



Comments From the Chair

by Larry N. Stern

The primary focus this year of the Product Development Section Council has been to more aggressively communicate with our membership to achieve a higher level of participation in section activities. One of the larger specialty Sections, there are nearly 4,000 individuals who are members of the Section. In the past few years, we have witnessed a diminished "spirit" of involvement as shown in the following examples:

- The ballot to elect three new Council members a year ago netted only four people showing an interest to serve. And, one of the top three vote-getters decided not to accept the challenge.
- The Council attempted to conduct a survey of the 250 attendees at the annual meeting luncheon in San Francisco. The forms were placed on the seats around the tables. Numerous times we encouraged attendees to complete the surveys and turn them in after the luncheon. Only 34 responded.
- For SOA meetings, we typically sponsor 12 to 16 sessions. We have been having difficulty recruiting speakers. It seems some of the members who have volunteered in the past are not as willing to continue, and the reluctance of others has caused the Council to scramble to fill the voids.

The Council decided we needed to take the first steps to revive volunteerism among our membership. At our meeting last October, we discussed two mediums for achieving our goal — utilizing the Section's newsletter and Web site.

(continued on page 2, column 1)

Jumping Through the Hoops of XXX to Minimize Reserves on UL Secondary Guarantees

by Jason A. Jump

Secondary Guarantees on Universal Life policies are subject to NAIC Regulation XXX. Generally, the most common secondary guarantees offer "no lapse" protection for a period of time from issue, provided the policy owner pays the premium required by the policy (the specified premium). The most prevalent secondary guarantee periods are 5, 10, and 20 years. Policies with longer level premium no lapse periods exist but XXX makes this a difficult product to profitably offer. The examples in this article refer to a 5-year secondary guarantee period, but the concepts apply to all secondary guarantees that offer an initial no lapse period based on the payment of a specified level premium. An example of competitive 5-year no lapse guarantee premium for Male non-smoker best risk class is provided in Table I.

TABLE I: 5-Year Premium Rates per 1000

Issue Age	Premium rate
25	1.70
35	2.20
45	3.30
55	5.80
65	9.90
75	23.50

(continued on page 4, column 1)

In This Issue

title	page	title	page
Jumping through the Hoops of XXX to Minimize Reserves on UL Secondary Guarantees		How Ready Are You for the Critical Illness Challenge?	10
by Jason A. Jump	1	Credit Card Approach to Pricing	
Chairperson's Corner		by Ralph H. Gorter.....	12
by Larry N. Stern.....	1	Industry Committees Help More Than Most Realize	
1999 PD Sessions Now on the Web	7	by Jess L. Mast	14
The Effects of Triple-X on Product Design		Product Development Section Council Meets in San Francisco	16
by Mary Bahna-Nolan.....	8		

Chairperson's Corner

continued from page 1

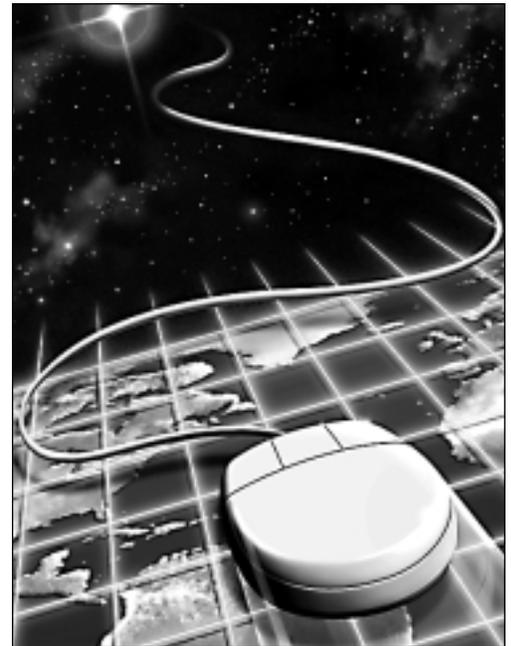
The Product Development News

One of the reasons many individuals choose to join our Section is the newsletter. The quality and quantity of articles have been unparalleled among the Sections. Throughout the past three years, we have regularly published three, if not four, newsletters a year. We appreciate the efforts of our editor, David Whittemore, and the many members for contributing to the success the newsletter has achieved over the last three years. However, demands of his job caused David to resign with the publication of the newsletter last December.

The Council has yet to find a new editor. Having talked to a number of

interested members, no one individual wants to serve as "the" newsletter editor; so we are attempting to establish an editorial board to spread the workload and require only one quarterly issue for responsibility. I am happy to report, we seem to be on the right track.

The Council may also consider eliminating the periodic publication on paper of the newsletter in favor of publishing a year-long issue on the Web site. Whenever a new article is prepared, it would immediately be posted to the Web site. And at the end of the year, a paper copy would be printed containing all of the articles.



The Web site

More than 80% of the membership have supplied an e-mail address to the SOA office. The Council felt this could be an effective conduit for communication. Prior to year-end, the only items on the Web Section page were a Section description and a link to previous issues of the newsletter. Other Sections have been active in redesigning their Web pages, and the Council wanted to encourage the membership to participate in deciding the content of our page. To do this, we sent a blast e-mail survey to 3,200 members. We received 124 responses. We repeated the survey in another blast e-mail and received only 14 more responses.

Virtually all of the items in the survey will appear on the Web page. We have prioritized the list and will be posting items as they can be prepared and/or links can be established. The current version contains a "home" page, the list serve, session descriptions for the San Diego meeting, previous issues of the newsletter and this comment page. The page went "live" in March, and we will continue to use blast e-mails, the list serve, and the Web page to actively communicate with the membership.

Issue 50

August 2000

PRODUCT DEVELOPMENT NEWS
from the Individual Life Insurance and
Annuity Product Development Section

Published by the Product Development Section Council
of the Society of Actuaries
475 N. Martingale Road, Suite 800
Schaumburg, IL 60173-2226
Phone: 847-706-3500 Fax: 847-706-3599
World Wide Web: <http://www.soa.org>

This newsletter is free to Section members. A subscription is \$20.00 for nonmembers. Current-year issues are available from the Communications Department. Back issues of Section newsletters have been placed in the Society library. Photocopies of back issues may be requested for a nominal fee. Back issues are also on the website (www.soa.org) in Special Interest Sections.

Expressions of opinion stated herein are, unless expressly stated to the contrary, not necessarily the opinion or position of the Society of Actuaries, its Sections or Committees, or the employers of the authors. The Society assumes no responsibility for statements made or opinions expressed in the articles, criticisms, and discussions contained in this publication. The Section would like to encourage articles and papers on product development topics or subjects of interest to product development actuaries. If you have an article or an idea for an article that you think might interest Section members, please contact:

Ralph H. Gorter, FSA
Product Development News Co-editor
Swiss Re Life & Health North America
969 High Ridge Road
Stamford, CT 06905

Phone: (203) 321-3243 Fax: (203) 321-3193 E-mail: ralph_gorter@swissre.com

Copyright © 2000 Society of Actuaries
All rights reserved.

Printed in the United States of America.

The Web site will be a dynamic interface for the membership. The Council hopes you will make it a “favorite” and visit often. Stay tuned for ongoing updates.

One of the luxuries of a large membership is having a substantial bank account. In past years, the Council has been reluctant to spend any of the funds for the benefit of the Section other than for research or to subsidize seminar expenses. This year has been somewhat different and controversial. In an effort to encourage quality speaker participation at our SOA sessions, we instituted a \$100 honorarium for the San Diego and Chicago meetings. This honorarium extends to all speakers of sessions that the Product Development Section sponsors and co-sponsors. We are also attempting to recruit speakers from outside the SOA and will assist with travel expenses. So far we haven’t had as much difficulty recruiting, but the true test will be the evaluations from the sessions regarding quality and content.

In short, other activities the Council has planned for the Section include:

- *Seminars.* We have three planned. Just completed was a successful seminar in

New York on Distribution Economics. Although there were problems with mailing the brochure, we used blast e-mail to advertise the event. There were 139 registrations. The seminar was co-sponsored by LIMRA. We had a Pricing Innovations seminar the day before the San Diego meeting and a Market Driven Product Development seminar is planned for early December. Professional development credit will be available for all of our seminars this year.

- *Call for Papers.* Borrowing this concept from the Retirement Section, we are planning a competition for membership to write papers pertaining to a product development related topic yet to be determined.
- *Annual Meeting.* In years past, we conducted a formal breakfast business meeting with speaker at the annual SOA meeting. In San Francisco, we switched to a luncheon and received favorable comments. This year we will continue with a luncheon but informal (a short business meeting, no speaker) with a Chicago theme — buffet

serving Chicago dogs and Chicago pizza. Our attempts to schedule a field trip to the Chicago Board of Trade could not be achieved due to timing conflicts.

Last but not least, I am happy to report the response to our blast e-mail for members interested to serve on next year’s Council has resulted in over 25 names submitted. For the first time the Council needed to pare this list to ten for the ballot distributed in July.

I am encouraged by this result and hope the efforts of your Council have been successful in spiking an interest among our membership. We welcome your thoughts and reactions to what we are doing on your behalf — let’s keep the lines of communication open.

Larry N. Stern, FSA, MAAA, is senior vice president, non-traditional reinsurance, at Scottish Annuity & Life Insurance Company in Grand Cayman. He can be reached at l.stern@bigfoot.com.

Product Development Section Council Meets in San Francisco



Speaker John Harrell addresses a full house at the Product Development Section luncheon in San Francisco.

Jumping through the Hoops of XXX to Minimize Reserves on UL Secondary Guarantees
continued from page 1

General Requirements of XXX

NAIC Regulation XXX does not apply to universal life policies that meet all of the following conditions:

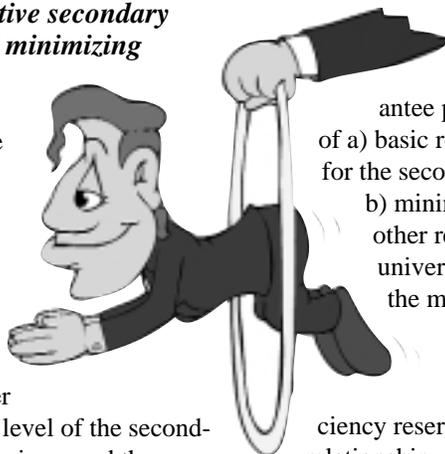
- a) Secondary guarantee period, if any, is five years or less;
- b) Specified Premium for the secondary guarantee period is not less than the net level reserve premium for the secondary guarantee period based on the 1980 CSO table without selection factors; and
- c) The initial surrender charge is not less than 100% of the first year annualized specified premium for the secondary guarantee period.

Failure to meet all three of the requirements above forces the product development actuary to focus on the minimum reserves required for the secondary guarantee period. The minimum reserves during the secondary guarantee period are the greater of:

- 1) The basic reserves for the secondary guarantee plus the deficiency reserve, if any, for the secondary guarantee; or
- 2) The minimum reserves required by other rules or regulations governing universal life plans.

Setting competitive secondary guarantees and minimizing reserves

In order to minimize reserves due to UL secondary guarantees, the product development actuary will need to jump through a series of hoops that get smaller and higher depending on the level of the secondary guarantee premiums and the length of the secondary guarantee period.



Hoop #1: The easiest way to avoid reserves in excessive XXX reserves is to avoid application of XXX completely. Using our example of 5-year guarantees and the requirements above, let's try to avoid XXX:

- a) Secondary Guarantee Period of five years or less. This requirement is met given that our example is a five-year period.
- b) Secondary Guarantee Premium is not less than the net level reserve premium. Table II provides this answer.

TABLE II: Net Level Premium Test

Issue Age	Premium rate	NLP
35	2.20	1.96
45	3.30	4.11
55	5.80	10.24
65	9.90	27.89
75	23.50	76.13

We fail to meet requirement b) for issue ages greater than 40. There is no need to check requirement c).

Given failure to avoid application of XXX, the fervent hope of not having to dig into the regulation is dashed. The focus turns to the minimum reserve requirement during the secondary guarantee period which is the greater of a) basic reserves + deficiency reserve for the secondary guarantee period; or b) minimum reserves required by other regulations governing universal life plans. Assuming that the minimum reserves required by other regulations is CRVM, the goal becomes minimizing basic and deficiency reserves such that the following relationship will hold at each duration.
 (UL CRVM Reserves) > (basic +

“Given failure to avoid application of XXX, the fervent hope of not having to dig into the regulation is dashed.”

deficiency reserves over the secondary guarantee period)

This relationship will be referred to as the minimum reserve requirement throughout this paper.

Hoop #2: The first attempt to satisfy the minimum reserve requirement involves calculating the segmented basic and deficiency reserves without dealing with selection factors or X-factor requirements.

The substantial increase in reserves over the secondary guarantee period forces us to dive deeper into the regulation in order to minimize reserves. An important discovery for products using CRVM over the first segment: If the specified premium for the secondary guarantee is less than the valuation net premium associated with Quantity A, this will result in a first year deficiency reserve. What is Quantity A?

Quantity A is used to determine deficiency reserves such that:

$$\text{Deficiency Reserves} = \text{Max}[\text{Quantity A} - \text{Basic Reserve}, 0]$$

TABLE III: Reserves Without Application of Selection Factors

Age	Reserve	Duration			
		1	2	3	4
35	Basic	0.00	0.19	0.26	0.20
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	3.46	7.13	11.01
45	Basic	0.00	0.44	0.61	0.47
	Deficiency	3.04	2.33	1.59	0.81
	UL CRVM	0.00	6.20	12.71	19.54
55	Basic	0.00	1.42	1.99	1.58
	Deficiency	16.52	12.68	8.66	4.44
	UL CRVM	0.00	10.14	20.67	31.57
65	Basic	0.00	3.99	5.61	4.45
	Deficiency	65.36	50.51	34.77	17.99
	UL CRVM	0.00	17.59	36.02	55.05
75	Basic	0.00	10.28	14.53	11.66
	Deficiency	178.74	140.76	99.08	52.63
	UL CRVM	0.00	29.70	60.27	91.29

Quantity A is calculated using the same method as the associated basic reserve with two key differences:

- a) if the gross premium < the net premium, the gross premium must be substituted for the net premium in the valuation, and;
- b) X – factors can be used to adjust the selection factors.

Hoop #3: Reviewing the deficiency reserve section of the regulation reveals that if X-factors are set equal to 1, the appointed actuary will not have to prepare an actuarial opinion. The next attempt to satisfy the minimum reserve requirement involves calculating the Quantity A with the new 20 year selection factors and the X-factors set equal to 1.

The goal of eliminating reserves in excess of CRVM is met for most issue ages. Of course, longer secondary guarantee periods and/or lower specified premiums will present bigger challenges. At this point, you could simply increase

the specified premium to the point where basic + deficiency reserves are less than CRVM at all ages or limit the maximum issue age, and avoid the need for X-factors below 100%. Why do we want to avoid X-factors < 100%? Here are some of the reasons:

- a) appointed actuary must prepare an actuarial opinion
- b) appointed actuary must opine annually, i.e; this is not just a one-time process
- c) implies the need for a mortality study
- d) need to be in sync with reinsurers
- e) if experience is not as good as expected, may have a surprise increase in reserves

Again, it is necessary to adjust the mortality through selection factors and X-factors in order to produce a valuation net premium for Quantity A that is below the desired specified premium for the secondary guarantee.

Hoop #4: X-factors are simply percentages that you can apply to select

mortality factors used in the determination of Quantity A and the corresponding net premiums. The regulation spells out the requirements and limitations in setting X-factors. X-factors less than 100% require annual preparation of an actuarial opinion and memorandum by the appointed actuary. Maintenance of X-factors is more treacherous as X-factor adjusted select mortality approaches anticipated mortality experience and other limitations presented in the regulation. If experience is not as good as the X-factor adjusted mortality, the appointed actuary is required to increase X causing a sudden increase in reserves.

The last attempt to satisfy the minimum reserve requirement involves calculating the XXX reserves with the new 20 year selection factors and the X-factors set below 100%.

Success! Unfortunately, this is just one risk class and one band of male specified premiums for a five-year secondary guarantee, but the same concepts will apply to other cells and secondary guarantees. Longer guarantees and lower

(continued on page 6, column 1)

Jumping through the Hoops of XXX to Minimize Reserves on UL Secondary Guarantees
continued from page 5

TABLE IV: Applying Selection Factors with X = 100% to minimize XXX Reserves

Age	Reserve	Duration			
		1	2	3	4
35	Basic	0.00	0.19	0.26	0.20
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	3.46	7.13	11.01
45	Basic	0.00	0.44	0.61	0.47
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	6.20	12.71	19.54
55	Basic	0.00	1.42	1.99	1.58
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	10.14	20.67	31.57
65	Basic	0.00	3.99	5.61	4.45
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	17.59	36.02	55.05
75	Basic	0.00	10.28	14.53	11.66
	Deficiency	70.92	54.01	36.86	17.51
	UL CRVM	0.00	29.70	60.27	91.29

specified premiums will require more aggressive X-factors.

Summary

If avoiding any impact of XXX is the goal, a simplified route is suggested:

- If you can't avoid application of XXX by meeting the three conditions applicable to policies with UL secondary guarantees, $(UL\ CRVM) > (basic + deficiency\ reserves)$ will need to be met.
- In order for this relationship to hold, the first year basic + deficiency terminal reserves must be 0.
- In order for the first year basic + deficiency terminal reserve to be 0, the first year terminal deficiency reserve must be 0.

- In order for the first year terminal deficiency reserve to be 0, Quantity A must be 0 in the first year.
- In order for Quantity A to be 0 in the first year, the Specified Premium must be $>$ the net level premium associated with Quantity A. This relationship can be accomplished by increasing the Specified Premium and/or decreasing the net level premium through the use of select factors and X-factors.
- Check to see if $(UL\ CRVM\ reserves) > (basic + deficiency\ reserves)$ at all durations over the secondary guarantee period.

Conclusion

The work involved in minimizing the impact of XXX on UL secondary guarantees runs much deeper than what I have touched on. It's similar to studying

for exams; you end up studying a lot more than you actually use. In the end, most UL secondary guarantees with adequate premiums and short guarantee periods will be able to avoid reserves in excess of the minimum CRVM requirement; unfortunately, XXX forces you to jump through several hoops in order to prove it.

Jason A. Jump, ASA, MAAA, is an assistant actuary at Nationwide Financial in Columbus, OH.

TABLE V: Applying Selection Factors with X-factors below 100% to minimize XXX reserves.

Age	Reserve	Duration			
		1	2	3	4
35	Basic	0.00	0.19	0.26	0.20
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	3.46	7.13	11.01
45	Basic	0.00	0.44	0.61	0.47
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	6.20	12.71	19.54
55	Basic	0.00	1.42	1.99	1.58
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	10.14	20.67	31.57
65	Basic	0.00	3.99	5.61	4.45
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	17.59	36.02	55.05
75	Basic	0.00	10.28	14.53	11.66
	Deficiency	0.00	0.00	0.00	0.00
	UL CRVM	0.00	29.70	60.27	91.29

1999 Product Development Sessions Now in The Record on the Web (www.soa.org)

Atlanta, May 1999

- 6PD** Changing Patterns in Insured Mortality: Do We Understand Them?
Changing patterns in insured mortality are discussed related to mortality improvement, tobacco usage, age and gender and effective use of underwriting tools.
- 10OF** Bancassurance in US and Canada: Before Today...Beyond Tomorrow
Experts participate in a discussion of the convergence of financial service companies, Bancassurance models, regulatory barriers, and the competitive environment.
- 11OF** Instant issue for Life Insurance Products
With issue speed becoming a critical success factor, these panelists represent the disciplines involved: product development, new business processing, underwriting, and data processing.
- 22PD** XXX Update
Panelists cover a brief history of the 1995 and 1999 versions of XXX and assess the impacts on product design and valuation.
- 27PD** The Next Generation Universal Life
Panelists explore interesting developments in "traditional" life products. Some current issues are maturity date extensions of the death benefit beyond age 100, no-lapse, secondary guarantees of coverage, and the effect of potential new regulations on pricing.
- 63PD** Impact of Regulatory Uncertainty on Product Innovation
Experts discuss current regulatory developments including adoption status and proposals for various regulations critical to product development.
- 64IF** Underwriting Issues: Processes in Foreign Jurisdictions
Panelists discuss developing products for a foreign market, including differences in areas that impact risk assessment and underwriting.
- 78OF** What's Hot in Term Products?
Panelists include representatives of a direct carrier, a reinsurer and a consulting firm speaking on topics important to successful product development.
- 88PD** Bells and Whistles or Time Bombs: The Cost of Longer-Term Guarantees
With interest rates reaching all-time lows and continuing mortality improvements, features previously considered minor have moved up to the major league. The panel discusses the risks and costs.
- 90PD** Guarantees on Variable Products: How Are Companies Assessing the Risks?
There has been a proliferation of guarantees on variable annuities and competing investment products. The panel identifies the various risks, pricing methodologies, and forecasts the next wave of guarantee designs.

San Francisco, October 1999

- 82PD** Industry Convergence – Bank Participation
Panelists discuss the issues companies face as banks and insurers become partners as a result of the passage of HR10: legal issues, recent applications by insurers for thrift charters, and successful Bancassurance models in other parts of the world.
- 131PD** Underwriting Strategies in the 21st Century
Speakers discuss how the issue process can be expedited without surrendering required mortality margins, what information is needed and where it will come from.

The Effects of Triple-X on Product Design

by Mary Bahna-Nolan



Now that we have been operating under Regulation Triple-X for a few months, it is time to see what impact, if any, it has had on product availability, design, and price.

Term Products

To date, most companies have introduced both full and partial level premium guarantees. The most common products are 10- and 15-year level premium term products with full level premium guarantees. Some companies have introduced the 10- and 15-year plans with partial guarantees such as three or five years, but very few. Companies have also introduced 20- and 30-year level premium products, both on a fully guaranteed and partially guaranteed basis. Initially, only a few companies offered a 30-year fully guaranteed plan. This is changing, however, and today at least 14 companies offer a fully guaranteed 30-year plan. The table below shows the most commonly offered guarantees for various level premium plans. Where more than one guarantee is listed, the one listed first is the most typical.

Level Premium	Most Common Premium Guarantee Periods
10 years	10 years
15 years	15 years
20 years	20 years, 10 years
30 years	10 years, 15 years, 30 years

The industry has seen a few unique product designs as a result of Triple-X. Most of these have been on the 20- and 30-year level premium designs. These include:

- **Refund of premium** – this design is offered by at least two companies, one on the fully guaranteed chassis, the other on the partially guaranteed chassis. The fully guaranteed design builds cash surrender value throughout the life of the policy. At the end of the level premium period, the cash surrender value is equal to 100% of the premiums paid into the contract. The partially guaranteed design is a

little different. It is, what I call, a non-guaranteed guarantee. The provision repays the last three years of premium paid into the contract if the company ever increases the non-guaranteed level premiums illustrated at issue.

- **Premium increase tied to an external trigger or event** – this design offers level premium coverage where the level premiums are not guaranteed for the entire level premium period. The company may only increase the current premiums if some external event occurs. One product with this design ties the increase to treasury rates dropping below a very conservative interest rate. This design is currently under some scrutiny by the NAIC's LHATF Committee because the treasury rate has little relation to the premium rate for a level term insurance policy.
- **Affiliated Company Guarantee** – At least one life insurance company is currently selling level term insurance that has a limited premium guarantee but that provides a full 20-year guarantee through an endorsement from the company's affiliate, a P&C company. The endorsement extends the guarantee to 20 years at no additional cost since the P&C company is not subject to the Triple-X reserving. Again, this design is currently under some scrutiny by the NAIC's LHATF.
- **Decreasing death benefit** – this design is for products tied to a mortgage sale. The premium is level and guaranteed for the entire 30 years, but the death benefit is only level for the first 15 years. Beginning in the 16th policy year and until the 30th policy year, the death benefit decreases according to a set schedule to a residual amount. This design offers level premiums, which are guaranteed at premiums fairly close to pre-XXX levels and coverage that decreases with a specific need.
- **Shorter maturity ages** – this design is not specific to the 30-year plan, but

at least one company offers products with a maturity age of 80 rather than 95.

- **Removal of annual renewable premiums (ART tail) after the level premium period** – this design is more common in New York, where the non-forfeiture testing is not as reliant on the ART premiums after the level premium period.
- **Return of the Annual Renewable Term Plan** – we have seen at least one company offer an annual renewable term plan with premium rates guaranteed for the full twenty years. The nature of the increasing premium keeps reserves low. Over the past several years, ART plans fell by the wayside as level premiums quickly became less expensive than the increasing premiums. Today, the cumulative total of the increasing premiums is often less than that for a fully guaranteed 20-year plan.

Premiums have been impacted as a result of Triple-X, but probably not to the extent industry experts initially predicted. Premiums for full guarantees did go up; premiums for the 10- and 15- year partial guarantees, however, mostly remained unchanged or decreased 10% - 15%. The decreases on the partially guaranteed 20- and 30-year level premium plans probably were somewhat limited due to the need to now illustrate these products and therefore, pass the illustration self-support test.

The following table illustrates the impact this regulation has had on premium rates. The high end of the range is skewed because the impact of Triple-X was much more severe for older issue ages such as 60 and above. The average indicated in the table is the impact for most issue ages, ignoring the high age anomaly.

With respect to other term product design features:

- **Compensation** – Compensation remained unchanged or was slightly reduced.

- **Waiving of Policy Fee for Second Insured**

This was a fairly common practice in the pre-XXX environment. However, now that most companies need the policy fee to help keep deficiency reserves to a minimum, many companies, but not all, have done away with this feature.

- **Conversion**

In order to keep premium rate increases to a minimum, many companies have shortened the conversion feature to only the first five or ten years, regardless of the level premium period. Pre-XXX, it was most common for companies to offer conversion for the entire level premium period.

So far, we continue to see the traditional "term carriers" leading the industry with respect to premium level. However, we are starting to see a few new competitors enter the competitive marketplace. Companies such as John Hancock, United of Omaha, Western-Southern, Penn Mutual, and Ohio National now offer level premium term rates which are among the lowest in the industry. With New York recently adopting the NAIC version of Triple-X, we will continue to see some of the New York companies (which have not been able to be competitive on a nationwide basis since New York adopted Regulation 147 in 1994) now try to compete. We are already starting to see this with some of the large mutual companies such as New York Life and The Guardian.

To date, the guaranteed products have outsold the partially guaranteed products, even for the longer level premium guarantees. Based on an informal producer survey performed at my company, approximately 80% to 90% of the sales have been in the fully guaranteed products. While these numbers are a fairly good indicator of what has happened so

far, it may still be a little too early to say for certain that this is the course for the future.

One challenge many carriers are facing today is competing on a non-level playing field. Some companies that are domiciled in states which have not adopted Triple-X are taking an aggressive approach with the reserving and ignoring the impact of Triple-X in their pricing. Either they have enough reserves in aggregate to cover the higher Triple-X reserves in states that have adopted Triple-X or they have enough surplus to cover the additional strain. This pricing differential may cause carriers to accept more strain than they were initially willing in order to maintain a competitive presence, and thus a downward spiral to the rates.

Universal Life

Through the first half of 2000, we have seen very few product changes to universal life plans. Most companies that offered secondary or no-lapse guarantees in 1999 have continued to offer them at 1999 levels. Some companies have increased the premiums for the lifetime or long-term guarantees or eliminated these from the product offerings, but they have been the minority.

Several companies are currently working on modifications to their universal life portfolios and we can expect to see a lot of activity over the next few months. We will probably see the most innovation or unique or creative designs on the universal life plans.

Whole Life

Whole Life may actually make a post-XXX comeback. Unlike universal life secondary guarantees, which become much more expensive under Triple-X, whole life actually becomes a little less expensive. Unfortunately, since this lowers reserves from their current levels,

companies will not be able to offer this product on a nationwide basis until all states adopt the new regulation. If companies price universal life with lifetime secondary guarantees rationally, whole life may supplant universal life for lifetime coverage due to its simplicity. At least one company has introduced a new whole life design which takes advantage of the lower deficiency reserves under Triple-X. This product offers very attractive premiums compared to whole life products of the past.

Variable Life

Variable life products are currently exempt from the Triple-X regulation except in New York. This loophole will probably be very short-lived as the NAIC's Life and Health Actuarial Task Force (LHATF) is currently reviewing the need to include triple-x reserving in the variable regulations. At a LHATF meeting earlier this year, there was quite a bit of discussion around this topic. To date, we have not seen any companies try to use this as a loophole, but the regulators are looking out for potential abuses.

Over the next few months, we should continue to see term carriers try to jockey for position. Additionally, we will continue to see new competitors enter the market, especially from New York. We will begin to see revised universal life products with and without the secondary guarantees as well as some fairly creative or unique designs. We have already seen rounds two and three of the term pricing, and will begin to see round one of the universal life pricing probably by year-end. It is unlikely that the market will settle down any time soon.

Mary Bahna-Nolan, FSA, MAAA, vice president, product development North American Company for Life & Health Insurance in Chicago. She can be reached MBNolan@nacolph.com.

<u>Level Premium Guarantee</u>	<u>Range of Change in Premiums</u>	<u>Average Change in Premiums*</u>
10 years	- 10% to + 60%	- 5% to 0%
15 years	- 4% to + 40%	+ 8% to + 15%
20 years	0% to + 70%	+ 30% to + 40%
30 years	+ 35% to + 100%	+ 75% to + 100%

* ignoring higher issue age anomaly

How Ready Are You for the Critical Illness Challenge?

Sometime soon, your company may ask you to develop a critical illness insurance product. Are you ready to respond? Test your knowledge by answering the following ten challenge questions in the quiz below:

Q1: Critical Illness Insurance pays on:

A: Death due to a specified illness

B: Diagnosis of a specified illness

Q2: Critical Illness incidence rates for insured lives cannot be determined with confidence because we have insufficient insured experience.

A: False

B: True

Q3: SEER Studies reflect cancer rates as a fraction of:

A: Applicable population segments

B: Applicable population segments with existing sufferers eliminated

Q4: The American Heart Association obtains its heart attack incidence information from:

A: The Framingham Study

B: Consulting Physician's reports

C: The Centers for Disease Control

Q5: Thomas Royle Dawber was a celebrated researcher employed in:

A: The SEER Studies Program

B: The Framingham Cohort Studies

C: The United Network for Organ Sharing

Q6: Select period Critical Illness Rates cannot be reliably estimated because Critical Illness is a new product and insufficient select period experience is available

A: True

B: False

Q7: Substandard applicants cannot be accepted as Critical Illness Insurance Risks

A: True

B: False

Q8: Critical Illness Underwriting is most closely related to underwriting for:

A: Health Insurance

B: Disability Insurance

C: Life Insurance

Q9: The Formula

$$i'_x = i_x \frac{w'_x k'_x q'_x}{w_x k_x q_x}$$

is used by Critical Illness actuaries as:

A: An exposed to risk measure

B: An underwriting calibration tool

C: A tool for calculating costs of Critical Illness riders

Q10: The Formula

$$(aq)_x = i_x + (1 - k_x q_x)$$

is used by Critical Illness actuaries:

A: To calculate rates for life policies with Critical Illness Riders

B: As an underwriting calibration tool

C: To calculate rates for stand-alone Critical Illness Policies

Check your answers against the answers provided below. Score 1 Grade Point for each correct answer.

Score:

Passing Grade is 8 or better.

Answers:

Q1: B Q2: A Q3: A Q4: A Q5: B Q6: B Q7: B Q8: C Q9: B Q10: A

Johan Lotter produced the quiz. He is a consulting actuary and president of Lotter Actuarial Partners Inc. in New York. Additional information about Critical Illness can be found at his company's Web site, lotteract.com. He can be reached at lotteract@earthlink.net.

Credit Card Approach to Pricing

by Ralph H. Gorter

The traditional approach to pricing insurance products views pricing from the perspective of the insurance company. The author suggests viewing pricing from a different perspective—that of the customer—and demonstrates the approach by applying it to a product that is gaining in popularity—bonus annuities.

Basics of Pricing

Traditional pricing generally includes analysis of the statutory stream of earnings that is generated by a given product. The typical product will generate statutory losses in the early years. This constitutes the investment that the insurance company is making in the product. The insurance company sets the charges and fees in the product so it will earn an acceptable return on its investment. A general rule is that the larger the investment, the greater the charges and fees to recoup that investment.

For example, assume a \$100 single premium variable annuity with a 5% commission, no surrender charges and no other expenses or required surplus and an initial reserve, account value and surrender value of \$100. The company will lose \$5 on a statutory basis. The company has invested \$5, and the shareholders expect that amount to be returned with interest. Charges and fees in the product will be set such that the expected return over all policies sold will provide at least that return.

Insurance companies typically set their after-tax rates of return in the 10%-15% range. This translates into a 15%-23% pre-tax rate of return using a 35% effective federal income tax rate.

The Credit Card Approach to Pricing

The above approach is pricing from the perspective of the insurance company. From the perspective of the customer, the pricing described above can be viewed as the insurance company taking the

statutory losses for a policy and putting them on a credit card that the client is expected to pay back with interest over the life of the policy.

The charges and fees in the product are applied as credits to pay down the outstanding balance.

Customer balances are charged with interest at the rate of 15%-23%. These rates are as high, if not higher, than most credit cards. In fact, many credit cards are available that charge rates less than 10%, significantly lower than the 15%-23% implicitly charged by insurance companies.

The analogy to credit cards becomes more disadvantageous for the insurance customer relative to the credit card holder. Credit card holders are only responsible for their own account balances. If someone defaults, the balance is not apportioned among the remaining holders. However, in the case of insurance any defaulted outstanding balances are, in effect, allocated to the remaining policyholders. This is because the insurance company has a goal of an overall return, say 15% pre-tax. If they charge all clients 15% and some clients lapse or die without completely paying off those balances, those balances must be allocated to the remaining policyholders, who must continue to pay 15% on their now-higher balances. If not for this reallocation, the overall return would be less than the 15% target.

In addition, the customer would continue to make payments as long as the policy remains in force, even if the "balance" had been fully repaid. These extra payments may result in lower charges for other customers.

Implications for Product Design

Most insurance clients have access to credit at rates that are less than or equal to those implicitly charged by insurance



companies. Many clients can access home equity loans and realize after-tax rates that are currently around 5%-7%. Interest implicit in insurance products is not currently tax-deductible.

Consequently, for the long-term client who can pay the up-front expenses or who has access to less expensive sources of credit, a product that removes those up-front expenses from the policy immediately would be preferable to one where the insurance company "loans" the statutory losses and recoups them over time.

Products designed for the higher net income and corporate markets generally pass-through initial costs, such as commissions, state premium tax, and the Deferred Acquisition Cost (DAC) tax. These clients can afford to pay the front-end costs and will receive significantly better long-term performance. Informed clients understand that paying these costs up-front is better than taking a loan from the insurance company.

Application to 'Bonus' Products

'Bonus' type products are currently popular among many agents and their customers. However, close analysis of the operations of these products reveals that in many situations these products are not appropriate for long-term clients.

Recently, annuity products have been developed that credit bonuses to the account value that are in excess of the premium paid. These products have an obvious appeal both to the agent and to the customer. The sale is made much easier for the agent. Who can object to getting an immediate return on their investment? Early account values are

clearly higher than products that do not credit bonuses. Customers see higher early values and are told that these products are better because they “have more money working for them.” The author will demonstrate that that additional money is not working for the client but is working for the insurance company.

Recent Bonus Products

A typical bonus annuity will pay an additional 3% or 4% of the premium into the account value. This bonus is not immediately available to the client. Surrender charges are generally higher and longer than for non-bonus counterparts. Charges, such as the mortality & expense charges (M&E), are higher than non-bonus counterparts by 20 to 50 basis points. A variation on this product does not increase the charges to the client. Rather, there is a dollar-for-dollar decrease in the commissions paid to the agent.

The popularity of these products is growing as more companies introduce them, and the market share of these products is growing rapidly. Recent articles in major publications, such as the *Wall Street Journal*, illustrate the growing public awareness of and exposure to these products.

Implications for Bonus Products

Bonus products operate in exactly the opposite way than products for higher income and corporate clients. Instead of paying the front-end fees and eliminating any loan balance, bonus products actually increase the loan from the insurance company to the client. Essentially, the entire bonus is added to the loan balance.

If, in the above example, a 3% bonus were added to the account value, that 3% bonus would increase the statutory loss from \$5 to \$8. Charges and fees would have to be increased to recover this additional loss.

The client is deceived into thinking that the bonus is “working for him.” However, the bonus is working for the insurance company. The client may invest that bonus in variable subaccounts that may earn on average 10% over the long-term but is paying between 15%-

23% to the insurance company for that privilege.

Regulation of Bonus Products

In general, bonus products are deceptive. The author believes that the appropriate regulatory response is not to outright ban such products. There may be situations in which they are appropriate. However, for an agent and a client to adequately determine whether such a product is appropriate, sufficient disclosure is necessary. Disclosure should point out that bonuses are not free, and that they are paid back with interest. The implicit interest rate should be either disclosed or discussed in enough detail so a potential client can compare rates to other sources of funds. In addition, discussion of how losses on other policies are, in effect, paid for by remaining customers should be included.

One approach would be to explicitly state the first year statutory loss generated by a policy and the rate of interest implicit in the pricing of the product. Currently, the illustration actuary must submit a report to the board of directors on various pricing aspects of products available for sale. The profitability goal is generally part of that report. Statutory losses by pricing cell are available or can be generated. If these items were disclosed to the client, the client could compare products.

In our example, the disclosure might be:

Product A (no bonus)	\$5 balance	15% interest rate
Product B (bonus)	\$8 balance	15% interest rate

The client might assume that the bonus earns 10%. If so, then for Product B, the net cost would be 5% on the \$3 bonus portion and 15% on the remaining \$5. The client would probably choose Product A. There is no need to borrow money just to lose interest on it. That would be similar to taking a loan and leaving the money in a non-interest earning checking account. An illustration of cash values under different interest rates would be a useful tool to compare products.

If a product were available with front-end loads where it had little or no M & E charges that product might appeal to a client who had access to inexpensive sources of funds.

For example, Product C has a 5% premium load to cover the 5% commission. A client would pay \$105.26 into the policy to have \$100 invested. If the \$5.26 was taken from a source that had a low cost, Product C would be preferable to both Products A and B. There would be no balance with the insurance company on which to pay interest, only the \$5.26 initial load.

The author clearly has a bias towards products where initial expenses are paid for from initial loads. In such situations, the client is only responsible for his/her own initial expenses and does not pay high implicit rates of return. The author believes that many clients would be better served if they were better informed on how bonus and non-bonus products are priced. Better disclosure will lead to better customers.

Insurance products have tremendous value. This value does not have to be exaggerated to attract clients. Products that focus on long-term client needs can be sold and can achieve profitability. Deceptive products may increase sales at some companies in the short run but hurt the entire industry's image in the long run.

Ralph H. Gorter, FSA, MAAA, is vice president and actuary at Swiss Re Life & Health North America in Stamford, CT. He is also co-editor of Product Development News. He can be reached at ralph_gorter@swissre.com.

Industry Committees Help More Than Most Realize

by Jess L. Mast

Editor's Note: This article is reprinted with permission. It was in Medical Resource's 10th anniversary issue, Volume 11, Issue 6, Sept/Oct 1999.

Intercompany mortality studies provide vital data to the individual company as well as to the industry as a whole. In this article, Jess Mast provides specific information about why an insurer may want to participate in such studies. He expects the new millennium to produce profound changes and at an accelerated pace, making intercompany mortality studies even more important to the industry. Mr. Mast chairs the Mortality/Morbidity Liaison Committee.

Mention intercompany mortality studies at underwriting and actuarial meetings, and one of two reactions generally occurs: eyes glaze over because of little or no knowledge about the studies, or only vague recognition evolves because of little or no commitment to participate in the studies.

These reactions are disturbing at both the company and industry level. The company is losing opportunities to gain valuable information, and the industry as a whole suffers because its members are not taking the collective longer and wiser view.

As chair of the Mortality/Morbidity Liaison Committee (MMLC), I see relatively few companies participating in intercompany mortality studies other than those involving impairments. For those not familiar with the MMLC, its membership includes:

- actuaries, representing the Society of Actuaries Experience Studies Committee
- medical directors, representing the Mortality/Morbidity Committee of the American Academy of Insurance Medicine, and
- underwriters, who serve on the Underwriting Experience Studies Committee and represent the Home Office Life Underwriters Association and the Institute of Home Office Underwriters.

The higher interest in impairment studies likely exists for two reasons: medical directors and underwriters want as much information as possible to use when underwriting decisions or practices are challenged, and stiffer competition in preferred-risk underwriting means companies relish contemporaneous data that helps them validate and further fine tune selection and qualification criteria.

A bright spot has been the Impairment Study Capture System (ISCS), introduced in the late 1980s. Many companies found the ISCS appealing because participation was relatively easy, so that more than 45 companies have submitted data to the MIB's Center for Medico-Actuarial Statistics.

Company-specific benefits

Companies who decide not to participate in intercompany mortality studies or conduct studies on their own business for internal use may be overlooking these benefits:

Retrospective review

Mortality studies help a company better identify areas performing better or worse

than anticipated and are consistent with the needs to perform due diligence.

Pricing and underwriting effectiveness

Evaluate the effectiveness of pricing and underwriting periodically, including the ability to better estimate the impact of previous or contemplated changes in underwriting or product pricing and evaluate or improve how well pricing and underwriting functions are coordinated.

Emerging experience

Improve one's ability to understand emerging experience and validate it against corresponding pricing expectations for classification factors such as gender, age, policy duration, cigarette or other tobacco usage, screening requirements used (e.g., nonmedical vs. paramedical or physician examinations, tests such as those using blood/saliva/urine and electrocardiograms), and criteria used to distinguish preferred from other



standard risks (blood pressure, build, blood test findings, other test findings, occupational/sports/aviation activities, driving record, misuse of drugs).

Intercompany data

Compare your company's results against corresponding industrywide results to

Volume

Data on an industrywide basis will be needed at times to provide sufficient volume to support the credibility of some bases used to select, classify, and price risk. For example, since the elderly market presents different medical, underwriting, and pricing challenges than

(AALE) Study for publication early in 2000.

Confidence

The totality of perspectives and expertise brought by members of the MMLC and their associates enhances confidence in how data are compiled, studied, analyzed and in their results. It is imperative that analyses and data reflect an understanding of the underlying issues faced by the contributing companies, particularly among the product pricing, actuarial, medical, and underwriting functions. Obviously, confidentiality agreements are needed from everyone involved in all phases of data handling.

Such studies help each company and help the industry as a whole. Your company's decision to participate in these studies assures a better future for the industry by helping to strengthen the foundation on which the underwriting process and risk classification stand.

“Such studies help each company and help the industry as a whole. Your company's decision to participate in these studies assure a better future for the industry by helping to strengthen the foundation on which the underwriting process and risk classification stand.”

help identify and possibly understand reasons for any major differences.

General population data

Compare mortality among insured lives with corresponding segments of the general population in order to extrapolate from population data at times when data on insured lives is absent.

Better knowledge base

Strengthen information within the organization for use in responding to challenges from regulators and others who request justification for underwriting practices, risk classifications or pricing assumptions.

Credibility

Enhance the credibility of the company's objectives and practices through integrity of data.

Industrywide benefits

In addition to company-specific benefits, the industry as a whole stands to benefit as well.

either the middle or younger ages, a variety of intercompany studies is needed on the elderly. Also, certain data may be helpful from lab test findings, especially those combinations that occur relatively infrequently and may require a pooling of data from many companies to facilitate analysis.

Deeper understanding

The MMLC and other industry committees help companies understand their mortality experience on past and contemporaneous bases. The availability of additional disciplines from a wide variety of backgrounds — epidemiologists, statisticians, demographers, and data-processing experts — either already resident on the MMLC or available within the companies represented on the MMLC and their sponsoring committees, brings the diversity needed to assure the usefulness of results. The findings are shared with contributors to the study and published for wider consumption. Currently the MMLC is analyzing mortality contributions to the ISCS and the Alcohol Abuse and Live Enzyme

Jess Mast is second vice president and director of risk management research for Lincoln Re. He can be reached at (219) 455-2383 (phone), (219) 455-4124 (fax), or jlmast@lnc.com (e-mail).

Product Development Section Council Meets in San Francisco



“Old and new” Product Development Section Council members meeting in San Francisco to plot the direction of the Section’s activities —

Standing — I to r: Lilia Sham, Lorraine Mayne, Kathy Anderson (1999-2000 secretary/treasurer), Deanne Osgood (1999-2000 vice-chairperson), Barry Jacobson

Seated — I to r: Deborah Sloan, (1998-1999 secretary/treasurer), Phil Cernanec (1998-1999 chairperson), Larry Stern (1999-2000 chairperson)

Retiring Section secretary/treasurer, Deb Sloan, receiving a gift of appreciation from new Product Development Section chairperson Larry Stern in San Francisco.

