Society of Actuaries

Product Matters!

The newsletter of the Individual Life Insurance and Annuity Product Development Section

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Comments from the Chair

Volunteers Play a Crucial Role

by Abraham S. Gootzeit

It is through the energy and enthusiasm of dedicated volunteers that all the activities of this section are accomplished. And, as usual, they have been hard at work, providing valuable and useful information to our members. Let me summarize some of our current activities.

The SOA Spring Meeting will be held in New Orleans on May 23-24, 2005. Mary Broesch is spearheading this activity, supported by a virtual army of volunteers. This year's program will contain several "embedded seminars" — consecutive sessions to enable the material to be covered in additional depth. Our section is actively participating in three of these: *Secondary Guarantee Universal Life — a Case Study; Annuity Risk Management; Agile or Fragile? Underwriting and Mortality at the Older Ages*.

Keith Dall is leading a group that is developing the sessions for our annual Product Development Actuary Symposium to be held in the Chicago area on June 29 and 30. Doug Robbins is leading the effort to create a pre-symposium seminar on June 28, covering the various types of profit measures and how they relate to each other, using case studies. Information for these continuing education programs can be found in this newsletter.

It's not too early to be planning the content for the SOA Annual Meeting. Nancy Winings is already leading this effort.

We have received a draft report for our research project, "Analysis of Product

Thanks Kevin! Incoming chairperson, Abe Gootzeit, presents outgoing chairperson, Kevin Howard, a gift of gratitude at the section breakfast.

Guarantees." A final paper is due in a couple of months. The Project Oversight Group (POG) is being led by Susan Kimball. The section has also selected a researcher to work on our next project, "Substandard

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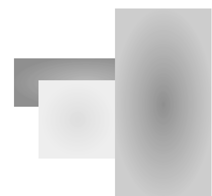

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Annuities." Noel Abkemeier has graciously agreed to head up the POG for that project. Also, the section is actively reviewing other topics for our next research project.

As you can appreciate from the above summary of some of the section's activities, volunteers play a crucial role. I want to thank our section members and other volunteers who toil away behind the scenes. They are the folks who are on the research, survey and experience studies committees. They present at seminars and at the spring and annual meetings. They write articles, prepare exam questions and grade papers. Most volunteer work is accomplished behind the scenes.

There are many initiatives under way that will require new volunteers. Our current volunteers are very committed, but their available time is precious and limited. Please consider volunteering — contact any council member or me. Check out the "Get Involved" page on our Web site. We will be happy to discuss the benefits of volunteering and help you match your skills and interests to the projects. ☐

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Photos from the Annual Meeting in New York

Above: *The Product Development Section Council gathers in New York to plan the section's 2005 activities –*

Standing – left to right: *Keith Dall, Nancy Winings, Doug Robbins, Mary Broesch, Mike LeBoueuf (Web Liaison).*

Sitting – left to right: *Susan Kimball, Abe Gootzeit, Elinor Friedman, Kevin Howard (2003-2004 section chairperson), Kelly Levy.*

Right: *Outgoing council member, Susan Kimball receives a gift of appreciation from Kevin Howard.*

Managing Variable Policyholder Behavior Risk

by Feng Sun and Matthew J. Wininger

Introduction

Variable insurance products such as variable universal life and variable annuity (VA) remain popular in the life insurance marketplace. Variable annuity assets under management exceeded the one trillion-dollar mark at year-end 2004. Guaranteed minimum benefits such as guaranteed minimum death benefits (GMDB) and guaranteed minimum living benefit riders are key selling points. These benefits are risky to insurers partly because contracts typically give policyholders great control of their policies. In particular, VA buyers control their asset allocation for VA subaccounts, as well as other behaviors such as annuitization, withdrawals and lapses.

There are many avenues open to insurers to manage risk — reinsurance, hedging, risk pooling, investment strategy, securitization and product design. In this article, we investigate managing one aspect of variable product risks — charging for policyholder behavior. A case study gives an example of managing risk in policyholders' asset allocation strategies through charging different fees based on asset allocation on VAs with guaranteed minimum death benefit riders based on asset allocation.

The Challenge

Popular VA policies with minimum guarantee riders often charge level fees as risk premiums for the riders. Policyholders may allocate their assets to different subaccounts provided by insurers, and these various subaccounts have different returns and volatilities. By redefining rider design, a level fee structure can reduce anti-selection risk and other management challenges to insureers.

To illustrate, consider a VA contract with an annual ratchet GMDB design. Aggressive policyholders may allocate 100 percent of their assets to volatile assets such as equities. Under unfavorable scenarios, insurers are exposed to a significant net amount at risk. Conservative policyholders who allocate their funds to bonds may cost insurers much less under the same circumstances. Although policyholders do not voluntarily choose to exercise the GMDB option, they can keep their policies, maintaining the risk exposure to the insurer.

As another example, consider aggressive policyholders who switch to a conservative asset allocation after incurring an investment loss; they lock in the loss because of the lower (although less volatile) investment return. For VA with living benefit guarantees, policyholders may have more options, such as the right to decide when to annuitize or withdraw, and how much they want to withdraw. Savvy policyholders may choose to exercise options in a manner that is best for the policyholder, which could be the worst for the insurer.

Case Study

A case study of VA with GMDB was conducted by classifying policyholders' asset allocation strategies into five categories from conservative to aggressive. The resulting

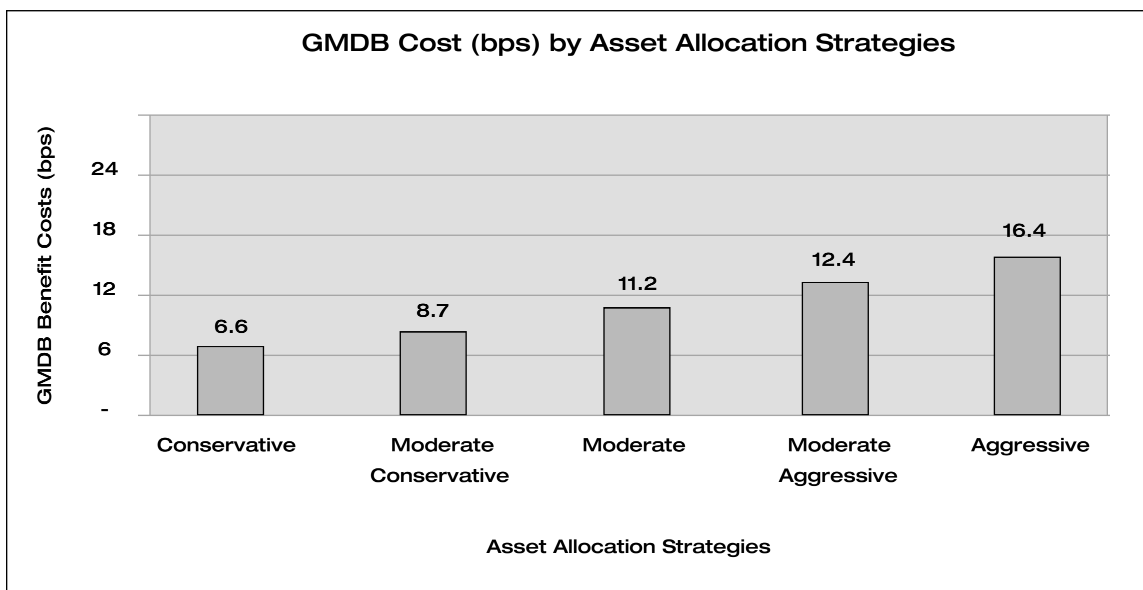
mean returns and volatilities of these five strategies are shown in Table 1. The GMDB benefit is assumed to be the maximum of the account value at anniversaries or the initial deposit less withdrawals. We assumed the GMDB rider premium is 20 bps of account value regardless of policyholders' asset allocation strategies. We tested five new policies, one for each of the asset allocation strategies. One thousand scenarios of different asset returns were tested, and claim costs were calculated under each scenario. The Conditional Tail Expectation at the 90th percentile (CTE 90) was also calculated for each asset allocation strategy.

The result (Figure 1) shows that annual GMDB benefit costs (in terms of basis points of account value) vary significantly by asset allocation strategies, as expected. Conservative policyholders incur only 6.6 bps annual cost, while aggressive VA buyers cost 16.4 bps, which is 2.5 times the cost incurred from conservative policyholders.

Table 1: Risk and return by asset allocation strategies

Asset Allocation Strategies	Mean Return	Volatility
Conservative	5%	6%
Moderate Conservative	7%	9%
Moderate	9%	11%
Moderate Aggressive	11%	13%
Aggressive	13%	16%

Figure 1: Annual GMDB costs (in basis points of AV) by asset allocation strategies



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From an option pricing perspective, these embedded minimum guarantees are options on the account value. The higher the volatility of underlying assets, the higher the cost of the option, all else being equal.

As C3 Phase II capital requirements are implemented, tail risk from embedded options becomes critical. C3 Phase II methodology uses CTE 90 as a measure of the C3 component of risk-based capital requirements. We calculated CTE 90 as the average of the worst 10 percent of present value of statutory surpluses for the GMDB benefit. The case study shows that the CTE 90 is only 0.13 percent of account value for the conservative strategy, and it becomes 20 times as high for the aggressive strategy.

Table 2: RBC C3 component as percentage of initial account value for GMDB with level fees

Asset Allocation Strategies	RBC C3 Component
Conservative	0.13%
Moderate Conservative	0.81%
Moderate	1.30%
Moderate Aggressive	1.77%
Aggressive	2.91%

Facing The Challenge

Reinsurance, hedging, risk pooling, investment strategy and securitization have been used to transfer risk and reduce earnings volatility and RBC capital by insurers. Most of these tools accommodate, but do not reduce risks from policyholder behavior. For instance, hedging programs reduce RBC capital requirements and provide cash to offset benefit costs. Still, the cost of hedging itself can be highly variable based on policyholder asset allocations.

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One example of product refinement is to assign different GMDB charges for different invested funds. For instance, the GMDB fee may be lower for a bond fund and higher for an equity fund. If policyholders are aggressive and want higher returns, they must pay a higher risk premium for their guarantees. At the same time, conservative policyholders should be rewarded for their less risky behavior to insurers by paying lower fees for the guarantees.

The case study continues with an alternative fee structure, intended to level the C3 components of RBC. We solved for fees to make the CTE 90 the same for all asset allocation strategies. The results are listed in Table 3 on page 7. Here we link the cost of the guarantee to the mean return and volatility of the strategy. Policyholders will be charged based on the corresponding weight on each asset type in their allocation strategy. Note the variable fees in Table 3 are correlated with the GMDB costs in Figure 1. If policyholders change their asset allocations, fees also change.

Revenue from aggressive policyholders under the variable fee structure is much higher than that under the level fee; this helps to bring up the negative present value of statutory surpluses, leading to capital requirement reduction under C3 Phase II. The situation caused by conservative policyholders is just the opposite. Based on the case study, using the variable fee structure does not have a strong effect on the average cost of the GMDB benefit, so the variable fees as tested here would result in larger average profits for the aggressive strategy (34 bps fee vs 16.4 bps cost) than for the conservative strategy (11 bps fee vs 6.6 bps cost).

One potential concern for insurers that retain level fees is that the variable fee structure may expose companies to anti-selection as policyholders who are intent on risky asset allocations choose level-fee companies. On the other hand, companies with variable fees may attract conservative prospective policyholders.

Conclusion

This case study shows that changing the guaranteed benefits' fee structure can be used to manage the risk in asset allocation associated with VA GMDB by aligning fees with costs and RBC C3 Phase II capital

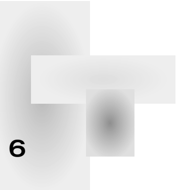

Table 3: Variable guarantee risk premium structure by asset allocation strategies

Asset Allocation Strategies	Level Fee	Variable Fee
Conservative	20 bps	11 bps
Moderate Conservative	20 bps	17 bps
Moderate	20 bps	20 bps
Moderate Aggressive	20 bps	27 bps
Aggressive	20 bps	34 bps

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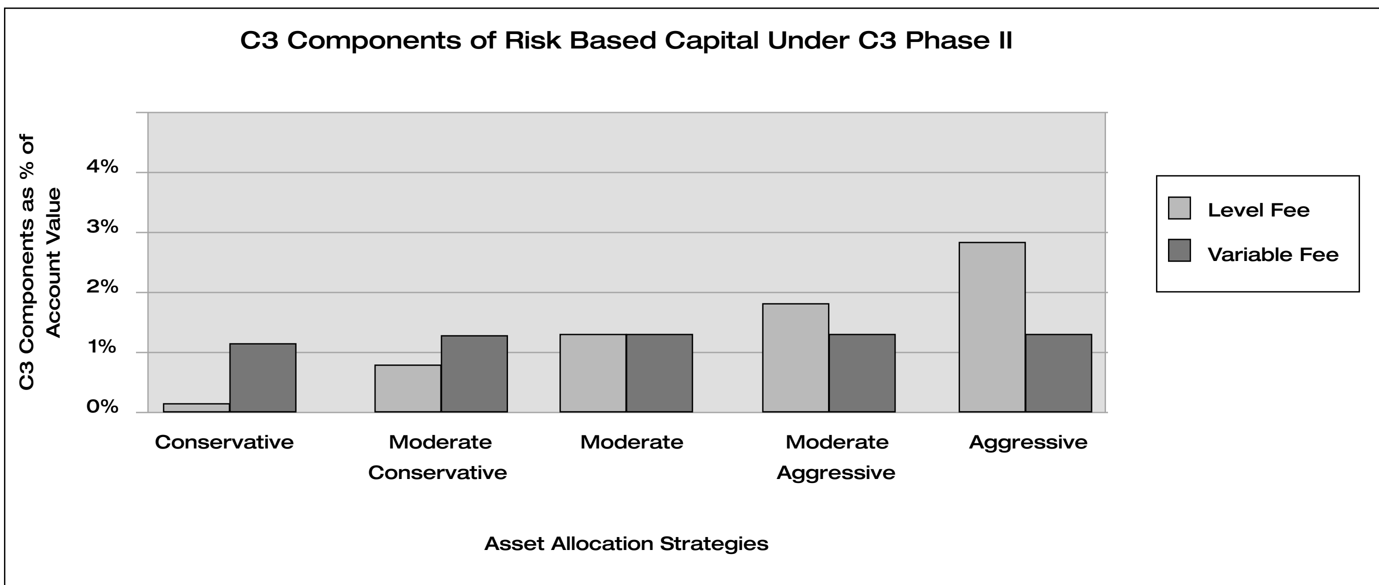
Figure 2: RBC C3 component as percentage of initial account value for GMDB with different fee structures



requirements. Making rider premium a function of policyholder behavior, in this case asset allocation strategies, helps manage risks from policyholder behavior. ☐

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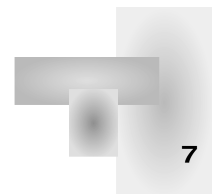

Features

The Universal Life Work Group

by David E. Neve

Background and Purpose

The Universal Life Work Group (ULWG) of the American Academy of Actuaries' (AAA) Life Valuation Subcommittee was formed in July 2004. Its charge is to develop a new "principle-based" approach (definition follows) for statutory reserves and capital requirements for life products with certain types of benefits and guarantees, where the value of the contract obligations vary significantly due to such things as future interest rates or equity returns. Life products with these types of benefits and guarantees today include universal life products with secondary guarantees (ULSG) as well as variable universal life (VUL) products with guaranteed minimum death benefits (GMDB).

The work of the ULWG is part of a larger effort started by the AAA several years ago to work with regulators to develop a principle-based approach to reserves and capital requirements for all products. Other AAA groups that are working on various aspects of this new principle-based approach include the Standard Valuation Law 2 (SVL) Work Group, the Variable Annuity Reserve Work Group (VARWG) and the C-3 Phase 2 Work Group. Similar to these groups, the ULWG has been working closely with the NAIC Life and Health Actuarial Task Force (LHATF) throughout the project.

A principle-based approach is one that reflects all the material risks, benefits and guarantees of the contract using basic principles of risk analysis and risk management. This approach is in contrast to the current "rule-based," formulaic approach that uses a single formula and a prescribed set of assumptions for all contracts in a given product grouping. Often times, a rule-based approach does not capture all of the risks of the contract, and may not adequately capture risk differences among contracts. Thus, modeling and/or stochastic approaches may need to be used to determine the appropriate reserve and capital requirement under a principle-based approach. However, a formulaic approach could be used if the underlying risks do not require a modeling or stochastic approach to properly capture the risks of the contract.

Product Scope

We have decided to focus first on UL products with secondary guarantees because of the recent developments and discussions

regarding Actuarial Guideline 38, and because the risks, benefits and guarantees reflect the type of product that is best suited by a principle-based approach. VUL with GMDBs are also within our scope, but we will focus on this product once sufficient progress has been made on ULSG.

At the request of LHATF, we also added term products to our scope, since LHATF wants to maintain a "level playing field" in regard to reserve and capital requirements for term and ULSG products, and because of similarity in risks between ULSG and term products with long-term level premiums. (Note: while our product scope has been expanded to include products other than just UL products, the name of the work group continues to be the Universal Life Work Group.)

The principles we will be following to model the risks of ULSG are similar to those for VUL with GMDB. A key difference is that the value of universal life product guarantees are largely fixed-interest-rate-driven while for variable products the benefit value maybe sensitive to both interest rate and equity returns.

We believe the conclusions reached and methodologies used for these three products may be applied to other life insurance products as well. Thus, it may be appropriate to expand our scope beyond these three products at some future time, such as to whole life products.

Factors that Support a Stochastic-Based Methodology

There are several compelling factors that indicate when a stochastic-based methodology is appropriate. A stochastic based approach will reflect tail risk and adequately quantify the value of guarantees to the policyholder under various future scenarios. A stochastic approach is appropriate when the likelihood of payment under a guarantee is highly dependent on product design, policyholder behavior and external impacts/events in the market. A single formula cannot adequately capture/assess the tail risk and uncertainty of these types of products, as has been seen with the products subject to the proposed Actuarial Guideline VACARVM and C3 Phase 2 proposals.

For products with large tail risk and guarantees that may or may not apply in the future, a broad risk management focus is required. Because of the complexity of these products, and because results can vary dramatically depending on future events, applying formulaic valuation approaches on these products may provide either inadequate reserves or redundant reserves. A lesson learned from the VACARVM and C-3 Phase 2 projects is stochastic testing is required to adequately capture the risk profile of GMDBs. This type of valuation is necessary because the likelihood of the GMDB applying varies, depending on many parameters. In some cases, it does not apply, and in other cases it provides a significant policyholder benefit. This is why the principle-based stochastic modeling approach works; it adequately captures and quantifies the tail risk and the uncertainty of these guarantees.

Because UL with secondary guarantees and VUL with GMDBs fall under the general category of products with tail risk and uncertain guarantee application, a stochastic modeling approach may be the best approach for these products. These products include several parameters, *e.g., credited interest rates, mortality charges and lapse experience,* that affect the value of the secondary guarantee to the policyholder, and therefore affect the risk to the company offering the guarantee. A stochastic modeling methodology using prudent best estimate assumptions provides a good framework for the valuation of the

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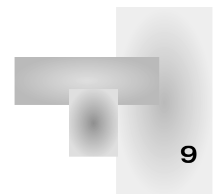
A stochastic approach is appropriate when the likelihood of payment under a guarantee is highly dependent on product design...



risks to the company from the guarantees of these two products.

Challenges

The development of a principle-based approach will be complex due to the characteristics of the life products with these types of risks and guarantees. We intend to address how interest rates, mortality and customer behavior affect the tail risk of these products. We also recognize that moving to a stochastic modeling methodology will require complex modeling tools that may be difficult to develop and maintain for some companies.

Another major challenge is the tax issue — both tax deductibility under Section 807 of the tax code, and MEC limits and definition of life insurance under Sections 7702 and 7702A. Since the approach we expect to recommend will likely not be a formulaic, seriatim approach, we recognize that the deductibility of the reserve for tax purposes is an issue that needs to be addressed. However, the AAA has formed a new tax work group to address these issues, so the ULWG will look to this tax group to take the lead on the tax issues (yet coordinate our efforts closely with them).

Since a principle-based approach will rely less on prescribed rules and assumptions and more on the professional judgment of the actuary to select methodologies and assumptions, a governance process is needed to assist regulators in assessing the appropriateness of the resulting reserve and capital requirement. This may include such things as imposing prescribed documentation and disclosure requirements, and/or requiring a peer review by an independent third party of the assumptions and methodologies used.

Our goal is to complete the analysis of the modeling results before the end of 2005...

Finally, there is the issue of whether the changes, we are considering, moving to a principle-based approach, is best implemented by a change to the Standard Valuation Law, the creation of a new model regulation or the creation of a new actuarial guideline.

Project Management and Organization

We now have over 40 members on the work group, representing about 30 different companies. Tom Kalmbach and I serve as co-chairs of the group. The AAA has established an e-mail list server under the name "ulwg" (contact Steve English of the AAA at *English@actuary.org* if you would like to be added to the list server as a member of the work group or as an interested party). We have been holding weekly conference calls since July, as well as monthly face-to-face meetings.

The first task of the ULWG was to develop a set of guiding principles. We then developed a high-level project plan and timeline, which included things such as the development of an overall methodology to calculate reserves, the selection of assumptions and how to model them, running models and conducting a thorough analysis of results. Our goal is to complete the analysis of the modeling results before the end of 2005, so that we can submit a proposal to LHATF on a new principle-based approach for the products in our scope at their December 2005 meeting. We plan to have our proposal far enough along so that LHATF would be comfortable in exposing the proposal for comments at that time, with a target effective date of Dec. 31, 2006.

We know that we have a huge task before us, so early on we concluded that we needed

to split the work up into smaller work groups. We formed eight subgroups (teams) that have been meeting separately from the full group to address specific topics and issues. Each team is providing regular progress reports back to the full group. The successful completion of the project is highly dependent on work that is being done by these subgroups. The eight subgroups, with their chairs and a short description of their charge, are given below.

Methodology Team

Chair: Randy Freitag
Charge: Discuss alternative modeling methodologies and provide a recommendation back to the full group giving the pros and cons of each.

Product Team

Chair: Elinor Friedman
Charge: Define a generic product (policy features, etc.) for each product type in our scope that will be used for test modeling.

Modeling Team

Chair: Jeff Vipond
Charge: Once the methodology, product features and assumptions are defined, build and run the models on various platforms and validate the results against each other. Also, develop a recommendation on the level of aggregation used in the modeling — granularity of grouping population by issue age, attained age, premium funding levels, etc.

Mortality Assumption Team

Chair: Tom Kalmbach
Charge: Develop a recommendation on how to model mortality, including things such as future mortality improvement, old-age mortality assumptions and whether to model mortality stochastically or deterministically.

Policyholder Behavior Assumption Team

Chair: Peter Boyko
Charge: Develop a recommendation on all material assumptions related to policyholder behavior, such as lapse and premium funding assumptions.

Expense Assumption Team

Chair: Tony Brantzeg
Charge: Develop a recommendation on how to model expenses.

Asset Modeling Team

Chair: Gary Falde
Charge: Develop a recommendation on how to model asset cash flows, including the modeling of investment and disinvestment strategies. Develop a recommendation on the approach to generate interest rate and equity return scenarios.

Reinsurance Team

Chair: Wayne Stuenkel
Charge: Develop a recommendation on how to model the impact of reinsurance and work closely with the Mortality Assumption Team. ☐

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Features

Notice 2004-61:

Guidance on Mortality under IRC Section 7702

by John T. Adney and Craig R. Springfield

Last fall, the Internal Revenue Service (IRS) released Notice 2004-61, 2004-41 I.R.B. 596 (October 12, 2004), interpreting the reasonable mortality charge requirement applicable to life insurance contracts under Section 7702 of the Internal Revenue Code. This notice supplements, and may modify in certain respects, guidance that the IRS provided in 1988 through Notice 88-128.

The subject of Notice 2004-61 is Section 7702(c)(3)(B)(i), which sets out the mortality charge assumption that is permitted to be used in determining net single premiums and guideline premiums, under Section 7702. In particular, this Code provision states that such determinations must be based on "reasonable mortality charges which meet the requirements (if any) prescribed in regulations and which (except as provided in regulations) do not exceed the mortality charges specified in the prevailing commissioners' standard tables (as defined in Section 807(d)(5)) as of the time the contract is issued." This same mortality charge requirement applies for purposes of the 7-pay test under section 7702A, which defines a modified endowment contract for federal tax purposes. The impetus for the issuance of Notice 2004-61 was that the 2001 Commissioners' Standard Ordinary (CSO) mortality tables became the prevailing tables within the meaning of Section 807(d)(5) during 2004, and thus guidance on the transition from the previously applicable 1980 CSO tables to the new 2001 CSO tables was needed.

Safe Harbors

Notice 2004-61 provides three safe harbors that will apply pending the publication of additional guidance. The first safe harbor provides that the interim rules described in Notice 88-128 remain in effect "except as otherwise modified by this notice." (Notice 88-128 included, for example, a safe harbor allowing use of mortality charges that do not exceed 100 percent of the applicable mortality charges set forth in the 1980 CSO tables.) The second safe harbor provides that, for a life insurance contract issued before January 1, 2009 in a state that permits or requires use of the 1980 CSO tables at the time the contract is issued, use of mortality charges in calculations under Section 7702 will satisfy the requirements of Section 7702(c)(3)(B)(i) if they do not exceed the lesser of (a) 100 percent of the charges set forth in the 1980 CSO tables and (b) the mortality charges specified in the contract at issuance. The third safe harbor provides that, for a life insurance contract issued after December 31, 2008, or on or before that date in a state that permits or requires use of the 2001 CSO tables at the time a contract is issued, use of mortality charges in calculations under Section 7702 will satisfy the requirements of Section 7702(c)(3)(B)(i) if they do not exceed the lesser of (a) 100 percent of the charges set forth in the 2001 CSO tables and (b) the mortality charges specified in the contract at issuance.

Gender and Smoker Variations to CSO Tables

In addition to the above safe harbors, Notice 2004-61 provides guidance regarding gender and smoker-based variations of the 1980 CSO and 2001 CSO tables. In particular, if a state permits minimum nonforfeiture values for all contracts issued under a plan of insurance to be determined using 1980 or 2001 CSO Gender-Blended Mortality tables, then the applicable charges of such tables are treated as reasonable mortality charges for female insureds, provided the same tables are used to determine mortality charges for male insureds. Similarly, if a state permits minimum nonforfeiture values for all contracts issued under a plan of insurance to be determined using 1980 or 2001 CSO Smoker and Nonsmoker Mortality tables, then the applicable charges of such tables are treated as reasonable mortality charges for smoker insureds provided nonsmoker tables are used to determine nonsmoker mortality charges. These "anti-whipsaw" rules are similar to those provided in proposed regulations issued in 1991 but never finalized.

Rules Addressing Changes to Contracts

The last subject addressed by Notice 2004-61 regards identification of the issue date of a contract and the circumstances when a change to the contract — *i.e.*, a so-called material change — will cause it to be considered as newly issued for purposes of applying the notice. In this respect, Notice 2004-61 generally states that the date a contract is considered issued will be determined according to the standards in place at the time of the original effective date of Section 7702, which is also based on the "issue date" of a contract. The Notice elaborates on this in several respects. First, it observes as an example that contracts received in exchange for existing contracts are to be considered new contracts issued on the date of the exchange. The Notice then states as a general rule that a change in an existing contract will not be considered to result in an exchange if the terms of the resulting contract (that is, the amount and pattern of death benefit, the premium pattern, the rate or rates guaranteed on issuance of the contract and mortality and expense charges) are the same as the terms of the contract prior to the change. These statements have counterparts in Notice 88-128.

Going beyond the 1988 notice, at the urging of the life insurance industry, Notice 2004-61 provides that a contract satisfying one of the 1980 CSO table safe harbors need not begin using the 2001 CSO tables upon a change in benefits if (a) the change, modification or exercise of a right to modify, add or delete benefits is pursuant to the terms of the contract, (b) the state in which the contract is issued does not require use of 2001 CSO for such contract under its standard valuation and minimum nonforfeiture laws and (c) the contract continues upon the same policy form or blank. Somewhat departing from the industry's request, Notice 2004-61 further states that the changes, modifications or exercises of contractual provisions referred to include addition or removal of a rider, an increase or decrease in death benefit (if the change is not underwritten), and a change from an option 1 to option 2 contract or vice versa.

Many of the rules provided by Notice 2004-61 have been favorably received by insurers ... A number of questions/issues have arisen, however, with respect to the notice.

Questions that Have Been Raised

Many of the rules provided by Notice 2004-61 have been favorably received by insurers, particularly those addressing when newly issued contracts would need to begin using the 2001 CSO tables under the safe harbors. A number of questions/issues have arisen, however, with respect to the notice.

Relationship between first and second safe harbors.

One issue regards the effect, if any, of Notice 2004-61 on the safe harbor rules contained in Notice 88-128. As noted above, Notice 2004-61 states, as its first safe harbor, that the interim rules of Notice 88-128 remain in effect, except as otherwise modified by Notice 2004-61. At the same time, the second safe harbor of Notice 2004-61 sets forth requirements that appear largely the same as those of the 1980 CSO table safe harbor of Notice 88-128, but it adds a requirement that mortality charges

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reflected under section 7702 cannot exceed the mortality charges guaranteed under a contract. Given that this additional requirement was not part of the Notice 88-128 safe harbor, questions have been raised regarding whether this additional requirement constitutes a modification, potentially retroactive, to the Notice 88-128 safe harbor. In other words, when the first safe harbor of Notice 2004-61 states that the rules of Notice 88-128 remain in effect "except as otherwise modified" by Notice 2004-61, did the IRS intend for the requirements of the second safe harbor to constitute such a modification, so that the 1980 CSO table safe harbor of Notice 88-128 would effectively be replaced by the second safe harbor of Notice 2004-61? On its face, Notice 2004-61 does not do this. The description of the second safe harbor in Notice 2004-61 does not in any fashion indicate that it has any relevance to the first safe harbor of this notice. In addition, section 5.02 of Notice 2004-61 refers to the first and second safe harbors as separate safe harbors (which of course they are); it would be odd to do this if the second safe harbor was intended in some manner to replace the first safe harbor. The continuing applicability of Notice 88-128 more generally is shown by the fact that Notice 2004-61 neither includes a safe harbor pertaining to life insurance contracts, that have relied upon the 1958 CSO safe harbor of the earlier notice, nor modifies this safe harbor, in any respect.

Given the questions that have been raised with respect to Notice 2004-61 and the topics still unaddressed, it seems likely that this notice is just first round by the IRS in clarifying some of the open questions presented by the mortality charge requirement of Section 7702.

Given that the first and second safe harbors of Notice 2004-61 are, in fact, separate, one may reasonably ask why there is any confusion in the first instance, but there are several reasons why questions have been raised. One such reason is that it is not immediately clear from Notice 2004-61 what modifications have been made to the safe harbor rules of Notice 88-128. As noted above, the first safe harbor of Notice 2004-61 states that the rules of Notice 88-128 continue to apply except as otherwise modified by Notice 2004-61, and, by this statement it seems clear that some such modifications must have been made. However, Notice 2004-61 does not contain any direct statements identifying what such modifications are, nor is any effective date rule for application of such modifications set forth in Notice 2004-61. One possibility in this regard is that the guidance in Notice 2004-61 relating to smoker and gender table variations may represent such modifications. In other words, under the first safe harbor, the rules of Notice 88-128, including allowance of 100 percent of 1980, continues as a valid safe harbor except as modified by the discussion relating to such table variations, which generally allow greater flexibility.

A second reason for confusion regarding the relationship of the first and second safe harbors of Notice 2004-61 is that, if the first safe harbor of Notice 2004-61 continues, the 1980 CSO table safe harbor of Notice 88-128, e.g., as modified by the discussion in Notice 2004-61 regarding gender and smoker table variations, then it becomes somewhat unclear why the second safe harbor of Notice 2004-61 was needed, since it mirrors the requirements of the Notice 88-128 safe harbor, but also adds a new requirement. Since the first and second safe harbors of Notice 2004-61 are largely identical, apart from the additional requirement imposed by the second safe harbor, seemingly no one should ever need to rely on the second safe harbor since they may simply rely on the first safe harbor without concern about the additional requirement imposed by the second safe harbor. If this is so, then one must ask why the IRS felt the need to include the second safe harbor.

The answer may be that the IRS may contemplate that an effective date rule may ultimately be made applicable to the first safe harbor so that it would not be available for newly issued contracts after some future date. In this regard, Notice 88-128 states that its interim safe harbor, allowing use of the 1980 CSO tables, applies to contracts that are issued on or before the date 90 days after the issuance of temporary regulations addressing reasonable mortality charges under section 7702. Notice 2004-61 does not constitute a temporary regulation; however, it may be prefatory to the issuance of such guidance, which may set forth an effective date after which the first safe harbor may no longer be available in its present form. (Some have asked whether the October 12, 2004 publication date of Notice 2004-61 in some manner sunsets the rules of Notice 88-128. This is unclear, although it is perhaps telling that Section 6 of Notice 2004-61, titled "Effect Upon Other Publications," states merely that

"This notice supplements Notice 88-128.") Another possible explanation for the presence of both the first and second safe harbors of Notice 2004-61 may be that, while the second safe harbor may seem unnecessary given the first, there may be some differences that nonetheless exist between them that made inclusion of the second appropriate.

Underwritten Increases in Benefits

As discussed above, Notice 2004-61 contains a discussion regarding changes to a contract that will cause it to be treated as newly issued for purposes of applying the notice. In this regard, Notice 2004-61 states that, if certain requirements are satisfied, then a change, modification or exercise of a right to modify, add or delete benefits pursuant to the terms of a contract will not cause such contract to be treated as newly issued. The notice then goes on to list some examples, stating that the changes, modifications or exercises of contractual provisions referred to include addition or removal of a rider, an increase or decrease in death benefit (if the change is not underwritten), and a change from an option 1 to option 2 contract or vice versa. Some questions have been made about the purpose of the parenthetical, and particularly whether it implicitly stands for the proposition that an underwritten change in benefits does cause a contract to be treated as newly issued.

At present, the precise import of Notice 2004-61 for underwritten benefit increases is unclear, but it is important to note that the sentence in question that contains the parenthetical about nonunderwritten increases is simply a list of examples of types of changes that do not cause a contract to be treated as newly issued. The sentence, by using the word "include," is not purporting to set forth a comprehensive list. Also, if the IRS had intended that all underwritten increases would cause a contract to be treated as newly issued, the IRS could have added a sentence to this effect, and one might expect that it would have done so, given that underwritten increases are one of the most common kinds of changes contracts experience and the proper treatment of such increases has been a source of much discussion since the enactment of the present version of Section 7702(c)(3)(B)(i) in 1988. At a conference, sponsored by the Society of Actuaries last fall, representatives of the IRS made informal comments that are consistent with the above analysis, i.e., that the sentence containing the reference to non-underwritten increases is illustrative, rather than comprehensive, and that there was no intention to imply that all underwritten increases would cause a contract to be treated as newly issued. At the same time, these representatives observed that some underwritten increases may be so material relative to the pre-change contract that they would result in a deemed new issuance of the contract. No clear line exists at present to distinguish underwritten increases that have the one treatment versus the other, although it seems fair to say that underwritten increases that are in no way extraordinary relative to those commonly made by owners of life insurance policies, probably should not cause a contract to be treated as newly issued for purposes of applying Notice 2004-61.

Request for Comments and Future Actions

Notice 2004-61 requested comments from taxpayers, which were due on January 10, 2005, regarding guidance needed to address issues not specifically addressed by this notice or Notice 88-128, including issues addressed by section 1.7702-1 of the proposed regulations issued in 1991. The American Council of Life Insurers, the principal life insurance industry trade association, has submitted comments and requested guidance with respect to, among other things, the treatment of life insurance contracts insuring multiple lives and substandard risks and regarding how to account for the fact that the 2001 CSO tables have extended the terminal age to 121, whereas section 7702 requires the assumption of a maturity date no earlier than the day on which the insured attains age 95 and no later than the day on which the insured attains age 100.

Given the questions that have been raised with respect to Notice 2004-61 and the topics still unaddressed, it seems likely that this notice is just the first round by the IRS in clarifying some of the open questions presented by the mortality charge requirement of Section 7702. ☐

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Product Pricing in the Year 2010

by Michael S. Taht

Given that it is the start of a new year, there is an abundance of prognosticators looking into their crystal balls trying to predict the future. I do not have a crystal ball, but a clear look at current trends shows me five areas where pricing actuaries should expect changes in how we will price life insurance products by 2010.

Interaction between Pricing and Corporate

There is a move toward principle-based reserving standards in the United States. Regulation XXX and C3 Phase 2-type reserves for variable annuities are two examples of principle-based reserving. Five years from now, there will be greater use of principle-based valuation standards.

A key element of principle-based valuation standards is the use of "prudent best estimate" assumptions. Product development actuaries will need to ensure that the best estimate assumptions and margins for adverse deviation used in setting reserves in the pricing process are consistent with that of their corporate actuary. They will also need to be aware of the impact of changes in assumptions on reserves, and consequently on profitability, and be prepared to work in tandem with corporate actuarial in reacting to changes in these assumptions.

Changes in Use of Reinsurance in Pricing

The U.S. life industry has become increasingly reliant on reinsurance. Over 60 percent of new face amount was ceded to reinsurers in 2003. However, there are many factors that are driving up the cost of reinsurance today. These include changing views on long-term mortality costs, market consolidation and concerns over letter of credit (LOC) capacity. In addition to the increased cost of reinsurance, direct writers are also concerned about reinsurer credit exposure.

Life insurers will look more closely at the drivers of reinsurance use, e.g., transfer of mortality risk, capital management, and, where practical, consider alternatives to reinsurance. This could result in a decrease in the use of bundled reinsurance solutions, e.g., coinsurance, and an increase in the use of reinsurance for a specific risk, yearly renewable term and transfer of mortality risk.

Capital Markets Arbitrage

The capital markets' interest in the life insurance industry has grown in recent years, providing the industry with new sources of capital. However, the capital markets' interest in life insurance is not limited to providing capital. As the capital markets become more familiar with the life insurance industry, they will uncover and exploit arbitrage opportunities.

The life insurance industry has always been susceptible to the exploitation of uneven pricing. Typically, distribution systems will find and exploit areas where a company has underpriced policies relative to the competition. However, the amount of monies that the capital markets can direct toward an arbitrage opportunity, and the short amount of time that they require to accumulate these monies, is many times greater and faster than what most distribution systems can direct toward an arbitrage opportunity. Recent evidence of this can be seen with "life insurance life annuity combination" transactions (LILACs). Pricing actuaries will need to be more vigilant when it comes to identifying and eliminating arbitrage opportunities.

Risk Analysis and Pricing Systems

As risk management practices become more evolved, there will be increased attention paid to low probability/high impact risk in products. Products with complex risks or embedded options will need to be fully analyzed prior to going to market. Companies will require that risks within these products are identified, quantified and mitigated as much as possible during the product development process. In order to quantify these risks, pricing systems will require functionality that many of today's systems do not have, e.g., stochastic-on-stochastic projections. The pricing systems of the future will need to combine flexibility and speed to meet the needs of pricing actuaries.

Demographics

As with all business, the life insurance industry in 2010 will be shaped by demographic forces. There will be a continued increase in the number of older age persons living in the United States and Canada. This will result in more pressure to increase issue age limits and to accumulate better information regarding older age mortality, and more broadly, older age policyholder behavior. The aging of the baby boom generation will also impact the distribution of life insurance sales. However, we do not expect a major shift in product preference in the next five years due to the aging of baby boomers, as they will have not yet reached the age where payout annuities and other wealth transfer products are attractive.

Of course these predictions are routed in what we see today as emerging issues in the market. By 2010, we will see if they truly change how we as pricing actuaries work on a day-to-day basis. ☐

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The End of A Tumultuous Year

by Larry M. Gorski

The December 2004 meeting of the Life and Health Actuarial task force (LHATF) brought to an end a year that was filled with exciting meetings and conference calls focused on controversial issues.

Reserves for Variable Annuities (C-3 Phase 2 reserves)

After a brief status report concerning the risk-based capital component of the C-3 Phase 2 project, Tom Campbell (Hartford Life), chair of the American Academy of Actuaries (AAA) Variable Annuities Reserve Working Group, gave a status report that focused on key items.

Since the prior NAIC meeting, one of the hot topics has been the recognition of "revenue sharing" income. The regulatory issue arose because the receipt of revenue sharing income may not be subject to a long-term contractual arrangement and so recognition of revenue sharing income in the calculation of reserves using the cash-flow modeling approach or alternative methodology (AM) approach may be problematic. Tom reviewed the language in the AAA report that attempts to deal with regulatory concerns.

The AAA discussed new language that attempts to resolve a regulatory issue with the methodology in the report that quantifies the risk of guaranteed minimum income benefit margins to decreasing interest rates. The new language changed the methodology by recognizing that "risk premia" embedded in interest rates increases with duration. The new language generally decreases "market based expected" future interest rates.

Another key issue discussed dealt with mortality assumption underlying the AM factors. Possibilities range from 65 percent to 100 percent of the 1994 GMDB Table, and perhaps allowing insurers to recognize their own experience. A motion to use 85 percent of the 1994 GMDB table failed. The AAA will continue to work on this topic in 2005.

The next item discussed was the Standard Scenario (SS) methodology. The SS methodology is not an AAA recommendation but is included, with a "disclaimer," in the draft Actuarial Guideline and by the AAA. The discussion on this topic focused on three items: (1) the relationship between reserves based on the SS to model based reserves. The higher level of reserves based on the SS were attributed to the requirement that SS reserves be calculated on a seriatim basis and therefore lose the value of aggregation, (2) a memo from the AAA discussing the reasons why they did not support the adoption of the SS requirement and (3) a personal memo (not an AAA document) from Tom Campbell that presented ideas for modifying the Standard Scenario. LHATF agreed to form a subgroup to explore the ideas contained in the memo.

Another major item discussion was the definition of prudent best estimate. The basic idea is that the actuary is supposed to set assumptions in a conservative manner in the face of uncertainty. New language that attempts to explain and apply the concept was included in the December AAA report. The regulatory issue is whether application of the prudent best estimate concept requires

inclusion of margins for adverse deviation and whether there is sufficient guidance to ensure uniform application of the definition.

The last major item discussed was the appropriateness of the so-called calibration table, used to determine whether the scenarios are conservative enough. Some regulators questioned the appropriateness of the calibration table because of the perceived bias of the historical return data used to determine the calibration table. The perceived bias is attributed to the upward trend of stock P/Es to high levels that occurred in the very recent past. The AAA presented information concerning a calibration table with a constraint on the Sharpe Ratio based on analysis of "World ex Japan Index" data. The AAA is expected to continue working on this issue in 2005.

The LHATF voted to expose the AAA Variable Annuity Reserve Draft Actuarial Guideline. As an aside, the AAA is busy trying to deal with concerns expressed by the regulators. Weekly conference calls have been held since mid-December. The proposal is still on target to be adopted with an effective date of Dec. 31, 2005.

Actuarial Guideline 38

Two agenda items dealt with Actuarial Guideline 38 (AG 38) issues. The first item was a status report by David Neve (representing the AAA) on the work of the AAA Universal Life Working Group. The charge to this working group is to develop a long-term solution to the problems that are driving the Actuarial Guideline discussion. *(Editor's note: see David Neve's article in this issue for more information regarding this working group.)*

The report discussed the working group's ideas concerning: (1) the methodology for calculating reserves, (2) asset modeling, (3) the mortality assumption, (4) reinsurance and (5) expense assumptions.

David requested input from LHATF on two questions: (1) Should the modeling recommendation focus solely on a stochastic approach, or should a principled-based approach be complemented with a seriatim and/or deterministic component? (2) Should mortality be included on a stochastic basis or on a deterministic with margin basis? Due to time constraints there was not much discussion of these two questions.

The other item on the agenda was the status of AG 38. LHATF adopted two amendments to the 11/19/04 draft. One amendment dealt with defining the intent of the ratio calculated in the fourth step of item 8. In addition the paragraph after step 9 was deleted.

After much discussion by people championing the formulaic approach in AG 38 and those favoring a principle-based modeling approach, LHATF voted to expose the amended AG 38.

Things got really exciting after the NAIC meeting. At the AAA committee meeting., the presentation of the LHATF Report became the opportunity for insurance department commissioners and other "upper-management" personnel to discuss the appropriateness of the formulaic reserving methodology in today's environment. The discussion turned from "What is the 'spirit and intent' of Actuarial Guideline 38?" to "Are current formulaic reserve requirements generating excessive reserves and therefore proving costly to the policy holder?"

At the end of the day, while not directing LHATF to drop the formulaic AG 38 approach, the AAA Committee gave LHATF strong direction to move quickly to resolve the current issue in a way that was consistent with the long-term approach being developed by the AAA Life Working Group. LHATF will report back with a recommendation "in a form that could be adopted by the AAA Committee as a solution to the current problems" within six months. *(Editor's note: In light of this new directive from the AAA Committee and the potential delay in a resolution of the reserve issue, the New York Insurance Department made an emergency amendment to New York Regulation 147 effective year-end 2004, that makes formula changes to AG 38 for policies issued in 2003 and later.)*

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At the AAA committee meeting, the presentation of the LHATF Report became the opportunity for insurance department commissioners and other "upper management" personnel to discuss the appropriateness of the formulaic reserving methodology in today's environment.

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In addition, a number of other agenda items were also discussed. The amount of LHATF agenda time or space in this article is not intended to signify the significance of the projects.

Annuity Nonforfeiture Regulation

No changes were made to the Oct. 14, 2004 draft. Additional discussion of the "premium bucket" issue will take place during an upcoming conference call in 2005.

Possible Revisions to the Standard Valuation Law

This project has a very long-term perspective. Its objective is to establish a framework for a standard valuation law that relies on a principle-based approach rather than a formulaic approach as is currently the case. The AAA Standard Valuation Law 2 Subgroup will not be working on specific actuarial modeling but on issues of governance and accountability. The key points made during the presentation by Dave Sandberg, representing the AAA, were: (1) "Actuarial Discretion without accountability is not a principle-based approach" rather than (2) "Peer review is not synonymous with a second opinion." Sandberg also presented a work plan for the AAA SVL2 Subgroup.

Actuarial Guideline ABC

The purpose of this actuarial guideline is to address certain issues concerning the projection of guaranteed benefits that have arisen with the adoption of the new Annuity Nonforfeiture Law and development of the draft Model Annuity Regulation. LHATF did not make any changes to the Sept. 9, 2004 draft.

Referral on Accounting for Life Reinsurance Reserve Credits

Over the summer, an issue concerning reinsurance reserve credits on YRT reinsurance had been referred to the LHATF. The issue stems from language in the NAIC Statutory Accounting Practices and Procedures Manual (codification manual) concerning the kinds of reinsurance treaties that qualify for reinsurance reserve credit and the nature of the reinsurance reserve credit. The referral stems from a request to modify the language in the codification manual that limits reinsurance reserve credits on YRT treaties to 1/2 qx type credits in cases where the reinsurance premiums have long-term guarantees. LHATF discussed the issue during an interim conference call but after discussing a draft response, decided to defer action.

C-3 Phase 2 – Risk Based Capital

The discussion of the AAA Life Capital Adequacy Subcommittee (LCAS) Report on Risk-Based Capital (RBC) for Variable Annuities at the NAIC Capital Adequacy Task Force meeting (CADTF) was decidedly different than the discussion concerning the reserving requirement for these products that occurred during the LHATF meeting.

The discussion at the CADTF meeting focused on the instructions necessary to implement the AAA recommendations (and recommendations from other groups) and not the contents of the recommendations. The LCAS agreed to develop instructions for the 2005 Life RBC Booklet that would bring together the recommendations from the AAA, the recommendation from New York concerning the RBC Standard Scenario and the American Council of Life Insurers' recommendation concerning transition and phase-in. The LCAS has been very busy with weekly conference calls to develop the RBC instructions.

The revised RBC instructions are still on target to be adopted with an effective date of Dec. 31, 2005. ☐

5th Annual Product Development Actuary Symposium

The Product Development Section — in partnership with the Society of Actuaries and the Nontraditional Marketing, Reinsurance and Actuary of the Future Sections — is delighted to present the 5th Annual Product Development Actuary Symposium. This year's symposium will take place June 29-30, 2005 at the Westin O'Hare in Rosemont, Ill.

The organizers of this event have built on prior successful programs to bring you fresh and timely topics. The faculty includes industry experts and guest speakers. Please mark your calendar now to join us.

Day one starts with a general session. The subject will be the future of the life insurance and annuity industry. The luncheon speaker on day one will present "The Art of Negotiation."

Both days are filled with concurrent sessions. Each topic will be presented twice. This will give attendees maximum opportunity to cover the topics of most interest to them. All sessions are designed to encourage attendee participation and interaction. The following is a listing of topic titles:

- Reinsurance Trends
- Variable Annuity Trends
- Older Age Mortality
- Universal Life Secondary Guarantees
- Advanced Sales Concepts
- Measuring Profitability
- Best Pricing Practices
- Regulatory and Tax Issues — Life Insurance Products
- Variable Life Trends
- Fixed Annuity Trends

At the conclusion of day one, there will be a networking reception followed by an optional group dinner.

For a complete discussion of the symposium, please go to the meetings/seminars page of the SOA Web site at *www.soa.org*. We look forward to seeing you there! ☐

Seminar on Tying Together Profitability Measures

The Product Development Section is also sponsoring a one-day seminar on June 28, 2005 on Tying Together Profitability Measures.

This seminar will explore different statutory, GAAP and other profit measures, and their relationship to each other by using product case studies.

2005 SOA Spring Meeting in New Orleans

This year's spring life meeting will be at the Hilton Riverside Hotel in New Orleans on May 23 and 24. If being in New Orleans isn't exciting enough, you'll love what the SOA has done with the program! For the first time at a spring meeting, a number of mini-seminars will be offered in addition to the typical 90-minute sessions. The goal of offering these seminars is to drill down deeper into current topics of interest. Plus, you will notice much more collaboration with other sections to offer topics that cross over into areas beyond product development.

The Product Development Section will be offering three seminars, consisting of 11 90-minute sessions, plus another five individual 90-minute sessions. In addition — back by popular demand — is the chance to cruise the Mississippi river on Sunday night, while networking with your friends and colleagues at the jointly sponsored reception with the Nontraditional Marketing section.

PD Sponsored Seminars and Sessions

Secondary Guarantee Universal Life – A Case Study

If you are a pricing actuary for a life insurer selling universal life insurance products containing secondary guarantees, then you are familiar with the challenge of developing a product design that satisfies the competing pressures to offer lower priced products, while meeting the reserve requirements of Actuarial Guideline 38 (AXXX). This seminar includes three sessions, each offering different perspectives from various experts on the topic, with time reserved for questions. Whether you're interested in different positions as to the appropriateness of product designs, or an update on the current status of various reserve proposals, or your professional responsibilities to comply with the letter and spirit of the regulations, including how to effectively communicate your position to key people who may not agree, then this seminar is for you.

Annuity Risk Management

This multi-part seminar offers six interrelated sessions:

- Annuity Risk Management Overview
- Stochastic Modeling for Annuity Risk Management
- Annuity Risk Management Case Study
- NAIC C3 Phase II Implications for RBC and Reserves (panel discussion)
- Variable Annuity Guarantees Modeling: Incorporating Derivative-Based Hedging

- NAIC C3 Phase II Implications for RBC and Reserves (workshop)

These sessions take a detailed look at annuity risk management and how it can be applied to new product development and in force product management. In addition, it delves into NAIC C3 Phase II implications from financial reporting and investment perspectives. The first session is an overview of annuity risk management, and presenting key concepts and current and best practices in a dynamic economic environment for variable, fixed and equity-indexed annuities (EIAs). The stochastic modeling session covers various subjects, including the significance of C3 Phase I, EIA pricing and hedging and using product balancing or dynamic hedging for offsetting risk. In the third session, annuity risk management case studies are presented to illustrate how different actions could mitigate exposure to risk.

Agile or Fragile? Underwriting and Mortality at the Older Ages

Even though older-age business may be a small (yet growing) percentage of business sold, it is a large percentage of mortality cost to companies, which underscores the importance of the underwriting and pricing mortality assumption for the elderly. In this two-part seminar, industry experts explore underwriting techniques used today in selecting and rating risks at the older ages, plus factors used in determining a preferred risk at these ages. In addition, current older-age research and industry mortality experience data available to the pricing actuary will be presented, along with views on the wearing off of underwriting.

What's New with Equity-Oriented Life Products?

An overview of recent developments in the variable life and equity-indexed universal life marketplace, including enhanced Guaranteed Minimum Death Benefit (GMDB) guarantees, and the emergence of living benefit guarantees will be provided in this session, as well as, insights into trends in product features and distribution.

Hot Topics in Fixed Annuities

Despite economic and regulatory pressures, insurers continue to sell large amounts of fixed annuities. Product development actuaries continue to seek cutting-edge solutions for products that are both compliant and competitive. Industry experts discuss the hottest-selling designs under the new Standard Nonforfeiture Law and the newest trends and innovations in the EIA market.

Term Mortality and Persistency

This session will cover theories predicting the impact lapse rates have on mortality after the level premium period on term products, along with recent industry studies on mortality and lapses and the impact lapse and mortality rates have on profits.

X-Factor Opinions

Since 2000, companies have been required to file X-factor opinions. Certainly, lessons have been learned. Perhaps you're wondering how the analysis process has evolved or what feedback regulators have given. This session will present techniques and approaches intended to improve the processes, analysis and reports for X-factor opinions.

Payout and Income Annuities

Due to the aging of the baby boomers and the wealth they've created, single premium immediate annuities (SPIAs) are positioned to be an increasingly important part of an insurance company's product portfolio. This session will cover the value of SPIAs for individuals who do not want to outlive their assets, new features to improve the attractiveness of SPIAs, mortality arbitrage and the SPIA market. ☐

More Photos From The Annual Meeting in New York

Above: *Interrupting their breakfast to pose for the camera are section council members.*

Standing left to right: *Doug Robbins, Elinor Friedman and Susan Kimball.*

Sitting left to right: *Nancy Winings, Keith Dall, Mary Broesch, Kevin Howard and Abe Gootzeit.*

Left: *Outgoing chairperson, Kevin Howard, welcomes section members to breakfast at the New York Marriott Hotel.*