



# Product Matters!

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

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## Comments from the Chair

### Responsibility and the Product Development Actuary

by Abraham S. Gootzeit

I have been a consultant for 18 of my 31 years as an actuary; I pride myself on being able to see multiple perspectives on a variety of issues. This enables me to work in many situations, easily slipping between one side of an issue and another.

Through the years, I've heard the occasional comment about my lack of conviction, and unwillingness to take a strong position on the hot insurance and actuarial issue of the day. The most recent example of my ability to see all sides (or unwillingness to take a position) is with respect to secondary guarantee universal life insurance.

What an exciting time to be a product development actuary. We are in the middle of one of the most intricate, exciting and contentious issues to face the life insurance industry in years. This new product offering allows us to use all the tools in our arsenal—both technical and business skills. We can design the products, determine profitability, interpret complicated reserve rules, communicate effectively within our companies, and discuss passionately within the industry and profession.

The Product Development Section co-sponsored a three-session embedded seminar covering secondary guarantee universal life insurance during the Spring Life Meeting in New Orleans. The speakers displayed all the skills an effective actuary needs to possess. We listened to passionate, well thought-out presentations and discussions from leaders of



life insurers representing all sides of the issue. We also heard from an investment analyst, a state regulator, the general counsel of the American Academy of Actuaries, and the president of the SOA. I enjoyed the sessions immensely, and achieved a renewed pride in being an actuary.

I also wished we had identified one additional topic to address—responsibility. Before I go further, let me pull out my trusty (online) dictionary and quote a couple of the definitions:

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*Responsibility*: the state, quality or fact of being responsible; something for which one is responsible; a duty, obligation or burden.

*Responsible*: characterized by trustworthiness, integrity, and requisite abilities and resources; able to choose for oneself between right and wrong.

To whom are we burdened with the duty and obligation of responsibility? That would seem easy, we are responsible to the principals that hire us; we must be effective advocates for their positions. We must also be responsible to ourselves and other publics, choosing between right and wrong, and only taking defensible positions.

In complicated insurance issues, it can be difficult to determine what is right or wrong. In representing our principals, our advocacy sometimes means winning at all (or most) costs. Our comments sometimes include phrases like “of course” (indicating, to me, that other perspectives and points of view are incorrect).

I believe there are additional aspects to being responsible. I suggest we give increasing attention to being responsible to our

industry and profession. By the time you read this, a secondary guarantee UL reserving compromise may be in place. It was (is) a hard fought and emotional battle; I hope the scars heal quickly, and the next battle is far off.

The life insurance industry and professional actuarial associations are vitally interested in our ability to identify and resolve issues professionally, responsibly and efficiently; let's keep them in mind. We should respect and comply with the intent and spirit of regulations and rules. We should not assume that older regulations are designed to apply in newer, unintended situations—it might be time to begin a fresh dialog. Let's stay open minded, and try to avoid black-and-white perspectives. Most importantly, let's resolve industry and professional issues internally, quickly and efficiently; we don't want our inability to compromise to invite outside intervention.

I suggest we look for responsible solutions—those that satisfy the industry and profession, as well as ourselves and our employers.

You know, seeing various perspectives on complicated issues suits me just fine! □



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## Letter to the Editor

*In response to recent articles about mortality in this newsletter, particularly about mortality at high ages, I have the following observation about the 2001 VBT table. For the 2001 VBT table, male ultimate age mortality at ages 90-100 is approximately 102 percent of the 2001 U.S. Census population mortality. However, female ultimate age mortality for the same ages is approximately 80-95 percent of the 2001 U.S. Census population mortality. The male data was based on the Veterans Administration WWII program (NSLI) experience at ultimate ages. Corresponding female data at these ulti-*

*mate ages, was not available and was based on extrapolation. Female mortality in the select period of attained ages 90-100 is also significantly less than the 2001 Census. A somewhat less pronounced pattern for ultimate mortality also exists for the 1975-80 and 1990-95 SOA tables. Given that often greater than 50 percent of volume for issue ages 70+ is female, one conclusion is that it could make sense to use a different percentage of the VBT table for males versus females at these high ages. □*

*— Edward Hui*

# Term Mortality and Lapses

by Jeffery T. Duker



**I**would be surprised if there is a term insurance market in the world today more complex and competitive than the U.S. market. It was not always this way.

Prior to the mid-late 1970s, a new issue was rated either standard or substandard. There were no smoker/nonsmoker distinctions. Super-preferred/preferred/residual classes did not exist. Term premiums varied only by gender and attained age—ART, five- and 10-year renewable and convertible.

Term Wars I (TWI) was launched in the late 1970s with the introduction of select and ultimate premium structures. Initially, these were select and ultimate ART plans, but they quickly evolved into what was then a more tax efficient design—increasing (or graded) premium whole life (IPWL or GPWL). IPWL had S&U ART-type rates for 20 years or so with a very high level premium for life, thereafter.

TWII started in the late 1980s with products similar to today's—level premiums for n-years, followed by much higher ART rates. A typical early TWII product might have had one preferred and residual class for non-smokers and one or two smoker classes.

By the mid-1990s some companies had split the nonsmoker or non-tobacco classes into as many as five super-preferred/preferred classes and one residual class. The number of smoker/tobacco class splits has been more modest—generally no split or just one preferred and one residual class.

Accurately anticipating policyholder lapse and mortality experience has always been key to pricing or projecting profits for term plans. But past experience provided little or no help in predicting the future at the outset of either TWI or TWII. Even today, it is hard to impossible for most actuaries to find good, credible experience data, particularly for mortality.

Credible lapse experience is much easier to obtain than credible mortality experience, but it still takes years for a complete picture to emerge. As expected, companies see a sharp spike in lapse rates when premiums spike up after the level premium period. At Session 63 (Term Mortality and Persistency) of the SOA's Spring Meeting in New Orleans, George Hrischenko of Transamerica Re said they are seeing total termination rates of about 80 percent at the end of 10- or 20-year select periods, with smaller total decrement rates for a five-year term where premium increases after the level premium period are less dramatic. Other companies have reportedly seen somewhat different lapse patterns, e.g. 60 percent in year 10 and 50 percent in year 11 of a 10-year level premium plan. Persistency during the level term period is comparatively much better, with the lowest lapse rates occurring for the best risk classes, older issue ages and the longer level term periods.

Developing assumptions for mortality is much tougher and currently involves a great deal of speculation and professional judgment. For example:

- There is no ultimate experience and not much more than about 10 years of select experience consistent with today's underwriting criteria.

- Nobody really knows how preferred/residual ratios change over time. In fact, we still are not certain how smoker/non-smoker ratios behave over the entire select and ultimate period.
- Related to the prior two points, there is debate among actuaries about how aggregate mortality rates will increase over the select and ultimate period. The most recent SOA mortality study, distributed at the 2004 annual meeting, provided A/E's for both 2001 VBT and 1975-80 expected bases. Each expected basis has its fans and critics as being representative of the slope of aggregate (or, in the case of the 2001 VBT, also smoker/nonsmoker) mortality, and some are not comfortable with either.
- Differences among companies in the number of and/or underwriting criteria for preferred and residual classes create opportunities for policyholder anti-selections that are very difficult to quantify.
- For companies that assume future mortality improvement, is it likely that historical rates of improvement will apply to the future? Even if you think the answer is "yes," judgment is needed to determine the period over which to measure the historical improvement rates that are supposed to be representative of future rates of improvement.

Measuring historical improvement rates is not so easy either. Given the frequent changes in the companies contributing to industry mortality studies and changes in people's habits (e.g., the decreasing prevalence of smoking), it is a real challenge to find consistent data from either industry studies of insured experience or population tables which can be used to ascertain historical improvement rates. Then there is the issue of how longevity gains from past improvements in medicine and public health measures will compare with the gains that current and future biomedical research might produce.

- Most, and maybe all, actuaries expect substantial mortality anti-selection after the level premium period when gross premiums increase dramatically and most remaining policies lapse. I will elaborate on this issue below, since it

was one of the topics discussed during Session 63 in New Orleans.

The SOA is working to fill in some of the gaps in our knowledge. Tom Rhodes, who chairs the Individual Life Insurance Experience Committee, said during Session 63 that the current data call for the next industry mortality study asks companies to (a) identify their multiple preferred and standard classes, and (b) provide additional plan information, including information needed to study lapse rates for level premium term business. To further encourage companies to contribute data to the study, Tom also made it clear that the MIB, which does the mortality studies for the SOA, can accept data in almost any format. Longer term, the SOA hopes to get companies to contribute more detailed underwriting-related data that can be used to define and measure mortality for different preferred and standard classes.

A substantial paper could be written about each of the points listed above, and some have—e.g., see Steve Cox's article, "Does Preferred Wear Off?" and Doug Doll's article, "Mortality Table Slope—The Discussion Goes On," both in the July 2004 issue of *Product Matters!* For the remainder of this article, I will provide some additional discussion on the topic of mortality beyond the level premium period.

I have been told that the three most popular approaches for setting mortality assumptions after the level premium period are:

1. SWAG or WAG—(Sophisticated) Wild A\_\_ Guess
2. (B-K) Becker-Kitsos
3. (D-M) Dukes-MacDonald

Since both B-K and D-M involve their own SWAGish elements, I will skip over the pure (S)WAG approach, although some of my remarks may be of interest to its adherents.

The first point I would like to note is that there is not a single D-M or B-K approach. Doug Doll identified three variations of D-M in the July 2003 issue of *Product Matters!* and I am aware of two variations of B-K. For both B-K and D-M:

continued on page 6

- Lapses in excess of some set of baseline rates are assumed to be anti-selective.
- Total deaths for the excess lapse group (“reverters”) and those who do not lapse (“persisters”) must equal expected deaths with baseline lapses (conservation of deaths).
- You need to make an assumption for “reverter” mortality.
- Then you can use conservation of deaths to solve for expected persister mortality. One consequence of conservation of deaths is that the anti-selection will wear off  $m$  years after the last excess lapse, where  $m$  equals the select period for the base mortality table. It seems to me that this internal consistency with the base mortality table also represents one advantage of B-K and D-M over a pure (S)WAG approach.

For purposes of illustration, let’s suppose that:

- D-M calculations assume that  $n\%$  of excess lapses at attained age  $x+s$  (duration  $s$  for issue age  $x$ ) are fully select and that the remaining  $(100-n)\%$  percent have mortality equal to what persister mortality would be if there were no excess lapses at ages  $x+s+t$ ,  $t = 1, 2, 3, \dots$ . I believe this is what Doug Doll calls “Method 2” in his July 2003 article. The formulas become somewhat involved when excess lapses occur at more than one duration. Formulas for  $n\% = 100\%$  were presented in the original D-M paper in the 1980 TSA.
- B-K calculations assume that reverter mortality for excess lapses at age  $x+s$  equals:

$$q_{[x+s]+t-1}^r = F(t) * q_{[x+s]+t-1}$$

$$F(t) = 1 + G(t) * R * [(q_{[x]+s} / q_{[x+s]}) - 1]$$

$G(t)$  grades from 1.0 for  $t=1$  to 0 for  $t=16$ , the first ultimate duration. For purposes

of the sample calculations, I have assumed that this occurs linearly.

$R$  is a parameter that controls the level of reverter mortality—smaller values of  $R$  translate into lower levels of reverter and higher levels of persister mortality.

In the original B-K article, they recommended that  $R$  be between 0.2 and 0.4.

I believe this is the original formulation of B-K, except that I have omitted an accidental death refinement.

- Male, issue age 40
- Base lapse rates = 10 percent per year, annual mode
- Base mortality = 1975-80 S&U, ALB
- Total lapse rates = base lapse rates, except for policy years 10-13
- Total lapse rates (QW) equal 85% or 90% in year 10 and 30%, 20% and 15% for years 11, 12 and 13, respectively.

Resulting persister mortality as a multiple of base mortality is shown in the table on page 7 for selected policy years of a 10-year level premium term product and a few choices for  $n\%$ ,  $QW_{10}$  and  $R$ .

The table gives some indication of the sensitivity of post-level premium period mortality to the choice of parameters and to the level of excess lapses. Not surprisingly, decreasing expected reverter mortality increases expected persister mortality.

To estimate reverter or persister mortality, it strikes me that it would be very useful to know:

- The fraction of the in-force at the end of the level premium period that would fall in each underwriting category, including various levels of substandard, if subjected to underwriting at that time. The answer would almost certainly vary by gender, issue age, underwriting class at issue and length of the level term period.
- The relationships between (a) the premiums payable by persisters after the level premium period and (b) corresponding new issue ART or level premium term premiums.

If all policyholders could act rationally, then the persisters would consist solely of people who (a) still wanted insurance coverage and (b) for whom the very high persister premiums were lower than they would pay if they were underwritten and issued a new policy. For example, if persister premiums were roughly 500 percent of a new issue residual premium, then you would expect only those who would be rated Table 16 or higher, if re-underwritten, to persist. I would expect that to be a small percentage of the in-force at the end of the level premium period before the shock lapse, which would imply a very high total lapse and very high mortality for the few persisters.

Since actual total lapse rates are lower than I might expect based on the rational policyholder theory and some of the premium relationships I have seen, it would seem that many of the persisters either do not react immediately to the premium increase due to some sort of inertia, do not notice the premium increase, which seems hard to believe, do not think the increase is excessive, or are under some constraint (e.g., subject to the terms of a divorce settlement where the policy is in an irrevocable trust) that does not allow them to lapse.

Regardless of the reason(s) for why it occurs, this better-than-expected persistency makes it harder to estimate mortality for either persisters or reverters. Still, it seems hard to believe that there would not be a strong bias toward the healthiest lives terminating their coverage, which is implicitly assumed for both B-K and D-M. But the actuary, maybe in collaboration with the underwriter or medical director, has to exercise judgment in setting the parameters so that the result seems reasonable.

Given the uncertainties, it would seem natural for actuaries to:

- Limit coverage to the level premium period. But the high post-level premium period premiums and potential for additional profit might be enticing. Restricting coverage to the level premium period might also have an unfavorable impact on GAAP income. And, of course, the option of extending coverage beyond the level premium period, even at very high rates, might be a valuable option to policyholders.

Comparison of D-M and B-K Anti-Selection Multiples								
Policy Years	Dukes-MacDonald				Becker-Kitsos			
	QW <sub>10</sub> =85% n%=100%	QW <sub>10</sub> =85% n%=90%	QW <sub>10</sub> =85% n%=80%	QW <sub>10</sub> =90% n%=80%	QW <sub>10</sub> =85% R=0.2	QW <sub>10</sub> =85% R=0.3	QW <sub>10</sub> =85% R=0.4	QW <sub>10</sub> =90% R=0.3
1-10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	3.85	2.71	2.14	2.40	3.28	3.00	2.71	4.19
12	4.20	2.91	2.27	2.53	3.30	2.85	2.40	3.90
13	4.35	2.98	2.31	2.58	3.27	2.74	2.21	3.71
14	4.35	2.97	2.30	2.55	3.18	2.61	2.04	3.51
15	4.12	2.81	2.19	2.43	2.94	2.37	1.82	3.16
20	3.74	2.50	1.95	2.16	2.79	2.36	1.97	3.25
25	2.87	1.95	1.59	1.72	2.46	2.29	2.14	3.26
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

- Do sensitivity testing. Some candidates for sensitivity testing might be (a) the level of total and excess lapses and (b) the values of n percent (D-M) or R (B-K), including the possibility of variations by issue age, duration of excess lapse, and the magnitude of current and prior excess lapses and (c) profitability assuming no profits beyond the level premium period.

Over the next few years an increasing amount of experience will emerge, which should help reduce the magnitude of the uncertainty, at least for companies which have access to that experience. □

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# Equity-Indexed Universal Life

*“The Devil’s in the Details”*

by David J. Weinsier



**E**quity-indexed universal life (EIUL), while having existed since 1997, appears to finally be in a position to cause a legitimate wave in the marketplace. Carriers looking to capitalize on the recent surge of equity-indexed annuity sales (EIA) are poised to enter the EIUL market. Low interest rates and choppy equity markets, along with consumer jitters that continue to cast a cloud over the variable markets ever since the stock market bubble burst five years ago, make for near-perfect economic conditions for equity-indexed products.

The EIA market has shown that a product featuring potential upside accumulation indexed to the equity markets, combined with downside protection, can carry plenty of appeal in the eyes of the consumer. Of course, it should be acknowledged that relatively high compensation has also been a contributing factor to healthy EIA production figures.

Despite relatively low sales to date (Exhibit 1), many believe the EIUL market is well positioned to follow the same upward sales trend experienced by EIAs, thus increasing market

share amongst current life stalwarts (Exhibit 2). Currently the EIUL market is dominated primarily by one carrier with several others trying gain market share. There is reason to believe that several major players will be entering this marketplace by the end of 2005, potentially changing the competitive landscape of this product. Those poised to enter the market typically come from one the following pedigrees.

### 1. VUL carriers

Some VUL carriers are looking to move into alternate distribution channels. As EIUL products are non-registered, they do not typically compete with VUL distribution. A VUL carrier looking to expand sales can enter this space while likely avoiding significant channel conflict and taking sales away from their “bread-and-butter” product line. The primary hurdle to entering the EIUL market may be an administrative system that must be overhauled to accommodate such a product.

### 2. EIA players

EIA players wish to leverage their product knowledge and hedging capabilities to gain efficiencies on the life side. While both of these factors give them a head start to success, the additional moving parts and required capabilities required for a life product (e.g., need for sales illustrations) can lead to bumps in the road on the way to market entry. It is also worth noting that annuity-oriented distribution systems have historically experienced challenges selling life product.

### 3. UL sellers

Companies that derive most of their sales from general account UL, a close cousin to EIUL, may be best positioned in terms of speed to market due to many of the required



administrative capabilities already having been set up. Of course, tracking the equity markets, setting up hedging capabilities, and training agents on a new concept can take time, effort and care.

When appointed to bring an EIUL product from concept phase to market roll-out, several unexpected challenges specific to this product have a tendency to rise up along the way. In this article, we will examine decisions that must be made during the design phase, introducing common hurdles that tend to develop, as well as questions that must be answered.

The key to product design is to achieve a reasonable balance between product complexity and the availability of value-added options. Representation from your product implementation team should be involved early in the design stage so that administrative capabilities are fully understood and features aren't promised which are particularly troublesome to implement. The following policy features and methodologies must be defined while always keeping the aforementioned balance in mind.

#### *Method of Crediting*

Virtually all EIUL products available today use an annual reset (i.e., ratchet) structure. Index interest can be credited on a point-to-point basis or via an averaging formula. The former is simpler to administer and understand from an agent/policyholder perspective, but the latter will allow for a higher participation rate or cap.

#### *Participation Rate*

Recently most carriers have moved to offering a 100 percent guaranteed participation rate. While those involved in product development realize that the participation rate simply serves as a balancing item between the option budget and cost of the comparable index option needed to hedge the liability, many agents and policyholders continue to hold the perception that a participation rate of, say 75 percent, implies the carrier retains 25 percent of the index gain as profit. While initial

players in this space made failed attempts to explain this concept to agents and policyholders, companies today have realized that the 100 percent participation rate makes the most sense, and instead allow an alternative feature (e.g., the index cap) to change along with derivative costs.

#### *Index Cap*

As mentioned above, the cap has become the primary "moving part" when pricing EIUL. A minimum cap is defined in the contract while the carrier sets a current cap at issue and reserves the right to reset the cap, typically once per anniversary. While an annual cap has served as the standard to date, a recent trend in the EIA market is to offer a monthly cap (e.g., 3 percent per month), allowing the (unlikely) possibility of a 36 percent annual return, which far exceeds the typical 12 to 15 percent annual cap. It also should be noted that some state regulators have frowned upon policy designs featuring both a non-guaranteed participation rate and cap. Thus most products define one as guaranteed (typically the 100 percent participation rate) and allow themselves to adjust the other to fall in line with current derivative costs.

#### *Guaranteed Rate*

Guaranteed rates in the marketplace generally range from 1 to 3 percent per annum. A leading seller of EIUL features a 2 percent *cumulative* guarantee over a five-year indexing period. This implies that the index gains would have to return less than a cumulative 10 percent return at the end of five years in order for the guarantee to be in the money. Such a feature can result in lowering the cost of the guarantee, thus providing a larger option budget than an equivalent product with an annual guarantee.

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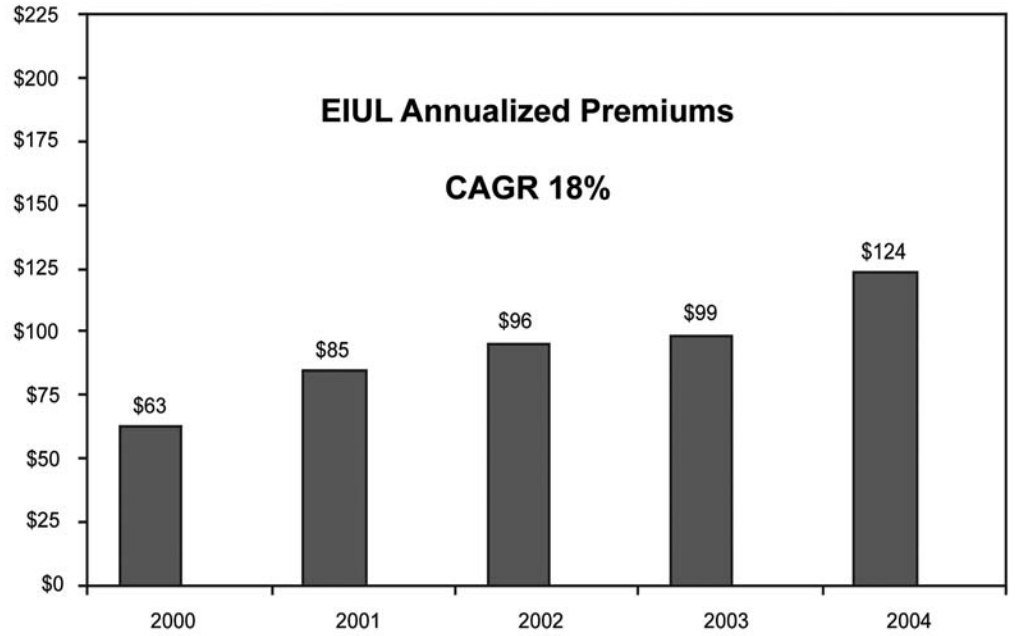
**The key to product design is to achieve a reasonable balance between product complexity and the availability of value-added options.**

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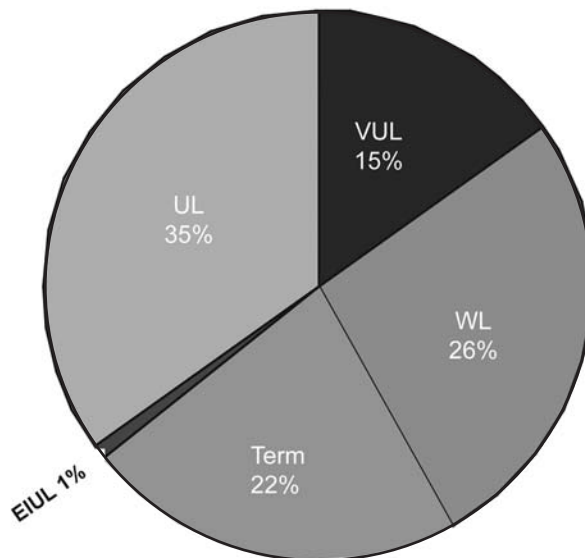
### Exhibit 1

\$ millions



### Exhibit 2

#### 2004 Life Market Share Based on Sales



Source: LIMRA

*Index*

While the S&P 500 has historically been the index of choice for equity-indexed products (primarily due to the viable option market), some EIA products offer policyholders the option to participate in alternative indices. It is expected that EIUL carriers, particularly those able to leverage off such a feature as part of their EIA portfolio, will follow suit.

*Timing of Transactions*

A decision must be made as to how many indexed buckets will be established. In other words, how frequently will a policyholder's premium be transferred to the indexed account? Annually, quarterly, monthly, bi-monthly and daily can all be found in the marketplace. Allowing for frequent transfers can carry more marketing appeal and may keep you from having to establish a short-term fixed account to hold premium prior to the next transfer date. Less frequent transfers leads to better matched hedging.

Some plans base index segments on policy dates (e.g., monthaversaries) while others are based on calendar dates (e.g., 15<sup>th</sup> of each month). The former typically favors the policyholder, especially when premium is paid on a consistent date, while the latter allows for a better matched hedge for the carrier, due to the fact all policies' premiums can be swept into one pool to be hedged.

*Fixed Account*

Due to its sales appeal, offering the policyholder the ability to apply a portion of each premium into a fixed (i.e., non-indexed) account within an EIUL product has become a "must-have" feature. Unfortunately for the actuary and product implementation team, this feature does introduce some unique challenges, the degree of which depends at least partially on answers to the following questions:

- Will fund transfers be allowed between the fixed and indexed accounts? If so, how frequently (warning: unlimited transfers could lead to anti-selection, as well as leaving you over or under hedged)?
- How will monthly charges be deducted? Will they be taken only from the fixed account or from both the fixed and

indexed account based on fund value? Will charges be deducted from each bucket on a pro rata basis, or LIFO, based on the bucket in which the last premium was applied to?

- Interest on the fixed account is typically credited on a monthly basis. Will interest in the indexed account, which is credited annually based on index gains, be based on average fund value over the indexing period or fund value just prior to the bucket anniversary?
- From which account will loans and withdrawals be deducted?

It is my experience that while the questions above are far from top of mind during the initial design stage, many a project plan has experienced significant delays due to the administrative complexities they can bring about.

*No Lapse Guarantee*

Due to the recent surge of sales of general account UL products featuring lifetime NLGs, some carriers have decided to include such a feature on their EIUL products as well. The upside of additional sales brought on due to the appeal of this feature needs to be weighed against the following:

- Is this feature appropriate on a product typically used for accumulation, as opposed to protection?
- The cost of the feature attached to an EIUL is higher than a UL product due to the lower guaranteed rate.
- How will index credits be applied when the fund value falls below zero?
- How will reserves be impacted?

**Summary**

Due to the surge in sales of both EIAs and UL products in recent years, it is anticipated that many more companies and products will infiltrate the EIUL marketplace by the end of 2005. This means we should anticipate innovative product designs and increased competition in the near future. Those carriers that can most quickly answer the questions and avoid the speed bumps raised above will improve their speed to market and have a leg up on their competition. □



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# NAIC 2005:

## The Start of a Busy Year

by Donna R. Claire



**I**t appears that 2005 may be the year that major steps are taken toward principle-based as opposed to formula-based reserves and capital requirements. There were several times when regulators asked the question, “How would this project impact principle-based reserves?” A number of regulators do not want work being done that would distract from an ultimate goal of reserves and capital that better reflect the actual risks of the company as opposed to only being based on formulas.

This article summarizes my take on the March and June 2005 Life and Health Actuarial Task Force (LHATF) meetings, as well as some other National Association of Insurance Commissioners (NAIC) meetings.


### **C-3 Phase 2 – Risk-Based Capital**

A step toward the principle-based system is the C-3 Phase 2 addition to the risk-based capital formula, which was adopted by the NAIC’s Capital Adequacy Task Force at the June 2005 meeting. (Note that the Executive

and Plenary Committees still have to approve this document in order for it to be officially adopted, and this will not take place until the September meeting.) The RBC changes would apply to all variable annuities and are effective for year-end 2005. The C-3 Phase 2 of RBC generally requires stochastic testing. This stochastic testing would need to be done calculating a conditional tail expectation (CTE90) (averaging the 10 percent worst results). This gives recognition to the fact that the risk of the guarantees in variable annuities is in the tail—rates being too high or too low, depending on the type of guarantees. There are alternative minimum factors available for companies with simple guarantees who do not want to spend too much time modeling, but the limitations on the use of these factors make it unlikely that many companies will use these alternative minimum factors for long.

Although there are guidelines for the scenarios, most of the assumptions to be used in the testing are left to the actuary’s prudent best estimate. This puts a lot of responsibility on the actuary.

The NAIC Capital Adequacy Task Force also adopted a “standard scenario” that all companies must use as a floor. There were a number of letters stating that the standard scenario was not a good idea, since a single scenario cannot capture the risks of a particular company’s product and assets. However, the regulators felt that, at this time, they at least want to use this one scenario for all companies until they get some feel as to how aggressive a company’s own modeling assumptions may be; i.e., they want to make sure this baby can walk before they will allow it to run. In discussions with several regulators, they expressed the possibility that the standard scenario requirement may be dropped in the future if they believe that actuaries are doing a proper job.



The American Academy of Actuaries' (AAA) work on this project spanned several years, and was spearheaded by Bob Brown and Larry Gorski with significant contributions from many people including Geoffrey Hancock, Tom Campbell, Dennis Lauzon, John O'Sullivan and Jim Lamson. The C-3 Phase 2 report is available from the AAA at [www.actuary.org](http://www.actuary.org).

### Reserves for Variable Annuities

There is a proposed actuarial guideline that would require reserving to be done on a consistent basis with the RBC C-3 Phase 2 with certain changes to reflect that it is dealing with reserves, not capital. Tom Campbell chairs the AAA Variable Annuity Reserve Working Group. The AAA group has produced a report as well as worked on the proposed guideline. The report on this is available at [www.actuary.org](http://www.actuary.org).

One of the differences between the reserves and risk-based capital would be the conditional tail expectation percentage. The Academy report currently uses CTE 65 (which means that one would average the results of the worst 35 percent of scenarios). The New York regulators have proposed that CTE 80 be used instead. Another proposed change by the New York regulators would be to have a capital markets option value of liabilities as a floor in addition to a seriatim standard scenario floor that would be similar to the standard scenario floor for RBC.

LHATF will have a conference call on some of the details of the guideline. The guideline is exposed for comment, and the expectation is that it will be in place for 2006 (not 2005). The delay is, in part, because there are some outstanding issues, and it was felt that companies would want to know what the reserve level is at least six months before the end of the year in order to implement the change in reserves.

### Update to Actuarial Guideline 38

The proposed revisions to Actuarial Guideline 38 continued to provide passion at LHATF meetings. At the June NAIC meeting, LHATF

voted to adopt an updated AG38, which strengthens the formula for reserves that must be established for pre-funding of a secondary guarantee in a universal life product, effective for policies issued after June 2005. It includes the compromise suggested by an industry group, which sunsets the formula in 2007. LHATF recommended to its parent committee (the A Committee), that they defer adoption of the change until they have studied it, so the A Committee received the LHATF report and proposed a public hearing on this subject.

### Nonforfeiture for Deferred Annuities

There have been some interesting discussions on the proposed model regulation to go along with the new law change that allows the minimum nonforfeiture rate on deferred annuities to be adjusted according to the rates on Treasuries. At the June LHATF meeting, a regulator, expressing frustration at the lack of agreement on certain aspects of the regulation and its complexity, especially as it pertains to equity-indexed annuities that also have fixed buckets, made a motion to scrap the whole project and instead go back to the law and come up with a single interest rate to be used as a minimum. After some lively exchanges, this motion was defeated in a close vote (six to five, with three abstentions).

One suggested alternative to how EIA/fixed bucket policies should determine a minimum is to have separate minimum interest rate guarantees for the money in each EIA/fixed bucket. During an earlier conference call some regulators expressed doubt that this would be allowed under the current law, but subsequent research showed this may be allowed. A second alternative is to develop a single interest rate for each policy based on the percentage of money in each EIA/fixed income bucket at the beginning of each year. LHATF will have a conference call to work out the details on how to determine a minimum nonforfeiture rate for combo EIA/fixed bucket products.

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**...LHATF voted to adopt an updated AG38, which strengthens the formula for reserves that must be established for pre-funding of a secondary guarantee.**

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continued on page 14

## SVL II – Possible Revisions to Reserving:

There is an AAA group headed by Dave Sandberg that is working on revising the Standard Valuation Law to be more principle-based versus formula-based. Reports were given at both the March and June NAIC meeting on this.

At the June LHATF meeting, Dr. Allan Brender, who is the senior director, actuarial division, Office of the Superintendent of Financial Institutions in Canada, was a guest speaker. He concentrated on the process of independent actuarial peer review in Canada. Once every three years, each company in Canada is required to have an independent actuarial consultant review the assumptions and modeling used to determine the level of reserves and capital. He believes the process is working. The peer review process is likely a necessity if the United States adopts a more principle-based approach to reserving.

## Update to the Standard Nonforfeiture Law

To go along with changes in the reserving, there is also an AAA group that is exploring updating the nonforfeiture laws to accommodate more flexible, multi-benefit products. This AAA group has been reporting each quarter to LHATF. At the June meeting they reported that they are working with the tax group of the AAA to determine the possible tax implications of various proposals. Several brief reports from this group are available on the AAA's Web site.



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## UL Working Group

At both the March and June LHATF meetings, updates were given of the AAA's Universal Life Work Group, that is working on a principle-based approach for reserving for certain life products. This group is headed by Dave Neve.

The revisions to reserving could be made to accommodate newer UL and term products, but could also be used for reserving all life products. The overall framework is that reserving would be based on the greater of the results of a single deterministic reserve

and a stochastically derived reserve if needed. This would be similar to asset adequacy testing, but with greater controls over the assumptions used. The assumptions underlying the deterministic reserve are not locked. LHATF will have a conference call to discuss guidance on policyholder behavior and asset assumptions.

This is a very active group, with sub-groups looking into the methodology, modeling, mortality, economic scenarios, policyholder behavior, expenses and reinsurance. The work of this group got a boost when the ACLI voted to support principle-based reserving. The goal of the AAA group is to have proposals available by 2007. Reports from this group are available on the AAA's Web site, [www.actuary.org](http://www.actuary.org).

## Preferred Mortality

LHATF voted to work on developing a preferred risk mortality table or tables. This will support the work on the principle-based reserving, because it will give companies more information on the industry preferred mortality. There is a possibility that this work can be used to support lower reserving for certain policies under the current AG38 also. The project will include substantial assistance from the SOA and the AAA.

The SOA is currently doing a data call. They have some data available from 20 companies. They hope to have 50 companies contributing data. The AAA was asked to assist in developing a basic table, as well as rules as to when the preferred tables can be used. Note: if anyone is interested in working with the AAA group, please let Amanda Yanek at the AAA know. Her e-mail is [Yanek@actuary.org](mailto:Yanek@actuary.org).

## GRET Table

The SOA has done work on a new Generally Recognized Expense Table to potentially be used in life insurance sales illustrations. This report should be available soon from the SOA or NAIC. The factors have large differences from the factors currently being used, so if your company is using the GRET factors, this new report should be examined. LHATF is expected to vote on approving these factors at a later meeting.

# Call for Actuarial Pioneers...

## Are You One?

by Jim Brooks, Chair of the Actuary of the Future Section

**T**hink of a pioneer as “someone who opens up new areas of thought, research or development, or one who ventures into unknown or unclaimed territory.” (Webster’s Dictionary)

The SOA’s current Image Campaign is based on the belief that the actuarial skill set has value that extends beyond technical analysis into other operational and strategic roles. We know there are actuaries demonstrating this expanded value today, thereby modeling the dynamic and relevant image of the profession we are seeking to promote.

Specifically, Actuarial Pioneers are:

- Outside the traditional sectors of insurance companies, reinsurance companies, and consulting firms applying their actuarial skill set to new, non-traditional roles such as chief risk officers, financial planners, entrepreneurs, personal actuaries, or

- Inside the traditional sectors, applying their actuarial skill set in non-traditional ways to become chief marketing officers, chief risk officers, CEOs, etc.

Pioneers who are identified will inspire the profession, create practical pathways for career development, and potentially serve as spokespersons to business leaders. They will be profiled through articles, Web sites and media releases.

The anticipated time commitment for a pioneer is small. Minimally, it will involve communicating some basic information to SOA staff, and at a maximum involve a few interviews for articles or media events.

Names and contact information are to be submitted via e-mail to *pioneers@soa.org*. Individuals are free to nominate themselves or recommend others. SOA marketing staff will follow up on each nomination. □

**ACTUARIAL  PIONEERS**

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### Summary

As the above shows, there are a number of projects LHATF is working on. Virtually all have the theme of giving companies more flexibility, which also means much more responsibility being given to the actuary. It is hoped that these changes will result in products that consumers want, with reserve and capital requirements at levels that are not

excessive, but that are sufficient, so that there can be fair prices for the products, while the companies still maintain a satisfactory level of solvency. □

# Lower Statutory Valuation Interest Rates for Life Insurance

by Brian Sprawka

**T**hanks to lower interest rates in the past year, the maximum statutory valuation rate for long duration life insurance products issued in 2006 will be 4.0 percent, marking the first change in 11 years. The reduction in the statutory valuation interest rate also causes the maximum nonforfeiture interest rate to decrease from 5.75 to 5.00 percent. However, there is a one-year grace period before nonforfeiture interest rate changes are mandatory. This article provides background information on the calculation of the interest rates and a brief discussion on the effect that changing interest rates will have on some typical life insurance products.

### Explanation of Interest Rate Calculations

Maximum statutory valuation interest rates depend on the values of “reference interest rates.” The “reference rate” for the long duration life insurance rate for 2006 is the minimum of the 12-month and 36-month arithmetic mean of the Moody’s Corporate Bond Yield Average (MCBYA) for the period ending June 2005. The current 12-month average of the MCBYA is 5.78 percent and the 36-month average is 6.25 percent. The final “reference rate” is adjusted through a formula (which varies by product guarantee) and is rounded to the nearest multiple of 0.25 percent.

Life insurance rates only change if the newly calculated rate is at least 0.50 percent different from the previous year’s rate. This requirement will make it difficult for the long duration life insurance rate to change again in the near future. For example, the long duration life insurance valuation rate will not change again in 2007 as long as the average MCBYA from July 2005 to June 2006 is between 4.78 percent and 8.74 percent. Changes in the statutory

valuation interest rate also affect the nonforfeiture interest rate because the nonforfeiture rate is equal 125 percent of the valuation interest rate rounded to the nearest multiple of 0.25 percent.

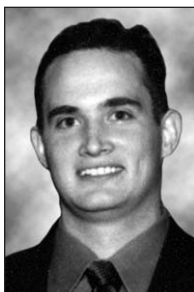
### Effects on Typical Life Insurance Products

In general, lowering interest rates cause reserves, cash values and deficiency reserves to increase, which in turn lowers profitability when measured by return on investment. While the precise effects depend on the product type and the specific design features, we can generalize about the effects on a typical design for three standard life insurance products: term, whole life and universal life.

For a typical term product, the valuation interest rate change will only result in a minimal increase in basic reserves. The effect on deficiency reserves could be more pronounced because the lower interest rate results in higher valuation net premiums and the existing premium deficiencies are discounted at the lower rate. For typical whole life products, the reserves and nonforfeiture values could increase significantly.

The impact on universal life varies significantly depending on the design of the product. For products with secondary guarantees, stipulated level premium designs have the highest deficiency reserves and are therefore the most affected while the impact on shadow fund and ART designs may be less pronounced. For cash accumulation universal life products with surrender charges, a 4 percent maximum valuation rate may increase the alternative minimum reserves.

The increases in reserves and cash values may incent companies to develop new products if profits are affected too adversely. Furthermore, companies may



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# Product Development Section

## Sponsored Research

by Ronora Stryker

Two new exciting research projects are currently underway to help meet the educational needs of product development actuaries. The first project examines the various product guarantees available in today's individual life insurance and annuity markets. In addition to the familiar mortality, expense and interest rate guarantees, new features have emerged such as no lapse/secondary guarantees included in universal life products and guaranteed minimum death benefits found in variable annuity contracts. Understanding these new features and their associated risks is important for product developers and the risk managers with whom they work.

The project, "Analysis of Product Guarantees," identifies the life insurance and annuity product guarantee features currently being sold and provides solutions to the following questions:

- What methods do product development actuaries use to analyze and quantify these various product designs?
- What are the insurance company risks associated with each of the product guarantee features?
- How are these risks being managed?
- How does each product guarantee feature impact policyholder behavior?

The Product Development Section has contracted with Victoria Pickering and John Glynn of Carstens, Glynn, and Pickering to perform the research. In addition to an extensive literature search, they surveyed

individual life insurance and annuity companies to understand the pricing techniques and risk management practices utilized by the industry. They have compiled the results of their research and are finalizing a report expected to be available this summer on the SOA Web site.

As a result of a growing interest in offering annuities on an underwritten basis, the second project, "Substandard Annuities," evaluates the current substandard annuity market and assesses the likelihood of market expansion. Other issues to be researched include, but are not limited to:

- Examining the risks and pricing implications related to offering substandard annuities.
- Identifying implications of an expanding substandard annuity market to current substandard annuity risk management and reserving methods and standards.
- Analyzing substandard annuity underwriting practices and comparing the substandard annuity practices to that of traditional life insurance.
- Identifying possible arbitrage opportunities between substandard annuities and life insurance.

Work is scheduled to begin soon with LIMRA International and Ernst & Young carrying out the research.

For more information on these projects, please contact Ronora Stryker, SOA Research Actuary, at [rstryker@soa.org](mailto:rstryker@soa.org). □



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### Lower Statutory Valuation... • from page 16

need to redraft product forms if the cash values change when the nonforfeiture rate decrease becomes mandatory. It is important that companies proactively attend to

these issues and the other effects of decreasing statutory valuation and nonforfeiture rates. □

# Life Settlements—Is There a Cause for Concern?

by Michael J. LeBoeuf



**L**ife settlements seem to be causing much concern in the life insurance industry at present. This concern is especially found among certain actuaries whose fears over life settlements are resulting in a loss of sleep, hair and the ability to concentrate on improving their golf game. Are these concerns valid? This article takes a look into the life settlement business to see if the concern is well founded or not. This article does not address the suitability issue for policyholders who are considering settling their contracts. Another area not addressed is investor-originated life insurance products, where the policy is applied for with the intention of “settlement.” These are topics that would take up whole separate articles.

### Life Settlements – Background

First of all, for those less familiar with this topic, let’s define a life settlement. According to the Viatical and Life Settlement Association of America, “A viatical and/or life settlement is the sale to a third party of an existing life insurance policy for more than its cash surrender value but less than its net


death benefit.”

Although not in the definition, the key condition to a successful life settlement transaction is that the present value of the expected death benefit must be higher than the expected cost of purchasing and maintaining the policy. Profitability for the life settlement investor is linked directly to the insured’s life expectancy. In general, the less time the insured lives following a life settlement, the less cost for the life settlement company to maintain the policy and the greater their return. For this reason, such products are usually marketed to older individuals, potentially in impaired health.

These products emerged in the early 1990s and have continued to grow over the past decade and a half. At present, it is estimated that there is \$13 billion of in-force settlement business. Further, optimistic projections have this business growing rapidly, due to several factors. First, it is fueled by the growth in individuals age 65 and older, a group growing three times faster than the total population. Second, lower interest rates have resulted in lower than expected cash values for life insurance products, rendering life settlements more attractive. Finally, the elimination of estate taxes would reduce the need for death protection at the later ages. It is this rapid growth expectation that has fueled concerns over this market.

### Why the Concern over Life Settlements?

Why are life insurance companies concerned over life settlements? If a life settlement company assumes a life insurance policy, the policy continues in force and premiums continue to be paid to the life insurance company by the life settlement firm. On the surface, it does not appear that there is any impact on the insurance company except for a change in the owner and beneficiary. However, this is not the case. Actuaries are concerned



that rapid growth in the life settlement market could have an adverse effect on the expected experience of a block of policies. Specifically, level premium product designs with low cash values, such as term and universal life with or without secondary guarantee coverage, are examples of products that may have profitability issues if long-term lapse rates decline below pricing levels. These products are also excellent candidates for a life settlement.

Lapse rates are an important variable in pricing life insurance products. The pricing actuary makes an assumption on the expected lapse experience for a block of business. Those concerned about the life settlement market worry that, given the option of entering a life settlement for a cash amount greater than the policy cash value, people will cease lapsing their policies. Under this scenario, lapse rates could effectively move toward zero, well below pricing assumptions, therefore compromising profitability.

Compounding this concern about lapse rates is the belief that the reduction in lapse rates will be more pronounced for unhealthy lives. The effect of this will be deterioration in the experience of the block of business. This also would undermine product profitability.

### **Are the concerns valid?**

While it appears that the life settlement market is a growing market, it is uncertain that it will grow rapidly as anticipated in the optimistic assumptions discussed above. Even if these optimistic growth assumptions were realized, life settlements would still be a relatively small percentage in relation to total life insurance in-force (currently over \$9 trillion). Given this small percentage, the risk of life settlements “ruining” the industry is probably not realistic.

Life settlements are a transaction driven by life settlement brokers and insurance

agents. Generally speaking, these brokers and agents target large policies to maximize their own income potential. The average size of a policy that is settled is \$1 – \$1.5 million. This high average policy size is due to inefficiency in the settlement business where only around 20 percent of policies submitted for a life settlement transaction actually close, as well as agents and brokers desire to satisfy their own economic needs. This high average policy size should minimize concentration of life settlement business in most companies, limiting the impact of life settlement business on emerging experience.

Looking at the impact on pricing assumptions, the impact on lapses would be generally limited to large face amount policies and not distributed throughout a block of business. In addition, the belief that everyone considering a lapse will opt for a life settlement is unfounded. Again, it is a broker/agent driven transaction. Life settlement companies will not drive the transaction for all policyholders, only those policies with large face amounts.

Further, the belief that unhealthy people were planning on lapsing their policies, but instead chose a life settlement, is also unfounded. It is this belief that fueled the argument that life settlements would result in the deterioration of mortality experience for companies. Companies may need to make minor pricing adjustments to respond to the changes in experience from life settlements, however, the impact should not be as significant as some fear.

Finally, if life settlements become a viable market for all consumers and for all size policies, we expect life companies will respond with product design changes to address this demand as was done with accelerated benefits about 15 years ago. So relax. Don't lose sleep, don't pull out your hair, life settlements are not coming to destroy the industry. Oh, and get back to work on that golf game. □

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**While it appears that the life settlement market is a growing market, it is uncertain that it will grow rapidly as anticipated in the optimistic assumptions discussed above.**

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# Insights from the Dark Side

## One Actuary's Experience in Sales and Marketing

An interview with Jon Davis, FSA,  
by Mike Kaster

*A long time ago, in a company far, far away...*

**K**ind of cliché, but in this case it is an appropriate analogy. As the final episode of the Star Wars saga is now playing across the country, many people are reflecting on the good and evil conflict that exists in many aspects of life. Actuaries for decades have traditionally had natural conflict with sales and marketing departments. Our training as actuaries has positioned us as uniquely aware of all aspects of traditional insurance, and as such we believe we know how things should work in sales.

When we meet individual sales professionals, we figure they are out for the wrong aspects of our world. Our intentions are pure and good, not unlike those of the Jedi knights. Thus those on the other side, the "Dark Side," must be evil. We must do as Yoda says: "Look inside yourself, you will know what is right."

If an actuary is turned to sales and marketing (or the "dark side"), we say a silent prayer for them and hope that they see the light some day. This conflict between good and evil, actuarial and sales, can sometimes lead to angst and anguish for many of us. One of our own "Jedi's," Jon Davis, was conflicted a few years ago and decided to join

the "dark side." Is this a bad thing, or is there hope for young Mr. Davis?

I had the opportunity recently to speak to Jon on two separate occasions and it appears that many of us could learn a great deal from those who have made the bold leap to "go where no actuary has gone before" (sorry for mixing my sci-fi analogies).

Jon started his career as an actuarial student working for an insurance company. He soon learned that product development was his forte. "I enjoyed working with all aspects of the company to lead the efforts to build profitable products that our agents would sell," he recalled.

Sounds like a good actuary, right? He eventually found himself at Conseco, where I work. He rode the wave during the high-flying 1990s, grew to take on bigger and larger areas of responsibility, and continued to learn more as he went along. "Many aspects of what we learn as actuaries can serve us very well in meeting customers' needs," Jon observed. "We know how to design products that are good for the customer, agent and company.

After having a number of different job responsibilities (12 job titles over 10 years), he found himself wondering what he should do next with his career. After considering a number of alternatives he decided to truly take a chance and join an independent marketing company.

Being a good actuary, he weighed the risks involved with this decision and the ultimate rewards. In Jon's case, the risk was not totally unknown. His family has an insurance agency and his desire to take a break from the corporate world was just what his brother needed to convince him to join the family business. But would Jon be able to maintain the strong qualities he learned during his Jedi training to not be seduced by the dark side? His entrepreneurial spirit caused him to desire independence and the ability to make his own success. "The lack of security with traditional employers today made this decision a little easier," he

recalled. So Jon made the jump and joined the family insurance agency.

Today, Jon is quite certain he made the right decision. "Working directly with sales people to help them sell quality products to customers is not only financially rewarding, but very satisfying," he observes. Jon now uses what he learned from his years in a home office to help his agency add value to agents by navigating through the maze that many insurance companies create for sales people. "Often I can simply explain to the agent the reasons for some of the difficulties they face, and they deem that to be a value-added service we can provide," says Jon.

Jon and his brother are now co-owner operators of the Davis Life Brokerage. Together, they function as an independent marketing organization (IMO) for several different carriers. Because of Jon's background, many of these companies have invited him to serve on their product development advisory councils. Companies enjoy working with Jon because they don't need to explain a lot about the process, they can just get good market feedback from Jon as someone a lot closer to the customer.

Some additional insights from our Jedi:

*On what he's learned from the independent world of insurance marketing:*

"Independent agents can do business with whomever they like. To be successful, you have to find a way to stand out and to build close relationships with agents. Agents need a lot of support. They know how to close a sale, but many need help with their overall business practices. Generating leads, understanding products, building tools to help the sales process, this is all the stuff that we can provide to make their job easier."

*On the changing insurance landscape:*

"Products today are becoming less and less important. Agents are looking for personalized care and attention, and addressing their needs is the most important priority."

*On the biggest mistake companies are making today:*

"Companies are not following the K.I.S. principle (keep it simple). Companies today, especially in the annuity arena, are creating

more and more complex product structures to try to differentiate themselves. This is making it more difficult for the agents and customers to understand. Companies need to keep the product simple and make it easy for the agent to explain to the customer what they are buying. The product does not have to be the most competitive, just reasonable."

*On how his actuarial training and experience is applicable to his current role:*

"During my many years working for companies, I learned a great deal about the internal workings of an insurance company. This has been helpful. I have a good idea of how to attack the problems our agents have with the company. They really seem to value that. But more importantly, I gained a broad and holistic view of all aspects of insurance, especially product development. I believe that actuaries are the one unique professional that can have this broad understanding."

*On how traditional actuaries can make themselves more valuable:*

"Actuaries are often criticized for having no understanding of what an agent has to do to make a living. This is a well-deserved criticism. Actuaries need to sit back and look at what the agent goes through to sell a policy. And companies today are not doing enough to make the process easier."

"We need to listen to agents. They are the ones that are sitting down with customers on a daily basis. They know best what they need in order to help the client in a time of need, which after all is the purpose of the products we sell. The customer isn't looking for something complicated, they want to understand what they are buying. Keeping things simple, this can win the day with many of our agents."

*On the importance of service:*

"Service is now king with agents. Few companies are giving good or excellent service. If a company could provide excellent quality service for the agent, they could win more business and not be forced to focus on offering the lowest priced, most competitive product in the market."



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# Is the Timing Right for Equity-Indexed Immediate Annuities?

by Susan J. Sell



**T**he popularity of equity indexed annuities (EIAs) has exploded over the last few years. According to Advantage Compendium, EIA sales in calendar year 2004 were \$23.4 billion, a 64 percent increase over 2003 EIA sales. New companies entered the EIA market, bringing the total number of companies that comprise the market up to 33. These companies have a strong understanding of how the equity index component works in a deferred annuity product. Systems, hedging and processes are in place to support equity-indexed products. Reps and customers have become more comfortable with EIAs, and their level of understanding has also increased. A logical progression in this market may be expansion into the income side of the business.

Is now the time to consider introducing an equity-indexed immediate annuity (EIIA) to the market? Currently, many carriers are focusing on the retirement income market. They are trying to figure out how to address the many issues that continue to haunt current payout annuity products. One issue

that the retirement income market faces is the lack of inflation protection. Single premium immediate annuities (SPIAs) generally do not address this issue, unless a costly cost-of-living rider is attached. Variable payout annuities do provide upside potential, but at the price of exposure to downside risk. Downside protection is available on variable payout annuities in the form of guaranteed payout annuity floor riders. Such riders may be costly. Further, there can still exist volatility of the variable payout annuity benefit from period to period at levels above the floor. Similar to the deferred EIA, an equity-indexed immediate annuity can provide upside potential with a guaranteed floor on the payment amount. EIAs are non-registered products under the same core principles as deferred EIAs.

How would an equity-indexed immediate annuity work? One approach is to calculate the base payment in a manner similar to the calculation of a SPIA payment, but with recognition of amounts needed for the EIA hedge budget. One way to reflect this budget would be to reduce the interest rate that is used to calculate the payment amount by an amount that represents the hedge budget (e.g. 1 percent). This base payment represents the minimum benefit amount that is payable for the duration of the benefit option.

One of the issues to consider in developing an EIIA is how the payment amount reflects the gain in the selected index. Several options are available, but the approach is likely dependent on the averaging method used to determine the gain. Another factor is the frequency of reflecting the gain in the payment amount. Payments could vary on a monthly basis (for monthly mode business) or could be held constant for a 12-month period and varied on an annual basis. The latter approach is similar to annual benefit stabilization methods used in variable

income products. The approach used to reflect the change in the index in the payment amount is not dependent on the frequency of reflecting the change. If there is no gain in the index, the base payment is not adjusted. This is the downside protection offered by the contract. Any index growth in the contract could be:

- a) Amortized over the remaining benefit period using then-current interest rates, or
- b) Amortized over the next year or the frequency of reflecting the gain in the payment.

The former approach increases all future payments by the same dollar amount. If the gain is not amortized over the remaining benefit period, there is a risk that payments could decline. Similar to variable income

payments, frequent ups and downs in the payment amount could be unsettling for payees.

One of the perceived barriers of income products, in general, is the lack of liquidity. Some level of liquidity should be considered for EIAs to improve their appeal to agents and policy owners.

In theory, compensation for EIA products should be higher than that paid on SPIAs. The product is somewhat more complicated than a fixed payout annuity. Ongoing service may be required to explain the changes in the payout amount.

Carriers have been trying for years to ignite the payout annuity market, and the market seems ripe for this opportunity with the current focus on retirement income. Perhaps equity indexed immediate annuities will be the spark needed to start the momentum. □



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#### Insights from the Dark Side... • from page 21

Does an actuary truly need to give up his or her Jedi Knight training received from the SOA to join the “dark side” of sales? The answer is clearly no, as Jon Davis has shown. His business today is growing. Success is truly occurring for this entrepreneur.

But did Jon truly go to the dark side? I think not. We can all learn a great deal from someone like Jon who can help us see there are many aspects of the business we don’t truly understand. Listening to the customer, making things simple, adding value, and

doing things right, these are all the attributes that we as actuaries seek to follow. Jon Davis is showing that working in sales and marketing is not at all evil. On the contrary, it is a very noble endeavor. We should all spend a day in the life of an agent; we could learn some very invaluable lessons. And we can become even stronger Jedies.

May the Force (of mortality?) be with us all. The Force is truly with Jon Davis. □

## U.S. Population Mortality Improvement

by Douglas C. Doll



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**E**arlier this year the CDC National Center for Health Statistics released “Deaths: Preliminary Data for 2003,” which received some press coverage because it showed new record life expectancies for the United States. I have summarized some of the death rates from 1987 through 2003 (the latest year for which data is available) and calculated mortality improvement rates for various periods.

Projection Scale G rates (one-half for females) are shown in the far right column as

a basis for comparison. These improvement factors are commonly used for annuity pricing. They also were used for creating the Annuity 2000 valuation table. These appear to be roughly consistent with the experience data, except that the improvement in the past several years has been lower for males ages 45-54 and for females ages 35-54. I would be interested in hearing theories for what is happening at these ages, especially for males, since I fit within this age category. □

**TABLE 1.1**  
**Annual Mortality Improvement (Males) – U.S. Population**

Death Rates per 100,000		Annual Rates of Improvement								
Males										
Age	1987	1993	1997	2001	2003	1987-2003	1993-2003	1997-2003	2001-2003	Scale G
25-34	189	212	163	143	140	1.9%	4.1%	2.5%	1.1%	0.5%
35-44	290	329	275	259	252	0.9	2.6	1.4	1.4	2.0
45-54	638	603	548	544	548	0.9	1.0	0.0	-0.4	1.8
55-64	1,626	1,480	1,343	1,192	1,160	2.1	2.4	2.4	1.4	1.5
65-74	3,636	3,411	3,170	2,914	2,771	1.7	2.1	2.2	2.5	1.4
75-84	8,206	7,700	7,055	6,842	6,633	1.3	1.5	1.0	1.5	1.2

Population death rates are from the National Center for Health Statistics.





**TABLE 1.2**  
**Annual Mortality Improvement (Females) - U.S. Population**

Death Rates per 100,000					Annual Rates of Improvement					
Age	Females					1987-2003	1993-2003	1997-2003	2001-2003	50% Scale G
	1987	1993	1997	2001	2003					
25-34	74	74	68	68	64	0.9%	1.4%	1.0%	1.5%	0.5%
35-44	135	145	135	148	147	-0.5	-0.1	-1.4	0.3	1.1
45-54	367	334	310	316	317	0.9	0.5	-0.4	-0.2	0.9
55-64	910	868	806	754	731	1.4	1.7	1.6	1.5	0.9
65-74	2,070	2,010	1,937	1,892	1,821	0.8	1.0	1.0	1.9	0.9
75-84	5,102	4,824	4,832	4,764	4,676	0.5	0.3	0.5	0.9	0.8

Population death rates are from the National Center for Health Statistics.

# What's Ahead—2005 SOA Annual Meeting in New York

ANNUAL MEETING & EXHIBIT

# SOA<sup>05</sup>

**A**s you may now be aware, the date and location for the SOA Annual meeting have been changed to Nov. 13–16 in New York City. The Product Development Section is sponsoring 10 sessions and a hot breakfast. Here is a brief description of the sponsored sessions.

### **Alternative Pricing Measures**

Exploration of profit measures other than the statutory internal rate of return to assist in balancing competitive position and profitability in product pricing.

### **What's New and Exciting with Equity-Indexed Products?**

The value of equity-indexed products in an insurer's portfolio, the status of equity-indexed products as securities and market changes of equity-indexed products during 2005.

### **Universal Life No-Lapse Guarantee Update**

Review of regulatory activity in 2005 regarding Actuarial Guideline 38, market activity and progress of the American Academy of Actuaries' UL Working Group.

### **Annuity Guarantee Costs: What's the Better Measure?**

Debate of the techniques for pricing guarantees in annuities—real-world evaluation of costs as implicitly required under proposed

RBC and reserving standards versus market consistent approach.

### **Mortality at the Older Ages**

Considerations for projecting mortality at older issue ages including the length of select period and the slope of mortality.

### **Stochastic Pricing**

A case study of pricing annuities using a stochastic pricing model and how this type of analysis relates to principles-based reserving and asset adequacy analysis.

### **Life and Annuity Product Development—Year in Review**

Recent regulatory actions and initiatives, what's hot (and what's not) in product development, and predictions for the next year.

### **Product Innovation Around the World**

Life insurance and annuity products available abroad as sources for creativity and innovation in United States and Canadian product design.

### **An Inside View of Life Settlements**

The role of the actuary in the life settlement industry.

### **Reinsurance Market Landscape—From the Perspective of the Direct Writer**

Overview of the current reinsurance market including capacity, price satisfaction, retention shifts and alternatives to first dollar reinsurance. Partnering with reinsurers to develop treat language and procedures for underwriting exceptions, audits and claims adjudication. □

## Announcements

# Actuaries Gone MAD

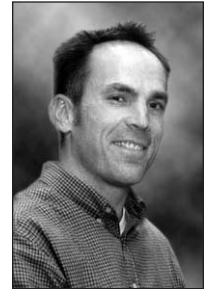
by Rob Stone

**C**ongratulations to the newly renamed Marketing and Distribution (MAD) Section, fresh off its Board of Governor's approved name change (formerly called the Non-traditional Marketing (NTM) Section). What does this change mean? Think of it as NTM-Plus. MAD will continue to cover all the topics and distribution channels historically covered by NTM. Its overall focus, however, has expanded to reflect the increasing role marketing plays in today's financial services environment and to underscore the need for actuaries to be marketers along with the other valuable roles they already fill. As a

part of the change, the section has adopted the following mission statement:

"The Marketing and Distribution Section fosters research and innovation in distribution methods of financial services products and in the inter-relationship of marketing strategies with product design, underwriting and operations."

Be a part of taking this section into the future! For further information, please feel free to contact Rob Stone, Marketing and Distribution Section chair, at [rob.stone@oneamerica.com](mailto:rob.stone@oneamerica.com) or Section Vice-Chair Van Beach at [van.beach@milliman.com](mailto:van.beach@milliman.com). □



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## Help Wanted...

**W**e are looking for one or more volunteers to help put together future issues of this newsletter, with the possibility of taking over one or more issues. You get a lot of freedom in deciding what goes into the newsletter (except the section chairs, who like to have their columns published as written). There is a lot of satisfaction in actually completing an issue, which contrasts with some other committee work that I have been involved with where the works goes on for years without end. If you are interested, please contact me at: [doug.doll@towersperrin.com](mailto:doug.doll@towersperrin.com). □



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