insurers for which holdings of low-grade bonds exceed capital and surplus (column 10);

Table 4
Allocation of Assets among Life Insurance Companies, 1989
Percent of Total Assets

Life Insurance Companies, Grouped by Capital and Surplus as a Percentage of Assets		Total	Risk Assets											
			Total Risk Assets			Real Estate and Equity			Bonds below Investment Grade			Mortgages		
			(percent of capital and surplus)			(percent of capital and surplus)			(percent of capital and surplus)			(percent of capital and surplus)		
			<100	100-300	>300	<50	50-100	>100	<50	50-100	>100	<100	100-300	>300
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	<5	16.2	.5	2.1	13.6	10.4	1.6	4.2	6.5	6.5	3.3	2.0	1.4	12.8
(2)	5-6	58.5	.4	2.1	55.9	5.9	26.3	26.2	19.0	32.8	6.7	1.8	13.7	43.0
(3)	7-10	17.2	1.4	3.1	11.9	7.7	5.9	2.7	13.7	1.2	2.4	5.3	11.9	0
(4)	>10	8.1	1.9	7.1	0	3.5	5.5	0	8.1	0	0	4.5	3.7	0
Total		100	4.3	14.4	81.4	27.6	39.3	33.2	47.3	40.5	12.4	13.5	30.6	55.8

Note: Risk assets include: real estate, common equity, bonds below investment grade and mortgages.

The real estate, equity, low-grade bonds, and mortgages shown are assets explicitly reported in general accounts and schedule D. No "miscellaneous assets" are included in risk assets.

Short-term assets include: cash, bonds with a maturity of less than one year and short-term investments.

Separate accounts are not included in either total assets or total liabilities.

Data are for the 62 largest life insurance groups, representing about 80 percent of industry assets.

Numbers may not add to totals because of rounding.

Source: National Association of Insurance Commissioners (NAIC) Database of Annual Statements.

and 26.2 percent of assets are held by insurers for which real estate and equity exceed capital and surplus (column 7).

Whereas the value of high-grade bonds held by life insurers varies mainly with basic rates of interest, the value of real estate, equities, low-grade bonds, and commercial mortgages depends largely on business risks. If the maturity of insurers' contracts matched that of their assets, then changes in the market values of insurers' assets due to changes in rates of interest would not alter their capitalization very greatly. But if the value of insurers' assets were to fall for reasons other than rising interest rates alone, then the capitalization of insurers would decline.

Four-fifths of the assets of the sample of life insurers are held by companies placing more than three times their capital in investments that are currently considered risky: real estate, equities, low-grade bonds, and mortgages (Table 4, column 4). Among these companies, risky assets are more than six times capital and surplus. Should the value of these assets fall by one-tenth, for instance, the capital of these companies would fall more than 60 percent. In this case, more than two-thirds of the sample's assets would be held by companies for which capital would be less than 4 percent of assets.

Life insurers also assume risk by financing their assets with short-term guaranteed investment contracts (GICs). Even if a company were to invest only in high-grade bonds, by relying on GICs for financing, it risks losing capital should interest rates rise. Should the company invest in riskier assets, those holding its GICs might not renew their contracts should the value of these assets be questioned. While GICs are the most visible source of short-term financing for life insurers, their permanent life and annuity contracts also grant their customers options to withdraw funds from the company should these contracts become sufficiently unattractive.

As much as three-tenths of the assets of life insurers were held by companies for which outstanding GICs were at least three times their capital in 1989 (Table 5, column 5). If these funds were invested in short-term, high-grade securities, this reliance on GICs would not be an issue. Yet, as much as one-third of the assets of the industry was held by insurers whose GICs were twice as great as their short-term assets (Table 6, row 4, columns 4, 7, 10). Of these companies, insurers representing two-tenths of the industry's assets not only issued GICs exceeding three times their capital and surplus, but also invested three times their capital in real estate, equities, low-grade bonds, and mortgages (row 3, last column).⁶

⁶ Commercial mortgages, constituting four-fifths of total mortgages, represent most of these risky investments. Some analysts contend that the funds raised by selling GICs were

Table 5
Allocation of Assets among Life Insurance Companies Relying on Guaranteed
Investment Contracts (GICs), 1989
Percent of Total Assets

Life Insurance Companies, Grouped by Capital and Surplus as a Percentage of Assets		Total	GICs Relative to Capital and Surplus			
			>50	50-100	100-300	>300
		(1)	(2)	(3)	(4)	(5)
(1)	<5	16.2	6.1	1.0	1.8	7.3
(2)	5-6	58.5	30.0	.4	7.4	20.6
(3)	7-10	17.2	5.9	1.8	8.4	1.1
(4)	>10	8.1	5.6	.8	.5	1.1
Total		100	47.6	4.0	18.1	30.1

Note and Source: See Table 4.

Property-Liability Insurance Companies

Table 7 describes the distribution of assets, according to capitalization and return on surplus, for the 60 largest property-liability insurance groups, representing about 90 percent of the industry's assets in 1989. Only about 48 percent of the industry's assets in 1989 were held by companies for which capital and surplus exceeded 20 percent of assets (column 4, rows 4 to 7). Only one-half of these, in turn, reported a return on surplus exceeding 9 percent. One-sixth of the industry's assets was represented by companies for which surplus was less than 20 percent of assets while, at the same time, returns on surplus were less than 9 percent (column 1, rows 1 to 3).

In comparison with the standards that prevailed before the late 1970s, much of the property-liability insurance business is undercapitalized. Those insurers with capital amounting to less than 20 percent of assets may be vulnerable either to unexpectedly large underwriting losses or to a substantial increase in interest rates.

For example, if bond yields were to rise 3 percentage points and dividend-price ratios on equity were to rise 1 percentage point, the average ratio of capital to assets for property-liability insurers could fall from almost 25 percent to approximately 12 percent. Under these circumstances, about one-third of the industry's assets would be held by

invested in commercial mortgages. Although the maturities of the GICs and these mortgages are similar, the value of commercial mortgages is questionable, because of high vacancy rates and low rents. See Shulman (1990) and Borman (1991).

Table 6
 Allocation of Assets among Life Insurance Companies that Issue Guaranteed Investment Contracts (GICs) and Hold Risk Assets, 1989
 Percent of Total Assets

Life Insurance Companies, Grouped by Risk Assets as a Percentage of Capital and Surplus	Total	GICs Relative to Capital & Surplus								
		50-100			100-300			>300		
		GICs Relative to Short-Term Assets			GICs Relative to Short-Term Assets			GICs Relative to Short-Term Assets		
	<50	50-200	>200	<50	50-200	>200	<50	50-200	>200	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) <100	1.4	.4	0	0	0	0	1.0	0	0	0
(2) 100-300	2.9	0	0	.8	0	0	.9	0	0	1.1
(3) >300	48.0	0	2.8	0	0	3.4	11.0	0	9.8	21.1
(4) Total	52.4	.4	2.8	.8	0	3.4	12.9	0	9.8	22.2

Note and Source: See Table 4.

Table 7
Distribution of Assets Among Property–Liability Insurance Companies, 1989
Percent of Total Assets

Casualty Insurance Companies, Grouped by Capital and Surplus as a Percentage of Assets	Actual for 1989				Higher Interest Rate Alternative
	Return on Capital and Surplus			Total	
	<9	9–15	>15		
	(1)	(2)	(3)	(4)	(5)
(1) 1–10	0	11.0	0	11.0	33.7
(2) 11–15	7.3	2.3	1.3	10.9	31.6
(3) 16–20	10.3	12.4	7.0	29.8	13.2
(4) 21–25	7.3	11.4	3.8	22.4	5.6
(5) 26–30	2.3	.8	5.4	8.5	2.3
(6) 31–35	1.0	1.0	0	2.1	11.8
(7) >35	13.1	2.2	0	15.3	1.8
Total	41.5	41.1	17.4	100.0	100.0

Note: For the calculation of the higher interest rate alternative, see Appendix 1.

Data are for the 60 largest casualty insurance groups, representing about 90 percent of industry assets.

Source: National Association of Insurance Commissioners (NAIC) Database of Annual Statements.

companies with capital less than 10 percent of assets (Table 7, last column).

The capital of these insurers is sensitive to changes in yields because the average maturity of their bonds exceeds 10 years and the average “maturity” of their loss payments is approximately 2.5 years. In essence, with rising interest rates, established insurers sell their bonds at a loss to pay current claims. If these insurers retain their bonds and avoid reporting their capital loss after yields rise, then they will report a substandard rate of return on investments over the next decade. If they also price their new policies very attractively in order to increase their cash flow, they may also report substandard underwriting income. Whether or not established insurers sell their bonds after interest rates rise, the consequences ultimately are the same for their ratios of capital and surplus to assets.

Risk Overconcentrations in Large Insurance Companies—Similarities to Recent Experience with Banks

When this conference was conceived in the fall of 1990, solvency risk in large insurance companies was only just becoming an area of concern outside the industry, primarily as a result of well-publicized

losses at two of the largest firms and worries about the real estate exposure of these and other widely recognized companies. The general public had at most only vague awareness of the rapid growth of a number of life insurance companies, almost unknown a few years before but now major players in the issuance of interest-sensitive products invested in high-yield assets. In 1991, the general public has awakened to the fact that large insurance companies can go from seemingly good health and strong ratings to disastrous failures in a few months—a point particularly clear to the many people whose retirement funds are in a First Executive GIC or a First Capital annuity.

These two relatively large insurers have now officially failed. Several other life insurance companies have shown similar patterns of very rapid growth and concentrations in high-yield (junk) bonds and risky commercial real estate equity investments or mortgages. Some of the large multi-line companies also have developed unusually high concentrations in such assets. The widespread overbuilding problems in commercial real estate in some markets and the collapse of the junk bond market raise concern that many companies with concentrations in such assets could take substantial losses.

One important question is the degree to which the insurance industry will experience additional failures over the next few years as a consequence of current junk bond and real estate exposures. Whatever the answer, current asset quality problems already present sufficient danger to the industry to warrant an examination of how they occurred and how they might have been prevented. Such an analysis is essential in evaluating the current regulatory and supervisory structure and proposed improvements.

In order to examine the consequences of recent and current asset quality exposures, several relatively large insurance companies that show very rapid growth, unusual concentrations in the riskier asset categories, or well-publicized solvency problems were identified. Individual case studies of these companies were developed from annual reports, NAIC data, press reports, and other published material. The intent was to support some generalizations as to any common dimensions in risk-taking.

In analyzing these cases a striking and consistent pattern of risk-taking was found among a number of insurance companies, along with certain strong similarities to the major credit problems experienced by many of the larger banks in the past dozen years. Characteristics common to the bank and insurance cases are:

- (1) Several years of rapid growth in one or a few types of assets with high inherent risk characteristics, leading to abnormal risk concentrations.
- (2) Profitable operations, maintenance of satisfactory capital ratios,

and high regard from the markets and public during this period of rapid growth.

- (3) A turning point in economic circumstances, adversely affecting the areas of risk concentration.
- (4) An accelerating loss of value in the risk asset categories, showing up in nonperformance, default, or falling market values, and eventually as charge-offs and falling capital ratios.
- (5) Liquidity pressures as customers belatedly rush to withdraw funds and rapid disposition of assets becomes impossible without incurring unacceptable losses.

The next part of this section describes how these characteristics manifested themselves in various banking crises. The third summarizes the insurance case studies, showing how these same elements are present. (Excerpts from the studies themselves are included in Appendix 2 of this paper.) The final part discusses the implications of this analysis for the regulation and supervision of both banks and insurance companies.

Recent Threats to the Solvency of the Banking Industry

Failures and near failures of large commercial banks have so damaged the bank insurance fund and weakened the industry that some are questioning the ability of the industry to absorb future losses and rebuild the fund without government assistance. The bulk of the losses to the bank insurance fund can be attributed to a few relatively large banks, and the limited capacity of the banking system to quickly restore the fund is largely a function of the negative impact of unusual credit losses on the profitability of the larger banks.

The bulk of these unusual credit losses in banks has been associated with three major events: the overlending to less developed countries in the 1970s, the Southwestern energy and real estate boom and bust cycle of the early 1980s, and the commercial real estate overbuilding cycle in New England and other portions of the Atlantic seaboard in the mid to late 1980s.

Loans to less developed countries (LDCs). The money center banks (and many large foreign banks) extended a very large volume of credit to LDCs in the 1970s. In the early 1980s, it became apparent that the local economies could not support the servicing and eventual repayment of the large volume of bank credit. As of year end 1990, the combination of cumulative charge-offs by the money center banks and their current special reserves against such loans exceeded their total year-end 1982 capital. Nearly all of the LDC loans that gave rise to these losses were already on the books by 1982. Accordingly, it could be argued that the money center banks as a group were essentially insolvent by that time,

had the full loss potential in the LDC loans been recognized. Fortunately, these banks were able to earn their way out of this problem over a number of years.

The example of the LDC lending demonstrates the first four characteristics listed above, even though the resolution of the problem was drawn out over a number of years and no major liquidity problems or failures resulted. The main point to be made is that the risk was built in before the end of 1982, and uncontrollable events turned that risk into losses sufficient to exhaust the capital of our largest banks. After 1982, the best that supervisors could do was to attempt to manage the problem, but it was far too late for them to influence materially the dimensions of the problem. This would have required action to limit the risk concentration in the late 1970s.

Southwestern energy and real estate crisis. The larger banks in the Southwest, as well as some large banks from outside the region, financed an oil boom in the 1978–83 period. The resulting concentration in energy credits in Texas and Oklahoma banks contributed to the eventual demise of nearly all of the larger banks in these states as well as the failure of Continental Illinois and the forced sale of Seafirst in Seattle. These banks were well regarded during the period of heavy energy lending, and only became of concern to supervisors and market forces after the boom collapsed.

The risk exposure of Texas banks was compounded by their financing of a real estate construction boom that not only coincided with the energy boom, but continued for a time after the energy cycle turned sour. The recognition of problems in the form of nonperforming mortgage loans came only after much of the exposure had been built in. Eventually seven of the eight largest commercial banking institutions in Texas effectively failed, as a result of losses on a combination of energy and real estate loans.⁷ Capital ratios declined only after the cycle turned and substantial losses were inevitable.

New England overbuilding boom. New England banks engaged in a rapid increase in construction and commercial real estate lending in the 1985 to 1988 period. The increase in nonperforming real estate loans (predominantly commercial and construction-type loans), however, did not become of concern until after the bulk of the risk exposure had been built in and overbuilding became a drag on the market.

In the past year and one-half, most of the large New England banks have become troubled, Bank of New England has failed, and some large savings banks have become insolvent, all largely due to losses on

⁷ Three of the eight banks were acquired without federal assistance but experienced subsequent losses sufficient to make it clear that they were effectively insolvent when acquired.

mortgage loans made during the period of rapid growth. As with the Texas banks, capital ratios fell only after losses developed, and well after the risk exposure had been built in.

Similarities in the Pattern of Risk Concentrations in Large Insurance Companies

Case studies of 11 insurance companies will be used to demonstrate the developing patterns of risk concentrations in insurance companies and compare them to corresponding patterns in banks. The cases were not selected by rigid criteria, but they do cover some of the most risk-concentrated among the larger firms in the industry. The smallest company studied was Monarch Life, which had assets of \$4.5 billion in 1990; some of the largest U.S. companies are also included.

First Executive, First Capital, and a few others were selected because of their extremely rapid growth by issuing interest-sensitive products that demanded investment in high-yielding assets. Baldwin-United and Monarch Life are examples of firms that originally got into trouble because of particular features of their interest-sensitive products. Additional companies were included because of unusually heavy concentrations in particular categories of high-risk assets, less directly tied to liability concentrations.

The case studies do not go into great detail but are intended to identify the fundamental problems or areas of exposure. Five of the cases represent companies that failed or have been seized by regulators while at the other extreme are companies whose risk concentrations may never develop into solvency-threatening problems. Only the companies that failed or have been seized will be identified.

First Executive (assets \$19 billion) and *First Capital* (assets \$10 billion), which failed shortly before this was written, represent cases of excessive concentrations in junk bonds, built up over the 1980s. Both companies were generally well regarded until after the junk bond market collapsed in late 1989 and 1990.⁸ Thereafter, these companies experienced 12 to 15 months of increasingly evident depreciation of their portfolios as well as declines in their bond ratings and the market value of their stock.⁹ Eventually, heavy charge-offs produced declines in their capital ratios. As the end approached, the two companies became subject to increasing regulatory pressures and both experienced accelerating runs in the form

⁸ See Hector (1984).

⁹ See Kerwin (1990); Crosson (1991); Stein (1991); and Rundle (1991).

of policy lapses and surrenders, which eventually forced regulators to seize the operating companies.¹⁰

These events fit precisely the list of common characteristics identified earlier and demonstrated in the previous section for selected groupings of banks. Of course the particular circumstances differ from the bank experiences—banks themselves cannot hold junk bonds and the nature of their liabilities is still quite different, although not so different for these GIC and annuity issuers as for more traditional life insurance companies.

The bankruptcy of *Baldwin-United* (assets \$9 billion) in September 1983 was the largest insurance failure in the country until First Executive failed this year. In essence, it involved a concentration risk stemming from an interest rate mismatch on its principal product, single-payment deferred annuities, although the full story is much more complex.

The NAIC in February 1985 published a study of the case in which it stated (p. 14) that "the efforts of insurance regulators should be aimed primarily at the prevention of insolvencies. . . ." It also emphasized diversification and regulatory vigilance. Unfortunately, it appears that the lessons learned in the Baldwin-United case have not been effectively implemented, as evidenced by the various excessive concentrations that have developed recently.

Monarch (assets \$4.5 billion) was a leader in sales of variable life in the 1980s. Its best-selling product was vulnerable to stock market movements and relied on a particular tax provision. The market crash in 1987 and tax law changes at about the same time eliminated the advantages of these features and a resulting decline in volume left *Monarch* somewhat overextended in bank debt.

The parent company invested heavily in New England commercial real estate development financed by bank debt. In November 1990 serious problems with the parent's holdings became apparent, and in May 1991, the life company was seized by the authorities to protect it from the parent's bankruptcy proceedings.¹¹ This case involves two successive risk concentrations, either of which might have been considered excessive even prior to an adverse change in the economic environment.

Mutual Benefit Life (assets \$14 billion) became a heavy issuer of GICs and holder of commercial real estate assets in the mid 1980s. The announcement of a high volume of foreclosures and other troubled real estate assets earlier this year triggered a policyholder run that led to the seizure of the company by the state authorities.

¹⁰ See Rose and Hilder (1991); Shapiro (1991); Rose (1991a); Stevenson (1991); and Rose (1991b).

¹¹ See Pulliam (1990, 1991a, and 1991c).

Of the remaining six cases, two were primarily life companies, three were multi-line, and one was predominantly a property-casualty company. Looking at the 11 cases together, all but one had a heavy concentration in either junk bonds/leveraged buyouts or assets related to commercial real estate, and three had concentrations in both categories. With respect to junk bonds/LBOs, First Executive and First Capital had concentrations in the range of 40 to 50 percent of invested assets, while four others were in the 14 to 20 percent range. Five companies had real-estate-related assets, mostly commercial mortgages and joint venture real estate, in the 38 to 55 percent range (not including the parent of Monarch Life). All but two of the companies with heavy concentrations in the riskiest assets have shown some significant decline in asset quality following adverse changes in the market forces affecting those particular assets. Nine of the 11 companies studied had specialized in single-payment deferred annuities, GICs, or some form of universal or variable life, leading to some degree of interest sensitivity concentration. In four cases, interest rate risk has resulted in significant losses.

Each of the cases described involves several years of buildup of one or more risk concentrations, accompanied by high market regard and acceptable capital ratios. Eventually, each area of concentration was adversely affected by some economic event that, in nearly every case, quickly transformed risk into some degree of actual difficulty. In several of the cases studied, the resulting problems were serious enough to at least raise questions about the survivability of the institution.

The cases demonstrate what one might expect with regard to the timing of capital ratio deterioration. Capital ratios can generally be maintained in rapid growth situations either by high profitability or by capital issuance. Capital ratios deteriorate only after a problem develops to the point where losses are taken. Some of the institutions studied had capital deterioration before the effects of junk bond or real estate write-downs, but in nearly every case this was the result of other concentration problems, such as interest rate mismatches. As in the case of banks, capital ratios generally drop only after problems mature and long after risk concentrations are allowed to develop.

Finally, the First Executive, First Capital, and Mutual Benefit cases have demonstrated dramatically how runs on insurance companies can develop, once concerns about solvency become widespread. The resolution of these cases will also be instructive as to the effectiveness of state guaranty funds and the priorities that should be given to various creditor classes in the liquidation of insurance companies.¹²

¹² See Durgin (1991); Haggerty and Connolly (1991); and Rose (1991c).

Implications for the Regulation of Insurance Companies

The principal conclusion to be drawn from this analysis is that insurance companies, like banks, appear prone to develop major risk concentrations that can imperil the solvency of a significant portion of the industry, under certain economic conditions. If such risk concentrations are allowed to develop, and conditions transform these risk exposures into actual problems, supervisory authorities can do little except to manage the resolution of the damaged institutions. At that point, supervisors have little opportunity to materially decrease the magnitude of losses to individual companies.

This implies that the supervisors should be expected to have the analytical tools and to exercise the responsibility to intervene forcefully when risk concentrations are becoming excessive. Based on the cases studied, this would appear to be a radical departure from the current practice. In recent years, banks' risk concentrations have not always received the attention they should have, and vigorous action has been taken only after the cycle turned and actual problems became apparent. It appears that the same can be said for insurance company supervisors.

The evaluation of risk concentrations is not a highly developed art form, and can sometimes be complex. Risk concentrations have many dimensions and sometimes covariances exist that can either mitigate or aggravate risks. Furthermore, it usually is not enough merely to apply static risk criteria to concentrations in particular types of assets, because the economic environment that will influence the behavior of these assets may be critical. Thus, new techniques and standards are needed in order to enable supervisors to take appropriately timed action against risk concentrations that are becoming excessive.

Some prefer to rely on regulation rather than supervision because it does not require the exercise of judgment. For example, some proposals would limit insurance companies' investment in junk bonds to a fixed percentage of invested assets. It is probably impossible to set a simple cut-off point low enough to prevent dangerous concentrations in most situations, without unduly restricting appropriate actions in other situations. Even imperfect supervisory judgment will generally do a better job than simple limitations, if the supervisory standards are thoughtfully constructed.

Once again, consideration of developments in banking is instructive. Among the proposals to "reform" bank supervision is the concept of "early" or "progressive" intervention based on capital ratios. The theory is that strongly capitalized banks would be generally free of supervisory constraints, but as capital ratios fell, progressively severe supervisory actions would be taken. This concept does not square with the recent experiences of the large banks or the insurance company cases summarized above. As we have seen, capital ratios generally do

not decline in the risk-taking phase, and by the time they do, late in the problem realization phase, it is too late for even harsh supervisory action to avoid the consequences of the built-in problems.

Progressive intervention may be a desirable end-game supervisory tool, but it should not be represented as a means of avoiding costly failures, and certainly should not be linked to a policy of relaxed supervision of well-capitalized companies. Neither banks nor insurance companies should be allowed to develop dangerous risk concentrations merely because they have above-average capital ratios.

Conclusion

Traditionally, both life and property-liability insurance companies have invested their policyholders' reserves in long-term securities. This strategy provided businesses with a substantial flow of long-term financing at attractive prices. Furthermore, this strategy allowed insurers to offer their customers relatively attractive returns on their contracts, because the yields on long-term securities exceeded those of shorter-term securities.

Though this strategy is attractive, it also is risky. The increase in yields during the 1970s and 1980s left insurance companies and their policyholders holding assets offering below-market rates of return. Insurers that no longer offered their customers a competitive rate of return lost business, whereas insurers that continued to offer their policyholders competitive returns, absorbing the losses themselves, diminished both their return on capital and subsequently their capital relative to their assets. Some insurers attempted to increase their return on surplus by acquiring a riskier portfolio of assets or by writing a substantial volume of new contracts in order to invest the proceeds in new long-term securities. Any of these steps increases the odds of insurers' failing to honor their contracts fully because of unexpected underwriting losses or unexpected increases in rates of interest.

In retrospect, 20 years ago insurers carried too little capital to adequately cover their bets against rising interest rates. Today, the capitalization of most insurers is less than that of the 1970s, while the risks inherent in their assets and liabilities have not diminished.

The problems that have already emerged in the insurance industries are similar in certain respects to those that have emerged in the banking industry. These common experiences demonstrate that supervisory authorities can avert problems only if they have the ability and the authority to prevent insurers from assuming excessive risk at an early stage, well before economic events entail future losses.

Appendix 1: Calculations for Table 7

Using the NAIC reports for each of the 60 largest property-liability groups for 1989, the change in capital and surplus equals the change in the value of the groups' bonds, plus the change in the value of common stock, less the change in the value of the groups' expected loss payments.

The change in the value of the bond portfolio when interest rates increase 3 percentage points equals

$$\Delta B = \left\{ \sum_{t=1}^m (C + X(1-X)^{t-1}) / (1 + C + .03)^t + (1-X)^{m-1} / (1 + C + .03)^m - \sum_{t=1}^m (C + X(1-X)^{t-1}) / (1 + C)^t - (1-X)^{m-1} / (1 + C)^m \right\} * B.$$

B is the value of bonds held by the group,

M is the average maturity of bonds (from Schedule D of the NAIC Annual Statement),

C is the average coupon payment on bonds (interest income on bonds divided by B), and X is the rate at which bonds are prepaid (.05).

The change in the value of common stock when dividend-price ratios rise 1 percentage point equals

$$\Delta S/S = -((D/P)^{-1} - (D/P) + .01)^{-1} * (D/P).$$

S is the value of common stocks held by the group, and

D/P is the dividend-price ratio for those stocks.

The change in the value of loss payments when interest rates increase 3 percentage points equals

$$\Delta R/R = -((1.09)^{-D} - (1.12)^{-D}) * (1.09)^D.$$

R is losses and loss adjustment expenses, and

D is the average maturity of loss payments (from Schedule P of the NAIC Annual Statement).

The "typical profile" of payments for a given year's losses is the average of the profiles of reported payments, beginning with 1980. Then, taking into account the vintages of reserves and the profiles of their remaining payments (calculated from the "typical profile"), D is the weighted mean of the timing of expected future payments. Because D estimates the average maturity of payments, the foregoing formula (a duration equation using an initial return of 9 percent) tends to overstate the change in the value of these liabilities. This bias, which is small because D is near 2.5, tends to reduce the estimated loss of capital.

Appendix 2: Case Studies

First Executive Corporation

History

The company, established in the early 1960s, was small and unprofitable when Fred Carr became CEO in 1974. Growth started in 1975 and accelerated by 1980, with emphasis on single-payment deferred annuities invested primarily in junk bonds. Carr involved the company in numerous junk bond deals with Drexel Burnham Lambert's Michael Milken.

When annuity sales plummeted in 1983 following the failure of Baldwin-United, First Executive was already expanding in life insurance products similar to universal life. Nonetheless, with the failure of Baldwin-United and Charter Corp., First Executive became the largest seller of annuities in the country. By 1983, First Executive was one of the 10 largest underwriters of new life insurance policies.

In 1986, much of First Executive's growth was in issuing GICs for pensions and substituting annuities for terminated pensions, sometimes in conjunction with leveraged buyouts. An innovation was the issuance of GICs to municipalities, which invested in junk-backed GICs instead of using the proceeds of municipal bonds for projects. Capital ratios, unadjusted for risk, declined sharply in the mid 1980s to a low in 1987, then began to recover. However, the company was considered to be weakly capitalized relative to its peers.

First Executive was generally well-regarded in the mid 1980s and achieved an AAA rating from Standard & Poor's Corp. in 1985. Despite periodic articles raising questions about Carr's relationship to Drexel Burnham Lambert and his infatuation with junk bonds, as well as recurring problems with allegedly invalid reinsurance and allegedly misleading financial statements (in 1987), First Executive appears to have been much admired for its innovative products and growth.¹³ Concerns about the concentration in junk bonds were apparently raised by supervisors in New York as early as 1985. However, it was not until the junk bond market collapsed in late 1989 and 1990 that widespread concerns emerged.

Problems

(1) *Asset quality.* The essential problem was the extremely high concentration of invested assets in junk bonds, 42 percent as early as 1985 and somewhat higher later. As the junk bond market unraveled, First Executive was downgraded by the rating agencies. In January 1990, it was reduced to Baa2 by Moody's following an announcement that First Executive would write down bonds by as much as \$515 million. Reportedly this would still leave a depreciation of \$1.4 billion on junk. Moody's dropped First Executive's rating to a junk level, Ba2, in February 1990.

As troubles continued to mount, First Executive was forced to withdraw from New Jersey in December 1990 and from Massachusetts in March 1991 because of pressure from supervisors. Moody's dropped its rating to B1 in March. Following the release in April of year-end financials that showed a 44 percent drop in capital, supervisory action was stepped up. New York required a capital injection of \$125 million into the subsidiary in that state and ordered a suspension of new business. Shortly thereafter California seized the unit in that state and a few days later New York seized its unit in order to halt massive withdrawals.

(2) *Liquidity.* With changes in tax laws, some of First Executive's products became unattractive. Surrenders and policy loans increased sharply in 1989, and management sought to increase cash to meet growing liquidity needs. Following announcement of a major write-off of junk bonds in January 1990, concerns were widespread about a run on First Executive's liabilities, but the rating agencies considered liquidity sufficient to

¹³ See Sloan and Rudnitsky (1984); Belth (1987a & b).

handle lapses. In the first half of 1990 more than \$2.6 billion in policies and GICs were surrendered.

By late 1990 First Executive was faced with insufficient cash to continue its preferred dividend or to service its debt, and there was concern that the parent company would be forced into bankruptcy. As the crisis worsened in the spring of 1991, regulators were forced to seize the two life insurance units as outflows accelerated, as noted above.

Analysis

First Executive grew extremely rapidly and was highly concentrated in risky activity, but was generally well-regarded until its fortunes suddenly turned in 1990 as a result of economic events beyond its control. By early 1991 it had failed, with a potential for major losses to pension plans and other holders of GICs and annuities. Despite a number of assertions that insurance companies are not subject to bank-style runs, the two First Executive units were subject to prolonged runs as worries grew, and a final hemorrhage forced their closure by supervisors.

This case fits the model depicted earlier for banks very well. However, the signs of extreme overconcentration and potential mismanagement were apparent at a particularly early stage.

Current Status

Since the seizure of both of the principal units of First Executive, much speculation has occurred as to the amount of the loss that must be absorbed and who will absorb it. The issue was further complicated by an Internal Revenue Service demand on April 22, 1991 for \$643 million in unpaid taxes. The First Executive failure has sparked much debate as to the adequacy of the system of guaranty funds, the duty and practical ability of customer firms to protect their retired employees in such circumstances, and the priorities for the disbursement of limited funds to various classes of claimants.

First Capital Holdings Corporation

History

Established in 1983, the company grew rapidly through acquisitions and aggressive marketing. In November 1988, Shearson Lehman bought a 28.6 percent interest.

Problems

First Capital specialized in universal life and interest-sensitive annuities, and invested heavily in junk bonds. Such bonds equaled 39.0 percent of total investments as of 12/31/90. Tangible equity capital equaled only 9.2 percent of junk bonds, while depreciation equaled 23.7 percent of junk. Nonperforming junk was 7.8 percent of total junk bonds after heavy charge-offs in the final quarter of 1990.

It was not clear from the 1990 annual report whether lapse rates had become a problem, or whether liquidity was adequate to avoid forced liquidation of junk bonds, but it soon became clear that a liquidity problem existed. (See Current Status, below.)

Tangible equity capital has been about 3 percent of total assets at year-end 1988, 1989, and 1990. However, if securities depreciation is netted, this measure declines from 1.6 percent to 1 percent for 1989 and to negative 4.2 percent at the end of 1990.

Assets relating to deferred sales costs and the present value of future earnings on insurance policies in force were very large relative to tangible capital, 2.4 times tangible equity in 1990.¹⁴ In view of the increase in lapse rates above assumptions, these assets have presumably shrunk rapidly in real value.

¹⁴ Reflected in published financial statements, but not in regulatory accounting.

Analysis

Until late in 1990 or early 1991 the financial data suggested, at least superficially, a successful, rapidly growing, and profitable company (ROA 0.74 percent and ROE 18.2 percent in 1989). However, the concentration in junk bonds that had been a feature of the company's structure for several years was so large that significant credit loss, or a need to sell bonds into a distressed market due to unexpected lapses, was sufficient to easily wipe out capital and cause major losses to policyholders. The junk bond crash of the 1989-90 period and the current recession caused both events, and failure became inevitable. Holding company debt was rated Ba2 by Moody's from the time when Shearson acquired an interest until January 28, 1991, when the rating dropped to B1. The rating was dropped three more times in May.

No degree of vigorous supervisory action in 1990 or 1991 could have changed the basic outcome. That would have required action to force diversification well before the junk market collapsed. Because the costs of the interest-sensitive annuities could only be covered by high-yield assets, it would have been necessary to constrain the basic business of this company at an early stage in its development, either through judgmental application of supervisory pressure or through regulation (or perhaps a combination of the two).

Current Status

Staff was reduced 18.1 percent in 1990. The CEO resigned in March 1991. The California Insurance Commissioner is talking to American Express, seeking a rescue. About 75 percent of the business has been generated through Shearson Lehman Brothers in recent years. Apparently American Express will seek to protect only Shearson customers.

The stock of First Capital traded as high as \$14.125 in late 1989, but fell throughout 1990. It dropped to \$.9375 on May 8, 1991.

On May 8, the California Commissioner declared the First Capital Life unit to be in hazardous condition and issued a cease and desist order suspending redemptions, loans, and sales of new business. Redemption requests had surged from \$10 million a day two weeks earlier to \$100 million on May 7. Concern was being expressed about a 12 percent delinquency rate on mortgage loans in addition to the junk bonds.

On May 8, American Express charged off its entire \$144 million investment in First Capital, and the junk bond market was hurt by fears that regulators would require dumping of junk bonds by First Capital.

On May 13, the Virginia Commissioner of Insurance seized the other principal subsidiary, Fidelity Bankers Life, based in Richmond, and on May 15, the California Commissioner seized First Capital Life following a bankruptcy petition by creditors.

Baldwin-United Corp.

History

From 1977 through 1982 this company grew rapidly, both through internal expansion and numerous acquisitions. The principal product was single-payment deferred annuities (SPDAs), and the company was so successful with these that it was the envy of Wall Street in the early 1980s (NAIC 1985, pg. 9). In March 1982, Baldwin acquired MGIC Investment Corp for \$1.2 billion after receiving various regulatory approvals.

By late 1982 problems began to surface, and by September 1983 the company was bankrupt.

Problems

(1) A fatal flaw in the SPDAs allowed holders to surrender the annuities without penalty if the interest crediting rate was reduced more than 75 basis points. When rates fell, Baldwin was forced to operate with a negative spread to avoid surrenders.

(2) The company had evolved into a very complex structure of subsidiaries, and

various intercompany transactions, including reinsurance within the family, made analysis very difficult. Losses were transferred among subsidiaries with different tax rates allowing the booking of a large volume of tax credits, which in the end proved worthless.

Analysis

The actual problem was not publicly recognized until late 1982, but the regulators appear to have been concerned that the consolidated company might be insolvent in the summer of 1982 (NAIC 1985, p. 10). The risk was built in the previous few years while interest rates were soaring, and quickly showed up as rates plummeted in 1982. Baldwin was a classic interest mismatch case with a number of complicating factors that made it difficult to sort out.

Resolution

Until recently, Baldwin was the largest insurance company failure in this country. Its resolution, like its problem, was complex. The loss was met in part by retail stock brokers who had sold its annuities, by lending banks, and by state guaranty funds.

Monarch Life

History

Monarch, located in Springfield, Massachusetts, had total assets of \$4.5 billion as recently as the fall of 1990 when it sold its variable life business. It currently has assets of only \$1.5 billion. Monarch expanded rapidly in the 1980s with innovative variable life and disability products. It sold variable life, where the customer directed funds into the stock investments to obtain a tax advantage. Such advantages were wiped out in 1987 by the stock market crash and tax law changes. Sales volume fell and the insurance company was overextended with bank debt.

In an effort to recover, the parent company, Monarch Capital, invested heavily in real estate development and venture capital deals, primarily in New England, financed by bank debt.

Problem

In November 1990, the parent reported a significant loss due to real estate problems, triggering a default on bank debt, replacement of the CEO, and efforts to sell the life company. In early May 1991, the Massachusetts authorities seized the life company to protect it from the bankruptcy proceedings involving the parent. The insurance company is reported to be in satisfactory condition with \$100 million in capital, but few details are available. Reports circulated of heavy surrenders by policyholders.

Analysis

The original concentration in a particular variable life product was vulnerable to an economic event that suddenly triggered a problem. The parent's subsequent concentration in high-risk real estate deals endangered the subsidiary when the collapse of real estate values in New England forced it into bankruptcy.

Current Status

The authorities and the bank creditors of the parent are in discussion with potential acquirers of Monarch Life.

Mutual Benefit Life

History

One of the 20 largest U.S. life insurers, with assets of nearly \$14 billion, this company had a concentration in real estate assets at year-end 1987 of 52 percent of total assets. This ratio had declined to 39 percent by year-end 1990 as a result of growth in other investments.

Problems

(1) While complete 1990 data have not been seen, newspaper accounts indicate a sharp rise in real estate problems. Nonperforming mortgages jumped from 2.4 percent to 5.4 percent in 1990, and foreclosed property apparently amounts to \$225 million.

(2) Surplus reportedly has been weakened by charge-offs as overall growth continued, and the ratio of surplus to assets, other than separate accounts, was about 4.3 percent at year-end 1990. Furthermore, press reports indicate that reported surplus was inflated by surplus relief reinsurance transactions, which may have added \$90 million to surplus in 1990. Adjusting for this would reduce the surplus ratio to 3.6 percent.

(3) Retired GICs were replaced with \$100 million in commercial paper borrowing, increasing liquidity vulnerability.

Analysis

While the history of this company's real estate concentration was not investigated, the company was apparently well-regarded despite its high concentration level until the deterioration in commercial real estate markets became of concern. Once an actual problem became apparent, the company became very vulnerable to liquidity pressures.

Current Status

An attempt to obtain a \$100 million injection of capital from a major insurance company collapsed in May and Standard & Poor's lowered the debt rating four categories to A. In the ensuing weeks, policyholders withdrew over \$1 billion and the company was forced to request that the New Jersey authorities take it over, which they did on July 15, 1991.¹⁵

¹⁵ See Pulliam (1991b, d, and e).

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Discussion

*Jeffrey Cohen**

Richard Kopcke and Richard Randall have written an interesting paper, which makes a number of important points. I would highlight three in particular:

- (1) Successful regulation could improve insurers' diversification and asset/liability matching but might require a resident shadow management. I will refer to this as the regulator's dilemma, and come back to it later.
- (2) Customers believe that regulated financial intermediaries are less risky because of government guarantees. This in turn may allow intermediaries to become riskier. The situation is very similar to the one we have seen with the banks and S&Ls. I will not discuss this point further.
- (3) Kopcke and Randall outline a pattern of failure that applies to both bank and insurance company insolvencies. This pattern involves rapid growth, leading to concentration of risk, followed by a change in economic circumstances that reduces asset values. The final step is liquidity pressure. The pattern described is a useful structure within which to examine troubled insurance companies, in order to see where it does and does not apply.

I will examine these issues from a different angle. Kopcke and Randall focus mostly on the balance sheet; I will focus on the income statement as well. I will also draw some contrasts between property-liability and life insurance companies.

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First, the income statement versus the balance sheet: It is important to remember that one key factor driving the increase in risk in the insurance business is the decline in the industry's profitability. It has simply become harder for insurers to make money in many of their traditional businesses. The industry's return on equity has fallen. Declining profitability is one of the things that leads company management to take on more risk. In addition, we should remember that it will be difficult for the industry to raise new capital if investors do not believe they can make an adequate return on that capital.

My second topic is the differences between property-liability and life insurers. Kopcke and Randall draw a number of parallels among insurers, banks, and thrifts. However, property-liability insurers are much less like depositories than are life companies. For example, the decrease in property-liability companies' capital-to-asset ratios is the result of the industry's shift from writing mostly property to writing liability lines. Liability claims take longer to be paid and therefore build up more assets. This does not necessarily mean companies are riskier, provided loss reserves are adequate. Also, property-liability companies do not hold many risky assets. A run on a property-liability company is unlikely—claimants cannot accelerate payments. Insolvencies in this industry are most likely to result from fraud, uncollectible reinsurance, a major disaster such as a California earthquake, enormous company payments for Superfund cleanups, or the slow erosion of companies' financial strength during the industry's down cycles, rather than from asset-liability mismatching. This industry's biggest problem is that it is just not profitable enough. And that is because the industry has too much structural capacity (too many companies) and too much capital, not too little. Property-liability companies raise prices aggressively and earn an adequate return only when their capital is declining and company managements perceive themselves as being in financial trouble.

Life insurers, as I mentioned, are more like banks. Nevertheless, their liabilities are longer than banks' and it is harder to have a run on a life company. This should allow more time for companies to solve their problems, which are principally due to a change in product mix. Selling single-premium deferred annuities (SPDAs), guaranteed investment contracts (GICs), and universal life is fundamentally different—and less profitable—than selling whole life policies with conservative mortality assumptions that pay low, fixed-interest rates. Company managements did not fully understand the risks inherent in these new products when they began to sell them. To give an example, in 1984 or 1985 I called on a medium-size life insurer that had recently hired a new chief investment officer from the mutual fund industry. I asked him a number of questions about what interest rates they were crediting on universal life policies and what they were investing policyholders' funds in. It was obvious that their rate spread was too narrow for the company to earn

a reasonable return. When I pointed this out, the investment officer said they would make up for it by trading the portfolio. And it was difficult to argue with him because interest rates had fallen in the past few months, so the company had earned large capital gains. Nevertheless, it is pretty risky to try to run a company like that forever. In fact, I think that if the true economics of GICs were understood—all the options granted on both sides of the balance sheet were properly priced and the line was adequately capitalized—insurers would find that they cannot make a reasonable amount of money in the business.

Finally, although I will not discuss this in detail, I think we should distinguish between the mismatch risk and the asset concentration risk on life insurers' balance sheets. Asset concentration is probably much more dangerous, and more likely to put a company under.

In their conclusion, Kopcke and Randall seem to be calling for regulatory intervention to occur earlier, before insurers can develop excessive risk concentrations. They indicate that regulators must have the proper analytical tools to assess risk, however, and they recognize that this is a difficult task. This recommendation brings us back to the regulator's dilemma I referred to earlier. Many of the things companies do that get them in trouble are not adequately understood at the time they are done. Should regulators substitute their judgment for the judgments of insurance company managements, the competitive market, or the financial markets? Furthermore, regulators may have conflicting agendas—for example, to promote solvency yet keep insurance affordable. Workers' compensation is a highly regulated line, yet if a Workers' Compensation Insurance Company of America existed, it might be bankrupt. Look at the auto insurance situation in California: How can regulators reduce the price of auto insurance, satisfying consumers, and still allow companies to make a reasonable return on capital, as required by law?

Obviously, regulation can be improved. I would start with some smaller, more concrete changes, however, before putting in a new regulatory structure or expanding the current one.

- First, I would move to mark-to-market accounting for all assets and liabilities. Insurance companies' assets and liabilities are worth what they are carried for only by accident. Perhaps marking bonds, mortgages, real estate, and loss reserves to market will inject some discipline into the industry. It may not be necessary for the GAAP (generally accepted accounting principles) or statutory balance sheets to show market values. But if not, the information should be prominently displayed in the footnotes.
- Second, I would remove some of the artificial barriers to consolidation. Why do state insurance departments think it is part of

their mission to protect existing managements as well as the policyholders? Takeovers are very difficult to do in this industry, yet the industry needs to consolidate in order to become more efficient.

- Third, the de-mutualization process should be made easier. This would allow mutuals to raise capital and, as public companies, they might be more disciplined and profit-oriented.
- Fourth, banks should not be allowed into the insurance business. Too many insurance companies are in business already. What makes anyone think that we can solve the banks' problems by allowing their managements, who have already shown that they are unable to manage their own business, into another overcrowded, highly leveraged, narrow margin business?

Discussion

*Thomas E. Moloney**

I commend Richard Kopcke and Richard Randall on the breadth of their analysis of insurers as financial intermediaries. Their paper reminds us all of the great stake that the entire economic community has in the efficiency of operation and continued solvency of the insurance industry. As they note, U.S. insurers manage over \$1.3 trillion in assets, including 36 percent of all corporate bonds and 28 percent of all commercial mortgages. The insurance industry acts as a major financial intermediary whose actions and policies influence the national and international financial markets. My discussion will focus on the life insurance industry.

Two Decades of Transition

As alluded to by Kopcke and Randall, the life insurance industry has experienced significant change over the past 20 years. Customers' conception of a life insurance policy has fundamentally shifted from primarily a "widows-and-orphans" or long-term savings vehicle toward a potentially short-term investment vehicle. Where in 1970 the typical life insurance policy had a fixed premium and a fixed payment upon maturity, today's panoply of products ranges from strict, low-cost term policies to flexible-premium variable life policies whose cash values are tied to actual investment experience.

This fundamental change in both customer preferences and indus-

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try product offerings was brought about by the periods of high inflation and concomitant interest rate volatility during the 1970s and early 1980s, as well as by increased competition for customers' savings from interest-rate-sensitive investment vehicles like mutual funds and CDs offered by other financial services companies. During these two decades, the insurance industry continuously evolved in order to keep pace with the yield expectations and liquidity demands of its customers. Competition was intense between insurance companies and other financial intermediaries like banks, mutual funds, and securities firms. In fact, by 1985 insurance companies managed 11.4 percent of total U.S. financial assets, whereas in 1960 they managed 20.2 percent—almost twice the percentage.

As the barriers between products were reduced and as insurance companies witnessed financial services companies capturing a significant share of their customers' savings, they took action. To retain the customer loyalty and franchise enjoyed by insurers, they undertook a strategy to become full-service companies offering a broad range of financial products and services. The industry push toward product diversification began, and the recasting of companies from single-product "insurance companies" into multi-line full-service "financial services" companies was pursued with vigor.

During the same period, the explosive growth in tax-exempt pension funds fueled insurer growth in this direction also. From 1982 to 1988, the size of the U.S. pension market grew from \$1.2 trillion in assets to \$2.6 trillion, and the projections are for assets to reach \$4.6 trillion or more by 1995. To capture the lucrative management contracts for these pension funds, insurers established a variety of separate accounts, tailored specifically toward managing these assets. Separate accounts ranged in investment type from bond funds to real estate and timber funds. In addition to separate accounts, in the late 1970s insurers began to offer guaranteed investment contracts (GICs) designed to provide secure fixed-income vehicles for purchase by pension plans. Approximately \$30 billion in GICs were sold industrywide in 1990. The level of total tax-exempt assets (including GICs) managed by the top 25 money managers has grown steadily and stood at \$789 billion in 1989.

With diversification came complexity, which the insurance industry had also to address and manage. The economic environment, the insurers' markets, and the nature of insurers' book of liabilities had all changed. With long-standing footings in the disciplines of underwriting and investment/portfolio management, insurers were well-equipped to meet their new risk management challenges. In general, insurers were now holding a book of shorter-term liabilities, and they were forced to deliver higher yields to customers in order to remain competitive. Drawing upon their investment skills and experience in financial management, the majority of life insurance companies adapted well to

increased competition and risk complexity by developing expertise in asset-liability matching, underwriting, investment, and portfolio management. The management of assets in any major life insurer today, for example, entails sophisticated strategies of diversification of assets among many asset classes, and immunization and interest rate hedging to assure that the durations of assets and liabilities are accurately matched. Internal systems to monitor accounts on an ongoing basis are also employed, making use of advanced computer and investment research technology.

Track Record Good to Date

Diversification and increased competition brought with it commensurate opportunities for both increased success and failure. Margins in the industry shrank as some competitors underpriced products in order to gain market share and promised higher yields backed by investments in riskier assets, including junk bonds. As the markets became more complex and volatile, the margin for error narrowed. Because many new financial products were essentially commodities, market share could be captured simply by underpricing products and crediting overly aggressive interest rates. A number of our brethren in the industry succumbed to this temptation and are now paying dearly for it, while the majority of companies rectified their mistakes earlier and reinstilled discipline and prudence in their investment and product strategies.

Despite the current focus on insurer solvency, the track record of the insurance industry, though not perfect, speaks for itself. According to a Conning and Company report issued in May of this year, over the past three years 55 out of approximately 2,300 insurers domiciled in the United States have failed, or about 2 percent. By contrast, over one-fourth of the 3,000 federally insured thrifts are insolvent or in deep financial trouble, with a projected ultimate cost to the taxpayer of between \$325 billion and \$500 billion. Over the past 10 years, assessments of life insurers to bail out insolvent fellow insurers have totaled about \$800 million—paid by the industry itself with a subsidy via a premium tax credit, not from general tax revenues. These assessments amounted to 1.25 percent of earnings for the same period. Some of the questions that have to be raised are how high such assessments could get in the future, how adequate the current capital reserves of the solvent insurers are, and why the erosion of asset value experienced by insurers will not be as serious as that experienced by the banks.

Solvency in the Insurance Industry

The topic of solvency in the insurance industry has been the focus of many recent studies by various federal and state committees, the National Association of Insurance Commissioners (NAIC), and industry task forces. The evaluation of solvency in the insurance industry is difficult because of the broad range in size and product mix of companies. A true evaluation of solvency must include not only the amount of capital and surplus, but also asset quality, business mix, company size, stock versus mutual organizational mix, underwriting exposure, reserve analysis, reinsurance agreements, management expertise, corporate strategy, amount of participating versus non-participating business, and so on. No one measure or handful of ratios can adequately measure industry solvency.

One trend in insolvencies that has become apparent over the past five or ten years is the fact that smaller companies seem much more prone to bankruptcy than larger, better diversified companies. (Well-publicized exceptions, however, include the failure of Baldwin United in 1983 and the recent failures of Executive Life and First Capital.) A 1990 study by IDS Financial noted that most of the insolvent companies were regional, licensed to operate in 10 or fewer states, and of an average size (not including Executive Life and First Capital) of \$13 million in admitted assets. The advantage of the bigger companies lies in the fact that they are often diversified across many large-scale businesses, such as individual life, group health, and group pension, and many also have several smaller businesses such as annuities, individual disability, long-term care, brokerage, and other financial and asset management services. A mistake in any one of these businesses generally will not bankrupt these companies. This is not true of smaller, less diversified companies. This does not mean, however, that large, diversified companies cannot make mistakes big enough to cause their bankruptcy. That is precisely what occurred in the cases of Executive Life and First Capital. The junk bond holdings of Executive Life and First Capital as of year-end 1990 amounted to 68 percent and 40 percent of their assets, respectively, compared to an average of 6.5 percent for the insurance industry as a whole. Thus, these companies were assuming asset risk of six to 10 times that of the industry and have paid the price of this overconcentration in one risky asset class.

There can be no doubt that all insurance companies are feeling to some degree the strain of the downturn in the national economy and a decrease in the investment performance of the assets in their portfolios. Nevertheless, the majority of insurers, even through the aggressive 1970s and 1980s, practiced conservative investment strategies and currently hold portfolios of relatively high-quality assets. According to a recent report by Frederick Townsend of Townsend & Schupp Company,

even after the NAIC implemented a more stringent classification method in 1990 for rating bonds, the total value of "high-risk assets" (bonds the NAIC classified as non-investment-grade, mortgage loans overdue or in the process of foreclosure, and real estate acquired by foreclosure), equaled 140 percent of industry capital.¹ Since the combined industrywide holdings of bonds, mortgages, and real estate amounted to over 850 percent of industry capital in 1989, it is clear that the rate of default and devaluation necessary for an insurer with typically diversified assets to experience bankruptcy would have to be unrealistically high. A recent survey of Standard & Poor's (S&P) rated insurers, for example, indicated that "as a group [insurers] can sustain losses from high-yield bonds for about 30 years, based on S&P's current expectations for bond defaults." (S&P 1991, p. 34) (S&P expects high-yield securities to have a default rate of 10 to 15 percent in 1991.) I do not mean to dismiss the potential insolvency problems for the industry, should additional large insurers like Executive Life and First Capital fail. These problems would be very real. But the likelihood of widespread failures across the industry is low, because of relatively high asset quality and diversification.

The insurance industry will not experience the same level of insolvencies as the thrift industry or the commercial banking industry. It is only logical to attempt to compare the financial condition of the troubled U.S. banking system and that of another major financial intermediary, the insurance industry. Kopcke and Randall cogently describe the implications of overconcentration of risks in one or two high-risk asset classes and mistakes in underwriting and asset-liability matching. But fundamental differences in the structure, regulation, and investment practices of banks and of insurance companies indicate that they perform differently during cyclical downturns.

Banks manage primarily short-term liabilities, passbook savings accounts, and so on, whereas insurance companies primarily manage longer-term liabilities such as life policies (20 or more years), GICs (four to 10 years), and group annuities (20 or more years). Often penalties and restrictions apply on the surrender of policies or insurer investment contracts that do not exist on bank deposits. This feature allows insurers to invest at fixed rates and not assume significant mismatch risk. In addition, the very structure of the regional U.S. banking system makes it very difficult for any but the few largest banks to diversify their investments geographically and lessen their dependence on the economic cycles of a regional economy. The Texas and New England banks are prime examples of this shortcoming. The majority of insurance

¹ This calculation was made for a 101-company composite comprising 71 percent of the life insurance industry's total assets.

companies, by contrast, are national in scope and hold far more geographically diversified assets in all asset classes, from commercial and residential mortgage loans to corporate bonds.

Banks not only are less geographically diversified than insurers but also concentrate their investments in fewer and historically higher-risk investment classes. For instance, whereas the banks concentrated their real estate lending in risky construction loans, insurers invested primarily in longer-term commercial mortgages granted on properties that were income-producing and well leased and generally had a 75 percent loan-to-value ratio. With this income and value cushion, the property value must deteriorate significantly before the insurer would suffer a loss. This difference in the quality of real estate mortgages held by insurers versus banks is borne out by the relatively low delinquency rate on insurance company commercial mortgages of 3.6 percent at year-end 1990, as compared to the much higher rate of delinquency experienced by banks in the troubled regions of the country. In another example, whereas banks aggressively pursued lending to less developed countries and highly leveraged transactions, insurers followed more conservative investment practices and invested only marginally in high-yield bonds with few or no loans to less developed countries. In addition, the regulatory reserve requirements of insurers for insurance policy liabilities are very conservative.

One important lesson that insurers have learned from the widespread failures in the banking industry is the false security and even weakness caused by Federal Deposit Insurance Corporation deposit funds, which removed the discipline and selection mechanisms of the market and burdened the public and the conservative, stronger banks with the task of bailing out the most aggressive failed banks. The consensus among insurers is that it is not healthy to bank on guaranty funds. In fact, it has been argued that raising FDIC insurance from \$40,000 to \$100,000 per account and deregulating the industry too late contributed to the weakness and trouble in the thrift industry. These are lessons that the insurance industry has internalized and is integrating into current discussions on how to address the future regulation of the insurance industry.

Regulation

The insurance industry has reacted with increased initiatives aimed at getting our arms around the current problems. The industry invites thoughtful analysis of its business—such as this forum—and has a long tradition of self-examination and self-correction. Well before the recent insolvencies of First Executive and First Capital, the insurance industry was exploring ways to better regulate and monitor the industry, with

the help of expert industry analysts and public policymakers. Like Monday morning quarterbacks, however, a plethora of self-proclaimed experts have surfaced selling superficial diagnoses and uninformed prescriptions for the industry. Management in our industry spends much time and money deflecting the myths sold by these amateurs.

As outlined previously, the insurance industry is a huge and complex one whose long-term track record of performance is quite good. In many ways, the system has worked. The majority of companies have been disciplined in their investment and management practices and have made adequate reserve provisions. With healthy industrywide earnings and additions to surplus registered at year-end 1990, and with the national recession bottoming out, perhaps the worst is behind us. In any event, short-sighted knee-jerk reactions either by regulators or by companies themselves must be avoided. Admittedly, we are in the midst of change and probable entry into what one industry analyst has called "a new era in life insurance solvency regulation."

Currently five federal-level committees and subcommittees, the NAIC, the American Council of Life Insurance, and a variety of private analysts are studying the industry with the primary focus being insurer solvency. We at John Hancock intend to work with all reputable bodies trying to shape industry policy for the future. At the same time, we in the industry are careful to discourage unenlightened proposals for strict and simplistic regulatory solutions that, in the long run, will serve only to constrain good management and weaken the industry. Some of the proposals currently before us include proposed legislation sponsored by Representative John Dingell of Michigan, supporting a federal oversight agency funded by user fees; minimum federal solvency standards and accreditation of state insurance departments; national liquidation of insolvent insurers rather than the existing state guaranty system; creation of a federal insurance fraud statute; and preemption of state regulation of reinsurers and surplus line insurers.

Although not so publicized, the Senate Antitrust Subcommittee (chaired by Ohio Senator Howard Metzenbaum) has been active in its attempts to extend federal antitrust regulation to the insurance industry through the repeal of the McCarran-Ferguson Act. The Senator believes that repeal of the Act will make the insurance industry more competitive and therefore lead to lower prices for consumers. Most insurance executives believe the repeal of McCarran-Ferguson would be harmful, because it would prevent insurers from sharing the actuarial data used to evaluate risk and to properly price products. This would be particularly harmful to smaller insurers, who rely more heavily on the shared actuarial data to set rates.

The states would generally prefer to remain in control of insurance regulation. Individually and collectively—through the NAIC—state regulators are trying to address the concerns and questions posed by

Congress and others. The NAIC has been extremely active on a number of key issues. Last year the mandatory security valuation reserve (MSVR) was increased for medium-grade and lower-grade bonds, thereby increasing the level of reserves available to absorb potential losses. The NAIC is also considering broadening the MSVR to an "asset valuation reserve" to include all invested assets. Several companies, among them John Hancock, already have voluntary reserves for other asset types, including mortgages and real estate. With regard to insurer solvency, the NAIC is developing a risk-based capital formula that could be used to determine the minimum capital and surplus requirement of each insurer. Again, this would only be institutionalizing a practice already common among the well-managed companies.

The NAIC would like to enhance its system whereby failure of an insurer to meet predetermined minimum ratios would trigger certain actions by state regulators. The NAIC would presumably get tougher on surplus relief reinsurance transactions and a number of accounting policies. California is already contemplating administrative action that would require insurers to remove from their financial statements any surplus created through reinsurance transactions. The NAIC is also pushing for the accreditation of state insurance departments. In 1989, the NAIC laid out guidelines for a set of minimum standards, hoping each state would use them to evaluate insurers. The NAIC's scheduled date for compliance is January of 1994, although to date only four states have been accredited (New York, Florida, Illinois, and South Carolina).

In taking all these actions, the NAIC hopes to prove to Congress that it is capable of regulating the insurance industry on its own. However, a study recently completed by the General Accounting Office (1991) pointed out several serious limitations:

- (1) The NAIC does not have the authority necessary to force state action or to sustain reforms, since changes in state regulation must be approved by the state legislators.
- (2) Since 1980, the NAIC has put forth a dozen recommended changes in state legislation; only one, however, has been adopted by more than one-half of the states.
- (3) The General Accounting Office has expressed some skepticism about the NAIC accreditation process.

Another area of potential legislation concerns the state guaranty funds. Representative Dingell's trial balloon, mentioned earlier, proposed a national liquidation fund to replace the current state guaranty funds. One apparent flaw of the current system is that it allows an undercapitalized company to compete against stronger companies using the stronger companies' protection against losses. The guaranty laws vary from state to state, but generally the guaranty funds are not capitalized until a company fails and funds are needed to cover a

shortfall between assets and liabilities. This approach allows aggressive companies that cut margins to gain sales to place the risk on the conservatively managed companies they compete against.

What will be the result of the efforts of the Congress, the individual states, and the NAIC? The following appear to be the most likely outcomes:

- (1) The budget deficit makes it difficult but not impossible to form a new federal bureaucracy to regulate insurance companies. The issue of federal versus state regulation will play out over the next few years. The final answer will depend upon a lot of issues, including how quickly the states can get their act together, the number and size of insolvencies, and the ability of the industry to coordinate an effective response.
- (2) A risk-based regulatory approach to minimum statutory capital for insurance companies is highly probable in the next few years. Banks already operate under a risk-adjusted capital structure.
- (3) Raising the current state minimum capital and surplus standards for life insurers will not in and of itself solve the capital problems of the life insurance industry, since even some large companies may be undercapitalized. If tougher surplus standards are adopted, it is highly likely that significant consolidation within the industry could result.
- (4) Tougher standards could influence investment allocation away from riskier assets, which need to be supported by more capital; therefore, investment returns could drop, which would in turn affect product pricing and profitability.

Ill-conceived legislation would not be in the best interest of the industry. Therefore, insurers continue to be pro-active with regard to potential state and federal regulation and—like Kopcke and Randall—favor supervision and monitoring over strict regulation.

Conclusion

Looking to the future, I believe you will see companies returning to their core strengths and to disciplined financial management. I believe the industry will consolidate as more highly leveraged companies find it difficult to retain necessary levels of capital. A flight to quality will occur among both individual and institutional customers, who have learned the hard way that prudent, well-balanced investment and management have no easy substitute. Increased efficiency, differentiation between the top-rated insurers and all others, and a simultaneous refocusing on

rational pricing and profitability will characterize the future. The industry in the past has proven capable of successful self-correction, and the well-managed companies in the industry are already on their way.

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Discussion

*Frederick S. Townsend, Jr.**

What types of risk do insurance companies bear? Life insurance executives often think of mortality risk and morbidity risk, with little consideration of asset risk until recent years. In 1990, the New York State Insurance Department developed an experimental risk-based capital formula to determine target surplus levels for life insurance companies. (The formula has since been turned over to the National Association of Insurance Commissioners.) The Townsend & Schupp Company took the experimental New York formula and calculated the individual and composite results for 130 major life insurance companies, including the 100 largest companies ranked by asset size, comprising 84 percent of industry assets. We found that asset risk comprised 50 percent of the composite's target surplus, while insurance risk was only 19 percent, interest rate risk 18 percent, and business risk 13 percent of composite target surplus.

The Problem

Many companies have reached for riskier assets in recent years, seeking to attract deposit funds by offering high interest rates. The primary vehicle used by new and small life insurers was investment in junk bonds. Large and established life insurers, with mortgage loan and real estate investment departments, sought to increase long-term yields by investing in commercial mortgages and real estate projects. The Townsend & Schupp study found that the holdings by the 130-company

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composite of high-risk assets (the sum of junk bonds, overdue mortgages, and real estate acquired by foreclosure) equaled 123 percent of capital.

While problem mortgages and real estate are creating capital losses for some companies, overconcentration of junk bond investments caused the initial surge of conservatorship actions in early 1991. Executive Life of California, Executive Life of New York, First Capital Life, and Fidelity Bankers Life held 83 percent, 68 percent, 46 percent and 40 percent of their respective bond portfolios in non-investment-grade bonds as of December 31, 1990.

Overconcentration in a risky asset class was the first problem. The second problem was the poor credit quality of many of these bonds, which led to market values well below their stated asset values (amortized cost). Finally, the companies have no protection against a "run on the bank." These junk bond investors suffered asset write-downs, then were exposed to both truth and rumors, and then experienced runs on the bank, especially on single-premium deferred annuity (SPDA) products. This caused negative cash flow. This, in turn, caused the realization of further capital losses at depressed market prices.

Possible Remedies

In their paper, Richard Kopcke and Richard Randall point out that one remedy is more capital in the industry. Many stock life insurers have strong parent companies that can provide new capital. Kemper Investors Life, Northwestern National Life, and United Pacific Life have 34 to 35 percent of their bond portfolios in non-investment-grade bond issues, but all three companies have financially strong parent companies. In fact, this year Kemper Investors has received two capital infusions to reduce the heat and publicity surrounding its investment in junk bonds. Northwestern National Life's parent company is selling a new issue of preferred stock to raise capital for its life subsidiary.

A second remedy, which Kopcke and Randall downplay slightly, is to enact limits against concentrated investments in risky asset classes. If the companies in conservatorship that I mentioned earlier had limited their investment in junk bonds to 20 percent of their bond portfolios, would they be in the news today? I think not. Such limits might have saved them, had they been in effect five to ten years ago.

A third remedy might be to attempt to prevent runs on the bank on non-life products, such as the competitive single-premium deferred annuity (SPDA), by using smart product design. Limited early surrender options, large surrender charges, and market value adjustments may inhibit a run on the bank, but would these product features attract

any buyers? The market share will just drift to other, riskier carriers that do not enact these features.

Threats to Solvency

The problem of the run on the bank emphasizes the fact that many life insurers manage an unmatched book. While they expect to receive a sufficiently large margin to compensate for this risk, the margin has proved to be insufficient for many companies.

Basic life insurance products and annuity options offer death benefits and other services not matched by securities and mutual funds, as pointed out by Kopcke and Randall. Life insurers can earn sufficient margins on life insurance products, but often expose themselves to risk when they offer a competitive savings product such as the single-premium deferred annuity, which has no death benefits and therefore no distinction from investment products.

High capital ratios can increase the odds of survival, but it must be noted that Executive Life of California had an 8.5 percent capital ratio in 1988 and was already locked in to its ultimate fate before the problem was realized. Executive Life's management attempted to raise capital every year during the company's growth phase, perhaps recognizing the high risk inherent in the company's investment strategy, and until the last year they were successful.

So high capital ratios may even encourage higher levels of risk-taking. Conversely, some life insurers maintain low capital ratios to increase returns on equity, but they do not necessarily have to adopt risky investment strategies. For instance, major life insurers often direct annuity sales to subsidiaries with modest capital, which creates low capital ratios. Provident National, American International Life, Variable Annuity Life, and Transamerica Life all have capital ratios under 4 percent, but that is management policy. Management wants to isolate a given line of business and manage it for an efficient return. In the absence of a strong parent company, however, high asset leverage does increase the odds that failing insurers will not recover. First Capital Life and Fidelity Bankers Life, two companies the authors mention, maintained capital ratios under 5 percent with a risky asset mix for a number of years.

Kopcke and Randall's discussion of guaranty funds fails to state that life insurance reserves, unlike property-liability reserves, are determined by precise actuarial formulas, and that reserves must equal or exceed the cash values on each and every policy. Thus, if a life insurer's statutory surplus has fallen to zero, and if assets are fairly valued, several major companies will always be willing to assume the failing company's business.

It is interesting to note that life insurers hold 32 percent of total corporate bonds and 27 percent of commercial mortgages. The Townsend & Schupp 130-company composite shows that at last year's end, bonds were 56.8 percent and mortgage loans 24.5 percent of 1990 invested assets, with the weighted maturity of the bond portfolio at 11.5 years. Weighted bond maturities exceeding 10 years may be safe for life insurance products with death benefits and for annuitized products, because the buyer has a reason and the desire to keep such products in force with the issuing companies. Guaranteed investment contracts (GICs) and single-premium deferred annuities (SPDAs) should have shorter maturities, in order to match their liability durations and to protect the life insurers against unstable interest rate environments.

The "Deadly Trio"—the combination of high asset leverage, long bond maturities, and below-average investment yield—can kill a life insurance company when interest rates rise sharply. The company's inability to compete will force the sale of depressed assets when the capital ratio is too low. On the other hand, new companies, unburdened by low yields, did acquire substantial assets by promoting products as investment contracts, which buyers in turn viewed as financial investments.

The authors point out that 75 percent of their sample's assets are held by companies with a capital ratio under 6 percent. The Townsend & Schupp 130-company composite at the end of 1990 had a capital ratio of 6.1 percent including separate account assets, but the ratio is 7.5 percent when measured against general account assets less policy loans, whose risks are borne by the policyholders, not by the company. (Separate account asset risks are generally borne by the contract holders, although some exceptions are now arising.) Those 130 companies comprise 84 percent of industry assets. The United States as a whole has 2,400 life insurance companies and for the entire group the capital ratio is 10 percent. Many of the smaller companies have much higher capital ratios than the big boys in the industry.

Another point generally overlooked is that the capital ratio is driven downward in the life industry by regulation. Capital ratios are limited to 10 percent for mutual life insurers writing business in New York State, a major segment of the life industry assets in the United States. So a mutual company operating in New York that has excess accumulation of surplus must distribute it.

The value of real estate, stocks, junk bonds, and commercial mortgage loans depends on business risks, as the authors point out. And as has been demonstrated in recent months, this is the source of news stories that shake consumer confidence. When cash flow problems occur, some companies have financed cash flow with guaranteed investment contracts written with modest or negative spreads. The gain or loss on a GIC contract is usually determined when it is issued.

Companies should match the durations on GIC contracts. Fewer than 20 percent of GIC contracts renew with the same company.

The public does view companies with large surplus positions as offering safety, but some large companies have high risk levels. This is certainly true of Equitable Life Assurance, which has an asset profile and an underwriting record unlike any other of the 20 largest life insurers.

To date, it has been rapid growth and concentration in junk bonds that have put companies into conservatorship. Concentration in commercial real estate has been limited to the larger, more established life insurers, and has only caused large dents in their surplus.

The characteristics of potential failures in the life insurance industry include high ratios of risky assets to capital, significant differences between market values and stated asset values, capital losses, low capital ratios, the inability to raise capital, low net cash flow from operations, and high levels of cash surrender activity. Capital declines when capital losses exceed earnings, or when earnings are paid out in shareholder dividends to finance parent company commitments.

The basic risks to survival are operating leverage leading to operating losses, asset leverage leading to capital losses, low-quality assets with depressed market values, interest rate risk exposure to a decline in asset values, leveraged buyouts that force payout of operating earnings, low cash flow that causes untimely sale of depressed assets, and the dreaded run on the bank. Once a run starts, an otherwise sound company may have to be placed in conservatorship to prevent asset-liability mismatches from occurring.

If, ten years ago, all states had limited junk bond investments to 20 percent of invested assets, would the life insurance industry be in such turmoil today? Would any major companies have gone into conservatorship? As the authors point out, capital ratios decline in the problem-realization phase, not in the risk-taking phase. Perhaps an ounce of prevention is worth a pound of cure.

The Case Studies

The authors refer to eleven case studies, but present only four case studies in Appendix 2.¹ As a securities analyst in insurance stocks, I am critical of the four case studies on two counts: (1) the authors mesh parent holding company problems with the subsidiary life company problems, and (2) I disagree with the authors on critical issues.

Executive Life suffered from buying junk bonds that were issued

¹ An additional case has now been added with the takeover of Mutual Benefit Life. Only companies that failed or have been seized are identified. Ed.

not to support corporate operations but to finance leveraged buyouts. This made the bonds risky when purchased. Many of these bonds were bought through Drexel Burnham. A study of default rates on Drexel bonds, published in *Barron's*, revealed significantly higher rates than historical default rate studies.

In both the First Capital Life and the Fidelity Bankers Life cases, capital losses have not yet been "sufficient to easily wipe out capital and cause major losses to policyholders." On March 31, 1991, the two companies reported \$151 million and \$141 million of capital, respectively. The companies are in conservatorship to stop runs on the bank, and regulators have not yet forecast any losses to policyholders.

Baldwin-United subsidiaries issued SPDA contracts that guaranteed long-term returns of up to 14 percent per annum. Part of the company's downfall was investing policyholder assets in securities of affiliated companies, which provided no investment return to the life companies. This led to operating losses and ultimately to negative cash flow.

Monarch Life Insurance Company did not have bank debt and real estate problems. Its parent company did. The parent company invested in real estate and incurred debt independent of Monarch Life. Monarch suffered from sales success. This company had only \$117 million of capital in 1984, but wrote \$3.5 billion of direct premiums in the next three years. The cost of writing new business caused Monarch Life to raise capital through reinsurance and through sales of assets.