



Small Talk

Key Health Issues for 2003

by Kara Clark, SOA Staff Fellow



The SOA's health leadership, consisting of the Health Benefit Systems Practice Advancement Committee (HBSPAC) and the Health Section Council (HSC), met for an all day meeting in Chicago on February 5. A significant portion of that meeting was spent discussing current challenges facing global health care systems, and how the SOA can best serve its

members by addressing top-priority issues. Based on those discussions, the HBSPAC and the HSC have agreed to the following issues as their top priorities for 2003:

- Healthcare Reform (including healthcare affordability and the uninsured);
- Demonstration and Measurement of Medical Treatment Variability (including cost and quality);
- Issues for the Profession (including promotion of the actuarial profession to the health services and policy communities)
- Identifying and Monitoring Short- and Long-Term Trends (including the aging population and changes in medical technology).

ect designed to shed some light on the current pressures within the U.S. healthcare system. The objective of the first phase of the Healthcare System in Crisis project is to develop a descriptive model that articulates the dynamics of the healthcare system and the interrelationships of the system stakeholders. The primary goal is to provide the public with an actuarial perspective on competing interests in the healthcare system. A secondary goal is to increase the actuarial community's knowledge base of healthcare system dynamics in order to promote increased involvement by actuaries in health policy discussions and research in the future. The ultimate goal of these projects is to develop increasingly valuable contributions to the health policy arena each year.

Workgroup recruiting for this particular project is now underway. An initial conference call of the group is scheduled for late March.

For more information on the above project, to provide feedback on health related activities or services you'd like to see from the SOA, or for a copy of the minutes from the February 5 meeting of the HBSPAC and HSC, please contact Kara Clark, SOA health staff Fellow, at kclark@soa.org ●

These issues will drive the future work of the SOA's health committees. SOA members can expect to see continuing education opportunities, research and special projects targeted on these issues in 2003.

To that end, both the HBSPAC and the HSC have pledged their support for a new SOA proj-

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Editorial

by Jim Thompson

Small Talk

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We often have a theme for each issue. In reviewing our past issues over a decade, we discovered that we have never covered health insurance. Obviously, the Health Section serves the needs of the health community. Smaller-company actuaries and consultants who serve them may have some special needs which we might address. The membership of our section is heavily tilted toward life actuaries. If there are needs of health actuaries that we can help address, we should do so.

To this purpose, we became involved in the Health Benefits Practice Advancement Committee and also conducted our own survey of health actuaries. Kara Clark is the staff actuary of the Society Actuaries involved with this committee, and in this issue she has kindly written a summary of their activities to date. Certainly we should coordinate with them on the general status of health insurance actuarial and regulatory issues.

Also we conducted a survey of our members to see what their perceptions of health issues were. This was compiled by Tammy Kapellar, a member of the Section Council, and her assistant, Michelle Stegeman. The following comments refer to the summary results of this survey published in this issue beginning on page 3 and continued on page 10. We asked general health questions as well as those concerning various lines of business. The first one dealt with leading general issues. Not surprisingly, experience and trends was the predominant issue (29 percent). This was followed by rising health costs, including medical malpractice, Medicare and Medicaid, and balance of pricing, sales and underwriting. Regulation came in a poor fourth. This is somewhat surprising since keeping up with regulations is a big problem with smaller life company actuaries.

Some of the detailed replies state that health actuaries do not have the same level of industry experience as life actuaries do. Under rising health care costs, tort reform is mentioned. Pricing products adequately is a problem anywhere, but health actuaries feel this is a particular problem. Under regulations, rate regulation was frequently mentioned. Someone mentioned that for smaller companies, where expenses might be higher, the presence of loss ratio requirements may be a problem. Life actuaries tend to be concerned with the passage of new regulations.

The majority felt that start-up cost was an issue. This is often a smaller-company issue. Although three-quarters of the respondents believe our

On the cover



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2003 Survey on Health Insurance *What Health Issues have a smaller-company angle?*

General Health Issues

What are the leading general issues for health actuaries today?

- 29% Trends and experience
- 23% Rising health costs, medical malpractice, Medicare and Medicaid
- 21% Balance of pricing, sales and underwriting
- 17% Regulations and requirements
- 6% No opinion
- 4% Miscellaneous

Is there a huge start up cost (software, legal, expertise, etc.) involved?

- 57% Yes
- 43% No

How can the Smaller Insurance Company Section (or the Society of Actuaries) help the smaller companies solve their problems?

	By Experience Studies	By Seminars	By Articles
Yes	63%	70%	77%
No	37%	30%	23%

How can we recruit more smaller insurance company health actuaries?

- 27% Publications
- 27% Miscellaneous
- 23% Meetings
- 23% No opinion

Long Term care

Is there any significance for the small company in the Long Term Care Industry?

- 40% Yes
- 60% No

What are the leading general issues for Long Term Care?

- 29% Trends and experience
- 29% Balance of pricing, sales and underwriting
- 17% Regulations and requirements
- 13% Risk
- 8% No opinion
- 4% Miscellaneous

— health survey continued on page 10

▶ section could be most helpful by offering seminars and articles, only two-thirds felt we could be helpful by offering experience studies. Perhaps they were inferring that other bodies could perform these studies.

For each line of business, the first question was whether there was any significance for the small company in that line. The percentage of Yes answers varied strongly—only 20 percent for hospital/major medical, 40 percent for medicare supplement and long-term care, 60 percent for disability income and 75 percent for critical illness. We are good prophets since we chose to reprint an article on critical illness from the Product Development Section newsletter before we obtained the survey results!

The leading issue by line varied strongly. Trends and experience was the highest category for disability income, then critical illness and then long-term care. It was near the bottom for hospital/major medical and Medicare supplement. Both of those lines had less than half stating that there is no significance for the small company. Thus we see that smaller companies without internally credible experience find a pressing need for experience studies.

Rates and costs were listed as top for both Medicare supplement and hospital and major medical, with regulations and requirements second. This should not come as a surprise to those who know anything about Medicare supplement. Some detailed comments refer to premium increases lagging behind claims increases and the way recent improvements in database technology help to provide more rapid experience analysis.

Uniquely, lack of market expertise, rates and costs is listed as number two but only for critical illness. This line is a new market trend. Under long-term care, risk is listed fourth. There is relatively little experience, and this product is often sold on a guaranteed renewable basis.

Thus risk is obviously a factor. Another feature of this issue is the annuity market. There has been an increase in fixed annuity premium even among companies that have previously not emphasized that line of business. This is obviously due to the poor performance of the stock market and hence the variable annuity funds. As I write, companies are seriously offering a five-year guarantee of less than 4 percent. A year ago, companies often had minimum guarantees of 4-4.5 percent and were beginning to think of lowering them on new issues!

Lowered expectations are due to poor stock performance, but also there is the dilemma for the companies of finding fixed investments with a good enough yield to offer a competitive crediting rate. This coordination has been referred to as the actuarial investment marketing triangle. I have personal experience in pricing this and know the extreme importance of understanding the asset strategies. We have two articles on fixed annuities. Eric Sondergeld's concerns marketing trends. Graham Ireland's deals with pricing and investments.

Because of the crisis in investments, the NAIC has adopted revisions to the standard nonforfeiture law for annuities. I followed the high drama of the conference calls. Many of the larger companies that offered CD annuities (guarantees equal to the length of the surrender charge period, often for a short horizon of five years or less) were particularly affected by the decline in interest rates. The news release from the NAIC is enclosed.

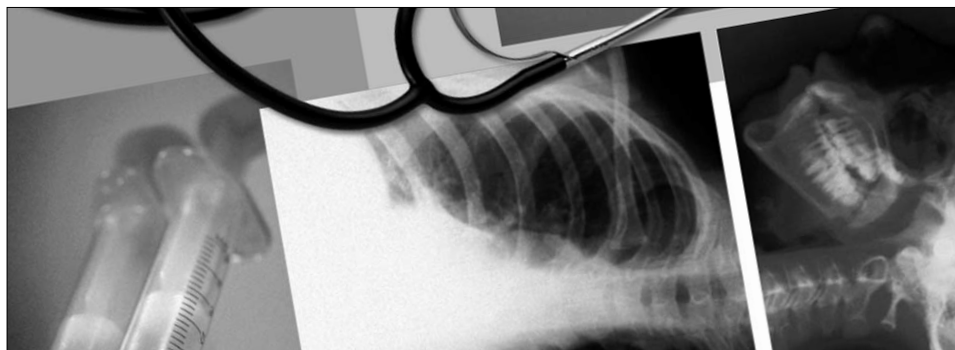
We traditionally cover regulatory activities. In addition to this revision to the annuity nonforfeiture law, we have an article by Mark Rowley on the implications of the 2001 CSO. This will be of increasing significance if states begin to adopt this. It also will tie into the new AOMR if passed. Also we have an NAIC news release on a newly developing service which will help with filing products in various states. It currently is only functional for property and casualty products, but it is expected to be functional for others soon. ●



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What is Critical Illness Insurance?

by Susan Kimball



Editor's Note: This article has been adapted from an article on the same topic that Ms. Kimball wrote for the Vol. 17, no. 4 issue of "On The Risk."

Critical illness insurance (CII) typically provides a lump sum payment on first diagnosis of one of a number of specified critical illnesses. A CII product can take on one of three forms: a stand-alone health product, which is the most common in the U.S.; an additional benefit rider, which is generally considered a health product; and an accelerated benefit rider, which is typically considered a life product.

The stand-alone product can take on any form that life insurance can, such as whole life or level-term and can have various premium payment schemes. Riders are usually attached to life products, such as term or universal life, but may also be attached to other products such as disability income or long-term care. Under the accelerated rider, the policyholder can usually choose to accelerate 25-100 percent of the life proceeds. CII products are represented in almost every market including individual, voluntary (worksites), direct response and group. Some products may offer a series of benefit payments vs. a lump sum. The illnesses covered will vary by product.

The most commonly covered conditions are life-threatening cancer, heart attack, stroke, renal failure and major organ transplant. Coronary artery bypass surgery is often covered at 10-25 percent of the benefit amount, while angioplasty, which has been covered at 10 percent, is falling out of favor due to increased usage and noncritical nature. In the case of a partial payment, the remainder of the benefit amount will typically be paid on a second different covered condition.

Disability has not been covered in U.S. CII plans. This is a good trend, as disability is often covered in U.K. plans, resulting in problems, including anti-selection, leading to greater than expected claims.

Carcinoma in situ is covered in some CII plans, usually at 10-25 percent. This is not an ideal trend, as carcinoma in situ is a very early stage of cancer, is not critical and can lead to anti-selection. However, it has been included in some products due to marketing pressure. Marketers are concerned that consumers may not understand the difference between life threatening cancer and carcinoma in situ.

Multiple sclerosis (MS) and Alzheimer's disease may also be covered, but because they rely on a "clinical" vs. "test" diagnosis, they can be difficult to define and not easily verified at claim time. MS definitions typically require symptoms for a certain length of time. Some conditions may be covered to target a certain market. A CII plan targeting younger ages, for example, may include paralysis, coma and MS. Some markets, such as worksites, prefer to keep it simple and cover only five to eight conditions. From a risk management perspective, the "ideal" CII product would cover conditions perceived by the public as "critical"; in other words, conditions that could afflict them and leave them in need of a lump sum of money. The covered conditions would also be precisely and clearly defined, be easily verified at claim time, have adequate data for pricing and not allow anti-selection. Of course, we do not live in an "ideal" world and must consider the marketing aspects of the product as well.

Why CII?

CII benefits may be used to cover expenses not covered by other insurance, such as experimental treatment and deductibles. It can also be used to pay off a mortgage or other debts, preserve assets, invest for income, change jobs, retire early, pay for children's education, fund self-care or child care or go on a vacation. Consumers value highly the nonrestrictive nature of CII.

Many trends support the need for CII. People are living longer and are concerned about living comfortably throughout life. Medical advances increase the likelihood of surviving a critical illness and the length of survival. The reputation of managed care is deteriorating, and consumers want more choice. There is great disappointment in expenses not covered by other insurance. Lastly, CII aids in retirement program funding by protecting assets and savings.

CII Pricing Assumptions

The key assumption in pricing a critical illness product is the set of incidence rates developed for each major covered condition. An incidence rate is the probability that someone will be diagnosed with a particular critical illness.

Incident rates are based on current U.S. population statistics, and are adjusted to reflect the insured population. We must start with U.S. population statistics because we do not have insured experience due to the product's recent entry in the United States. The adjustments to reflect the insured population will be tailored to the specific product, market and distribution systems. Another country's experience should be used for comparison only, as that country's experience can differ markedly from the United States. ►►

- ▶ For example, heart attack and stroke incidence are much lower in Japan than in the United States.

If pricing a stand-alone product, one needs only to account for morbidity risk, typically denoted by ix . If there is a survival period, ix must be adjusted by the probability of death during the survival period, given a covered condition has occurred ($ix(1-q)1x$).

When pricing an accelerated benefit rider, the morbidity risk (ix) and the mortality risk (qx) must be included. Typically, the rider and base plan are priced together. Deaths due to a covered illness ($kxqx$) and deaths from a cause other than a covered illness must be considered. The extra cost to cover CI is $ix - kxqx$, while the total cost to cover CI incidence and non-CI deaths is $ix + (1-kx)qx$. An excellent source covering the pricing aspects of CII is the landmark paper by Dash and Grimshaw.¹ There is some evidence that incidence rates may deteriorate (i.e., increase) in the future.

Greater health awareness, improved diagnostic techniques and increased use of health screenings have led to earlier detection, which means earlier and additional claims. Environmental or lifestyle factors can lead to higher stress and more cancer-causing agents. There is a reduction in other causes of death leaving more lives exposed to CI risk. As surgery (such as bypass) becomes safer and more frequent, it may eventually be performed to prevent future heart problems, causing incidence to rise. Courts can interpret CII definitions differently than expected. They may redefine, disallow exclusions, do what seems "fair," even if not in the definition, or expand the definition to include additional illnesses. We also need to look at trends in incidence by condition and adjust for these.

Incidence rates should be adjusted for selection due to underwriting. The amount of selection depends on the underwriting (full, simplified issue, etc.) and the market (direct response, worksite, individual, etc.). Life insurance selection is typically 15-20 years; however, given the fact that we do not have the long-term experience for CII (even in other countries), we should be prudent in this assumption and only have selection factors for 5-10 years.

There are a multitude of data sources for the major conditions. For cancer, the Surveillance Epidemiology and End Results (SEER) Study of the National Cancer Institute contains very useful information. The American Cancer Society and National Foundation for Cancer Research are also good sources. For heart attack and stroke, the National Heart, Lung and Blood Institute's Framingham Study is widely used. The

Environmental or lifestyle factors can lead to higher stress and more cancer-causing agents.

American Heart Association and Heart and Stroke Facts provide valuable data as well. The United States Renal Data Systems, American Kidney Fund and National Kidney Foundation are useful sources for renal failure incidence. For major organ transplant, the United Network for Organ Sharing's U.S. Registry on Organ Transplantation is a good source.

There are limitations to the incidence data. The information is sometimes dated, as is the case in the Framingham Study. The impact of smoking is difficult to find. Future trends are uncertain. For example, if heart attack incidence decreases, it does not mean bypass surgery will not increase. Note that there is often not enough data to derive incidence rates for the non-core conditions. In that case, the incidence rates for the non-core conditions are often determined as a percentage of the incidence rates for the sum of the core conditions.

Other important assumptions should be considered as well. Lapses may be as high as 30 percent in year one, grading down to 5-10 percent. This will vary by product and market. Age distributions will also vary by product and market, with the average age in the early 40s. Male/female split is typically around 50 /50 and smoker percentage is about 15-25 percent.

If pricing a CII rider, many assumptions will closely follow that of the base plan. Reserves for a stand-alone policy or an additional benefit rider are based on the Two-Year Full Preliminary Term Method with the incidence table often equal to the pricing incidence rates loaded by, say, 25 percent. Reserves will follow the base plan if it is an accelerated rider. Claim expense and training costs will likely be higher than for a life plan since claim investigation will be more rigorous, and more training will be required for underwriting and marketing. Commissions tend to follow that of the distribution system selling the CII product. Profit targets may be higher since this is a new product with greater uncertainty (risk) and less competition.

Scenario testing in order to see the effect of a change in assumptions is especially important in this new market. Results vary greatly by product and market. A 10 percent increase in incidence rates may cause a 7-10 percent increase in premium. A five-point



- ▶ decrease in ultimate lapse rates can mean an increase in premium of 5-15 percent. If the earned interest goes from 7.25 percent to 6.25 percent, the premium may increase 2-4 percent.

CII Policy Specifications

Almost all products have a waiting period of 30-90 days which is the time the policy must be in force before filing a claim. Often cancer has a longer waiting period, such as 90 days, because it is the most heavily affected by anti-selection. Other conditions usually have a 30-day waiting period. The survival period is the time the insured must survive after being diagnosed with a qualified condition to receive payment.

A survival period of 30 days was often included in the early CII products; however, it was soon discovered that the cost of excluding this was not large and that consumers and producers disliked it greatly. Thus, there is often no survival period in today's CII products.

A pre-existing condition exclusion during the first two policy years is often included. Other exclusions may be for war, HIV, drugs, alcohol, self-inflicted injury and committing a felony.

Issue ages are typically 18-65, and the maximum insured age is usually 65-75, though the product may provide coverage for life. Insured amounts depend on the market. Worksite may start as low as \$5,000-\$10,000 and go up to \$250,000, while in the high-end individual market, amounts may be as high as \$1-2 million. Usually, due to the high cost at the older ages, if benefits are provided over age 65, they are reduced to 50 percent. Premiums may be level, stepped or ART with a very short (one-to three-year) guarantee. The product is typically guaranteed re-

newable. Underwriting classes are male/female (often unisex in the worksite market) and non-tobacco/tobacco.

Staple Inn Actuarial Society Report

The Staple Inn Report, compiled in March 2000, looked at U.K. population incidence data, CII experience to date and surveyed current reserving practices in the U.K. Each topic will be reviewed below on the next page.

The CIBT93 Population Table

The CIBT93 (Critical Illness Base Table 1993) Population Table was developed for benchmarking experience and as a starting point for pricing and valuation, though there was no adjustment for insured population.

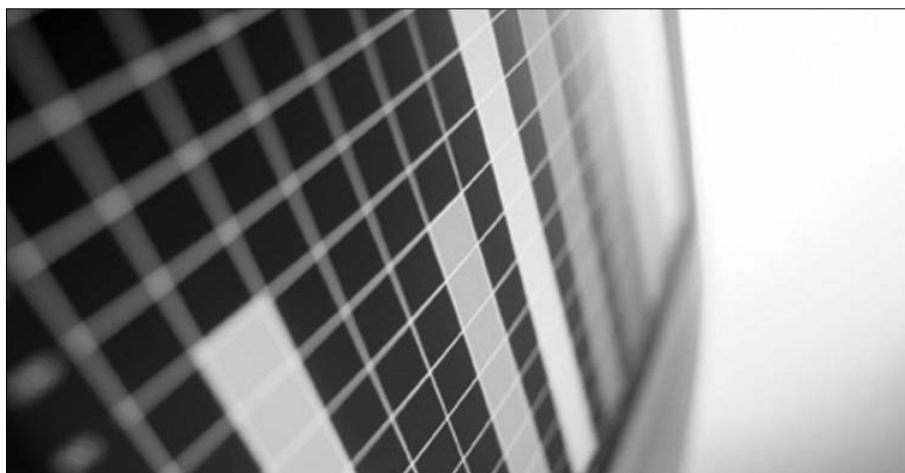
It encompassed the seven core conditions (cancer, heart attack, stroke, coronary artery bypass graft (CABG), MS, kidney failure and major organ transplant in addition to total and permanent disability (TPD). The table is split by male/female, but is not smoker distinct, and covers ages 20-80. Double counting was eliminated by only including first incidences (e.g., excluding readmissions) and adjusting for overlap with other conditions (e.g., removing kidney transplants from major organ transplant data as they would already be included in kidney failure data). Experience was also adjusted for unreported cases.

The CIBT93 Table was adjusted for trends by condition based on experience over 4-18 years. Cancer showed an increase of 1-2 percent per year, while heart attack showed a decrease of 2 percent per year. CABG has increased dramatically, but an adjustment of 5 percent per year was made; however, this is a very uncertain estimate. Stroke, MS, kidney failure and major organ transplant showed no clear trend, so no adjustment was made.

CII Insured Experience

The CII experience (1991-1997) of 32 U.K. companies was studied. This incorporated 60 percent of industry claims, with 5,000 accelerated claims and 450 stand-alone claims. This experience as a percentage of CIBT93 was 46 percent for males and 43 percent for females, highlighting the difference between insured and population incidence. The experience improves from 1991-1996 and then worsens in 1997. The experience varies significantly by condition and age, as well as by company. There is some correlation with distribution channel.

Cancer, heart attack and stroke account for 80 percent of claims, while the core seven and TPD ▶▶



► make up 97 percent of claims. Sixty-five percent of claims are from males, 35 percent from females. Twenty-one percent of claims are declined, with 70 percent of these declines due to the definition not being met and 22 percent of declines due to nondisclosure. The declines due to definition emphasizes the importance of agent and consumer education with respect to definitions.

Smoker/nonsmoker differentials are at 150 percent for males and 137 percent for females. With a very low-ratio company removed from the data, these ratios are 162 percent and 149 percent. This increased from the differentials shown in the 1991-1995 report where ratios were 135 percent and 120 percent, respectively. These differentials are expected to continue to increase as the portfolio is still immature and has a low age profile. The incidence ratios are less than for mortality, possibly due to CII products being more strictly underwritten than life products.

The experience study shows that there is marked selection. The fear of major antiselection in the early years did not materialize, likely due to the inclusion of waiting periods. Experience was split by duration: Year 0, 1 and 2+. The ultimate experience is not mature, so it is too early to draw firm conclusions about the length of the select period. Male experience as a percentage of CIBT93 is:

Duration 0: 31 percent
Duration 1: 45 percent
Duration 2+: 53 percent

The study group was hoping to produce a CI Insured Lives Standard Table, but decided against it because there is relatively little data at longer durations, no evidence of the length of the select period, very little data to judge the shape of rates above age 60, variations over time and wide variations by company.

Reserve Practices

Reserving practices in the United Kingdom are not relevant in the United States, except to note that companies in the United Kingdom use a valuation incidence table equal to, on average, 123 percent of the pricing incidence table for conventional business.

Claims Experience

Claims by cause in the Staple Inn United Kingdom Study are outlined below, along with other countries' experience for comparison. In the United Kingdom, cancer is by far the largest percentage of claims, especially for females. There is an apparent lack of additional risk for smokers; however, smokers emerge with increasing duration. The cancer experience in relation to CIBT93 is higher than for other conditions.

Cancer, heart attack and stroke account for 80 percent of claims, while the core seven and TPD make up 97 percent of claims.

Heart attack is the next-largest percentage and is a more prevalent claim for males than females. Smoker experience is twice that of nonsmokers for heart attack claims. Note that heart conditions are a much lower percentage of claims in Singapore, where diet plays a role. They are much higher in South Africa, where the CII product concept started, due to a focus on cardiovascular disease.

Lessons we can learn from other countries with respect to claims are:

- Including waiting periods to help alleviate anti-selection.
- Having clear, precise definitions to lessen denied claims.
- Using strict underwriting that translates into good selection.
- Pricing needs to accurately reflect underwriting, definitions, experience and possible anti-selection.
- Conducting claims analysis when enough data exists, adjusting pricing, definitions and underwriting, if necessary.
- Training and educating the sales force to help consumers understand definitions.

Regulation

There are many state variations making CII product development difficult. Fourteen states have issues with waiting periods. They may require a maximum number of days during the waiting period (such as a 10 percent benefit). Other state issues include survival periods, lump sum payments, and, notably, family history questions (which is a very important underwriting tool for CII). There is also the loss ratio issue. Most states expect a 50 percent loss ratio, but some require 55-65 percent.

Products need to be revised for these higher-loss ratios by lowering premiums and/or commissions. ►►

► **Summary**

There are strong reasons to consider adding CII to your product portfolio:

- Supplementing declining life sales.
- Leveraging a traditional distribution system.
- Offering potential for higher return on capital.
- Meeting the sales force's desire for a new product.
- Satisfying consumers' unmet needs.

Critical illness insurance is a new, exciting product with many challenges. The product will evolve as we obtain more claims experience and market exposure. Education is key to the growth of CII; the more consumers, marketers, insurance companies and regulators learn about this product, the more eager they will be to have this new insurance offering ●

¹"Dread Disease Cover, An Actuarial Perspective" by Alison Dash and David Grimshaw, Presented to Staple Inn Actuarial Society, January 1990.

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Product Requirements Locator Improves Filing Efficiency

Insurers Can Now Obtain State-by-State Requirements from Searchable National Database

State insurance regulators have developed a searchable database that will provide insurers immediate access to summarized product content requirements for rates, rules and forms on a national basis. Called the Product Requirements Locator, it allows filers to obtain current state-by-state filing requirements from a search engine on the National Association of Insurance Commissioners' (NAIC) Web site.

"We can now provide a one-stop, national information source for product filings," said District of Columbia Insurance Commissioner Larry Mirel, who co-chairs the Improvements to State-Based Systems Working Group.

The Product Requirements Locator's property & casualty category is functional and, with the recent addition of New York, includes filing requirements from 12 states, with more than 10 others nearing completion.

A life, accident & health category is currently in prototype mode and is expected go live after a brief comment period. Both product categories query state filing requirements based on a selection of "Product Name," "Filing Requirement" and "Jurisdiction."

The need for greater speed and efficiency in the product approval process was recognized in the NAIC's Statement of Intent, the Future of Insurance Regulation, which was adopted unanimously by NAIC members in March 2000. The Improvements to State-Based Systems Working Group was created in order to develop a series of operational and regulatory efficiencies to meet this objective. The Product Requirements Locator is one of the working group's key initiatives in this area.

"We have received tremendous feedback from insurance industry representatives that have used the Product Locator," said Peg Ising,

assistant director of the property and casualty division for the Ohio Insurance Department. "The industry has enthusiastically expressed its view that this will be a very effective speed-to-market tool."

The Product Requirements Locator's many benefits include:

- Insurers will be able to proactively and efficiently create rates, rules and forms that comply with all requirements before submitting filings.
- Insurers will be able to quickly implement new and revised products on a national basis.
- Products that already comply with state review requirements will be approved faster.
- The NAIC's Product Uniformity Subgroup will be better able to determine where there is

uniformity in state laws and will facilitate best practices for products.

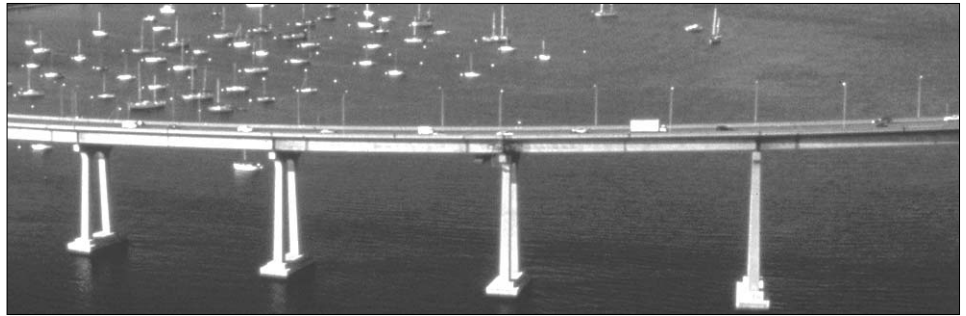
The Product Locator can be found on the NAIC Web site, <http://www.naic.org>, by clicking on "Industry," then "Rates & Forms Filing."

About the NAIC

Headquartered in Kansas City, Mo., the National Association of Insurance Commissioners (NAIC) is a voluntary organization of the chief insurance regulatory officials of the 50 states, the District of Columbia and four U.S. territories. The association's overriding objective is to protect consumers and help maintain the financial stability of the insurance industry by offering financial, actuarial, legal, computer, research, market conduct and economic expertise. Formed in 1871, it is the oldest association of state officials. For more information, visit NAIC on the Web at <http://www.naic.org/>. ●

2001 CSO Adopted!— What Now?

by Mark Rowley



As many of you know, this past December in San Diego the NAIC adopted the new mortality table. Now things will get interesting as the states consider when they will adopt the table. Companies will have to keep track of when they will want to or have to use the new table for valuation, nonforfeiture, tax reserves and definition of life insurance (§ 7702).

This article is a reference to keep straight all the phase-in periods for the different uses of the new mortality table.

At Van Elsen Consulting we believe that 26 states will adopt the new mortality table in 2003 to be effective 1/1/2004. Another 12 states will adopt the table in 2004 to be effective 1/1/2005. The last 12 states will adopt the table in 2005 to be effective 1/1/2006.

Valuation

A little background is necessary here, since the use of the new table for valuation depends on whether the particular state has passed the new table and/or the new AOMR regulation. If the new AOMR regulation is passed with the “switch” turned on that allows companies to rely only on their domestic states’ laws, then the new AOMR might help you use the new table in more states sooner, as long as the company’s domestic state has passed the new table. Unfortunately there seems to be recent discussion about passing the AOMR without the switch turned on, meaning the regulation would provide no relief in dealing with state variations. Companies might want to consider talking to their state insurance departments about this issue.

Since we haven’t had a new mortality table for 20 years, states will have to be thinking about what a good approach is.

Of course, to write a product using 2001 CSO, you ideally want to be able to value that business on this table in all states. Here is a summary:

- If you are domiciled in State X, which has passed 2001 CSO and the new AOMR, and
- You write business in State Y, which hasn’t passed 2001 CSO but has passed the new AOMR and has turned on the switch within AOMR to allow a domestic state opinion,
- Then you might be able to sell a 2001 CSO product in State Y. The only reason this wouldn’t work is if State Y wouldn’t approve the filing of a 2001 CSO product. Your best chance to get a 2001 CSO product approved might be one without cash values, so that the issue of which table to use for nonforfeiture wouldn’t come up. If you were past the nonforfeiture hurdle, then the last hurdle would be getting the actuarial memorandum approved. If your memorandum doesn’t go into specifics about the mortality table used, this might not be a problem. This may be the 2003 situation if term prod-

uct development efforts are active due to the new table.

- You might be able to get the filling approved on the following basis:
 - 2001 CSO will be used when required,
 - otherwise 1980 CSO will be used.

Some states don’t review actuarial memorandum real closely, and some states may think that this is a reasonable approach since the new table will be approved in the near future. Since we haven’t had a new mortality table for 20 years, states will have to be thinking about what a good approach is.

- Even if all the above bullets are true, if State Z hasn’t passed 2001 CSO or the new AOMR (with the switch turned on) you will have to reserve State Y’s 2001 CSO product on 1980 CSO when you do financial reporting in State Z. This might make your financial reporting in State Z look so bad that you can’t sell the 2001 CSO product yet.

One more detail: If your domiciliary state adopts the new table to be effective 1/1/2004 you can start using the new table for valuation anytime between 1/1/2004, and 1/1/2009 (a five-year phase-in). ▶▶



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Nonforfeiture

This is much simpler to think about, although the result may be worse. You can't use the new table for nonforfeiture in a state until the table is adopted by that state.

So there is no way around this, either the state has not adopted it. Similar to valuation, you can start using the new table anytime between 1/1/2004 and 1/1/2009 (a five-year phase-in).

Tax Reserves and Definition of Life Insurance (§ 7702)

Once 26 states adopt the new table, the magic number will be reached, and the new table will start to be used for tax reserves and § 7702 testing. If this happens effective 1/1/2004, you can start using the new table for tax reserves anytime between 1/1/2004 and 1/1/2007 (a three-year phase-in.)

We look forward to working through this five year period of transition with the new table, as we are sure you are! ●

NAIC Members Adopt Revisions to Standard Nonforfeiture Law *Five-Year Constant Maturity Rate to Replace Fixed Rate*

Members of the National Association of Insurance Commissioners (NAIC) adopted revisions to the Standard Nonforfeiture Law for Individual Deferred Annuities.

A key component of the modified law calls for the replacement of the fixed 3 percent minimum nonforfeiture interest rate with a rate based upon the five-year Constant Maturity Treasury Rate. However, the law states that in no

event can the guaranteed minimum interest rate be required to exceed 3 percent, nor can it be less than 1 percent. "This revised law offers a permanent solution to economic inconsistencies," said Utah Insurance Commissioner Merwin Stewart, who is chair of the Life Insurance & Annuities Committee. "NAIC members can now move forward in presenting a viable solution on this issue to their legislatures during the current legislative session."

Industry officials expressed concern over the relevance of fixed rates to fluctuating market conditions. In February 2002, NAIC members voted to support the industry in their efforts to go to the legislatures and ask for a reduction in the nonforfeiture rate to 1.5 percent. In addition, NAIC members charged the Life & Health Actuarial Task Force with developing a more permanent solution.

The Life & Health Actuarial Task Force completed its work Friday, March 7, 2003, in making changes to the Standard Nonforfeiture Law for Individual Deferred Annuities. The Life Insurance & Annuities Committee then adopted the model law during a special session on Saturday, March 8, 2003.

The new language eliminates the need for state legislatures to reactively approve rate modifications on an annual basis. ●

— health survey continued from page 3

Disability Income

Is there any significance for the small-company in the disability income industry?

60% Yes
40% No

What are the leading general issues for disability income?

44% Trends and experience
22% Balance of Pricing, Sales and Underwriting
22% No Opinion
11% Miscellaneous

Medicare Supplement

Is there any significance for the small company in the Medicare supplement industry?

40% Yes
60% No

What are the leading general issues for Medicare supplement industry?

47% rates and costs
18% regulations and requirements
18% miscellaneous
12% no opinion
6% trends and experience

Hospital/Major Medical

Is there any significance for the small company in the in the Hospital/ Major Medical Industry?

20% Yes
80% No

What are the leading general issues for Hospital/Major Medical industry?

65% Rates and costs
12% Regulations and requirements
12% No opinion
6% Trends and experience
6% Miscellaneous

Critical Illness

Is there any significance for the small-company in the critical illness industry?

75% Yes
25% No

What are the leading general issues for Critical Illness?

35% Trends and experience
30% Lack of market and expertise, rates and costs
25% No opinion
5% Regulations and requirements
5% Miscellaneous

Fixed Annuities and the Small Company

by Eric Sondergeld



Rapid Sales Growth

After a decade of relatively flat sales results, fixed annuity sales have grown rapidly in recent years. Bottoming out in 1998 at \$32 billion—the lowest level since 1987—sales of fixed annuities grew 40 percent reaching a third consecutive annual record of \$103.8 billion last year. While variable annuities have received the lion's share of sales in recent years, sales of fixed annuities actually caught variable annuity sales in the second quarter of 2002. The last time fixed annuity sales surpassed variable annuity sales for a single quarter was five years ago. The last time fixed annuity sales surpassed variable annuity sales for a full year was ten years ago (and before that, fixed annuities were always the dominant product).

During the 1990s, interest rates continued their long-term decline while the stock market posted record gains. As a result, the appetite for equities-based investment products also rose. Many of the leading writers of fixed annuities shifted their attention to variable products, emphasizing existing products or entering the variable annuity

marketplace for the first time. Their ability to shift back to fixed annuities in economies like the current one coupled with many large insurers merging has helped the market share of each year's top 20 fixed writers (based on sales) grow from 55 percent in 1998 to 73 percent in 2001.

What's driving sales?

Historically, it was relatively easy to explain fixed and variable market share by looking at interest rates and stock prices (See Figure 1). As interest rates rose (fell), fixed annuity market share generally increased (decreased). Well, interest rates have been falling or remaining about the same. Yet, fixed annuity market share has increased rapidly. Another general rule that has been broken lately is the tendency for interest rates and stock prices to move inversely with one another. But stock prices have also been falling. So, instead of determining what is more attractive, investors are trying to figure out what's the least unattractive option. In the current environment a guaranteed, albeit relatively low, positive rate of return may hold more appeal than a negative return (e.g., in the stock market). In such times of uncertainty, more and more investors are seeking guarantees.

The guarantees that seem most popular today are longer guarantees. Here, longer means more than one year. Most new fixed annuity product development today involves some type of longer interest guarantee. One indicator of the popularity of longer guarantees is the rapid growth of market value adjusted annuities (MVAs) which grew at a 72 percent annual rate from their 1998 level of \$2.4 billion to \$21.2 billion last year.

The small-company experience

The fact that the market share of the top 20 fixed writers has increased lately does not signal a decline for the small company. Quite the contrary. Lacking a true definition of "small," I examined the sales results for 51 companies with fixed annuity sales under \$100 million in 1998. In the three years that followed, these companies' sales grew at an annual rate of 34 percent, two points ahead of the industry. Eight of them sold more than \$100 million in 2001, including one whose 2001 fixed sales topped \$1.4 billion.

Illinois Mutual is one of those eight. Their average annual growth rate over the three years ending 2001 was 130 percent—four times that of the industry. They attribute their success to two factors. First, they created an annuity group in 1996. Prior to that, the annuity line was more of a side product than one the company emphasized. Then, in the spring of 2000, they introduced a competitive CD-type MVA product.

As with variable annuities, many fixed annuity writers have made great strides in expanding their distribution outlets. Chief among these is the bank channel. Historically, independent agents have been the dominant channel for fixed annuities. Bank fixed annuity sales have increased ▶▶

Figure 1

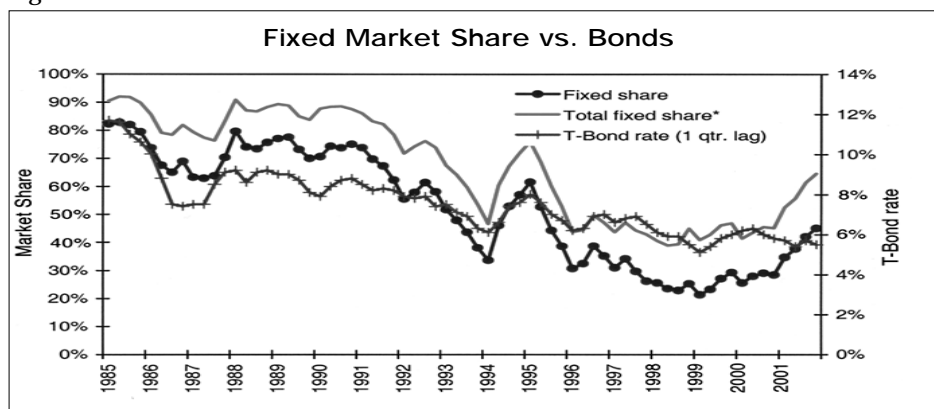
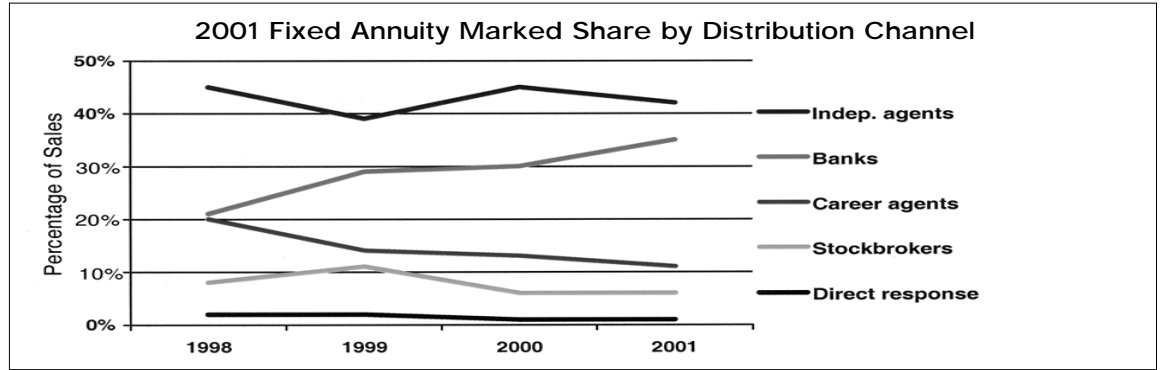


Figure 2



► especially fast lately, and their market share is beginning to rival that of independent agents. Recently, fixed annuity interest rates have been very competitive vis-à-vis bank CDs.

Most “small” companies have not benefited from banks’ success since the majority of their sales are through independent agents. While industry-wide, banks represented over one-third of 2001 fixed annuity sales, they represented just seven percent for companies with less than \$100 million in sales. However, one “small” company, Savings Bank Life of Connecticut (now VantisLife) has made the bank channel their forte. Their annualized sales growth during the three years ending with 2001 was 71 percent—more than double that of the industry. They are in a unique position, having relationships with banks in Connecticut for 60 years, giving them the luxury of geographic closeness to their customers. As a result, they have become a proven entity and the banks they work with have a comfort level with their wholesaling and administrative operations. They attribute their recent growth to being in the right place at the right time (e.g., the stock market turning sour) with a simple, yet competitive product.

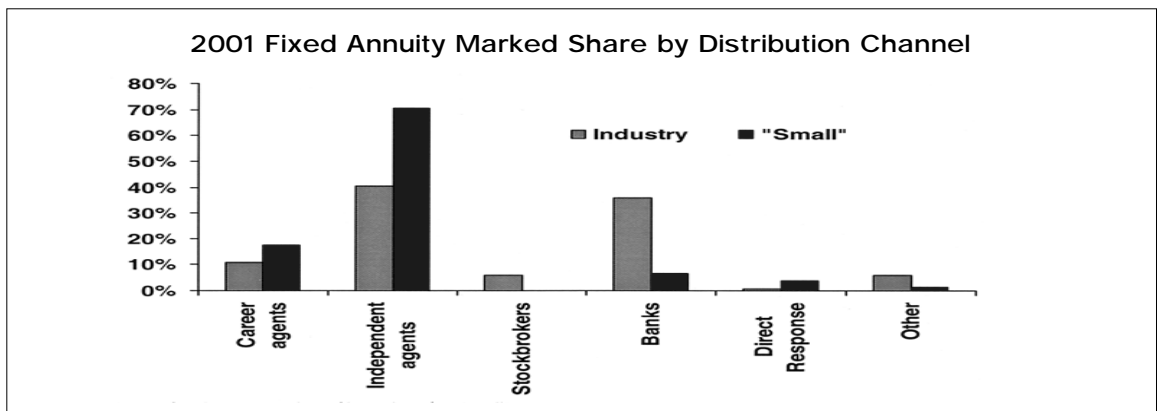
What does today’s success mean going forward? The following are questions fixed annuity writers should consider

in developing future strategy. Will fixed annuity sales continue their rapid growth? Would today’s fixed annuity buyers be investing in variable annuities if the stock market wasn’t declining? Will they when the stock market rebounds? What if interest rates increase? What might surrender activity look like if either of these occurs when surrender charges wear off? It helps to make sure people are buying the right product for the right reason. Sitting out a turbulent stock market yet planning to reinvest when things improve is not necessarily a prudent strategy.

Many people assume that if rates are low now they will undoubtedly go (back) up at some point. What would happen if interest rates stay low or continue their decline? Many companies are already concerned about bumping up against minimum guarantees.

The stock market has been a great educator regarding risk. Many people, including many of us industry people, may have gotten a bit complacent regarding equity risk. But as we end a third straight year of negative stock market returns, it is unlikely that even when the market rebounds the industry won’t forget about fixed annuities so quickly this time. ●

Figure 3



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Fixed Annuities— Product Design and Investment Considerations

by Graham Ireland



Fixed annuity profitability is more sensitive to investment risk than traditional life is. A company's investment strategy needs proper consideration. My article consists of 10 helpful points. Points one through four are for actuaries who are unfamiliar with fixed annuities. Points five through 10 are more advanced issues. An actuary experienced with annuity pricing might want to skip directly to these.

1. Understand the business you're selling.

An insurance company incurs large acquisition costs when it sells a fixed annuity. Commissions can easily exceed 5 percent (or 10 percent in the case of equity indexed annuities). Add in non-commission acquisition costs. Add in the popular "bonuses" that pay extra interest in the first policy year (usually 1 percent for fixed annuities, and as much as 10 percent for indexed annuities). All these costs are funded at policy issue from company surplus.

You are relying on earning a spread between the earned rate on your assets and the rate you credit to the customer in order to recover those acquisition costs and earn a profit. You are making a bet on persistency, which you can tilt your way with surrender charges and market value adjustments.

2. Persistency drives profits.

If the policyholder leaves early, the company may lose money even if surrender charges are applied. If a customer dies early, the company may lose money. Remember that commission chargebacks typically only apply for one or two policy years. Early death means commissions for higher issue ages (75+) are usually a lot lower than for business issued at ages under 75. Higher issue age = shorter liability duration at issue. This should influence your investment strategy.

Persistency is somewhat predictable in the surrender charge period. Lapse rates are lower than if no surrender charge exists. But expect high lapse rates ("shock lapse") right after the surrender charge periods. There is no consensus on what "high" means, but 30-50 percent is not unreasonable. The shock lapse rate will influence your investment strategy and partly determine ultimate profitability.

Expect interest-sensitive lapse at all times. The rate of lapse is a function of the difference between your credited rate and the rates of key competitors. That function is often assumed to be exponential. A 2 percent difference in rates may mean more than twice as much lapse as a 1 percent difference. Interest-sensitive lapse and shock lapse act as an option the policyholder can use against you. It limits your ability to hold assets with a longer duration than your liabilities (otherwise known as taking interest rate risk).

3. You control your credited rate. Your earned rate is partially unknown.

The difference between the two rates is sometimes called "spread."

The fixed-income portfolio you buy at policy inception makes principal and interest payments to you which must be reinvested over the life of the policy. Unless they want to incur interest rate risk, life insurance companies typically "invest down the curve" as the shock lapse period approaches. This means they invest in progressively shorter assets to pay the expected benefits. Policyholders who do not face surrender charges can leave at any time. Insurance companies should not incur a lot of investment risk for such policyholders.

Insurance companies can forecast the initial earned rate on assets backing a policy reasonably well. There are certain unknowns, such as how long it will take for the company to source a mortgage, if mortgages are in the investment mix.

The earned rate over the life of a policy is unknown, due to reinvestment. It's generally unwise to design products, investment strategies, or crediting strategies, where the initial spread is much less than the projected ultimate spread. If you expect to make significant profits at the back end, you are making earned rate and persistency bets that may not pay off.

4. When designing policies, try to minimize the guarantees and options you extend to your policyholders.

Insurance companies are in the business of making guarantees to their policyholders. Competitive pressures sometimes require that a company make a guarantee. Companies historically have relied on holding sufficient surplus so that they can honor those guarantees even under adverse conditions. However, the volatility of modern financial markets, the pressure on insurance company management to maximize capital efficiency and returns on capital, and the growing sophistication of consumers, make some guarantees expensive. In addition to economic impact, guarantees have a way of driving up reserves, and hence a company's capital cost. These guarantees and options are discussed in more detail throughout this article.

In summary, it's a good idea to assess all your product risks and price accordingly.

5. Different asset classes perform differently in different interest rate environments. Price accordingly. ▶▶

► Most of us know that bonds pay interest at a stated rate (the coupon rate). Most insurance companies price their products assuming they “buy and hold” the investments, sell them to the extent they need to make benefit payments, and reinvest when investments mature. But the interest and maturity are not necessarily certain.

- **Bonds can have call provisions that allow the issuer to redeem them in certain conditions.** For example, if interest rates fall, the issuing company can redeem the bond and refinance their operations at a lower rate so they can pay less interest on their debt. If they call your bond, you'll have to reinvest and earn less than you expected.
- **Mortgage-backed and asset-backed securities (MBS and ABS) behave differently depending on the change in rates.** These securities are complicated, and while the payments of interest and principal are tied to a formula, they are uncertain. If interest rates fall, more people will refinance their debt. Your investment will be returned to you earlier than you expect, and you'll have to reinvest at a lower rate. If interest rates rise, refinancings are unlikely. Your investment will be returned to you later than you expect, and you'll be earning interest at a lower-than-market rate. Options extended to policyholders typically behave in the opposite direction of the options inherent in MBS and ABS.
- **In addition, there are two types of MBS. Collateralized Mortgage Obligations (CMOs) are tied to residential mortgages.** Commercial MBS (CMBSs) are tied to commercial mortgages. CMOs and CMBSs behave differently in different rate environments because refinancing terms for residential mortgages are different from commercial mortgages.

6. Don't rely on “average pricing” when you design or sell a policy.

“Average pricing” means picking a “representative” interest rate scenario for projecting cash flows and using the results to justify your decisions. Many of the important cash flows in an SPDA or FPDA projection are dependent on the future changes in the term structure of interest rates. Those cash flows include but are not limited to:

- Principal and interest payments from the investments backing the annuity
- Income from reinvestment of principal and interest payments from the initial portfolio
- Capital gains or losses from the sale of the investments
- Income on required and/or free surplus
- Surrender benefits and surrender charge income associated with the surrenders

- Gains or losses on the sale of options (in the case of equity-indexed annuities)

In addition, default experience on the underlying asset portfolio does not directly vary with interest rates, but is unstable over time. The variability of these and other cash flows means the actual profitability of the policies you sell can be quite variable. Try to select investment strategies and product specifications that minimize that variability.

The cost of options required to support equity-indexed annuities is influenced by a number of factors, among them interest rates and “implied volatility.” Do not assume option costs will be constant over the life of the policy. If the policy lapses or dies, do not assume you can sell them for the price you bought them. The variability in option prices should help drive your crediting strategy. Try to maximize flexibility. If you embed guarantees of “participation rates,” “caps” and “spreads” into your policies, don't rely on average pricing to assume these guarantees are costless.

7. If you are using an interest rate generator to model future changes in interest rates, subject the results to a “smell” test.

Here's an example of what I mean. Interest rates are low today by historical standards, and the yield curve is steep. Insurance companies can earn a lot more income if they buy assets with longer life (for example, 10-year bonds instead of five-year bonds). An insurance company could run a model with 50 interest rate scenarios, and justify its decision to buy 10-year assets by looking at the model output, and assuming the output quantifies the risk. But the output may be based on interest rate generation that says five and 10-year Treasuries won't rise above 6 percent in the next 10 years. Are you 100 percent sure that's true? They were that high two years ago. What happens to your business if we return to the interest rates that prevailed in the early 1990s, when 10 year Treasury notes yielded 7-8 percent?

Interest rate generators are powerful tools, and are invaluable in modeling fixed annuities. But they are all based on key assumptions. Some generators may stochastically model an interest rate for one time period (for example, the 10 year Treasury rate), and then derive the rest of the term structure based on the rate they have modeled. Other models may incorporate what is called “mean reversion,” which limits the generator's ability to produce “sky high” interest rates. Still others may assume that the curve tends to revert to a term structure with a slope based on historical data.

An interest rate generator produces a distribution of rates for each time period you'll be modeling. Each rate has an associated probability. The value of an interest rate generator does not lie in the mean of the distribution (the average interest rate the generator produces), but in the distribution itself, and the “tail”—unusually high or low rates that impact your model results.

8. Design and manufacture your annuity with a higher interest rate environment in mind. ►►

- Interest rates are low today. To the extent they rise over the next several years, the profitability of insurance company fixed annuity blocks will be suspect. The reason? Disintermediation. A rise in interest rates can make new money fixed annuity rates of your competitors very attractive to policyholders suddenly receiving an old, “sub-market” rate. Large fixed annuity writers assume lapse rates in such environments can be very high, as they will have an unpleasant choice—raise their crediting rates on in-force business to unaffordable levels, or take interest-rate-driven capital losses when selling assets to pay surrenders.

Strategies to consider in preparation for a higher interest rate environment include:

- Use the highest surrender charges consistent with the Standard Nonforfeiture Law (SNFL).
- Do not allow cumulative free partial withdrawal provisions.
- Insist on market value adjustment provisions if possible.

9. Design and manufacture your annuity with a low interest rate environment in mind.

The recent decline in interest rates to 40-year lows took many people by surprise, and was not something “average” pricing would contemplate. How has this decline affected fixed annuities, and what will a further decline do?

- Minimum interest rates required on fixed annuities can become unaffordable.

Policies insurance companies sell today that either guarantee a minimum rate each year (like 3 percent), or comply with the SNFL, may have a rate that can't be afforded unless the company takes a lot of interest rate risk. For example, the earned rate for assets backing a five-year surrender charge product may be 4.5 percent. If the company has to credit 3 percent, the 1.5 percent spread may be inadequate to earn targeted profit. The company could buy 10-year assets, which earn much more, but if interest rates are much higher in five years, those assets will be worth much less than their purchase price. If they have to be sold to pay surrender benefits, they'll be sold at a loss. And the difference will come out of the insurance company's surplus.

The NAIC appears to be moving to flexible minimum interest rates—the SNFL and any minimum crediting

Policyholders may decline to surrender their policy, since they can get a better rate from the insurance company than they can anywhere else.

rate provisions will be formula-driven. This change would mean credited rates in the early years of a policy are affordable, but not necessarily the credited rates several years after policy issue.

File your fixed annuities with the minimum interest rate provisions as flexible and as low as possible.

- Policyholders may decline to surrender their policy, since they can get a better rate from the insurance company than they can anywhere else.

The first bullet in this section discussed unaffordable credited rates. The problem of unaffordable credited rates gets worse if policyholders decline to surrender their policies.

- Market value adjustments will be to the favor of the policyholder in a lower interest rate environment, creating an incentive to lapse.

10. Don't assume the market value adjustment means you have no investment risk.

Aside from default risk, market value adjusted annuities may have changes in liabilities that do not perfectly match changes in assets. The reason is that MVA formulas are pretty simple. They calculate the adjustment based on the difference in two rates. The two rates are most often either Treasury rates or credited rates. Changes in the market value of assets reflect not just two rates, but changes in the entire term structure of interest rates. “Term structure” here means not Treasury rates, but the rates earned on the asset classes you invest in. The spread those assets earn over Treasuries is not constant over time.

If you value both assets and liabilities of MVAs at market, changes in the difference between market value of assets and market value of liabilities will flow to surplus, creating surplus volatility. ●

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Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 10-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified.

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