REINSURANCE SECTION NEWS

ISSUE 39 MARCH 1995

Editor's Note

Keep On Truckin'

by Craig Baldwin

Another challenging year in the battle for risks and rewards is unfolding. At least there is a glimmer of hope that the Republicans may take a break in trying to put us all into another line of business. Perhaps if they let the banks into the insurance business, I can finally see my dream realized of having a drive-thru window for YRT rates!

I wish the industry *Good Luck* on defending the inside buildup as our fabulous legislators attempt to give everybody a tax break while running a $200+ billion budget deficit. Perhaps Hillary and Bill and the boys can take in laundry and finally bake all those cookies they talked about right after the election. Besides it would be a nice dietary supplement for the school lunch program.

Back to reality, a big thanks must again be extended to the people of Lincoln National and Munich American for their tireless support of the newsletter. A special thank you to Todd Spooner, Mark Troutman, Steven Teeple, and Dan Solow for their contributions. As always, the preliminary results of the 1994 Reinsurance Survey are contained in our first 1995 edition.

Keep up the good work and keep on truckin'!

Regulatory Update: Reinsurance Tax and Financial News

by Todd P. Spooner

Federal Regulation

Dingell Bill

Following the November elections, the consensus is that this legislation, which would establish federal regulation of insurance and reinsurance, will not resurface in the current Congress. In mid-1994 Representative Dingell (D-MI) had taken steps to limit the scope of the bill in response to criticism of certain aspects of it. At that time the bill was being actively pursued by Congress.

State Regulation

Oklahoma

In *Guardian vs. Weatherford*, The Guardian Life Insurance Company of America was denied the right of offset under a modified coinsurance agreement on the basis that the treaty did not transfer sufficient risk. The court decision was a result of the adoption of the NAIC Model Regulation for Life and Health Reinsurance Agreements into the offset provision of the Oklahoma statute. Guardian is appealing the decision, and the ACLI has agreed to file an amicus brief with the court in support of Guardian's position.

Florida

Florida has circulated for comment an updated draft of its version of the NAIC Model Regulation for Life and Health Reinsurance Agreements. This follows the state's exposure of a proposed regulation that contained significant variations from the model and that was met with strong industry opposition on those variations. The current version has only one substantive deviation from the model. It applies a test against Florida minimum surplus requirements of the amount of capital and surplus of the company reduced by the surplus effect of terminating existing reinsurance. The draft applies the provision on an extraterritorial basis. The ACLI has recently responded to the draft.

NAIC Regulatory Activity

State Accreditation

A total of 43 states and the District of Columbia have now received accreditation. Remaining states without accreditation are Alabama, Arkansas, Hawaii, Nevada, New Mexico, New York, and Vermont.

Unauthorized Entities Working Group

At the winter meeting the working group exposed a draft of the "Unauthorized Entities Manual." The effort is closely tied with the model law working group on antifraud.

Reinsurance Working Group of the "Technical" Task Force

At the winter meeting the working group discussed live examples of treaties and provisions subject to the Model Regulation for Life and Health Reinsurance Agreements. The group opined that no credit should be given for variable annuity reinsurance where there is only one risk element. Other topics raised were (1) penalties for treaties not in compliance, (2) abuse of YRT exemptions, and (3) stop-loss agreements.

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In This Issue

Regulatory Update:
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Model Law on Credit for Reinsurance

The working group has unanimously agreed that no provisions of the NAIC Proposed Federal Non-U.S. Insurer Act should be included in the model law. The working group was also asked to review the model to determine whether language more suitable to the life/health industry should be added. The ACLI was asked to participate and is providing commentary and proposed language. This development shows a recognition by regulators of differences between the life/health and property/casualty reinsurance industries.

RBC for Modified Coinsurance

A technical group of the NAIC has published its report on proper RBC calculations for modified coinsurance. The recommendation provides that (1) no change is necessary to the calculation of C-1 or C-4 risk, (2) net amount at risk should be adjusted for modified coinsurance reserves in the C-2 calculation, and (3) the C-3 calculation should be modified to include or exclude modified coinsurance reserves accepted or ceded.

Industry Group Activity

NALC Reinsurance Committee

The National Alliance of Life Companies (NALC) has established a new committee on reinsurance. The focus of the committee will be on the education of ceding companies on the reinsurance market and their involvement in establishing reinsurance policy.

SOA White Paper on Risk Transfer

Members of the Reinsurance Section of the SOA have drafted an educational paper on the role of risk transfer in reinsurance accounting. The paper is intended for a general business audience that has had exposure to life insurance. The paper will be mailed to all Section members prior to the New Orleans Meeting in April.

Taxation

DAC Tax Interpretations

During 1994 the IRS addressed the treatment of DAC premium in corporate transactions under Revenue Ruling 94–45 and a number of Private Letter Rulings (#9444010, #9438035 and #9427001). Revenue Ruling 94–45 concludes that in a contribution of a block of business by a parent to its subsidiary in the form of an assumption reinsurance transaction, no DAC premium is triggered and the subsidiary acquires the parent's DAC asset for the business and amortizes it over the remaining life of the asset. A detailed discussion of the ruling can be found in the December 1994 issue of this newsletter ("Assumption Reinsurance Rules Do Not Create Tax Gain in Transfer to Controlled Subsidiary," p.9). Through PLRs referenced above, the IRS opined on the treatment of DAC premium in other corporate transactions that are or can be likened to assumption reinsurance.

Financial Reporting

Accounting for Modified Coinsurance and Coinsurance with Funds Withheld

The NAIC Emerging Accounting Issues Working Group recommended at the winter meeting that the current accounting treatment for modified coinsurance and coinsurance with funds withheld be left unchanged. The charge of the group was to consider changes that would bring the accounting for these contract forms more in line with one another.

New Annual Statement Questions on Reinsurance

The Notes to Financial Statements has a new look this year with a new item 12, "Ceded Reinsurance Report." The item captures some questions that were previously included in Schedule S and also includes two new questions. The first new question asks the company to define the amount of surplus reduction it would incur from the termination of all reinsurance agreements. The question makes the caveat that "the company may consider the current or anticipated experience of the business reinsured in making this estimate." The second new question asks the company to state the amount of reinsurance credit taken on agreements executed or amended during the year that reinsure in-force policies.

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REINSURANCE SECTION NEWS

Issue Number 39 March 1995
Published quarterly by the Reinsurance Section of the
Society of Actuaries
475 N. Martingale Road, Suite 800
Schaumburg, IL 60173

The newsletter is free to Section members. A subscription is $15.00 for nonmembers. Current-year issues are available from the Communications Department. Back issues of *Reinsurance Section News* have been placed in the Society library. Photocopies of back issues may be requested for a nominal fee.

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Paul Schuster, Assistant Editor
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Preliminary 1994 U.S. Reinsurance Production and In-Force Survey

by David M. Holland
and David M. Bruggeman

The final results of the telephone survey that we have conducted on behalf of the Society of Actuaries Reinsurance Section are presented below. This is a preliminary survey of U.S. ordinary recurring reinsurance assumed and in force for 1994. Recurring can be defined as "conventional" business reinsured in 1994. We asked survey participants to exclude, where possible, financial reinsurance, retrocession business and other business where the policy issue date precedes the effective date of the treaty. This survey is intended to provide an early *estimate* of results for 1994 and will be updated through a formal written survey.

All 19 companies contacted provided estimates for this preliminary survey. The 1992 and 1993 data included in this report were obtained in previous written surveys or updated during this survey.

This year's survey is extremely noteworthy in that it reflects dramatic increases in production for a number of companies. Of the 19 companies surveyed, a total of 11 companies showed increases in new business of more than $1 billion and four of these companies had new business increases in excess of $4 billion. Companies with significant new business increases include: Gerling Global ($6.3 billion), ITT Hartford ($5.0 billion), Business Men's Assurance ($4.9 billion), and Mercantile and General ($4.8).

Comparing 1994 estimates with 1993 actual results for the 19 companies shows an increase of 24.49 percent in new business and an increase of 10.25 percent in in force. This is a significant increase in new business compared to the last two years. Actual new business results for these same 19 companies showed increases of 6.15 percent in 1993 and 0.97 percent in 1992.

Because these numbers are preliminary and subject to modification, it will be interesting to see whether this large increase in new business will hold true when the final numbers are published in a later newsletter. We thank all survey participants and we hope you find this information useful.

David M. Holland, FSA, is President and Chief Executive Officer and David Bruggeman, ASA, is Actuarial Associate with the Munich American Reassurance Company in Atlanta, Georgia.

Preliminary Production and In-Force Survey
U.S. Ordinary Recurring Reinsurance
1994

	1992				1993				1994			
	New Business		In Force		New Business		In Force		New Business		In Force	
	$ Million	%	$ Million	%	$ Million	%	$ Million	%	$ Million	%	$ Million	%
Allianz (NALAC)	$3,953	2.6%	$20,661	2.7%	$3,869	2.4%	$21,189	2.6%	$5,587	2.8%	$22,991	2.6%
American United Life	7,378	4.9	23,586	3.1	11,063	6.9	31,344	3.9	11,962	6.0	39,335	4.5
Business Men's Assurance	4,862	3.2	23,776	3.1	2,616	1.6	22,493	2.8	7,546	3.8	26,217	3.0
CIGNA Reinsurance	3,049	2.0	14,352	1.9	2,217	1.4	13,972	1.7	2,700	1.4	16,271	1.8
Cologne Life Re	6,769	4.5	28,652	3.8	6,996	4.4	32,749	4.1	9,123	4.6	37,882	4.3
CNA	7,012	4.6	44,949	5.9	3,727	2.3	43,003	5.4	3,470	1.7	41,321	4.7
Crown Life	2,076	1.4	25,350	3.3	1,258	0.8	18,407	2.3	971	0.5	14,675	1.7
Frankona America Life	3,694	2.4	12,021	1.6	4,278	2.7	14,505	1.8	5,200	2.6	18,000	2.0
Gerling Global	769	0.5	6,906	0.9	1,480	0.9	10,082	1.3	7,800	3.9	16,200	1.8
ITT Hartford (Am. Skandia)	2,944	2.0	12,018	1.6	2,748	1.7	12,852	1.6	7,717	3.9	19,664	2.2
Life Reassurance Corp of America	3,822	2.5	61,861	8.2	12,842	8.0	66,686	8.3	10,503	5.3	72,400	8.2
Lincoln National Life	14,833	9.8	93,357	12.3	16,888	10.5	97,472	12.1	20,600	10.3	96,000	10.9
Mercantile & General	9,232	6.1	29,820	3.9	6,006	3.8	31,165	3.9	10,789	5.4	36,792	4.2
Munich American Re	2,797	1.9	13,710	1.8	3,515	2.2	14,616	1.8	4,434	2.2	16,258	1.8
North American Re	8,769	5.8	61,348	8.1	8,776	5.3	62,788	7.8	10,400	5.2	68,200	7.7
Phoenix Home Life	3,747	2.5	19,310	2.6	3,756	2.3	20,170	2.5	6,313	3.2	23,530	2.7
Saint Louis Re (General American)	22,323	14.8	88,723	11.7	19,423	12.1	96,981	12.2	23,234	11.7	107,263	12.1
Security Life	10,495	7.0	36,879	4.9	14,268	8.9	45,875	5.7	15,863	8.0	54,917	6.2
Transamerica Re	32,290	21.4	139,631	18.4	34,364	21.5	145,284	18.1	35,084	17.6	155,888	17.6
TOTAL	$150,814	100%	$756,910	100%	$160,090	100%	$801,633	100%	$199,296	100%	$883,804	100%

1994 numbers are based on preliminary telephone survey.
1993 and 1992 numbers are based on prior years' actual results from written survey or updated during this survey.

Stop-Loss and Experience-Rated Life Reinsurance Covers

by Donald D. Solow

The large majority of ordinary life reinsurance treaties being written today are proportional, non-refund treaties, either yearly renewable term (YRT) or coinsurance. Very few are written as stop-loss or experience-rated treaties. Some reasons for this are discussed below, but in general it may be fair to say that stop-loss and experience-rated structures are not familiar to the buyers of individual life reinsurance. The intent of this article, then, is to outline the principles behind stop-loss and experience-rated structures and to identify the similarities between the two.

Stop-Loss Covers

A stop-loss reinsurance cover is a non-proportional cover because the amount of risk passed to the reinsurer is not known at the inception of the reinsurance agreement, but instead depends on the number and amount of claims incurred over the coverage period. For example, a stop-loss contract might be devised to pay to the reinsured all claims (with a maximum for any one life) incurred above a predetermined level of claims, subject to a total dollar limit of liability. The level that claims must reach before the reinsurer is required to make any payments is called the attachment point and is similar to a deductible.

Mathematically, a stop-loss cover has the following payment characteristics:

Given:
- Attachment point α
- Limit L
- Total Claims C
- Stop-loss premium P_{SL}
- The reinsurer pays 100 percent of all claims in excess of α, but does not pay more than L.

The cash flow of the reinsured (ignoring investment income) is:

$$\begin{array}{ll} -P_{SL} & \text{if } C \leq \alpha \\ C - \alpha - P_{SL} & \text{if } L + \alpha \geq C > \alpha \\ L - P_{SL} & \text{if } C > L + \alpha \end{array}$$

As an example, consider a stop-loss cover where the reinsurer will pay 100 percent of all claims over $120, subject to a total payment limit of $60. Suppose the premium for this cover is $10. Figure 1 shows the reinsured's net cash flow, or payoff pattern, as a function of total claims.

In effect, the reinsured has purchased protection against claim levels exceeding $120 (but only up to $180), for a charge of $10. The possibility of the total claims budget being exceeded for the period is eliminated, unless experience is so bad that it reaches the reinsurer's limit. Therefore, the stop-loss cover essentially guarantees the reinsured's claim results, in exchange for a known charge of $10.

The stop-loss cover is to an insurance organization what a protective put option is to a security owner. Both retain all the upside potential, but limit the downside risk, in exchange for an initial charge (the stop-loss premium and the put premium, respectively).

The stop-loss cover would appear to be a very attractive means for protecting earnings over the period covered, at a relatively modest price. Yet few companies seek to purchase the cover, and few reinsurers seek to offer it, although the lack of supply may stem from the lack of demand. For a reinsurer, the cover may be viewed as a high-risk, low-reward product, allowing little chance for recoupment of a loss if a stop-loss claim occurs. In spite of this, a reinsurer may be able to develop an attractive stop-loss product by writing a multi-period contract, and by using retrocession to smooth results. Also, as the number of stop-loss treaties written by the reinsurer increases, a greater risk spread is achieved, allowing for losses on one treaty to be offset by gains on others.

Together with a traditional YRT or coinsurance treaty, a ceding company may be able to negotiate an attractive stop-loss premium that will allow it to raise its per-life retention limit, thereby lowering total reinsurance costs. Some balancing is required, though, because an increase in retention will increase the stop-loss premium. (In theory, the stop-loss could act as a stand-alone cover, although the ceding company will probably wish to maintain some

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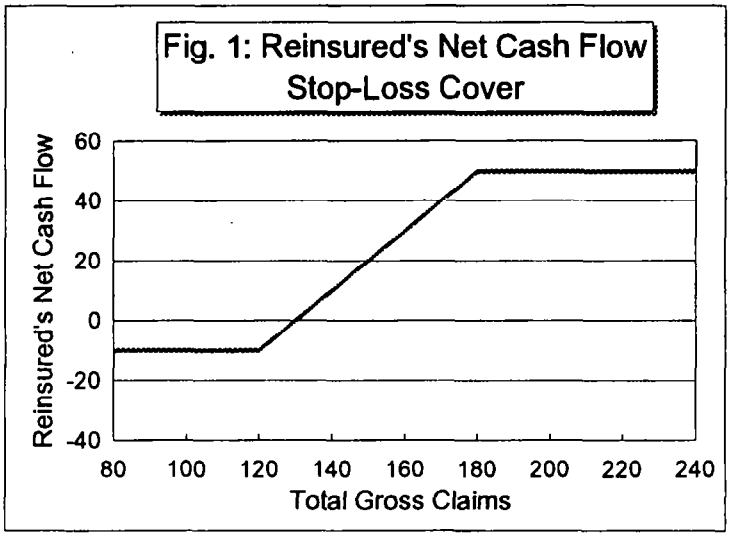

[1]This article assumes that all cash flows occur within one coverage period. The coverage period may be a year, a certain number of years, or the entire duration of the reinsurance agreement.

Stop-Loss and Experience-Rated Life Reinsurance Covers
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type of traditional YRT or coinsurance arrangement, to have access to facultative outlets and other services.)

Experience-Rated YRT Covers with No Carryforward of Losses and 100 Percent Refund of Gains

An experience-rated YRT reinsurance cover is a proportional cover because the reinsurer's liability on each life reinsured is known at inception. The experience rating mechanism provides for the payment to the reinsured of an experience refund representing a return of unnecessary premiums. Traditionally, if the reinsurer suffers a loss, then no refunds are paid in future periods until gains have been used to offset all losses. The losses may be accumulated with interest. The refund is commonly expressed as a function of reinsurance premiums, claims incurred (perhaps with a maximum for any one life), and the reinsurer's risk and profit, or "expense" charge, although other items, such as reserve changes and investment income, may be included. Expressed as a formula, the typical experience refund is computed as $\rho(P_{YRT}-C-\epsilon)$, but not less than zero, where

P_{YRT} = YRT reinsurance premiums
C = Total reinsured claims incurred
ϵ = Reinsurer's expense charge for risk and profit
ρ = fraction of gain to refund (after expense charge)

For this discussion, we assume that all gains in excess of the expense charge are refunded to the reinsured; in other words, we set $\rho=1$. We also assume, for now, that no losses are carried forward into the next period and that there is no per-life claim limit. The experience refund then equals premiums less claims less expense charge, but not less than zero.

With $\rho=1$, the cash flow of the reinsured, ignoring investment income, is:

$$\begin{array}{ll} -\epsilon & \text{if } C < P_{YRT} - \epsilon \\ C - P_{YRT} & \text{if } C \geq P_{YRT} - \epsilon \end{array}$$

As an example, suppose the reinsurer charges YRT reinsurance premiums such that the total premium collected for the period is $130. Suppose the refund formula returns all gains after an expense charge of $10 has been deducted. Figure 2 shows the reinsured's net cash flow, or payoff pattern, as a function of total claims.

Few experience-rated reinsurance covers are sold by reinsurers today. First, most companies seeking to buy reinsurance wish to minimize their initial cash outlay. This makes the higher premium level of an experience-rated cover unattractive. Second, the current market for nonrefund reinsurance is very competitive, from the buyer's perspective. Third, some reinsurers are reluctant to give up the upside potential they have with a nonrefund cover, especially if they are relying on future mortality improvements. Finally, experience-rated treaties may produce accounting and administrative difficulties.

Equivalency

The numerical examples above were designed specifically to show the equivalence of stop-loss and experience-rated reinsurance covers. If we set the stop-loss limit L equal to the total insurance volume covered (that is, pay all claims above the attachment point) and if we set certain variables as follows:

let $\alpha = P_{YRT} - \epsilon$
let $P_{SL} = \epsilon$,

then we see that the stop-loss cover's net cash flows and the experience-rated cover's net cash flows are identical. Thus, the two covers are economically equivalent.

Experience-Rated YRT Covers with No Carryforward of Losses and Limited Refund of Gains

Most experience-rated covers do not refund all gains. Instead, a percentage of the gain, after the expense charge has been deducted, is refunded to the reinsured. Suppose ρ is the fraction of gain that is distributed to the reinsured. Then, the cash flow of the reinsured is:

$$\begin{array}{ll} C - P_{YRT} + \rho(P_{YRT} - C - \epsilon) & \\ \quad \text{if } C < P_{YRT} - \epsilon & \\ C - P_{YRT} & \text{if } C \geq P_{YRT} - \epsilon \end{array}$$

Note that the first line can be rewritten as $(1-\rho)(C-P_{YRT})-\rho\epsilon$. This is simply the weighted average of the cash flows that would occur if some portion of the business (ρ) were reinsured on a 100 percent refund basis with expense charge equal to $\rho\epsilon$, and the remainder $(1-\rho)$ were reinsured on a nonrefund basis. As discussed above, the 100 percent refund cover is equivalent to a stop-loss cover with attachment point equal to $\rho P_{YRT}-\rho\epsilon$ and stop-loss premium P_{SL} equal to $\rho\epsilon$.

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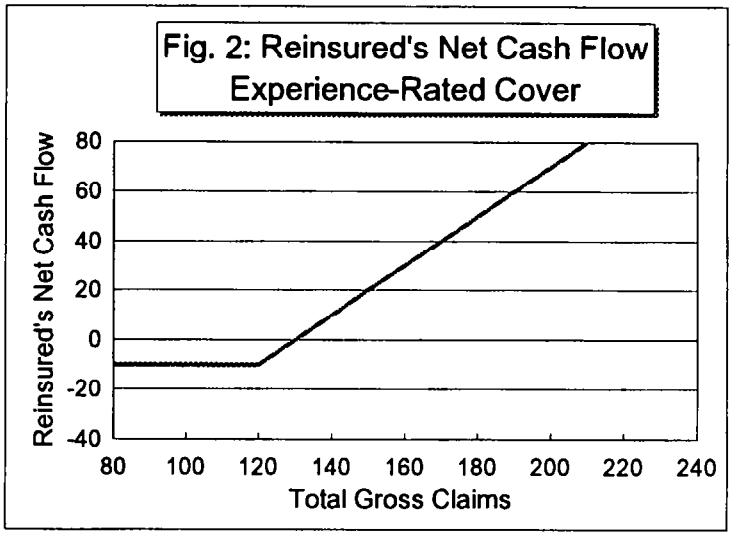

Stop-Loss and Experience-Rated Life Reinsurance Covers
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Therefore, in analyzing any experience-rated cover, it is possible to first decompose the cover into 100 percent refund and nonrefund covers. Second, the 100 percent refund cover can be analyzed as a stop-loss cover by using the equivalency equations above.

Experience-Rated YRT Covers with Carryforward of Losses

Most experience-rated covers provide for some carryforward of losses from one period to the next. The typical arrangement is for losses to be carried forward indefinitely, accumulated with interest, until eliminated by reinsurer's gains. Occasionally, this is modified so that there is some forgiveness of losses; for example, losses incurred more than three years ago may be forgiven by the reinsurer in computing loss carryforwards and experience refunds.

If losses are carried forward indefinitely and if the experience refund is paid only when the reinsurer's liabilities are terminated (that is, when all reinsured policies have expired, or by mutual agreement to terminate the reinsurance), then the analysis above is valid if we use as our time period the entire length of the reinsurance agreement. The equivalent stop-loss cover is then a cover over the entire duration of the agreement, not just a one-year cover.

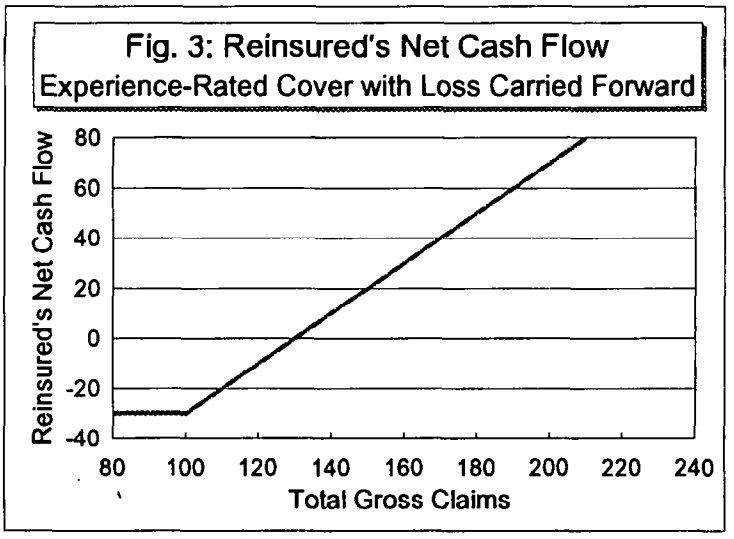
Often, experience refunds are paid annually, but losses are carried forward indefinitely. The net cash flow of the reinsured then depends not only on the amount of losses, but also the timing, and the single-period model used in the above analysis must be modified. Although such modifications are beyond the scope of this article, the following discussion may be of interest.

Assume at the beginning of the period that the loss carryforward account is positive; that is, some losses are being carried into the current period from prior periods. Suppose that the experience-rated cover provides for a return of all reinsurer's gain during the period in excess of losses carried forward, after deducting expense charges. The cash flow of the reinsured, ignoring investment income, is then:

$$\begin{array}{ll} -\epsilon - \lambda & \text{if } C < P_{YRT} - \epsilon - \lambda \\ C - P_{YRT} & \text{if } C \geq P_{YRT} - \epsilon - \lambda, \end{array}$$

where λ is the amount of past losses carried forward. If we define $\acute{\epsilon}=\epsilon+\lambda$, then the cash flow of the reinsured can be seen to be equal to the cash flow under a single-period experience-rated cover, with an expense charge equal to the charges for risk and profit plus the loss carryforward amount. This means the equivalent stop-loss cover has an attachment point $\alpha=P_{YRT}-\epsilon-\lambda$, and a stop-loss premium $P_{SL}=\epsilon+\lambda$.

As an example, suppose the reinsurer charges YRT premiums equal to $130. Suppose the refund formula returns all gains after deducting an expense charge of $10. Finally, suppose losses carried forward from prior periods amount to $20. The reinsured's net cash flow, as a function of total claims, is shown in Figure 3.



Remarks

There are advantages to using stop-loss or experience-rated covers rather than traditional YRT covers to protect earnings against claim fluctuations. With a stop-loss or 100 percent refund cover, the reinsured retains all the upside potential; in other words, good claims experience and improvements in mortality result in higher earnings, while poor experience is ceded to the reinsurer. The cost of this benefit should be relatively modest in relation to total claims, depending on where the attachment point or experience-rated YRT premiums are set.

For the reinsurer, the stop-loss or experience-rated cover provides for a high probability of profitability, provided the attachment point or YRT premium level is set high enough. The lack of competition in the market may also allow for higher profit margins than the margins found in traditional YRT arrangements.

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Underwriting Joint and Last-Survivor Insurance: The Challenge Remains

by Steven B. Teeple

Joint and last-survivor (JLS) insurance is not new. It has been around for at least 20 years in some form or other, but it did not begin to gain popularity until the last five or six years. Most people attribute the recent rise in activity to the burgeoning interest in the older-age market.

Despite the lengthy life span of this product, it remains one of the more challenging plans to underwrite. Questions still come up frequently, and new issues arise that often were not thought about, much less addressed, before the product was introduced to the marketplace. The purpose of this paper is to examine some of the more significant issues and underwriting problems that a company may encounter when selling JLS.

The Elderly Market

Despite the effort of many good marketers, or perhaps because of them, joint and last-survivor insurance has gravitated toward the elderly market. This in itself brings a whole new dimension to the underwriting workplace, since underwriting the elderly brings a whole new set of challenges.

Many of the tools underwriters have at their disposal are inefficient at best when they are underwriting someone over the age of 70. Paramedical examinations do not provide nearly the amount of information important in this market. Likewise, blood profiles have revealed many unexpected results in the geriatric set. Are these abnormalities "normal" for the age? Are they significant? Do inspectors (commercial or in-house personal history interviews) seek the right information? Can an underwriter tell from the inspection report whether an applicant is functional in his/her activities of daily living? Attending physician statements (APS) may provide reams of information, but have the underwriters been trained to spot potentially significant remarks the doctors have noted?

Clearly, experience shows that, because JLS is popular in the elderly market, underwriting will have to be done in much greater depth and with more sophistication than in the younger marketplace. Thus, increased underwriting requirements will cause processing delays that may be unacceptable to the customers. Significant additional costs will be added to the underwriting process and producers will have to learn to deal with more substandard ratings and uninsurable risks. Throughout, underwriters will see their workloads increase dramatically because they will have to underwrite two lives for every policy.

Financial Underwriting

The rules of financial underwriting on JLS applications have changed. First, because many applicants are elderly, the primary purpose of JLS is for estate planning and preservation, which often means larger-than-average amounts of insurance. Second, because the underwriter is now concerned about when the *second* (or last) person will die, he/she must estimate the insurance needs when the second death occurs. No longer is it acceptable to look at current income and use some easy multiple-of income rule to determine the amount of insurance needed. Now, the underwriter has to estimate the estate size in 10 or 15 years, factor in some reasonable rate of growth, and then estimate the taxes due at the second death. A whole new vocabulary of sophisticated tax-planning terms has cropped up in recent years: charitable remainder trusts, zero-estate tax plans, grantor retained income trusts, etc. Do your underwriters have the training needed to understand these sophisticated options?

Speaking of financial underwriting, I would be remiss if I didn't mention its impact on field relations. To justify the amount of insurance requested, it has become increasingly important for the underwriter to obtain personal financial records of the applicants. Many people, especially the elderly and/or wealthy, are very reluctant to release this information. In response, agents have devised sophisticated financial plans that purport to show clients (and underwriters) exactly how much insurance will be needed at some future time. But are the numbers accurate? Does a CPA or attorney verify the basic assumptions? Should an estate be appreciated at 6 percent for 35 years in order to determine the tax needs? Doing this could result in requests for insurance amounts that are four or five times greater than the current estate value. Could this be speculative?

Special challenges arise daily in the financial underwriting of JLS products. A prudent underwriting manager will provide advanced training to underwriters before the games begin..

"A whole new vocabulary of sophisticated tax-planning terms has cropped up in recent years: charitable remainder trusts, zero-estate tax plans, grantor retainer income trusts, etc. Do your underwriters have the training needed to understand these sophisticated options?"

Aviation Risks

One of the more challenging underwriting risks seen today is an aviation risk on a joint and last-survivor application. While on the surface this may seem fairly innocuous (after all, doesn't an underwriter see aviation risks daily?), some unique challenges lurk within JLS. For example, what if a husband is a pilot and his wife often flies with him? Isn't she also subject to the same risk as he? Will the underwriter charge only the husband for an aviation risk, charge both, or concoct a combination extra premium? Can the risk be excluded? Probably not, since most aviation exclusion provisions (AEP) were written before JLS policies came into vogue, and so the wording would not be effective.

Couple this problem with an elderly applicant who has a medical impairment

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Underwriting JLS Insurance
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and the underwriter has an even bigger dilemma. Can the risk be priced appropriately with an extra rating? What if he is uninsurable? Remember, she flies with him; does that make her uninsurable too? There are no easy answers to any of these questions, yet many companies have not anticipated such problems and therefore have not explored their alternatives. Most companies will at least need to revise their AEP and seek subsequent state approval.

One Life Uninsurable

Many of us long-timers still have trouble understanding this concept. How can we issue insurance on someone who is uninsurable? Well, after a couple of times through that one, it starts to make sense, until one day when an agent calls and says a couple wants to buy a few million dollars of insurance. The only catch is, he has cancer and is undergoing chemotherapy. Probably won't live the year. Will we "insure" him? After all, we do issue one-life uninsurables, don't we?

Once again, the underwriter's walking the tightrope that allows as much business as possible to be issued, but yet avoids issuing insurance for speculative reasons. Can speculative intent exist when insuring someone on his deathbed? Some companies seek to resolve this dilemma by issuing insurance only to people whom they expect to live for a minimum of three or five years. But can we really tell if someone is going to live less than that? (Answer: Probably not very often.)

So the game continues, with the underwriter trying to issue as much insurance as possible, but still not pleasing all the agents.

Product Fit

Earlier I mentioned that underwriting delays create special problems—especially when it comes to joint and last survivor coverage. Frequently sales are made to elderly applicants who wish to take some of their cash investment and place it in insurance contracts. The agent has made the sale showing how, by taking their soon-to-mature CD and investing it in this particular insurance product, the clients are assured of both estate preservation and tax-sheltered accumulation of interest.

Now the problem. After receiving the examinations, the underwriter finds that both insureds have health histories and asks for several APS and some financial documentation. Ultimately the policy is issued with a rating on both lives. Unfortunately, this no longer makes the insurance such an attractive investment. In addition, the company took three months to obtain all the underwriting information, and the CD has long since matured and been reinvested. Needless to say, this has caused a lot of unhappiness among both the producers and the clients.

Pricing

I can't emphasize loudly enough the importance of coordinating pricing and underwriting in last-survivor policies. First, actuaries need to understand the difficulties of underwriting these risks, which result in more acquisition costs than typical individual life plans. In addition, business will be lost due to unavoidable underwriting delays. Fortunately, there is probably less chance of speculation entering the picture since two lives are involved, but it can happen, which makes it even harder to predict from an underwriting perspective!

Underwriters need to work with their actuaries to understand how the product is ultimately priced. Is there room to "give away" a couple of tables on one life if the other is standard? What will happen to mortality if you obtain less-than-usual underwriting requirements? Among the elderly, prolonged grief and depression are common after a spouse dies. Have both parties considered the risk of death from heartbreak? Are the underwriters fully trained and prepared to deal with the complexities of underwriting two lives, both of whom are likely to be elderly?

The Complexities Continue

Numerous other problems go beyond the scope of this article but, nevertheless, must be faced. Can waiver of premium and accidental death be offered? How should JLS coverage be counted when retentions and total lines are considered? What about rating reductions? Should we reunderwrite both lives or just the impaired risk? Can individual policies be "converted" into a JLS contract, especially if they were issued at different times with different suicide and incontestable clauses? How will flat-extra ratings be considered? Can JLS policies be split into individual policies, especially if the JLS contains a one-life uninsurable provision?

Companies entering this market need to understand that underwriting JLS policies is a time-consuming and difficult process. As I've indicated above, there are many delays along the way; ultimate results often differ greatly from expected results, which causes consternation with both clients and producers. However, there is also the potential for reward. The market still seems strong for this type of product, and as long as tax regulations are not significantly altered, joint and last-survivor insurance solves some very serious estate problems for a lot of people.

Will JLS prove to be a profitable product? Many people hope so! However, since the combined life expectancy of both insureds often exceeds 25 years, it's unlikely anyone has sufficient joint and last-survivor mortality data to know what the long term will show.

So the challenge remains—for underwriters *and* actuaries! Let the games begin.

Steven B. Teeple is Second Vice President and Director–Reinsurance Underwriting at Lincoln National Reinsurance Company in Fort Wayne, Indiana.

39th Annual Canadian Reinsurance Conference Set for April 19

This year the theme of the Canadian Reinsurance Conference is "Reinsurance—A Flight to Quality." A great day has been lined up for those who attend, starting with a continental breakfast at 7:45 a.m. and ending with a murder mystery at dinner.

In between, John Palmer, Superintendent of Financial Institutions, OSFI, will speak on the Canadian Insurance Environment. Phil Steffen, CEO and President of the Bottom Line Group, Inc., as the keynote speaker, will discuss "Quality-Solutions-Performance." A panel of distinguished people—Paul Bourbonniere, Past Chairman LUAC; Grant Hardy, President, Westbury Canadian Life; and Larry Brossman, Senior Vice President, Duff & Phelps—will present their individual viewpoints on our theme, "A Flight to Quality."

In addition, eight workshops will be presented on various topics, including reinsurance auditing, quality management, administration, assets, underwriting, claims, group and insurance acquisitions. It is a full day at the Royal York Hotel in Toronto on Wednesday, April 19. And all for the price of $135 (Canadian).

For more information or a registration booklet, please contact:

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Canadian Reinsurance Conference
London Reinsurance Group
One London Place, Suite 303
255 Queens Avenue
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"I wonder what's so funny. All I did was ask for a second opinion."

Bowles Symposium: Securitization of Insurance Risks

Dr. Hans Bühlmann will host the first Bowles Symposium as the highlight of his tenure at Georgia State University on May 25 and 26, 1995 at the university, Atlanta. Bühlmann is chairperson of the Thomas P. Bowles, Jr. Chair of Actuarial Science at Georgia State University's Risk Management and Insurance Department and professor of mathematics at the Swiss Federal Institute of Technology. The symposium will comprise the following three sessions:

- **Interplay between Capital Markets and Insurance**
  Thursday, May 25, 8:30 a.m.-Noon
  Moderator: Hans Bühlmann

  Dr. Bühlmann and Stephen P. Lowe, FCAS, of Tillinghast, will present a clear understanding of current financial reinsurance products and conduct a discussion of trends and future developments.

- **Insurance Futures**
  Thursday, May 25, 1:30 p.m.-5:00 p.m.
  Moderator: Paul Embrechts, Swiss Federal Institute of Technology

  Experts in the practical use of insurance derivatives will focus on fundamental concepts.

- **Actuarial Bridge between Insurance and Finance**
  Friday, May 26, 8:30-Noon
  Moderator: James C. Hickman, FSA, ACAS, University of Wisconsin

  Dr. Hans Gerber of the University of Lausanne, Switzerland, and Dr. Elias Shiu of the University of Iowa will demonstrate applications of mathematical finance to hedging insurance risks using actuarial mathematics rather than stochastic calculus.

For more information, contact:
Samuel H. Cox, FSA
Georgia State University
Department of Risk Management and Insurance
University Plaza
Atlanta, GA 30302-4036
Phone: 404-651-4854
Fax: 404-651-4219
E-mail: insshc@gsusgi2.gsu.edu

Throw a Name into the Hat!

It's that time of year to begin thinking about nominees for the Reinsurance Section Council elections. Those interested in making nominations should contact:

Lee Christenson, FSA
American United Life Insurance Company
One American Square
P.O. Box 368
Indianapolis, Indiana 46206-0368
Phone: 317-263-1539
Fax: 317-263-1855

Dear "Ms. Re"

I work for a non-New York company selling a competitively priced 10-year level-term product. We have not as yet revised our product in response to *Regulation XXX*. The product premiums are guaranteed for 10 years and reinsured on a coinsurance basis. Our reinsurers are accredited reinsurers in New York. What is the potential financial impact of *New York Regulation 147* on our reinsurers?

Answer:

New York Regulation 147 applies to all insurance companies licensed to do business in the state, including all reinsurers accredited to sell or assume life insurance liabilities in the state. *Regulation 147* has an effective date of January 1, 1994. How-ever, for accredited reinsurers, the regulation is effective January 1, 1995, except that for policies assumed from insurers doing business in the state, the effective date is January 1, 1994. Since New York's regulation does not have an impact on your company, for business issued on and after January 1, 1995, there is now a divergence in results between your company and your reinsurers that was not originally anticipated.

Your reinsurers likely assumed in their original pricing that they would hold the same reserves as the ceding company, typically unitary reserves. Our sample testing indicated that ROIs can drop by as much as 6 percent. To illustrate the potential financial impact of *Regulation 147*, we made a sample run with the following assumptions:

- Level premium for 10 years, ART thereafter
- ART guaranteed premium rates equal to 250 percent of the 1980 CSO Male Nonsmoker Ultimate Age Nearest Birthday Table
- Current premiums guaranteed for 10 years
- Preferred nonsmoker male issue age 45 premium: $1.85
- Valuation basis: CRVM; 4.5 percent 1980 CSO Select and Ultimat Male Nonsmoker; under *Regulation 147*, optional select factors for the first segment were used.

The product was originally priced so that over 10 years it produced an ROI of about 14 percent. Reflecting *Regulation 147* reserves, the ROI dropped to about 8 percent. The table shows the magnitude of the new reserves.

Note that reserves under *Regulation 147* can be as high as 5 to 6 times the unitary reserves. It is interesting to note that if the guarantee period were reduced to 5 years, the required reserves would be reduced quite drastically and in fact would be lower than the unitary reserve in the first year. This is due to the five-year safe harbor clause contained in *Regulation 147* (as well as in *Regulation XXX*) wherein if the first segment is five years or less, premium deficiencies in the first segment need not be included in calculating deficiency reserves. Our testing also showed that the ROI increases back up to about 13 percent, almost the same as in the original pricing.

Obviously, results will vary significantly when your specific product characteristics are taken into consideration. These results, however, show that the financial impact of the current reinsurance arrangements to the reinsurers, if left unchanged, can be significant.

Andronico L. Castillo, FSA
Second Vice President and Actuary
Munich American Reassurance Company
Atlanta, Georgia

Policy Year	Unitary Mean Reserves	*NY 147* Mean Reserves	
		10-Year Guaranty	5-Year Guaranty
1	1.03	5.77	0.60
2	1.20	6.70	1.58
3	1.39	7.22	2.03
4	1.60	7.36	1.99
5	1.74	7.20	1.54

Dear *Ms. Re*,

I was recently asked by a colleague how conventional excess reinsurance is affected by surplus relief reinsurance and vice versa when both are present on the same business of a ceding com-pany. I thought some of your readers might have the same question. Let's first assume that we have the standard variety of each type, that is, conventional YRT excess mortality reinsurance and conventional surplus relief reinsurance. In the typical surplus relief treaty:

1. The reinsurer assumes a quota share of the net liability of a ceding company on policies reinsured under the treaty. The net liability is defined as the ceding company's gross liability on policies reinsured under the treaty less amounts recoverable from all other conventional excess of retention reinsurance. This presumes that there are no other quota share arrangements on the business.
2. Premiums paid by the ceding company to the reinsurer and benefits paid by the reinsurer to the ceding company (for example, death or disability, cash surrender, maturity, withdrawal) are all net of such amounts associated with other reinsurance.
3. Annual policy expense allowances are designed to reimburse the ceding company for all applicable commissions and direct expenses attributable to the businesses reinsured. Premium taxes may also be reimbursed if the reinsurer is not required to pay premium taxes on the reinsurance premiums received.
4. A "policy change" or "material change" provision that is often

continued on page 11, column 1

Dear "*Ms. Re*"
continued from page 10

included states that the ceding company shall promptly notify the reinsurer of any such change in the terms of the policies, in the method used to calculate the reserves for the policies, or in its other reinsurance (be it quota share or excess). Following such a change, the reinsurer may choose to continue to reinsure the policies under current terms, or it may require that the surplus relief for the quota share be adjusted to compensate for the change. This is a reasonable provision since the financial reinsurer has presumably advanced a ceding commission to the ceding company that is to be repaid from the future profits of the business and a material modification could significantly affect the timing and amount of such profits.

It might be worth noting that the concept of YRT excess mortality reinsurance was established assuming the ceding company could not afford a large claim fluctuation and that it still had an underlying interest in the experience on the block via its full retention. If the excess reinsurer has priced or underwritten its product or incorporated treaty language assuming the client has kept such full retention, it may no longer be doing so if it has entered into a financial reinsurance arrangement. A financial reinsurance program may be short-lived, however, unless it is periodically renewed or "topped-up." The ceding company still retains an insurable interest in the business since the surplus relief treaty is probably experience refunding. Thus, the YRT excess mortality reinsurer should not be concerned by the surplus relief reinsurance. A surplus relief reinsurer normally appreciates seeing an appropriate amount of excess mortality reinsurance on a block of business since it helps protect the ceding commission advanced from extreme mortality fluctuations.

There is some increased use of YRT treaties to provide surplus relief, possibly to avoid applicability of regulations such as the *Model Life and Health Reinsurance Agreements Regulation* or *Guideline XXX*. Such a treaty may or may not be a legitimate use of the YRT format to provide surplus relief. You should consult your regulator to determine whether the treaty still complies with the spirit and intent of the above model regulation or *Guideline XXX*, and determine whether all risks are being transferred, whether profits on the business are flowing to the reinsurer from other than the profits on the business reinsured, and how the product should be reserved. Commonly referred to as *Guideline XXX* during its developmental stage, it is now formally known as "Valuation of Life Insurance Policies Model Regulation (Including the Introduction and Use of New Select Mortality Factors)."

Mark Troutman, FSA
Second Vice President & Regional Director of Financial Reinsurance
Lincoln National Reinsurance Cos.
Fort Wayne, Indiana

Correction

In the "Discussion of Reinsurance Provisions in a Life Reinsurance Agreement" issued by the Treaty Committee of the Reinsurance Section in August 1994, Section 4.2 (p.10) should read:

> "A great variety of means of notification of automatic reinsurance to the reinsurer may be encountered. For self administered reinsurance, it is usual to require no special notification other than a routine report of new business."

An Internet Discussion List for Actuarial Science Professors and Students

ACTSCI-L is an Internet discussion list for teachers, researchers, and students of actuarial science. It is a free service run through the Actuarial Science Program at the University of Nebraska-Lincoln.

The objective of this list is to facilitate the rapid communication of ideas, problems, solutions, and other information among academic actuaries, students, and other interested parties.

There is another reason for the creation of this list—to extend the actuarial classroom, that is, to allow students to communicate with actuarial science students and professors at other schools.

Joining this list is easy. Simply mail the following message to **listserv@unl.edu**:

SUBSCRIBE ACTSCI-L your full name.

Note: This message must contain that one line only.

For example, to join, I would send the following message:

subscribe actsci-l colin m. ramsay

Please post and/or pass this information to your colleagues and students. Encourage them to join the list.