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Guaranteed Returns – A Tragedy of the Commons?

by Donald R. Sondergeld

In 1833 an obscure English mathematician named William Lloyd Forster described the threat of overpopulation in terms that might equally characterize the dangers posed by many guaranteed-return life insurance and annuity products today.[1]

Forster used the analogy of a common grazing area to point up the hazards of pitting private gain against collective risk. Suppose that a village commons were open to all herdsmen to graze their cattle, he argued. Each herdsman would naturally seek to maximize his gain by adding more animals to his own herd. In the absence of any regulations governing use of the commons, however, the self-interest of the herdsmen would lead inexorably to overgrazing, according to Forster. Why? If unregulated, the individual incentive for gain would outweigh the collective risk of overgrazing. Each herdsman would realize the full benefit of adding an animal to his own herd, whereas the incremental risk posed by adding another animal would be spread among all the herdsmen grazing on the commons.

Garrett Hardin has used the term "tragedy of the commons" to describe the latter-day equivalent of "overgrazing" seen in the environmental problems of a modern industrial economy.[2] Indeed, the analogy has broad application in a society that has grown steadily more complex and interdependent since Forster's day.

Analogy to Life Insurance

The proliferation of certain interest-sensitive financial products sold by life insurance companies is a case in point.

Life insurers traditionally emphasized long-term, low-interest products whose cash values were essentially a by-product of their level-premium pricing structures. The viability of such products was severely tested by the high inflation and high interest rates of the 1970s. In order to appeal to more sophisticated buyers, insurance companies began offering a competitive rate of return on cash-value products, notably single-premium deferred annuities (SPDAs) and single-premium life insurance, as well as such interest-sensitive products as universal life.

The new products became directly competitive with the other types of financial instruments by offering a guaranteed return at current market rates in combination with tax deferral of cash-value buildup. Liquidity was preserved by allowing buyers to withdraw their money at book value, regardless of fluctuations in the market value of underlying assets. In effect, cash values were guaranteed from inception to maturity, apart from modest deductions to cover company expenses in the event of early withdrawal.

Buyers enjoyed the benefits of a long-term return while retaining a short-term surrender option, which virtually insulated them against market risk. The separation of risk from reward, which made such products so attractive to investors, also created the potential for a "tragedy of the commons."

Investment Theory

It is a basic tenet of investment theory that the greater the risk, the greater the reward. Investing in a long-term security at a fixed rate is considered riskier than a short-term investment because the buyer can't take advantage of higher returns if interest rates subsequently rise. Conversely, of course, the buyer would benefit from a decline in interest rates because of his higher long-term fixed return. The variability of the outcome is the key to risk. The greater the potential for a rise or fall in rates, the greater the risk and the higher the return that must be paid to attract investors.

Risk-and-return considerations normally act as a curb on speculative excess. The hope of higher gain is balanced by a proportional fear of financial loss. But with most interest-sensitive products, the buyer reaps the benefits of long-term yields, while the insurer assumes the interest-rate risk. Ostensibly, at least, the products appear to offer a high return with little or no risk.

No problem exists as long as interest rates are stable or declining, because buyers have no incentive to withdraw their money. However, a sharp rise in rates, whether precipitated by inflationary fears or deliberate credit-tightening by the Federal Reserve, can cause investors to withdraw their cash in search of higher yielding investment alternatives. A large number of such surrenders will result in severe losses or even insolvencies for insurers by forcing them to sell fixed-income assets at market values that are substantially below the book values guaranteed to buyers. The reason, of course, is that the market value of debt securities rises or falls inversely with interest rates so that their effective yield always approximates the prevailing market rate. That, of course, means insurers will realize losses if assets bought at lower interest rates must be sold after market rates have risen.

Disintermediation Example

Consider the example of an annuity guaranteeing an 8% interest rate for 10 years. The insurer might invest in 9% fixed-income securities to cover expenses and profit. The securities will mature in 10 years if asset and liability cash flows are matched. Now suppose new annuity guarantees rise to 12% after two years. Surrender charges, if any, would rarely be high enough to offset the reward of a 50% increase in yield to buyers who cashed in their 8% annuities in favor of 12% annuities. If the insurer's cash reserves aren't adequate to cover surrenders, the company will be forced to absorb a 20% loss in the market value of 9% securities sold when prevailing market rates have risen to 13%. If the insurer mismatched assets and liabilities by purchasing longer-term securities, the effect on its surplus would be even more devastating in the event of wholesale withdrawals.

For insurers selling interest-sensitive products, the danger of "overgrazing" is greatest when the grass is greenest – when interest rates are high and guarantees are most attractive to potential buyers. High rates are typically a by-product of inflation, which tends to depress stock market performance and make fixed-interest investments all the more alluring. Furthermore, in emphasizing competi-

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tive market rates, the new insurance products attract a more opportunistic type of investor. A short-term investment orientation inevitably exacerbates the tendency toward disintermediation when interest rates spike.

Economic Forces

What is the likelihood that unwary insurance companies will once again be caught by double-digit interest rates in combination with extreme market volatility? In fact, although inflation has remained quiescent in recent years, market volatility has persisted, and real rates (the difference between nominal rates and inflation) have remained relatively high. This indicates that inflationary expectations within the financial markets are also high. A string of huge federal budget deficits has yet to trigger runaway prices, perhaps because of an offsetting collapse in oil prices. In any event, the potential for a resurgence of inflation should by no means be discounted.

A recent development was precipitated by the 508-point drop in the Dow Jones Industrial Average in October 1987. Whatever its long-term economic impact, the crash ended one of the longest sustained bull markets in modern history – and with it any illusion that common stocks provide high returns with relatively little risk. Indeed, the marketers of fixed-interest investments wasted little time in launching new advertising campaigns that emphasized their guaranteed returns.

Regulatory Concerns and Solutions

The guarantees that make interest-sensitive life insurance and annuity products so appealing in unstable markets are precisely the features that should be of greatest concern to insurance regulators. By guaranteeing cash values, insurers have merely transferred the market risk from individual buyers to themselves, thereby setting up a potential "tragedy of the commons." In the event of an insolvency, the cash-value guarantee is revealed as illusory, since investors have no access to their money. Their eventual reimbursement – probably at less than 100 cents on the dollar – must then depend on assessments levied against other insurance companies through the various state insolvency funds.

A number of safeguards have been proposed, including higher surrender charges, shorter guarantee periods or even a ban on cash withdrawals prior to maturity. Any or all of these might be justified, given the potential magnitude of the problem. But none could be implemented without severely compromising the products' viability in the marketplace.

However, the most compelling features of interest-sensitive life insurance and annuities can be retained without creating unacceptable risks to the insurer. This can be accomplished through the simple remedy of paying the buyer the market value rather than the book value if he cashes out prior to maturity. Such market-value adjustments are already a standard feature of many group annuity and pension contracts.

With so-called "modified guaranteed" annuities (and life insurance), interest and principal are guaranteed to maturity, as with existing products. Buyers are also able to withdraw cash prior to maturity without paying prohibitive surrender charges. However, surrender values will reflect any changes in the market value of underlying assets due to fluctuations in the interest rates. If current interest rates are higher than the guaranteed rate, the surrender value declines according to a formula contained in the contract. By the same token, if interest rates are lower, the surrender value increases. The settlement is fair to both buyer and company, and the threat of disintermediation is virtually eliminated.

In June 1985, the National Association of Insurance Commissioners (NAIC) adopted a model regulation permitting market-value adjusted annuities to be sold on an individual basis. A similar provision for life insurance was adopted the following year. However, to date only two states have acted to permit the sale of "modified guaranteed" products in their own jurisdictions.[3]

In the absence of such regulations, existing nonforfeiture laws prevent insurers from applying a market-value adjustment to cash surrenders of individual annuity and life insurance contracts. Nonforfeiture laws were enacted at the turn of the century to protect policyholders against abuses by some insurers who withheld cash values at surrender. The application of such laws to interest-sensitive products has the perverse effect of benefiting policyholders who withdraw their money at the expense of the remaining policyholders, who are thereby exposed to a greater risk of company insolvency.

A market-value withdrawal adjustment actually provides better protection to buyers of interest-sensitive products than the traditional nonforfeiture laws. A company mindful of its interest-rate risk can never prudently offer investors a long-term guaranteed return high enough to protect the buyer against inflation, since inflation and interest rates go hand in hand. On the other hand, if competitive pressures force the company to guarantee an unrealistically high rate, the buyer unknowingly assumes the added risk of company insolvency.

As noted earlier, any market-value adjustments to surrender values would be incorporated in the contract, using a clearly stated formula. The formula is applied to contract values after other charges (if any) have been deducted, and could result in an increase or decrease in surrender values, depending on changes in applicable interest rates. For the majority of "modified guaranteed" products subject to SEC reporting, annual disclosure of interim cash values is also required, along with full disclosure of commissions and expenses.

The assets backing "modified guaranteed" products are held in a separate account or a segmented general account. Both assets and liabilities are valued at market, which enables regulators to determine quickly the true financial soundness of interest-sensitive products. By contrast, when assets are placed in a general account and valued at amortized cost, the insurer might be able to satisfy all reserve and surplus requirements and still be vulnerable to financially damaging disintermediation.

While the market-value adjustment feature may serve as a disincentive to investors seeking short-term gains, it is worth recalling that these products are intended to provide long-term savings for old age and retirement. Indeed, their tax advantages presumably derive from the public-policy benefit of encouraging long-term savings. Life insurers serve a vital public interest in turn by providing a major source of long-term financing to the economy. Accordingly, the market-value adjustment feature

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FAS No. 97 Brings Sweeping Changes

by Mark D. J. Evans

Recently the Financial Accounting Standards Board (FASB) released Statement of Financial Accounting Standards No. 97, Accounting and Reporting by Insurance Enterprises for Certain Long Duration Contracts and for Realized Gains and Losses from the Sale of Investments. This statement contains wide-sweeping changes to the preparation of GAAP financials for insurance companies. This includes GAAP reporting for universal life contracts. The focus here will be on the ramifications of the interest rate FASB has decided to use to amortize deferred acquisition costs.

The FASB chose to use the interest rate credited to policyholder account values to amortize deferred acquisition costs as opposed to using the interest rate assumed to be earned on the assets invested to support policyholder account values. Because of this choice, FASB has introduced an inconsistency between the methods used to report financial statements for universal life and the techniques required for recoverability testing. The FASB method causes this inconsistency because it creates artificial earnings by assuming that money "invested" to support policyholder account values earns a greater rate than the money "borrowed" to repay the acquisition expense.

To study the quantitative effects of this, a simple model was constructed. The model projects a single 10,000 face amount policy for 25 years. The interest credited to the policyholder account value is 6% while it was assumed that assets earn 8%. The policyholder is assumed to pay an annual premium of 100 at the beginning of each year. The results from the projection were then used to generate cash flows and to emulate the FASB model. The projections were also used to study a modified version of the FASB model where the deferred acquisition cost was amortized using the earned rate rather than the credited rate. The model assumed acquisition expense of 190.

The resulting cash flows discounted at a 6% interest rate resulted in a present value of −85.67. The cash flows discounted at an 8% interest rate resulted in a present value of −27.89. This demonstrates that the product is not profitable and that it is inappropriate to defer the entire 190 acquisition expense. However, under the FASB method, the present value of FASB margins at 6% is 190.90, incorrectly suggesting that the entire acquisition cost can be deferred. Also according to the FASB method, slight profits are produced. This is on a product which we have previously seen to be a losing proposition by a significant amount. The so-called profits that this model generates have slightly positive present values at both 6% and 8% (.90 and .75 respectively), despite the fact that we have seen that the product actually will produce significant losses on an economic basis. Finally the modified FASB method with deferred acquisition costs amortized at the earned rate of 8% produces a present value of margins at 8% of 162.11. This suggests correctly that the entire 190 of acquisition expense cannot be deferred. Note that the 27.89 that cannot be deferred exactly corresponds to the −27.89 present value of net cash flows at 8%. Thus, we can see that if FASB had used the earned rate for discounting margins and amortizing deferred acquisition costs, the model would have been consistent with impairment tests and profitability.

It has been argued that the liability grows at the credited rate so that the asset should grow at the credited rate also. Since the liability has been set equal to the policyholder account values by the FASB method, it is true that mechanically the liability grows at the credited rate. But the FASB method assumes that the investments backing policyholder account values earn interest at the earned rate. This produces the interest margin used to amortize the acquisition expense.

Thus to be consistent, interest paid on the expense asset should be the earned rate, not the credited rate. This inconsistency between assumptions as to the interest rate earned on the funds supporting the liability and the interest rate earned on the deferred acquisition cost asset is what, in fact, generates the inconsistency in the FASB method and recoverability testing. The FASB has recognized this inconsistency in paragraph 27 of Standard No. 97 which states, "The provisions of Statement 60 dealing with loss recognition (premium deficiency)...shall apply to...universal life contracts addressed by this statement."

A complication not considered by Standard No. 97 involves a situation in which there is a corridor interest rate. For example, some universal life contracts pay a lower interest rate on the first 500 or 1,000 of fund value. Statement No. 97 does not prescribe a method for handling such a situation.

To summarize, the FASB method can produce a present value of margins which significantly exceeds the acquisition expense deferral that can actually be supported. This produces a material difference from impairment test results.

(Ed. Note: Tables showing the detailed calculations concerning the illustration referred to in this article may be obtained by writing to The Actuary, *Society of Actuaries, 500 Park Boulevard, Itasca, IL 60143.)*

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constitutes a significant advance in preserving the long-term character of life insurance and annuity products.

With the availability of the NAIC model regulation, state insurance departments can move speedily to authorize products that are safer, easier to supervise and better for consumers. The lesson of Forster's "tragedy of the commons" is that individual gain and collective risk are a disastrous combination in the absence of careful regulation. Surely we need not risk a large-scale insolvency to drive that lesson home.

[1]W.F. Lloyd, *Two Lectures on the Checks to Population*, Oxford University Press (Oxford, England, 1833).

[2]Garrett Hardin, "The Tragedy of the Commons," *Science* (Vol. 162, December 13, 1968), p. 1243 ff.

[3]Connecticut has adopted regulations governing annuities only, while New York has enacted legislation covering both annuities and life insurance required, along with full disclosure of commissions and expenses.

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