



# THE FINANCIAL REPORTER

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## Statutory Deferred Taxes

by Edward L. Robbins

While the new millennium was not cataclysmic, as some might have originally thought, the advent of codification around that time certainly presented new and significant challenges. Codification, with the stated purpose of codifying *current* requirements for insurance company statutory financial reporting, went a few steps beyond that in certain cases. One of those “steps beyond” was the introduction of deferred taxes as a recognized item in statutory financial statements. Since a major driver of statutory deferred tax recognition is the excess of statutory reserves over tax reserves, actuaries should be familiar with the concepts underlying statutory deferred taxes and how our work might be affected.

Whereas deferred taxes have long been a recognized element in GAAP balance sheets, deferred taxes did not exist as recognized assets or liabilities in statutory financial statements until the advent of codification, specifically Statement of Statutory Accounting Principles No. 10 (SSAP 10). The general economic concept of deferred taxes is that if, with respect to a balance sheet item (such as an invested asset or a reserve), a difference exists between the financial statement value and the tax basis value, that difference is generally referred to as a “temporary difference,” since such difference will eventually vanish once the reason for that balance sheet item disappears. For example, the excess of a statutory reserve over a tax reserve on a policy would be such a temporary difference, since that difference will eventually disappear once the insured dies or otherwise terminates the policy. In the absence of deferred tax assets (DTAs) and deferred tax liabilities (DTLs), future taxable income will differ from future financial statement income with respect to the eventual release of that balance sheet

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item. A DTA or DTL brings the values of the two future incomes closer together.

As a simplistic example, under GAAP accounting, if a reserve equals \$100 for financial statement purposes and \$80 for tax purposes, in the absence of deferred taxes, there will be \$100 of future financial statement income but only \$80 of taxable income in the future, as those reserves are released. So, assuming a 35 percent tax rate, a DTA will generally be established for 35 percent of that \$20 excess, or \$7. As those tax reserves are released in the future, the incremental future tax thereon will be 35 percent of \$80, or \$28. Additionally, the future \$7 release of the DTA will add to the \$28, to produce future tax expense of \$35. That expense is equal to the \$100 financial statement reserve released in the future, multiplied by the 35 percent tax rate. Thus future taxes will be equal to 35 percent of future pre-tax financial statement income.

Under GAAP accounting prescribed by Statement of Financial Accounting Standard 109 (SFAS 109), the entire temporary difference of a balance sheet item, multiplied by the tax rate, is generally recognized as a DTA or DTL, as whichever corresponds, with one occasional noteworthy exception. If it is "more likely than not" that a DTA will not be realized, a valuation allowance needs to be recognized and established as an offset to the DTA.

Note: The required treatment under both statutory and GAAP requirements ignores the time value of money. For example, a \$100 difference expected to reverse 20 years from the valuation date has the same value as one expected to reverse within 12 months from the valuation date, a major difference from the true economic value of the DTA or DTL.

The statutory rules involving net recognized DTAs are more complex than the GAAP rules. That is because of certain limiting condi-

tions being placed on gross DTAs when they exceed gross DTLs. Simply put, when there is a positive excess of gross DTLs over gross DTAs, that full amount must be recognized as a DTL. When the reverse occurs, the net recognized DTA is subject to certain "inside limits."

Under statutory accounting, SSAP 10 defines the rules governing the calculation of deferred taxes. The primary rules are found in Paragraph 10, which stipulates in pertinent part:

"Gross DTAs shall be admitted in an amount equal to the sum of:

a. Federal income taxes paid in prior years that can be recovered through loss carrybacks for existing temporary differences that reverse by the end of the subsequent calendar year;

b. The lesser of:

(i) The amount of gross DTAs after the application of paragraph 10a, expected to be realized within one year of the balance sheet date; or

(ii) Ten percent of statutory capital and surplus...adjusted to exclude any net DTAs, EDP equipment and operating system software and any net positive goodwill; and

c. The amount of gross DTAs, after application of paragraphs 10a and 10b that can be offset against existing gross DTLs."

Pragmatically, the chronological order of calculation is (a), then (c), then (b). Not included in temporary differences under SSAP 10 are asset valuation reserve (AVR), interest maintenance reserve (IMR), and Schedule F penalties (penalties in connection with resisted claims).

# Letter From the Editor The Driver's Seat

by Jerry Enoch

**E**xamination of the articles in this issue can tell us some things about the times in which we work. Three of the articles are updates or continuations of articles that have appeared in recent issues (Long-Duration SOP, DIG B36, Stochastic reserves and RBC for VA). These have not been short articles; they are not easy reading. The issues and techniques are complex.

In two of the cases, actuaries are trying to respond to requirements that were developed in the accounting world. It is my guess that many of the actuaries facing these issues may relish the challenge, but find themselves gritting their teeth and shaking their heads at the situations in which they find themselves. In the third case, actuaries are proactively attempting to establish procedures and guidelines for our work.

Two of the articles are short examinations of aspects of the long-duration SOP. As important as the comprehensive articles are, I am glad to see short articles that address a single issue succinctly. I also welcome the fact that I consider one of the articles provocative—it adds spice to our lives and forces us to shift our thinking to another part of our brains. I think that our membership would benefit from more opinions being expressed in our newsletters, listserves and discussion forums. The world is far from black and white, and to be effective, we must be able to express ourselves in the gray areas.

The lead article does not fit any of these categories. I'm happy to print a mid-length article providing a very good introduction to



an actuarial tax concept. Such an article is overdue.

We also have a couple of notices. One is about the updated ALM specialty guide—addressing a relatively new area of actuarial practice. The other is a call for papers about expense analysis—addressing an old area of actuarial practice. Finally, we have a synopsis of items of actuarial interest from the most recent LHATF and NAIC meeting. Financial reporting actuaries must always keep an eye on the regulators and support them, when possible. We are fortunate to have Ted Schlude helping us with this.

One topic of tremendous importance to us has not been addressed in recent issues: international accounting standards. I expect to finally have an article about that topic in our next issue.

This brings me back to the first paragraph. If we add international accounting standards to the three topics listed there, we have three major areas in which we are in a position of responding to the decisions of others. Can that be changed? Is our destiny limited to implementing what others have decided? These considerations lead me to express my appreciation and admiration for those who are proactively working to create new stochastic reserving and RBC standards. I have much more optimism about what will come out of their work than about what I expect from other groups. I hope we can learn how to place ourselves in the driver's seat more often. ☒



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## Statutory Deferred Taxes | from page 2

As mentioned previously, in the current environment, it appears that most life and property/casualty insurance companies have gross DTAs in excess of gross DTLs. For a typical life insurance entity with more than minimal capital and surplus and no losses to carry back, the rules are best demonstrated by the following examples:

### Example 1:

Gross DTAs	\$1,200,000	
Gross DTLs	<u>1,000,000</u>	
Net DTAs	\$200,000	A

Gross DTAs that will reverse in the next 12 months .....\$60,000 B

The admitted DTA equals the lesser of A or B .....\$60,000

Non-admitted DTA equals A - B .....\$140,000

As indicated above, the \$60,000 must be compared to 10 percent of adjusted capital and surplus, and the lesser amount is then recognized. For thinly capitalized, rapidly growing companies, this 10 percent of surplus limitation can easily become the controlling number.

### Example 2:

Gross DTAs	\$1,000,000	
Gross DTLs	<u>1,200,000</u>	
Net DTLs	\$200,000	A

Gross DTAs that will reverse in the next 12 months .....\$60,000 B

The net recognized DTL equals A ..... \$200,000

That is, there is no “inside limit” on gross DTLs when they exceed gross DTAs.

For the determination of statutory DTA, there is no equivalent to the “valuation allowance” concept that exists under GAAP rules. The above “inside limits” effectively serve as an element of conservatism in lieu of a specific, facts-and-circumstances valuation allowance. SSAP 10, Exhibit A, under Question No. 1, which inquires about the primary differences between FAS 109 and SSAP 10, responds in Answer 1.3 as follows:

“DTAs are not reduced by a valuation allowance. Instead, that portion of a reporting entity’s DTAs not meeting the criteria of paragraph 10 of SSAP 10 is non-admitted. SSAP 10, paragraph 2 states that FAS 109 is adopted with modifications for “the realization criteria for deferred tax assets.” Therefore the admission standards outlined in paragraphs 8 to 11 is a replacement of the valuation allowance criteria of FAS 109. See Question 4 for a further discussion of the admissibility test.”

One interesting illustration of the effect of deferred taxes on statutory income is the hypothetical case where the statutory reserve is assumed to be equal to the true present value of future benefits and expenses. Please refer to the table on the next page, which illustrates the effects of deferred taxes using a zero interest example.

We can make several statements about the fact pattern in the table.

- If the statutory reserve provides exactly for the following year’s pretax cash payouts, then the contribution to statutory surplus will equal the change in the non-admitted DTA. Put differently, if DTAs are fully admitted, the net statutory provision (statutory reserve minus DTA) should provide for future benefits and taxes (positive or negative) thereon.



## Statutory Deferred Taxes

TAX RATE	35%				
ITEM DESCRIPTION	YEAR END Z	YEAR Z+1 CONTRIB. TO SURPLUS	YEAR END Z + 1	YEAR Z+2 CONTRIB. TO SURPLUS	YEAR END Z + 2
(1) Statutory Reserve	85.00	40.00	45.00	45.00	0
(2) Tax Reserve	80.00		42.35		0
(3) Tax on Tax reserve Release		(13.18)		(14.82)	
(4) Temporary Difference	5.00		2.65		0
(5) Admitted DTA	0.82	0.10	0.93	(0.93)	0
(6) Cash Payouts		(40.00)		(45.00)	
(7) Tax Benefit on Cash Payouts		14.00		15.75	
(8) Statutory Surplus Change AFIT		0.93			
-Gain from Operations		0.82		0.93	
-Direct Credit to Surplus'		0.10		(0.93)	
		0.93		0	
Full DTA	1.75		0.93		
Admitted DTA	0.82		(0.93)		
Non adm. DTA	0.93		0		

**Formula Legend:**

- (1) Given
- (2) Given
- (3) (Change in Tax reserves) x (Tax Rate)
- (4) Equals (1) – (2)
- (5) For year end Z, equals (Tax Rate) x [(<sup>(4)</sup>Z – <sup>(4)</sup>Z+1]
- For year end Z+1, equals (Tax Rate) x <sup>(4)</sup>Z + 1
- (6) Given
- (7) (Tax Rate) x (6)

- Changes in deferred taxes go directly to surplus, thus causing a mismatch in the gain from operations between pretax and posttax numbers.
- The illustration provides support for the position that, with the advent of deferred taxes, the statutory reserve should be a pretax number. The fact that the SSAP 10 requirement provides “inside limits,” reducing the admitted DTA, is simply a

matter of conservatism, given some possibility that such DTA may never be utilized.

Some interesting work has been done by the Variable Annuity Reserve Working Group of the American Academy of Actuaries on the deferred tax issue, including the effect of assuming interest, and risk-based capital implications. Stay tuned for further developments. ☒



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# Implementation of SOP 03-1 for Lapse Protected Life Products

Bradley M. Smith and David Cook

*Editor's Note: The section's GAAP list-serve would be an appropriate forum for discussing concepts in this article.*

**S**OP 03-1, issued July 7, 2003, and effective for financial statements for fiscal years beginning after December 15, 2003, focuses primarily on the appropriate accounting for insurance type benefits/guarantees provided by annuity contracts. The methodology delineated within the SOP (Statement of Position) is relatively straightforward for these types of products. However, given the language within the SOP, it is quite clear that its applicability is not limited to these types of contracts.

This is clear in the introduction to the SOP (paragraph 3), which says, "...Another example of an insurance benefit feature is a no-lapse guarantee, in which the company agrees to keep the insurance policy in force even when the account balance is not sufficient to pay the cost of insurance." More broadly, paragraph 26 of the SOP states, "...if the amounts assessed against the contract holder each period for the insurance benefit feature are assessed in a manner that is expected to result in profits in earlier years and losses in subsequent years from the insurance benefit function, a liability should be established, in addition to the account balance, to recognize the portion of such assessments that compensates the insurance enterprise for benefits to be provided in future periods."

So, while the apparent intention of capturing these non-annuity type contracts under the scope of the SOP is clear, what is less clear is the appropriate implementation of the methodology described in the SOP for these types of contracts. This article will describe two such approaches, specifically with respect to lapse protected universal life-type contracts.

The accounting for universal life-type contracts is described in Statement of Financial Accounting Standards No. 97 (SFAS No. 97). Since its issuance, many different forms of universal life-type contracts have been developed. One of these variations is typically referred to as a lapse-protected contract. This includes contracts such as term universal life, in which, while sold on a uni-



versal life-type chassis (i.e., having loads, cost of insurance (COI) charges, credited interest), the contract is guaranteed to remain in force as long as a certain minimum amount of premium has been paid, even if the account value falls below zero. Thus, the contract appears to the insured as a term-type contract, providing death benefit protection for a stated premium.

Another version of a lapse-protected universal life-type product is a variable universal life product that guarantees the contract will remain in force for a stated period of time, regardless of the underlying fund performance, assuming that certain conditions are met (e.g., minimum premium payments). Given the volatility of equity investments in recent years, the importance of these lapse-protected contract features is obvious.

Under the accounting methodologies defined in SFAS No. 97, a benefit reserve equal to the account value would be established for these policies. Using such a methodology will typically result in profits emerging during the early policy durations and losses emerging in those policy durations in which the account value falls below zero (since all revenue sources are eliminated, but the payment on of death benefits and the incurral of maintenance expenses continues). This is an undesirable result from an accounting perspective, and would eventually lead to loss recognition if this product

were a substantial piece of the line of business. Presumably to avoid this result, the introduction of SOP 03-1 addresses this issue.

The methodology of SOP 03-1 results in the development of a "benefit ratio," which is defined as the ratio of the present value as of the issue date of a product's excess benefits over to the present value of policy assessments. While policy assessments are clearly defined and include policy loads, surrender charges, COIs and investment spread, "excess benefits" are not so clearly defined. However, once the benefit ratio is defined, the development of the additional reserve (i.e., in addition to any positive account value) is a straightforward retrospective accumulation with interest of (i) policy assessments collected, multiplied by (ii) the benefit ratio minus any excess benefits paid during the accounting period. The difference in the two methodologies described below depends on the definition of excess benefits.

In Methodology One, excess benefits for lapse-protected products are defined as those death benefits incurred while the contract remains in force after the account value has fallen below zero. These benefits would typically be incurred in the later policy durations of the lapse protection period.

The present value of these projected payments would be divided by the present value of projected policy assessments to develop the benefit ratio. For variable contracts, the development of this benefit ratio would be the result of multiple (possibly stochastically generated) scenarios with variations in fund performance. Typically for fixed term universal life-type policies, the benefit ratio would be developed using fewer scenarios, since the duration in which the account value falls below zero is less sensitive to the underlying fund performance. In the early policy durations when a positive account value exists, the policy assessments multiplied by the benefit ratio results in an accumulation of a reserve to be held in addition to the account value.

In Methodology Two, excess benefits are defined as death benefits incurred throughout the entire lapse-protected period, including the durations when a positive account value exists. For many term universal life-type contracts, the surrender value is less

than zero for the entire lapse-protected period. Thus, it could be argued that the lapse-protected period begins immediately. The present value of these benefits would be divided by the present value of the policy assessments to develop the benefit ratio.

Alternatively, the present value of the required minimum premium could be substituted in the denominator, as it could be argued that the policy assessment for a lapse-protected policy is, in fact, the mini-



imum required premium. Typically, in these types of products, the difference between the present value of policy assessments and the present value of required minimum premium is not significant, although the emergence by policy duration may differ somewhat (the example illustrated uses the required minimum premium as the basis for development of the benefit reserve). In fact, once the account value falls below zero, it is conceptually difficult to define policy assessments in terms of policy loads, COI charges and interest margins and, therefore, the definition would default to the required minimum premium at that point. The reserve would accumulate on a retrospective basis through an accumulation of policy assessments multiplied by the benefit ratio net of death benefits incurred during the period. The reserve held would be the greater of the account value or the calculated reserve.

Using either method results in a buildup of benefit reserve that defers reported income from early policy durations to later

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policy durations, thus eliminating losses that would be reported in later policy durations without the establishment of this additional reserve.

The table below presents the results using each method for a universal life policy with a 30-year-lapse-protected period. As you can see, the emergence of profit, assuming the benefit reserve is the account value, results in the up-fronting of profit and deferral of

loss to the later policy durations. Establishing an additional reserve using Methodology One (i.e., excess benefits are defined as death benefits paid after the account value falls below zero) eliminates the loss in the later policy durations, but results in a very erratic profit pattern. This emergence of profit will be difficult to

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Comparison of Results

Policy Year	GAAP Book Profit			Profit Margin as Percent of Premium				Profit Margin as Percent of Gross Profit		
	Resv =	Method	Method	Premium	Resv =	Method	Method	Resv =	Method	Method
	Acct Val	One	Two	Income	Acct Val	One	Two	Acct Val	One	Two
1	89.65	24.75	32.32	236.60	37.9%	10.5%	13.7%	65.5%	51.3%	49.5%
2	82.61	18.62	24.07	217.98	37.9%	8.5%	11.0%	61.2%	38.4%	39.5%
3	76.96	15.87	22.77	206.99	37.2%	7.7%	11.0%	61.3%	36.9%	39.4%
4	71.72	13.29	21.55	196.56	36.5%	6.8%	11.0%	61.5%	35.1%	39.2%
5	66.27	10.46	20.39	186.64	35.5%	5.6%	10.9%	61.6%	32.3%	39.1%
6	66.49	10.15	19.28	177.21	37.5%	5.7%	10.9%	62.0%	31.9%	38.9%
7	71.37	12.00	18.22	168.25	42.4%	7.1%	10.8%	62.6%	33.8%	38.7%
8	68.85	10.10	17.53	161.22	42.7%	6.3%	10.9%	63.0%	31.7%	38.7%
9	67.48	8.37	17.01	156.26	43.2%	5.4%	10.9%	63.5%	29.3%	38.7%
10	63.98	35.07	16.49	151.44	42.2%	23.2%	10.9%	63.9%	43.4%	38.8%
11	36.72	24.71	16.00	146.75	25.0%	16.8%	10.9%	63.6%	41.4%	38.8%
12	30.19	24.03	15.60	142.19	21.2%	16.9%	11.0%	63.9%	41.7%	39.1%
13	23.07	23.36	15.22	137.74	16.7%	17.0%	11.0%	64.2%	41.9%	39.3%
14	15.19	22.69	14.85	133.41	11.4%	17.0%	11.1%	64.6%	42.2%	39.6%
15	7.21	22.05	14.50	129.19	5.6%	17.1%	11.2%	64.9%	42.5%	40.0%
16	-2.51	21.41	14.15	125.07	-2.0%	17.1%	11.3%	100.0%	42.8%	40.3%
17	-14.02	20.80	13.82	121.06	-11.6%	17.2%	11.4%	100.0%	43.1%	40.6%
18	-26.66	20.20	13.50	117.14	-22.8%	17.2%	11.5%	100.0%	43.5%	41.0%
19	-40.57	19.60	13.19	113.32	-35.8%	17.3%	11.6%	100.0%	43.9%	41.4%
20	-56.18	19.00	12.89	109.58	-51.3%	17.3%	11.8%	100.0%	44.3%	41.9%
21	-71.49	18.41	12.60	105.93	-67.5%	17.4%	11.9%	100.0%	44.7%	42.4%
22	-85.94	17.84	12.32	102.36	-84.0%	17.4%	12.0%	100.0%	45.2%	42.9%
23	-99.06	17.30	12.04	98.87	-100.2%	17.5%	12.2%	100.0%	45.7%	43.4%
24	-112.79	16.76	11.78	95.46	-118.1%	17.6%	12.3%	100.0%	46.2%	44.0%
25	-127.44	16.23	11.53	92.13	-138.3%	17.6%	12.5%	100.0%	46.8%	44.6%
26	-144.36	15.69	11.29	88.86	-162.5%	17.7%	12.7%	100.0%	47.4%	45.3%
27	-163.22	15.14	11.05	85.66	-190.5%	17.7%	12.9%	100.0%	48.0%	46.0%
28	-182.65	14.59	10.82	82.51	-221.4%	17.7%	13.1%	100.0%	48.7%	46.8%
29	-201.48	14.05	10.60	79.42	-253.7%	17.7%	13.3%	100.0%	49.5%	47.6%
30	-219.61	13.52	10.38	76.39	-287.5%	17.7%	13.6%	100.0%	50.4%	48.5%
Present Values @										
6.0%	245.58	245.58	245.58	2,145.39	11.4%	11.4%	11.4%	40.9%	40.9%	40.9%

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# One Right Answer: A Challenge for Actuaries

by Carol Marler

*Editor's Note: The section's GAAP listserv would be an appropriate forum for discussing concepts in this article.*

This article is a reflection on the section "Profits in Early Years and Losses in Subsequent Years" found in an article about SOP 03-1 by Vincent Tsang and David Heavilin, page 15 of the February 2004 issue of *The Financial Reporter*. As we all know, a financial statement balance sheet represents a snapshot of an enterprise at a particular point in time. As such, each element (asset or liability) has to be presented as a single number. Sometimes we, as actuaries, complain about the need for "one right answer," when we know that only some form of confidence interval can give a correct view of the liabilities we assess.

SOP 03-1 includes an interesting sentence that shows the accounting profession has been made aware of the fact that we often deal with uncertainty by testing multiple scenarios:

*Expected experience should be based on a range of scenarios rather than a single set of best estimate assumptions.*

My immediate response to this sentence was to wonder how we can get a single answer out of a range of scenarios. And if we do get a single answer, how will it differ from the best estimate calculation?

As I reflected on this question, I found it helpful to draw an analogy with the Black-Scholes formula for the value of an option. This financial engineering breakthrough produces a single value from an explicit assumption about the probability distribution of future values of the option. Rather than using scenarios or Monte Carlo techniques, certain simplifications were used to model future values. The use of the lognormal distribution may have been driven by computational ease as much as for any other reason, but the marketplace has adopted the method.

Over the past few years, actuaries and accountants have been most concerned with options that include both an insurance risk

and a financial risk. This is due to the effect of adverse market trends on variable annuity minimum death benefits. It would appear that in doing this work, we have been quite successful in educating the accounting profession about the value of scenario testing.

It's not surprising that accountants are now paying more attention to the purely insurance-risk options found in our products. Many current products provide, one way or another, an option for the contract holder to purchase mortality coverage in the future, regardless of changes in attained age or even changes in underwriting classification. No-lapse guarantees fit this description, as do the guaranteed yearly renewable term (YRT) tail premiums in many term products. Actuaries have characterized this risk as one of anti-selection, and we strive to identify just how bad that "tail" mortality may be. From time to time, scenario testing has been suggested as a way to measure this risk. However, this approach has not yet been applied in any systematic way.

It seems to me that SOP 03-1 has mischaracterized the real issue by focusing too narrowly on the matter of profits in early years and losses in subsequent years. In particular, there seems to be an emphasis on form over substance, whereby the scale of mortality charges is looked at separately from other provisions of the contract in determining the presence of future losses. This arbitrary distinction flies in the face of known actuarial practice, where some degree of cross-subsidy is almost a given among sources of profit (i.e., expenses, mortality and interest spreads).

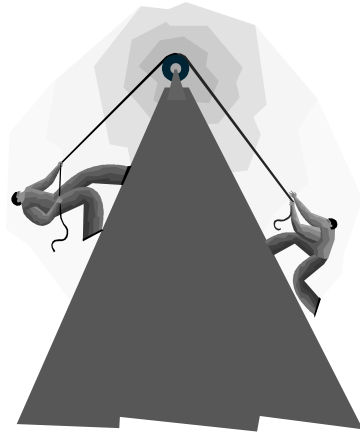
In order to get the right answers, it is necessary to ask the right questions. Perhaps we, as a profession, should address the obvious question instead of the one actually presented. I think what the accountants are looking for in this case is some way of valuing the mortality option, whether in an exist-

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**... we have been quite successful in educating the accounting profession about the value of scenario testing.**

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ing UL product or in one of the newer products that provide a more explicit option in terms of a no-lapse guarantee.

Commentators seem to agree that the paragraph talking about gains and losses requires an arbitrary split of mortality items from other elements, but the other paragraph about testing multiple scenarios is inconsistent with that, since scenario testing only makes sense in the context of the policy as a whole. After identifying a potential loss situation in the narrow context of mortality charges only, I suggest that the way to provide for the loss is to view it as a mortality option.

Reading the guidance above as a request for the value of the insurability option makes more sense to me than an arbitrary split

between mortality charges and other contractual elements. And perhaps the guidance itself, while not quite to the point on what is needed, may be too specific in directing the use of scenario testing as the way to determine the value of that option. Still, looking at the question in terms of valuing an insurance option makes a lot of sense to me.

This addresses the issue for the short term, but I think we can look beyond this specific question to a more general issue. It is time to apply the underlying insight of Black-Scholes to quantifying insurance option values. As with Black-Scholes, the first step is to come up with suitable simplification to our model. The methodology I envision, once the underlying research is complete, replaces extensive scenario testing with a combination of expected value and a measure of sensitivity to change. The use of a suitably chosen probability distribution allows us to build a statistically based formula to come up with a good estimate of the value of the mortality option.

This approach requires some professional research in order to make the formula good enough. It may not be an easy task. However, as one of my former bosses often told me, “Carol, if it were easy, they wouldn’t need us.” ☒

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## The Latest Updated ALM Specialty Guide: An Essential Reference Roadmap

By Max J. Rudolph and Valentina Isakina

Everyone from a serious asset-liability management (ALM) practitioner to a layman seeking a brief ALM crash course or overview will find value in the recently released ALM Specialty Guide (ALMSG). The guide is in a pdf format and is available at <http://www.soa.org/ccm/content/areas-of-practice/special-interest-sections/areas-of-expertise/asset-liability-management>. The SOA Finance Practice Area’s ALM Specialty Guide Task Force worked for over a year to

rejuvenate this user’s guide. The task force united many superb ALM practitioners with various backgrounds and experiences – from property and casualty, to pensions, to broader financial services. Tapping into the expertise of this seasoned group of ALM professionals, the guide provides direction to anyone in search of new or updated knowledge of ALM—especially its differing applications to various financial security systems, such as life or health insurance, property and casualty insurance or pensions. Each section of the guide

provides an introduction and commentary on a specific subtopic of ALM and its related issues, and includes a variety of additional references on the topic. The guide is designed to help users tackle current issues related to managing assets and liabilities, including recent discussions regarding pension plan funding. Some sections have practice-specific references, and special sections are devoted to property/casualty-specific references and pension-specific references. It is anticipated that this guide will also be useful to an audience beyond the actuarial profession seeking to understand this challenging but increasingly important subject and the critical role actuaries play in ALM.

No particular level of expertise is assumed, although a basic understanding of the investments available to a financial institution is helpful. To make the guide as widely useful as possible, the level of difficulty of each reference is indicated (basic, intermediate or advanced). What follows is a short excerpt to provide the reader with an overview of the ALMSG.

## WHAT IS ALM?

ALM is the practice of managing a business so that decisions and actions taken with respect to assets and liabilities are coordinated. ALM can be defined as the ongoing process of formulating, implementing, monitoring and revising strategies related to assets and liabilities in achieving an organization's financial objectives, given the organization's risk tolerances and other constraints. ALM is relevant to, and critical for, the sound management of the finances of any organization that invests to meet its future cash flow needs and capital requirements.

Traditionally, ALM has focused primarily on the risks associated with changes in interest rates. Currently, ALM considers a much broader range of risks including equity risk, liquidity risk, legal risk, currency risk and sovereign or country risk.

## THE ROLE OF THE ACTUARY

Actuaries measure, model and manage risk. Risk associated with the ALM process is one

of the most important risks faced by many financial security systems. The current professional actuarial education and qualification process provides actuaries with the knowledge and understanding of assets and liabilities and how they are interrelated. This knowledge includes an understanding of the operation of financial markets, the instruments available and the use of synthetic instruments. Financial reporting and product development actuaries are expected to understand the relationship of the company's assets to its liabilities so as to reflect the risks inherent in the business, and thereby, enhance its profitability and solvency. Insurance and investment products are continually redesigned, updated, expanded and replaced. The practicing actuary considers these changes and how they affect the company. The actuary must communicate such changes to the company's portfolio managers (or be part of such portfolio management). The coordination of product development, investment operations and financial reporting is essential for a successful financial security system. Actuaries are well prepared through education and experience to perform this role.

The SOA Task Force on Asset-Liability Management Principles is in the process of defining a foundation of principles for ALM. The draft is expected to be released for an exposure within the next few months, after the SOA Board reviews the materials. Once released, the draft will be distributed to the membership and available on the SOA Web site. The principles document is a companion document to the ALM Specialty Guide.

## FORMAT OF THE GUIDE'S CONTENT

Each section of the guide includes commentary introducing the topic of the section and related issues. For most references, the guide identifies the reference's level of difficulty. The guide also identifies references that have been part of the syllabus for SOA or CFA examinations.

The appendix lists alphabetically, by author (or source if, for example, the reference is a compilation of papers presented at a conference or seminar), all the references included in

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the guide, and the section(s) in which they are referenced. The appendix provides users of the guide an opportunity to navigate through the guide based on reference(s) of interest, to identify all the sections in which a particular reference appears or to determine the scope of the references. ☒

Be sure to check it out!

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## As the Dust Settles: Valuation Approaches for FAS 133 DIG Issue B36

By Steven D. Lash, Rebecca Kao Wang, Tara J.P. Hansen

*Editor's Note: The section's GAAP listserve would be an appropriate forum for discussing concepts in this article.*

As the whirlwind of activity on FAS 133 Implementation Issue B36 (DIG Issue B36 or B36) begins to fade, it is time to assess and evaluate the results and ramifications of the approaches adopted by many companies. FAS 133 DIG Issue B36, "Embedded Derivatives: Modified Coinsurance Arrangements and Debt Instruments That Incorporate Credit Risk Exposure That Are Unrelated or Only Partially Related to the Creditworthiness of the Obligor Under Those Instruments" has been effective for public companies that follow U.S. GAAP since the first fiscal quarter beginning after September 15, 2003. For most companies, year-end 2003 was the first time the embedded derivative was reported.

Most modified coinsurance (ModCo) and coinsurance with funds withheld (CFW) treaties clearly fall within the scope of B36. As companies learned, there were many other types of contracts that became caught in the web of B36, such as surplus relief treaties

including coinsurance transactions with experience refunds or special commutation provisions, pension participation products, and any receivable or payable where interest is determined by reference to an actual pool of assets that contain third party credit risk. The presence of third-party credit risk triggers the need for both parties to bifurcate these embedded derivatives.

DIG Issue B36 was deliberately vague in defining the host contract and the embedded derivative, and did not specify any valuation methodologies. As companies assessed and studied compliance with DIG Issue B36, three main methodologies materialized in characterizing the derivative that should be bifurcated and valued: (1) as a credit derivative, (2) as a total return swap with a floating leg (TR Floating), and (3) as a total return swap with a fixed leg (TR Fixed). This article will examine these methods in more detail and also discuss what the results might mean to management and shareholders.

## CREDIT DERIVATIVE

A credit derivative captures only the credit risk in the underlying portfolio of assets. To use this type of approach to characterize the derivative, a company needs to first determine if there are other risks, such as interest rate risk, that are not clearly and closely related to the host contract. Paragraph 13 of Statement 133, as amended by Statement 149, provides guidance on interest rate risk determination. Most companies have taken the position that, for their ModCo or CFW treaties covering non-variable products, interest rate risk is not clearly and closely related to the host contract. They found it difficult to argue that both conditions set out in Paragraph 13 could never exist. For example, if the interest rates increase dramatically, resulting in high lapses, a company can be forced to sell a significant portion of the supporting assets with considerable capital losses. The hybrid instrument, or the reinsurance contract, could contractually be settled so the reinsurer would not substantially recover all of its initial recorded investment. In this situation, Paragraph 13 indicates that the interest rate risk is not clearly and closely related to the host contract, so its bifurcation is required.

If, after analyzing Paragraph 13, a company determines that its interest rate risk is clearly and closely related to the host contract, only the credit risk would be bifurcated and valued. The value of the credit derivative is zero at inception, per DIG Issue B20. For future valuation dates, a measure of credit risk, such as a spread to London Interbank Offered Rate (LIBOR) or treasuries, is obtained for each asset in the underlying portfolio. The credit derivative would be calculated by isolating the change in the present value of asset cash flows attributable only to the changes in credit risk.

The advantage of a credit derivative approach is that it measures only credit risk, uncomplicated by other risk factors, and may result in the smallest derivative value, compared to other methods discussed below. The magnitude of this derivative, as compared to a TR Swap derivative, will depend a great deal upon any offsetting interest and credit spread movements. Few companies have found this method acceptable because of the difficulties in obtaining and maintaining the required

credit data for a portfolio that includes assets other than fixed-income securities; for instance, real estate.

## TR SWAP

There are several reasons most companies have adopted the total return swap approach. First, as noted above, they determined that interest rate risk is not clearly and closely related to the host contract. A total return swap not only captures credit risk, but interest rate risk as well. Moreover, a total return swap approach provides more transparency to shareholders. For instance, interest rate risk will be reflected in a total return swap, but not in a credit derivative.

The basic formula to calculate a total return swap is:

$$\begin{aligned} & (\text{Market Value of Assets minus} \\ & \quad \text{Book Value of Assets}) \\ & \quad \text{minus} \\ & (\text{Market Value of Loan minus} \\ & \quad \text{Book Value of Loan}) \end{aligned}$$

In the calculation, it is presumed that the book value of the loan will always equal the statutory reserve, which generally will equal the statutory book value of the assets. For the transactions where these amounts are not equal, adjustments to balances will need to be made in order to determine the proper asset market value to be allocated to the block. Statutory reserves and ModCo/CFW net reserves, which may reflect other items such as interest maintenance reserve (IMR) or ceding commission withheld, will be interchangeable for the rest of this discussion.

At treaty inception, the value of the derivative should be zero. However, in practice, assets supporting a treaty do not always have book values that are equal to market values at treaty inception. Adjustments to the derivative value at future valuation dates will be needed to account for this opening difference between market and book values. There are several possible approaches to account for this difference. If detailed asset data is available, a company can track the assets that give rise

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**A total return swap not only captures credit risk, but interest rate risk as well.**

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to the opening difference. As these assets mature or are sold, the opening difference will decline and the adjustment will be amortized exactly. If detailed asset data is not available, it may be reasonable to approximate this opening adjustment runoff over the life of the assets using a simplified approach, such as a straight-line or declining-balance method. Other companies may ignore this difference if it is immaterial.

### TR FLOATING

For a total return swap with a floating leg, the second part of the equation above collapses to near zero, assuming a regularly resetting loan rate; hence the book value of the loan will always equal the market value of the loan. Therefore, the derivative would equal the unrealized gain or loss on the portfolio. Many ceding companies have opted for this approach because of their ability to use DIG Issue B36's Financial Accounting Standard 115 (FAS 115) "mulligan," which allowed a one-time reclassification of securities from the held-to-maturity or available-for-sale categories into the trading category. Most ceding companies have made this election such that assets held in their trading accounts offset income volatility from the TR Floating embedded derivative.

There are several challenges to consider with the FAS 115 mulligan election. Assets must be reclassified in whole. This is problematic when the quota share is not 100 percent or when the assets are in the company's general account instead of a segregated portfolio. Certain assets are harder to divide into parts than others. For example, most fixed-income securities are sold in units and could, therefore, be allocated among classifications at the level of individual units; other assets, such as private placements, may not be structured into divisible units and would have to be reclassified into the trading account as a whole or not at all. Furthermore, future asset turnovers and new asset purchases will need to be assessed carefully in light of the divisibility constraint.

Obtaining the market value of an asset is not always a trivial exercise. Certain assets have no observable market value. For example, mortgage loans are not FAS 115 assets

and were not required to be reported at fair market value on a quarterly basis. However, if mortgage loans are used to back a DIG Issue B36-affected reinsurance treaty, the company has to perform additional analysis to determine the fair market values at each filing date. In general, companies will have to review the underlying asset portfolios more carefully to ensure the market values are updated at each quarterly reporting date for the purposes of calculating the B36 derivative.

### TR FIXED

The other approach that has had significant attention in the marketplace is a total return swap with a fixed debt host. This approach assumes the total return is paid on the portfolio in return for interest on the hypothetical fixed-rate loan. The challenges in analyzing the nature of this loan are in determining how it theoretically repays and how the interest rate on the loan is determined. If these factors are chosen appropriately, this derivative will have the same value as a credit derivative, assuming that the asset and liability cash flows are matched. If the assets and liabilities are not cash flow matched, this derivative will measure the value of a credit derivative plus the "value" of any cash flow mismatch.

Two critical items are needed to calculate the market value of the loan: the interest rate on the hypothetical loan and the payoff pattern of this loan. At inception of the swap, the rate on the loan is based on the current swap curve, which will be referred to as risk-free for the rest of this article for illustrative purposes. Moreover, at inception, the book value of the hypothetical loan is equal to the statutory reserve. There are several approaches to determining the pay down pattern of this loan.

Some have argued that the loan pay down follows that of the statutory reserve. A difficulty with this approach is that statutory reserves may increase, and when they do, the increases are future new loans that should not be reflected at the current valuation date. Other ways to determine the pay down of the loan involve the liability cash flows.

Liability cash flows typically consist of premiums, death benefits, annuity payments, surrenders, premium taxes, commissions and



expenses. There are several arguments as to whether all or a subset of these items should be used.

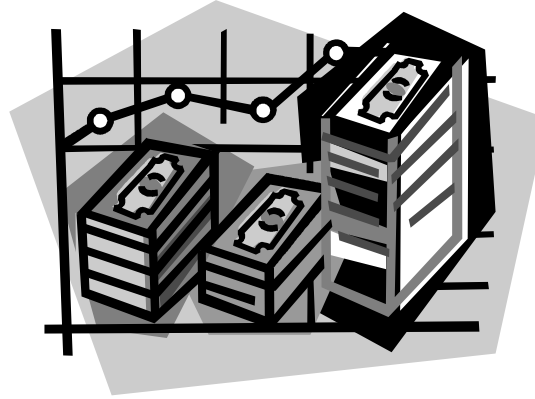
One view is to use only the premiums and benefits to represent the shape of the loan payoff. A key premise is that the level of the loan is based on the statutory reserves, which, by first principles, are determined as a function of premiums and benefits. However, this approach faces the same issue as the statutory reserve method described above, especially for certain products where premiums may be heavily front ended.

An alternate view is to use all of the liability cash flows listed above to represent the shape of the loan payoff. The argument for using this approach is that Commissioner's Reserve Valuation Method (CRVM) and Commissioner's Annuity Reserve Valuation Method (CARVM) reserves typically have a provision for expenses and therefore, expenses should be included. Additionally, when cash flow testing is performed on a statutory basis, expenses and commissions are considered. A shortcoming with this approach is that the expenses and commissions included may not relate to the run off of the loan. For example, an expense allowance in a ModCo treaty is contractually negotiated and is not related to the loan. Yet, its inclusion in the liability cash flows will produce very different results in the derivative calculation.

Another view is to use only benefits, including deaths, surrenders and annuity payments, as a basis to run off the loan. The argument for using this approach is that reserves are used for future benefits, and the pattern of the benefits best represents how the loan is being paid off over time.

The next step to consider is the determination of the appropriate fixed interest rate for a TR Fixed. Two approaches have generally been discussed: the "asset" approach and the "liability" approach. Both approaches use swap rates as the basis of setting the loan rate. Additionally, both methods fix a swap curve at a particular date and require the corresponding implied forward yield curve at each future valuation date.

The asset approach assumes the synthetic credit exposure is established or eliminated with the purchase and sale of each security in the portfolio of managed assets, and therefore, the embedded derivative relates to the "asset."



That is to say, the B36 derivative is asset driven, so the debt host must be asset-based. Those favoring the asset approach typically believe that, since the synthetic exposure to third-party credit risk in the assets first initiated the need to bifurcate this embedded derivative, then the fixed rate of the hypothetical loan should be based on the assets. The fair value of the swap in this case equals the "mark to market," or the difference between market and book values, on the assets under management offset by the mark to market on the hypothetical loan, based on the swap rates that were prevailing when the underlying assets in the portfolio were purchased. In other words, the embedded derivative relates to the portfolio of assets.

The liability approach assumes the initial host loan is a series of fixed-rate obligations starting on the later of the dates the underlying liabilities are issued or the inception of the reinsurance treaty. Those favoring the liability approach typically believe the debt host should look to the most stable and static element of the ModCo contract: the long-dated reserves themselves—and not the continuously managed asset portfolio. In this case, the fair value of the swap equals the mark to market on the assets under management, offset by the mark to market on the hypothetical loan based on the swap rates that were prevailing when the underlying policies were issued or the reinsurance treaty was initiated, for the expected duration of the policies. In other words, the embedded derivative relates to the individual policy or reinsurance issuance, the "liability."

If assets in the portfolio were never sold and the liabilities were static, both approach-

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es would generally result in derivatives of similar value, except for the effect of renewal premium and increases in assets due to increases in reserves. However, in cases where assets are sold or replaced, or there is a significant dump-in premium on existing policies, the two approaches can give drastically different results.

When an asset in the portfolio is sold and replaced, any realized capital gain or loss is usually settled through the mechanism specified in the reinsurance treaty. Under both the asset and liability approaches, the unrealized gain or loss on the replacement assets is zero after the sale, since the market value of the assets equals the book value of the assets and also equals the book value of the loan. This requires that the assuming company makes certain that the book value of the assets are always no less than the statutory reserves by making payments to the ceding company when the book value of the assets falls below the level of the reserves. The key distinction between the asset and the liability approaches is in determining the new market value of the loan, as demonstrated in the following simple example.

#### SIMPLE TR FIXED EXAMPLE: ASSET VS. LIABILITY APPROACH

At inception, assume that the market value (MV) and book value (BV) of assets as well as the MV and BV of the loan are all valued at \$1,000. Thus the embedded derivative for TR Fixed is zero. Further assume that, if credit spreads widen by 1 percent, while the risk-free rates increase by 1 percent for a total interest rate movement of 2 percent, the resulting decrease in MV of the assets will be \$200. Since the value of the loan only reflects risk-free rate movements, the MV of the loan becomes \$900. Therefore the value of the TR Fixed derivative is equal to:

$$\begin{aligned} & (\text{MV Asset} - \text{BV Asset}) - (\text{MV Loan} - \text{BV Loan}), \\ & \text{or } (800 - 1000) - (900 - 1000), \text{ or } -100 \end{aligned}$$

This amount is a liability to an assuming company or an asset to a ceding company.

Taking the posture of the assuming company, the \$100 loss represents the widening of

credit spreads and is reported into income. The movement in risk-free rates has no effect in this example, because the movement in the loan value offsets the movement in the asset value, assuming that there is cash flow matching between the assets and liabilities.

Suppose that in the next reporting period the ceding company sells the asset and realizes the \$200 capital loss. Under both methods, the reinsurer needs to pay the ceding company \$200 to bring the value of the assets equal to the value of the statutory reserves of \$1,000. However, under the asset method, the original swap is viewed as having been settled and a new swap with the new asset is initiated. This new swap has a fixed interest rate at today's higher rate, and the MV and BV of the loan are equal. In sum, the derivative resets to zero and the reinsurer would report a \$100 loss in income. This \$100 loss in income plus the loss of \$100 on the derivative in the prior period equals the total loss on the asset of \$200. The derivative calculation under the asset method in the case of asset sale is as follows:

$$\begin{aligned} & (\text{MV Asset} - \text{BV Asset}) \\ & - (\text{MV Loan} - \text{BV Loan}), \\ & \text{or } (1000 - 1000) - (1000 - 1000), \text{ or } 0. \end{aligned}$$

Under the liability approach, since the swap rate is set when the liability is established, there is no effect on the loan calculation due to asset sale, assuming the liability is still in place. Therefore, the corresponding derivative calculation under the liability method is as follows:

$$\begin{aligned} & (\text{MV Asset} - \text{BV Asset}) \\ & - (\text{MV Loan} - \text{BV Loan}), \\ & \text{or } (1000 - 1000) - (900 - 1000), \text{ or } 100. \end{aligned}$$

This amount is an asset to an assuming company or a liability to a ceding company.

That is, the assuming company has a change in derivative of \$200, with a movement from -\$100 in the first period to \$100 in the second period. So, at the time of the sale of the asset the reinsurer has no income impact, because the loss of \$200 is offset by the positive change in derivative of \$200. This \$100 derivative will amortize into income over the life of the hypothetical loan.

Given the lack of clarity and guidance in DIG Issue B36, either the asset approach or the liability approach appears acceptable. The asset approach is preferred by those who like the parity of the assuming company recognizing a realized gain or loss at the same time that the ceding company does. While DIG Issue

B36 is silent as to whether such a result was proscribed or even intended, there is an appeal to this parallel result. Those who prefer the liability approach believe that it is more faithful to FAS 133's concept of a host instrument, where the host is characterized in such a way as to minimize the need to be redefined frequently. They emphasize that in a typical ModCo relationship, the asset turnover is much more frequent than the liability turnover.

Moreover, each approach also appears consistent with the guidance of DIG Issues B15, B19 and B20. Needless to say, all companies should seek the guidance and counsel of their audit firms. The SEC has acknowledged there may be different approaches to define the hypothetical host, and furthermore, the ceding company and the assuming company may arrive at different answers for the two sides of the same contract.

## REAL-WORLD EXAMPLE

In practice, the B36 embedded derivative calculation and analysis are much more complex than the previous example. The following analysis relates to an actual single premium fixed annuity block under a ModCo treaty reported under B36. The results have been modified to protect the confidentiality of the actual companies and agreement. This analysis is performed from the perspective of the assuming company. The analysis would be similar, but with reversed signs, from the perspective of the ceding company.

Table 1 shows the DIG Issue B36 results as of 9/30/2003 and 12/31/2003, where "ED"

**Table 1**

Reinsurer B36 Result (000s)	9/30/2003	12/31/2003
(1) MV Asset	1,036,093	1,124,256
(2) BV Assets	969,430	1,066,913
(3) MV Loan "Asset Method"	1,074,711	1,150,542
(4) MV Loan "Liability Method"	1,103,845	1,169,313
(5) BV Loan	969,430	1,066,913
ED Using TR Floating (1) - (2)	66,663	57,343
ED Using TR Fixed "Asset Method" (1) - (2) - [(3) - (5)]	(38,618)	(26,286)
ED Using TR Fixed "Liability Method" (1) - (2) - [(4) - (5)]	(67,752)	(45,058)

refers to embedded derivative.

This example demonstrates that the choice of derivative valuation method can give vastly different results for the reinsurer. Critics of B36 point to this disparity of results as the primary reason B36 makes results less transparent to management, shareholders and policyholders. However, a careful analysis of the results can offer some insight into a company's risk.

To understand the results, it is instructive to perform an attribution analysis of the derivative and split it into its component parts. Broadly, the total return derivative with a floating leg, or the unrealized gain or loss on the portfolio, is equal to a risk-free portion and a credit spread portion. That is:

$$\text{TR Floating ("TRFL")} = \text{Risk Free ("RF")} \\ \text{plus Credit Spread ("CS")}$$

In reality, CS includes all items except RF, such as the liquidity spread or any other spreads above the risk free rates included in the yield on an investment.

The TR Fixed derivative under the asset approach measures CS plus any value of the mismatch in cash flows between assets and liabilities, as the movements in the hypothetical loan are parallel to and offset any risk-free rate movements in the asset portfolio. The liability approach measures the same items plus the unrecognized realized gains or losses due to risk free rate movements as described in the simple example earlier. That is:

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Table 2

Value of Reinsurer's Derivative Due to:	9/30/2003	12/31/2003
(1) Risk Free Rates (RF)	95,075	74,837
(2) Credit Spreads (CS)	(28,412)	(17,495)
(3) Cash Flow Mismatch (CFM)	(10,207)	(8,791)
(4) G/L on Loan (UGL)	(29,134)	(18,772)

TR Fixed Asset Approach (TRFX) =  
CS plus Cash Flow Mismatch (CFM)

TR Fixed Liability Approach (TRFXliab)=  
CS plus CFM plus Unrecognized  
Realized G/L on Loan (UGL)

With these broad definitions, a derivative attribution analysis can be developed to further understand the results. Several steps are needed to complete this analysis.

First, the liability cash flows are replaced by the asset cash flows to eliminate any cash flow mismatch. As CFM is eliminated, the resulting TR Fixed using the asset approach and without cash flow mismatches, TRFX2, approximates a credit risk only derivative. That is,

$$CS = TRFX2.$$

Then, RF can be solved using the following:

$$\begin{aligned} TRFL &= RF + CS = RF + TRFX2, \\ &\text{or} \\ RF &= TRFL - TRFX2. \end{aligned}$$

Next, the cash flow mismatch component CFM can be solved using the original TR Fixed derivative with the asset approach.

$$\begin{aligned} TRFX &= CFM + CS = CFM + TRFX2, \\ &\text{or} \\ CFM &= TRFX - TRFX2. \end{aligned}$$

Lastly, the UGL is calculated as the difference between liability TRFXliab and the asset approach TRFX.

$$\begin{aligned} TRFX + UGL &= TRFXliab, \\ &\text{or} \\ UGL &= TRFXliab - TRFX. \end{aligned}$$

These attribution components are instrumental in understanding the embedded derivative and its movement. Note that these results are estimates, since obtaining an exact measure for CS would require an asset-by-asset analysis of the credit spread component, such as the credit derivative method, which is often impractical, as described earlier. The attribution analysis for the real world example is shown in Table 2.

The TR Floating derivative equals (1) + (2). The TR Fixed "asset approach" derivative equals (2) + (3). The TR Fixed "liability approach" derivative equals (2) + (3) + (4).

Components of the attribution analysis can be validated to actual market data. A detailed analysis can be completed for each element of the derivative. An examination of market direction can provide comfort in the derivative results, as described below.

Since the inception of this transaction, risk-free rates have moved down substantially. Therefore significant gains would be expected. Rates inched upward in the fourth quarter of 2003, explaining the decrease in RF. The comparison of the fixed curve to the current swap curve as of 12/31/2003, under both the asset and liability approaches, is shown graphically in Table 3 on the next page.

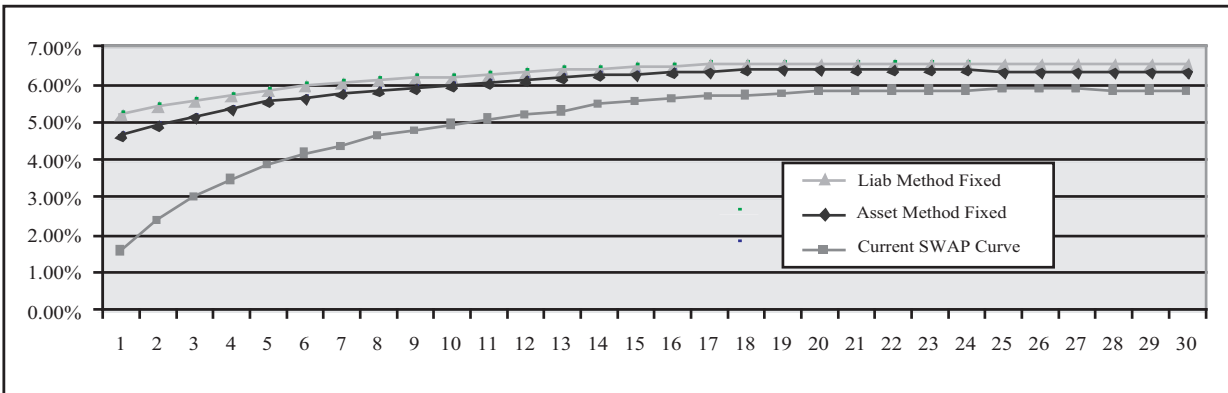
As shown in Table 3, the current swap curve is much lower than the curves for the fixed leg of the swap, as interest rates have decreased since treaty inception. Furthermore, the fixed curve under the asset method is lower than the fixed curve under the liability method, which indicates that the assets have been turned over more frequently than the liabilities in the declining interest rate environment.

A considerable amount of assets were purchased prior to mid-2002. In 2002, there was a substantial increase in spreads after Enron, and the effect is shown as the negative credit



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Table 3



contribution of the derivative. Spreads have dropped significantly since then and continued to drop in the fourth quarter of 2003. Additionally, the ceding company disposed of some of the contributors to this amount between the two valuation dates. Incidentally, CS was substantially more negative in prior periods.

For CFM, this portfolio had shorter asset duration than the liabilities, as shown in the graph in Table 4 below.

This loss indicates that the ceding company lost their interest rate “bet,” having assets shorter than liabilities, as rates have continued to move downward, relative to the general level of rates since treaty inception. The reduction in this loss in the fourth quarter of 2003 reflects the rise in rates and the winning of the mismatch “bet.”

Finally, the loss on the loan for the liability approach only represents the risk-free gain on assets sold that had not been recognized. The reduction in the fourth quarter reflects policyholder surrenders as well as a significant

amount of new policy issues that allow for the reversal of this piece.

CONCLUSION

The issues around B36 will continue to cause some despair in the industry as companies try to come up with the best approach and most valuable information for management, shareholders and policyholders. Some have also predicted the demise of modified coinsurance and coinsurance funds withheld agreements, and only time will tell. This article demonstrates that useful information can be obtained and explainable results can be developed for this complex and nebulous accounting requirement. Although significant work may be needed to set up a process for these calculations, much of the information needed is often readily available, and can provide insight into the synthetic risk exposures that companies have accepted. ☒

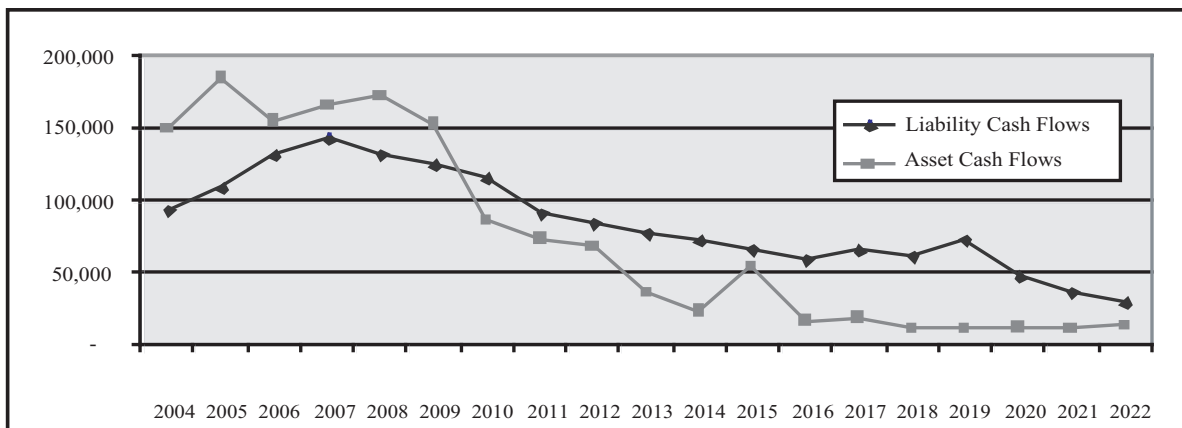


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Table 4



# EXPOSED! Variable Annuity Stochastic Requirements

by James W. Lamson

*Editor's Note: The section's Statutory Issues listserve would be an appropriate forum for discussing concepts in this article.*

This article is one in a series of articles intended to help keep members of the Financial Reporting Section up to date with ongoing developments in reserving and risk-based capital (RBC) requirements for variable annuities. It reflects the status of these developments as of mid-February, 2004. These requirements are based on the conditional tail expectation (CTE) measure and are applied to the results of running stochastic scenario projections. Please refer to the earlier articles in issues 53, 54 and 55 for important background information. This article assumes the reader already has a basic understanding of these new methods.

Those readers not having any direct responsibility for reserves or RBC for variable annuities may still want to familiarize themselves with the proposed methods, as this same basic approach to reserves and capital standards has been advocated by the American Academy of Actuaries for possible extension to other products and lines of business. In addition, many of the concepts underlying the proposal can be applied in the management of most insurance and annuity lines of business.

For readers wanting more information, the various reports of the C-3 Phase II and Variable Annuity Reserve Work Groups of the Academy can be downloaded from its Web site at [www.actuary.org](http://www.actuary.org). These reports contain a great deal of information and results of numerical testing. In addition, 10,000 prepackaged scenarios are also available for downloading, along with a scenario picking tool to select smaller subsets of representative scenarios.

## REGULATORY DEVELOPMENTS

The draft of the proposed rules for new RBC and reserving requirements have been exposed for comments by the NAIC. If you haven't already commented on them and want to do so, you should do so today! Comments on the proposed draft actuarial

guideline covering new reserve requirements can be sent to Mark Peavy at [mpeavy@naic.org](mailto:mpeavy@naic.org), while comments on the proposed RBC rules should be sent to Dan Swanson at [dswanson@naic.org](mailto:dswanson@naic.org). Please send a copy of your comments to Steve English at [english@actuary.org](mailto:english@actuary.org) at the Academy.

The December 2003 report of the Life Capital Adequacy Subcommittee (LCAS) of the Academy, authored by its C-3 Phase II Work Group chaired by Bob Brown, reinforced the recommendations made in its September 2003 and December 2002 reports. In addition, it released a set of 10,000 "prepackaged" stochastic scenarios, updated the status of factor development for the alternative methodology, provided a summary of the potential volatility of RBC as benefits move in and out of the money, and provided proposed changes to the RBC filing diskette. The Capital Adequacy Task Force (CADTF) of the NAIC (i.e., the former Risk-Based Capital Task Force) has adopted the proposed diskette changes, which were designed in such a manner as to be workable whether or not the CADTF decides to adopt the new RBC requirements for year-end 2004. Action on the proposed RBC requirements is expected at the March 2004 NAIC meeting or at the June 2004 meeting, at the latest. Should adoption not take place by June, the new RBC requirements could not become effective during 2004.

The Variable Annuity Reserve Work Group (VARWG), chaired by Tom Campbell, also presented a report at the December 2003 NAIC meeting. It contained a proposed actuarial guideline and requested that the Life and Health Actuarial Task Force (LHATF) expose it for comment, which LHATF subsequently did. The report also requested that LHATF decide on the final regulatory form of the requirements (guideline, regulation or law) and whether or not the reserve requirements should apply to business already in force. Other issues at the time included which level of CTE should be chosen for reserves (tentatively set at CTE 65, using the average of the 35 percent worst scenario results),

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... many of the concepts underlying the proposal can be applied in the management of most insurance and annuity lines of business.

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whether or not a minimum reserve formula should be included, how to allocate the total reserve to individual contracts and the so-called “timing issue” (how to calculate reserves in early January, given the amount of model-projection work that is involved). Three other questions were: when the new requirements would become effective, whether there will be a phase-in period, and whether a mechanism to dampen volatility is needed.

As noted, all the Academy reports described in this article are available at their Web site. The balance of this article discusses many of the topics included in the two December 2003 Academy reports described above and some new developments, as well.



### EFFECT OF FEDERAL INCOME TAXES

One of the more recent developments involves a fundamental change made to the proposed methodology for calculating reserves. You may recall that the proposals have heretofore specified that a company's federal income taxes are to be reflected in computing the projected future cumulative gains or losses, and that the Total Asset Requirement (TAR) used to derive the RBC amount is calculated by discounting these after-tax cumulative gains or losses at after-tax interest rates. Reserves were heretofore calculated in the same manner, except the discount rates were pretax. RBC was derived as TAR less reserves.

A fairly major change to the calculation of reserves is being recommended by the VARWG in its March 2004 report. The effect of the change is that the cumulative losses for reserves would be different from those for TAR in that they would ignore federal income taxes altogether. The concern was that, by assuming the increases in the working reserve (cash-surrender value) were deductible and that the benefits paid to contract holders were also deductible, true costs were being understated. Specifically, the decline in tax reserve that occurs following payment of benefits results in an increase in taxable income and higher federal income taxes. The inability to allow for this in the cash flows that make up the cumulative gains and losses is an artifact of the CTE method-

ology. A solution to this is to ignore federal income taxes in the calculation of cumulative gains and losses.

However, this means that an adjustment may be necessary in the calculation of RBC. The effect of both taxes and the admitted statutory deferred tax asset have been examined. An explanation of this is beyond the scope of this article. However, the net result is that it may be necessary to calculate RBC as TAR less an adjusted reserve amount. The adjusted reserve amount is equal to the statutory reserve, adjusted in some manner for less the deferred tax asset and less the company tax rate multiplied by the excess of the actual tax reserve over the cash-surrender value.

### ALTERNATIVE METHOD FACTORS

Progress has been made on the long-awaited alternative methodology. This was included in the December 2002 and subsequent C-3 Phase II reports. It provides insurers the option of applying factors to the underlying risk variables instead of running stochastic projections, but it is available to variable annuities that have only death benefit guarantees (i.e., no living benefit guarantees). It has been a very difficult and time consuming process to create the methodology required for this approach. To appreciate this, one

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need only consider the challenge: develop a broadly applicable yet practically implementable methodology that captures the complex interactions in a stochastic model! This is an even more daunting task when you remember that the LCAS proposal uses the CTE risk measure applied to the distribution of “lowest present value of accumulated surplus.”

Finally, it appears the wait for these factors is nearly over. Four sets of factors are being produced—for two different mortality bases and for two types of calculations (reserves and TAR)<sup>1</sup>. What follows is a brief paraphrase of the factor development documentation.

There are three components that sum to the total requirement:

- “CA” represents the provision for amortization of the unamortized surrender charges less surrender charge income. The calculation is deterministic and computed based on company-specific surrender charge schedules and “prudent best estimate” lapse rates, but using mandated interest rates, asset returns and a specified formu-



la for dynamically adjusting the lapse rates according to how much the contract guarantee is “in the money” on the valuation date. For simplicity, mortality has been ignored.

- “FE” represents the provision for fixed expenses less fixed revenues (e.g., per-policy expenses and per-policy charges). It is also calculated by the company using its own assumed expense rates and contractual expense charges, with other assumptions being similar to those used for CA. It is to include all allocated “per-policy” costs, including overhead.
- “GC” represents the provision for the cost of the guarantee of minimum death benefits, less net available spread-based charges. This is the most difficult of the three elements and includes one factor for the cost of the guarantee, and a second factor for the net spread-based charges, which is also multiplied by a third factor. Pre-calculated factor tables will be provided by the Academy. There are 80,640 sets of factors—one for each combination of the following attributes: (i) six product designs (return of premium, 3 percent rollup, 5 percent rollup, maximum anniversary value (MAV), the higher of MAV and 5 percent rollup and an enhanced death benefit), (ii) two guaranteed minimum death benefit (GMDB) partial withdrawal adjustments (proportional and dollar for dollar), (iii) eight asset classes, (iv) eight attained ages, (v) five contract durations, (vi) seven “in-the-money” levels (measured as the ratio of account value to guaranteed value—and may be less than or greater than one) and (vii) three margin levels (total of all asset-based product charges and mutual fund allowances, if any—that is, the total spread-based charge against policyholder funds). Along with these pre-calculated factors, the Academy is providing tools to perform the necessary table lookups and interpolations (multi-point linear interpo-

<sup>1</sup> In consultation with the AAA LCAS, Geoffrey Hancock, FSA, FCIA of Mercer Oliver Wyman designed the Alternative GMDB Methodology and constructed the factors using stochastic simulation.

lation is required across the last four attributes listed above). For example, for a given product design, partial withdrawal adjustment and asset class, the functions will extract the 16 “nodes” from the database of 80,640 and interpolate to produce an appropriate factor.

The factors must be applied on a seriatim basis, and each contract’s exposure (defined by asset mix) must be mapped into one of the eight fund classes. If the company’s products closely match one of the six product designs listed above, it will directly use the interpolated factors. If not, some adjustments will be required or the company will have to use factors that lead to a more conservative (higher) result. Adjustments may also be allowed to reflect certain forms of risk mitigation. Any adjustments to the factors must be supported by quantitative analysis. As a last resort, the actuary can try to reproduce the work performed in creating the published factors, including stochastic projections, and develop appropriate modifications. However, in this case, it may be easier to build a model of the actual business and run the stochastic projections!

Finally, the other aspect to consider is that a trade-off for the “simplicity” of applying factors rather than performing stochastic modeling will likely be larger reserves and RBC. This is because the “benefits of aggregation” (diversification) that result from combining risk exposures inside a model are not fully captured in the alternative methodology. A suitably constructed model can reflect the risk reduction benefits achieved from a diversified portfolio of assets, products and different levels of “in-the-moneyness.” Remember, the CTE measure is applied to an array of the largest present values of future cumulative *aggregated* losses for each of the scenarios. In this manner, a block of business that produces its largest present value at projection duration  $n$  may likely be overwhelmed in the aggregation by other blocks so that it contributes only small losses at the aggregate projection duration  $m$  at which the overall greatest present value occurs. As a result, the factor approach may result in reserves and RBC that exceed what would otherwise be model-produced by a considerable margin.

This is not a flaw in the alternative methodology, but rather a consequence of the intended objective: To develop a straightforward, factor-based approach for GMDB risks that is broadly applicable to the industry. By definition, such an approach is unable to capture all the nuances and variations that exist in the market, but that does not limit its usefulness as an *alternative* to internal company model projections.

## TIMING ISSUE

Progress has been made in developing solutions to the so-called timing issue. This refers to the fact that it will be difficult to build a model of your business in force and run the necessary stochastic projections following December 31 in time for annual statement filing. Two potential approaches to solving this problem have been identified thus far. One involves running multiple stochastic valuations and TAR calculations based on account values that have been “shocked up and down” prior to year-end to develop an interpolation between these “shocked” results. At the end of the year, you can derive the actual percentage change in market values and, using the interpolation formula developed earlier, “plug in” the actual percentage to quickly develop year-end reserve and RBC values.

The other approach involves running the projection before year-end and adjusting the results after year-end to bring them into line with actual values. The projection would run as close to year-end as feasible, and would incorporate, to the extent possible, knowledge about actual experience between the projection start date (which might be September 30) and the actual date the projection is run (which might be December 20) to make the projected in force and variable subaccounts as close as possible to those at the end of the year. Projected cumulative losses between year-end and the end of the study period (perhaps 30 years) would be discounted to year-end. In January, when actual account values are available, the results obtained in December would be adjusted to reflect the difference between the projected year-end val-

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... the factor approach may result in reserves and RBC that exceed what would otherwise be model-produced by a considerable margin.

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ues and actual year-end values. In this manner, a result that approximates a run performed at the end of the year is created with relatively little work being done in January. Projection systems could perhaps be modified to more easily and accurately accommodate this process.

### ALLOCATION TO INDIVIDUAL CONTRACTS

If the reserve was determined using the alternative method factors, or if the reserve was less than a minimum reserve determined on a contract-by-contract basis, then allocation to the contract level is not an issue. However, when the aggregate reserve is determined from model projections, it needs to be allocated to individual contracts. This is needed for tax purposes and perhaps for auditing/examination purposes, as well. Progress has been made in resolving how to do this. The VARWG will likely recommend an approach that allocates the excess of the aggregate reserve over the aggregate cash surrender values (or perhaps over the aggregate minimum reserve, if one is adopted) to individual contracts on the basis of a net amount at risk calculation.

While there are a number of unanswered details surrounding the allocation, current thinking is to calculate three types of net amounts at risk for each policy: one based on guaranteed minimum death benefits, another

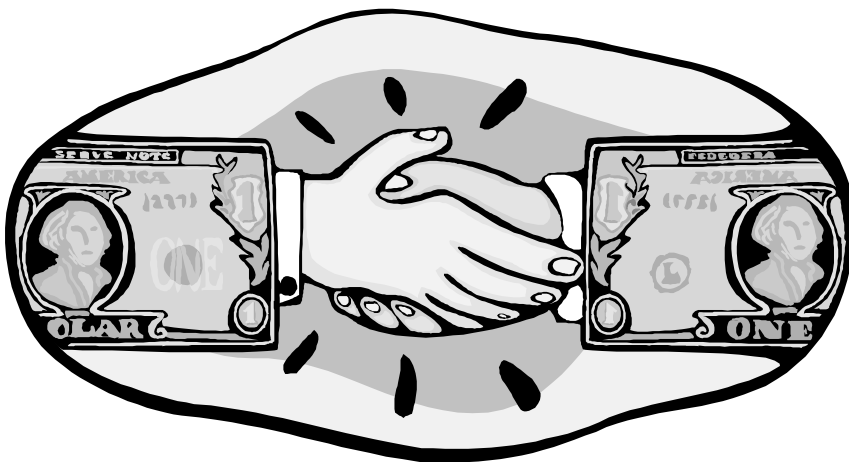
based on guaranteed minimum living benefits (if able to be elected during the period for net amount at risk calculation), and a third one based on the amortization of remaining surrender charges. The aggregate excess can then be set equal to  $x$  times the aggregate present values of net amounts at risk. Each contract's allocation is equal to  $x$  multiplied by the contract's present value of net amounts at risk.

### MINIMUM RESERVE OR TAR

A joint group of LHATF and CADTF members, chaired by Dennis Lauzon of the New York State Insurance Department, has been formed to pursue solutions to a number of challenges and regulatory concerns associated with application of these new methods. Some of the issues it is considering include (i) the potential need for a minimum mortality standard (both for modeling and for the alternative method factors), (ii) reviewing the calibration standards for development of fund return assumptions, and (iii) the possible establishment of two "standard scenarios"—one for reserves and another for the TAR calculation. In the current version of this latter proposal, the results of applying the standard scenarios would be reported by all companies along with their otherwise-calculated reserves and RBC. The scenarios would be applied at both the seriatim level and at the model level. This would serve various purposes, one of which is to allow the valuation actuary and the state regulatory actuaries to review how well the model validates to the seriatim calculation. The application of the reserve standard scenario would also result in a minimum reserve to be applied at the contract level.

### PRE-PACKAGED SCENARIOS

One of the recent major accomplishments of the C-3 Phase II Work Group was the development of 10,000 stochastic scenarios appropriate for use in the reserve and TAR projections. So, if you are unable to produce stochastic scenarios with fund returns integrated with stochastic interest rate scenarios, you may want to download these from the Academy Web site. Each asset class is represented by a ZIP file of about 17 megabytes.



Downloading all 12 is a very large download, so make sure you are using a fast Internet connection and have a lot of hard disk space available as the total package is more than 200 megabytes.

The scenarios are provided for six fixed-income asset categories, ranging from three-month Treasury yields to U.S. long-term corporate bonds. Stock market returns are also provided for six asset categories such as Diversified U.S. Equity, Diversified Balanced, etc. You must rate all these scenarios by number, so if you are projecting using scenario number 3,456 for equities, you must also use number 3,456 for Treasury yields and long-term corporate bonds. The Academy Web site also contains a report that documents the development and use of these scenarios.

Another important tool that has been provided is a scenario picking tool for use in

generating representative scenarios from this “universe” of 10,000. This has obvious value in perhaps being able to run fewer projections than 10,000.

## **BRAVE NEW WORLD**

The conceptual tools are available for entering the “brave new world” of stochastic reserving and determination of required capital. Go out and explore it! And, don’t forget to pass on your opinions to LHATF and CADTF.

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## **Deadline Extended for Pedoe Prize**

The deadline for eligibility for the first award of the Arthur Pedoe Life Insurance Company Expense Study Award has been extended to June 30, 2005. To be eligible for the \$5,000 award, which will be presented in late 2005, a paper must have been published between July 1, 2001 and June 30, 2005.

The purpose of the award is to increase awareness of the importance of expense analysis among actuaries and company management, by encouraging informative, high-caliber research and papers on the subject. To be considered, a paper must be based on sound actuarial and accounting principles and should be of such caliber as to advance the state of the art of expense analysis and related insurance company financial information. Papers must have been published in a suitable actuarial publication or written by an actuary and published in a non-actuarial publication.

Members of the SOA’s Committee on Life Insurance Company Expenses (CLICE) will judge entries in conjunction with the editors of the North American Actuarial Journal. The CLICE reserves the right not to give an award

in any period in which it does not consider any paper worthy of the award.

The Society of Actuaries and the CLICE instituted the award in 2001. The award is named for Arthur Pedoe, an actuary who was well known for his studies of life insurance company expenses. Pedoe was a Fellow of the Institute of Actuaries, the Actuarial Society of America, the Canadian Institute of Actuaries and the Society of Actuaries, where he held the office of vice president in 1958-59. He spoke frequently at Society meetings on trends in expenses and on the importance of controlling increases in expenses. For this purpose, he developed methods of calculating expected expenses to be compared with actual expenses. These methods were still in general use at the time of his death in 1979.

If you would like to submit a paper for consideration, please contact Steven Siegel, SOA research actuary, at 847.706.3578 or [ssiegel@soa.org](mailto:ssiegel@soa.org).

# Practical Considerations for Implementing the New Statement of Position for Long-Duration Contracts and for Separate Accounts – Part III

by Vincent Tsang and David Heavilin

*Editor's Note: The section's GAAP listserve would be an appropriate forum for discussing concepts in this article.*

**P**arts I and II of this article discuss several basic provisions and implementation issues of SOP 03-1. In Part III, we discuss some other implementation issues such as (a) estimated gross profits (EGP) under SOP 03-1 and SFAS 97, (b) EGP versus total assessment, (c) models for generating equity scenarios, (d) unlocking assumptions for additional liabilities, (e) interaction of additional liabilities when several guaranteed benefits exist in the same contract, (f) aggregation of additional liabilities and (g) cohort definitions for additional liabilities and deferred acquisition costs (DAC).

## ESTIMATED GROSS PROFITS UNDER SOP 03-1 AND SFAS 97

SOP 03-1 makes several significant revisions to GAAP financial reporting of benefit reserves for UL-type policies. First, “the balance that accrues to the benefit of policyholders” as defined in paragraph 17(a) of SFAS 97 is changed to the accrued account balance, as defined in paragraph 20 of the SOP. Second, insurance enterprises are required to hold cohort-type additional liabilities for mortality, morbidity and annuitization benefits. A related question is how these changes in GAAP benefit reserves affect EGP and actual gross profits for DAC amortization. Based on our review of SOP 03-1 and SFAS 97, our comments are summarized below:

- Paragraph 23 of SFAS 97 indicates that the policy balance should be used in calculating the interest and mortality components of the EGP. We believe that the introduction of accrued account balance should not affect EGP. This opinion is based on the fact that most insurance companies calculate net amount at risk, cost of insurance and credited interest using policy balance (that is, account balance) rather than accrued

account balance. As policy balance does not include interest that has yet to be credited, insurance enterprises should continue to use account balance to calculate the interest and mortality components of the EGP. Please keep in mind that additional liability is not part of the policy balance. Thus, the interest spread on the additional liability should not be a part of the EGP.

- Additional liabilities for mortality, morbidity and annuitization benefits affect EGP after the implementation date. Both paragraphs 29 and 34 of SOP 03-1 indicate that the EGP for DAC amortization should be adjusted to reflect the recognition of the additional liabilities. Schedule 5 of the numerical example included in Appendix E of the SOP further illustrates the need to incorporate the new EGP component, change in additional liabilities and in determining the final EGP for DAC amortization.
- SOP 03-1 does not provide clear guidance on how the additional liabilities for mortality and annuitization benefits at the initial implementation date should be reflected in actual gross profits prior to the implementation date. There are many possible approaches, and we suggest the following for your consideration.
  - Paragraphs 41(e) and (f) of the SOP indicate that any changes in contract holder liabilities, DAC, or present value of future profits should be reported through income in a manner similar to the cumulative effect of a change in accounting principle in accordance with the provisions of APB 20, “Accounting Changes.” Accordingly, the new guidance to establish additional liabilities for mortality and annuitization benefits is a change in accounting principle.



– Paragraph 20 of APB 20 states that the amount shown in the income statement for the cumulative effects of changing to a new accounting principle is the difference between (a) the amount of retained earnings at the beginning of the period of change and (b) the amount of retained earnings that would have been reported at that date if the new accounting principle had been applied retrospectively for all prior periods that have been affected and by recognizing only the direct effects of the change and related income tax effect. As the DAC balance affects retained earnings, the DAC balance at the implementation date should be recalculated as if the new accounting principle had been applied retrospectively for all prior periods. In other words, the revenues prior to the implementation date (that is, SFAS 97 actual gross profits) should be adjusted to reflect changes in additional liabilities for mortality and annuitization benefits.

– The final revenue stream for DAC amortization at the implementation date for in force UL-type policies is a combination of actual gross profits, with adjustments for changes in additional liabilities before the implementation date, and EGP, with adjustments for changes in additional liabilities thereafter.

The suggested approach is based on the presumption that the new guidance in the SOP 03-1 for the initial recognition of additional liability is a change in accounting principle. There are many other possible approaches. The magnitude of the change in DAC balance depends on the materiality of the additional liabilities at the implementation date. Actuaries should work with their enterprises' accountants to determine the most appropriate approach.

### ESTIMATED GROSS PROFIT VERSUS TOTAL ASSESSMENT

SOP 03-1 also introduces a new revenue item, total assessment, to establish and amortize additional liabilities for mortality and annu-

itization benefits. Paragraph 26 of SOP 03-1 defines total assessment as the aggregate of all charges, including those for administration, mortality, expense and surrender, regardless of how they are characterized. For contracts whose assets are reported in the general account and the investment margin is included in the EGP, the investment margin should also be included in the total assessment. Paragraph A34 of the SOP, Accounting Standards Executive Committee (AcSEC) acknowledges that total assessment and EGP may produce consistent results under certain situations. One may misunderstand such acknowledgement and argue for the use of current SFAS 97 EGP as the revenue stream to calculate benefit ratios and additional liabilities. We disagree with such an argument because these two revenue streams have many fundamental differences and should not be considered as comparable entities. Some of their differences are listed below:

- Total assessment focuses on collectible charges while SFAS 97 EGP focuses on spreads (that is, collectible charges minus the expected costs).
- Front-end load in excess of recurring load is a component of the total assessment, but may not be a component of EGP.
- Change in additional liabilities is a new component of EGP, but is not a component of total assessment.

We believe using total assessments to develop additional liabilities is the most defensible approach because the method is in accordance with the guidance provided in SOP 03-1. Another important consideration is that total assessments are always positive, while actual and expected gross profits can be negative in certain occasions. If some of the actual gross profits or future EGP are negative, it may be difficult to justify using negative revenue to develop actuarial liabilities.



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## MODELS FOR GENERATING EQUITY SCENARIOS

SOP 03-1 asks insurance enterprises to assess the risk profile of in-force variable contracts with book guarantees under a reasonable range of equity scenarios. Based on projected excess benefits and total assessments, insurance enterprises may then establish appropriate additional liabilities for these book guarantees. For insurance enterprises that have been using a dynamic hedging strategy against the book guarantees, the equity scenarios used to price the hedging assets appear to be reasonable equity scenarios for projecting excess benefits. If an insurance enterprise has not been actively pursuing a hedging strategy for the book guarantees, it may use a stochastic model to generate appropriate equity scenarios.

There are many models for generating equity scenarios. Two of the most commonly used models are (a) Linear Lognormal Model (LLM) and (b) Regime-Switching Lognormal Model with Two Regimes (RSLN-2). Both models assume that the natural logarithms of equity returns are random variables distributed in accordance with a normal distribution. Since its introduction, LLM has been widely used in the valuation of financial derivatives. RSLN-2 goes a step further and incorporates an additional sophistication that allows projected equity returns to switch between a bull market and a bear market.

It is a general consensus that RSLN-2 provides a better assessment of the equity risk. However, it requires more input parameters for the simulation. Actuaries who are interested in using any stochastic equity model should work with their enterprises' investment professionals to develop appropriate input parameters. Please do not rely on the equity scenario generator to do everything for you. Actuaries must review the generated equity scenarios and use either graphs or other analytical tools to validate their reasonableness. Using a group of widely volatile equity scenarios does not necessarily mean that the equity risk of the book guarantees is properly assessed. Human intuition is always an important factor.

While we agree with and support the effort to provide fair-value accounting for insurance liabilities in the near future, we believe that the guidance in SOP 03-1 should not be con-

strued as the method to determine the fair-value of book guarantees such as GMDB and VAGLB. As of today, the jury is still out on the definition and method to determine the fair-value of insurance liabilities.

If fair-value accounting is not required, we need to determine whether it is necessary to perform the projection analysis using 10,000 or more equity scenarios. If computer run-time is not an issue, using more scenarios should, in theory, produce a better estimate. In reality, run-time is an issue for almost all insurance enterprises. The situation becomes more acute for insurance enterprises having lots of variable contract cohorts for the analysis. Prior to computing the additional liabilities for all cohorts, insurance enterprises may calculate the additional liabilities for a few representative cohorts using progressive numbers of equity scenarios. By gradually increasing the number of equity scenarios for the analysis, the insurance enterprise may evaluate the significance of changes in additional liabilities and choose the optimal number of equity scenarios for the entire block of business. In brief, our suggested method is listed below:

1. Select a few representative variable contract cohorts.
2. Perform the analysis for the selected variable contract cohorts using 100 equity scenarios.
3. Perform the analysis for the selected variable contract cohorts using 500 equity scenarios.
4. Compare the results using 500 scenarios with results obtained from just 100 scenarios and measure the variance.
5. Perform the analysis for the selected variable contract cohorts using 1,000 equity scenarios.
6. Compare the results using 1,000 scenarios with results obtained from just 500 scenarios and measure the variance.
7. Determine whether there are noticeable differences between the variances obtained in steps four and six.
8. If the differences are within a predetermined tolerance level, expand the sample size of selected variable contract cohorts.
9. Perform steps one through seven for other newly selected variable annuity cohorts. The goal is to test whether the first set of selected sample of variable contract cohorts is a representative sample.

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**Human intuition is always an important factor.**

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10. If the differences of results for the newly selected sample between 500 scenarios and 1,000 scenarios are also within a pre-determined tolerance level, document the results.
11. Perform analysis for the remaining variable contract cohorts using 1,000 scenarios.
12. If the differences are not within a pre-determined tolerance level, continue to perform the analysis using 2,000 scenarios and compare the variance again. Repeat this step with more equity scenarios until the differences are within a predetermined tolerance level.
13. Perform the analysis for the remaining variable contract cohorts.

This suggested method may assist the actuary in striking a reasonable balance between run-time and accuracy. Obviously, the actuary must still determine the tolerance level for the variance. A very narrow tolerance would lead to a large number of equity scenarios and a very long run-time. We would also suggest that the insurance enterprise periodically reviews and re-determines the optimal number of equity scenarios.

## UNLOCKING ASSUMPTIONS FOR ADDITIONAL LIABILITIES

As discussed in Part I, an insurance enterprise should first determine whether a nontraditional long duration contract (LDC) is an investment contract or a UL-type insurance contract. If the LDC meets the criteria of a UL-type contract, the insurance enterprise should establish additional liability for the contract in accordance with the SOP provisions.

Paragraphs 26, 28, 31 and 33 of SOP 03-1 provide guidance for establishing additional liabilities for mortality and annuitization benefits. Paragraphs 27 and 32, on the other hand, provide guidance for unlocking the assumptions for additional liabilities. In particular, these two paragraphs indicate that an insurance enterprise should regularly evaluate estimates used and adjust the additional liability balances, with a related charge or credit to benefit expense, if actual experience or other evidence suggests that earlier assumptions should be revised. The present

value of total excess payments and the present value of total expected assessments and investment margins should be calculated as of the balance sheet date using historical experience from the issue date to the balance sheet date and estimated experience thereafter.

A related question is how often we should unlock the assumptions for additional liabilities. For general account UL-type policies, unlocking actuarial or interest assumptions may only involve revising mortality, lapse, expense or interest assumptions. Unlocking the equity assumption for cohorts of variable annuity business, however, involves regenerating thousands of equity return scenarios. For companies that prepare quarterly GAAP financial statements, unlocking the assumptions on a quarterly basis appears to be reasonable. For companies that need to closely monitor the business, unlocking the assumptions on a monthly basis may become necessary. Each insurance enterprise should determine the appropriate interval for unlocking the assumptions in light of its needs, resources and access to availability of credible accounting data.

We would like to recommend the following for your consideration:

1. The true-up process for additional liabilities (that is, replacing expected experience by actual experience) should be consistent with that for DAC.
2. Based on emerging experience, an insurance enterprise should evaluate and revise, if necessary, actuarial assumptions for DAC and additional liabilities.
3. As equity markets are volatile and unpredictable, the actual equity return pattern is unlikely to be the same as any of the generated equity scenarios. Actuaries should work closely with investment professionals to evaluate whether it is desirable to revise input parameters for generating equity scenarios.
4. As changes in additional liabilities become a new component of EGP for DAC amortization, there should be consistency between the unlocking of assumptions for DAC and additional liabilities.

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### INTERACTION OF ADDITIONAL LIABILITIES WHEN SEVERAL GUARANTEED BENEFITS EXIST IN THE SAME CONTRACT

We have seen the proliferation of guaranteed benefits over the last few years, and it has become a common practice for insurance enterprises to offer multiple guaranteed benefits on the same contract. SOP 03-1 clearly states that additional liability should be set up for guaranteed benefits; however, it does not specify the procedure to be used when multiple guaranteed benefits exist in the same contract.

Let's consider the case of two mutually exclusive guaranteed benefits (for example, GMDB and GMIB). While these two benefits are mutually exclusive on a contract level, these two benefits are not mutually exclusive on a cohort level. Some contract holders in the cohort may die and receive GMDB; some contract holders may choose to receive GMIB benefits, and the remaining contract holders may choose to surrender their policies for cash. Insurance enterprises should compute GMDB and GMIB additional liabilities for each cohort by considering simultaneous occurrence of mortality, annuitization and surrender activities. Each cohort's GMDB and GMIB additional liabilities may then be combined with the counterparts of other cohorts to form the final GMDB and GMIB additional liabilities of the entire block. This approach can be used for any number of guaranteed benefits within a cohort.

The existence of two or more guaranteed benefits within the same contract may have certain effects on actuarial assumptions too. For example, if the GMIB option provides a greater benefit than the GMDB option, a terminally ill contract holder may opt to exercise the GMIB option with an annuity not involving life contingencies. Actuaries should consider incorporating such relationships in setting the assumptions on mortality and annuitization rates.

### AGGREGATION OF ADDITIONAL LIABILITIES

Paragraphs 28 and 33 of the SOP state that in no event should the additional liabilities for mortality and annuitization benefits be less than zero. It is not very clear whether this non-

negative rule should be applied on a block basis or individual cohort basis. As a block of business is composed of its cohorts, applying the non-negative rule on a block basis would generally lead to lower additional liabilities.

An argument in favor of applying the non-negative rule on a block basis is that the reserve for a block of business should be the sum of the reserves for all cohorts within the block. Another argument is that some cohorts may be too small to achieve an appropriate economy of scale. For small cohorts, significant claims in prior months may reduce the additional liability to a negative amount. Combining small cohorts with a bigger cohort may achieve a better economy of scale and avoid the negative reserve situation. If the non-negative rule is applied to each individual cohort, it may unnecessarily increase the additional liability for the entire block. An argument in favor of applying the non-negative rule to each cohort is that each cohort should be self-supporting.

We believe that applying the non-negative rule for the entire block probably makes more sense. However, this aggregation is meaningful only when additional liabilities for all cohorts are calculated using consistent equity scenarios. If the additional liability for one cohort is calculated using equity scenarios with pessimistic assumptions, while the additional liability for another cohort is calculated using equity scenarios with optimistic assumptions, it may be difficult to justify combining the positive additional liability from one cohort with the negative additional liability of another cohort.

Regardless of whether insurance enterprises apply the non-negative rule on a block basis or individual cohort basis, we believe SOP 03-1 does not allow insurance enterprises to use the negative mortality additional liability to offset positive annuitization additional liability and vice versa.

### CONSISTENCY OF COHORT DEFINITIONS FOR ADDITIONAL LIABILITIES AND DAC

SOP 03-1 does not provide specific guidance to establish cohorts for additional liabilities. One possible approach is to use cohorts for DAC as cohorts for additional liabilities. Another approach is to have different cohort definitions



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for additional liabilities and DAC. The first approach offers simplicity while the latter approach may be more flexible.

Paragraphs 29 and 34 state that the EGP used for the amortization of DAC should be adjusted to reflect the recognition of the additional liabilities. If cohorts for computing additional liabilities are the same as cohorts for DAC, changes in additional liabilities may then be incorporated directly into EGP streams. Otherwise, the insurance enterprise may have to allocate changes of additional liabilities to various EGP streams. This may become even more troublesome if some of the cohorts have significant negative additional liabilities. For example, a cohort may experience a significant benefit claim in the current period such that the additional liability goes from a positive amount at the beginning of the period to a negative amount at the end of the period. The amount of negative reserve may be so significant that the aggregative additional

liability for the block of business is negative. Because of the non-negative rule, the reported additional liability for the entire block of business is zero. There may not be a convenient way to allocate this zero reserve to various cohorts so that the change in additional liability can be properly reflected in EGP for DAC amortization.

For the ease of maintaining the valuation system going forward, we suggest insurance enterprises consider using consistent cohort definitions for additional liabilities and DAC.

## CONCLUSION

The implementation topics we discuss in our articles simply touch the tip of an iceberg. We hope our suggestions ease your implementation of SOP 03-1. We are interested in hearing from you regarding your issues and solutions. ☒

# Highlights of the December, 2003 NAIC Life and Health Actuarial Task Force Meeting and Other NAIC Topics

by Ted Schlude

*Editor's Note: The section's Statutory Issues listserve would be an appropriate forum for discussing concepts in this article.*

I attended the NAIC Winter Meeting held in Anaheim, Calif. from December 5-8, 2003. Meetings attended included the activities of the Life & Health Actuarial Task Force (LHATF) and various working group and committee meetings of the NAIC as described below.

## LIFE AND HEALTH ACTUARIAL TASK FORCE

The LHATF met on December 5 to discuss life topics as well as receive an update from the Accident and Health Working Group, which is a subgroup of LHATF that met on December 4. A summary is provided as follows.

### 1. Long-Term Care Reserve Revisions:

LHATF received the report of the A&H Working Group, which included recommendations to adopt as a final work product the revisions made to the Health Reserves Model Regulation, which refines long-term care reserving standards. The revisions include requirements for provision in reserves for moderately adverse deviations in aggregate, forbid reflection of morbidity improvement, decrease the lapse rates allowed on new issues and define mortality on new business as the 1994 Group annuity Mortality (GAM) Static Table. Lapse rates allowed for reserves for policies issued on or after 1/1/05 decreased as follows.

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Policy Year 1:	Lesser of 80 percent of pricing and 6 percent
Policy Years 2-4:	Lesser of 80 percent of pricing and 4 percent
Policy Years 5-on:	Lesser of 100 percent of pricing and 2 percent (3 percent for employer group contracts)

Morbidity improvement on existing in force may be allowed, provided it is acceptable to the commissioner of the state of domicile.

## **2. Individual Annuity Nonforfeiture Law Implementation Issues:**

The Academy reviewed its current draft model regulation on annuity nonforfeiture implementation. The document was split into two pieces, with a separate piece related to a discussion of “value trigger methods,” which received much discussion by regulators during an interim conference call. The value trigger method would specify thresholds of change under which the indexed minimum NF rate would not move, based on certain materiality triggers. This approach falls somewhere between a monthly and an annual reset method. Several regulators appeared sympathetic to the value trigger method.

The document also includes actuarial certifications for EIA compliance at contract filing date and annual certifications that last year’s contracts continue to meet the up to 100 bp reduction qualification standard (the opinion varies by methodology used: cost-based approach or market value approach).

The Academy asked LHATF members to participate in its weekly conference calls and an LHATF conference call will also be scheduled to discuss the various options.

## **3. Update on C-3 Phase II and Variable Annuity Reserve Work Group:**

**C-3 Phase II:** Bob Brown gave a brief update on the status of the C-3 Phase II RBC project. He noted that the stochastic scenarios had been released on the Academy’s Web site, which was one of the two pending deliverables for completion of the Academy’s report. The other deliver-

able, GMDB factors, was not yet released but is expected shortly. Bob indicated that the Academy’s goal was for the NAIC Life RBC Working Group to adopt a placeholder in the RBC formula for the C-3 Phase II effect (this was adopted by Life RBC later at the December NAIC meeting). The placeholder will allow the programmers to designate a blank in the formula and leaves the Life RBC Working Group through June 30, 2004 to define in the RBC Instructions the actual process for implementing the C-3 Phase II adjustment in the 2004 RBC calculation. It would also allow the Life RBC WG to ignore the adjustment at year end 2004, if an acceptable framework cannot be developed by June 30, 2004.

### **Variable Annuity Reserve Working Group:**

Tom Campbell, chair for the Academy’s Variable Annuity Reserve Work Group, reviewed a rough draft of an actuarial guideline on VA reserving. This group is playing catch-up with the C-3 Phase II project. In terms of reserving methodology, it is envisioned to dovetail with the methodology constructed in C-3 Phase II RBC, focusing on some lower level of conditional tail expectation (CTE) such as CTE 65. Some of the issues being considered include: 1) use for all VA contracts 2) replacing AG34 and AG33 for VA and 3) simplified factors for GMDB similar to RBC, but at CTE 65. The working group in its report asked for regulators’ input on certain aspects of the potential guidance in order to move ahead with drafting, with a goal of adopting some type of guidance by 2004 year-end, consistent with the goals related to the RBC project. A summary of key issues is contained in the Academy’s report. Decisions made are discussed below.

– Actuarial Guideline, Model Regulation or Model Law: Regulators endorsed the AG approach as the one most suited to achieving consistency across states, application to in-force policies, as well as consistency with the RBC approach, which applies to all in-force policies.

– In-Force Application: All regulators endorsed application to in-force policies, given the lack of guidance that exists in the current framework.

- CTE Level for Reserves: There was no objection from regulators to using CTE 65 for reserves. Prudent best estimates assumptions have been recommended by the Academy.
- GMDB Factor Approach: The Academy will also develop factors similar to those planned for RBC, but at the CTE 65 threshold instead of CTE 90.
- Other Issues: Items that still need to be resolved include: minimum floors; approximating results using prior period data, given the time and complexity of running models concurrently with annual statement preparation; allocation of reserves at the contract level; effective date; phase-in of reserve increases; and whether there should be volatility dampening similar to the approach used for AVR.

The industry feels that, at a minimum, the results of C-3 Phase II should be excluded from the life RBC formula trend test. It was noted that whatever certification or memorandum is required, it should maintain the same confidentiality as that accorded to the RBC report itself.

New York indicated that it would be receptive to volatility dampening, if there were some economic support for such methodology provided by the Academy.

Finally, a long discussion took place with respect to the activities of the Regulatory Oversight Working Group, focusing mainly on assumptions. With respect to mortality, the Academy has used in its work 65 percent of the AG 34 GMDB mortality table, citing various companies' actual experience where mortality has been significantly lower than the AG 34 GMDB Table. The Academy feels that assumptions should reflect prudent best estimates. Regulators wonder whether there might be some underreporting of deaths in cases where no death benefit in excess of account value is paid. Regulators considered a proposal for minimum standards or floors on mortality for formula reserves and for modeling purposes, but neither of these proposals passed LHATF (there was both a 100 percent for-

mula/85 percent modeling and an 85 percent formula/85 percent modeling proposal). This will be considered further in a conference call. Key assumptions are calibration point criteria and mortality.

The Academy report and draft actuarial guideline were exposed for comment, knowing that complete consensus has not yet been reached.

Several industry trade groups and two companies raised timing concerns with respect to both the RBC and reserving aspects, saying that complete Academy reports have not yet been completed, therefore there has not been enough time allowed for companies to digest the material and the reserve/RBC direction being contemplated.

Others view the exposure and discussion that has taken place over the past several years as adequate exposure in an area that is in need of guidance.

**4. General Nonforfeiture Project:** This project was discussed generally, but there were no new developments. Certain regulators continue to view the life nonforfeiture law as not working for policies containing non-guaranteed elements and would like specific items addressed in a new law, such as smoothness, return of premium provisions, disclosure, limits on mortality, expense and interest credits, as well as secondary guarantees.

The industry continues to be apprehensive regarding what tax law implications might result from the NF law revisions, as well as making sure that items that are not guaranteed today, such as dividends, do not somehow become guaranteed under a new framework. Other regulators do not see this as a project where they will ever reach consensus.

**5. Possible Areas of Revision to the Standard Valuation Law:** LHATF continues to consider in conference calls whether certain revisions to the SVL are warranted. The current issue being studied is deficiency reserves and whether they continue to be necessary within a statutory

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framework that leans more heavily toward asset adequacy analysis as the acid test for reserve adequacy.

**6. Credit Life Insurance Mortality Table:**

Revisions made to the Credit Life Insurance Mortality Table Model Regulation were re-exposed by LHATF for comment and would introduce the 2001 CSO Male Composite Ultimate Mortality Table as the standard for credit life policies issued after the effective date.

**7. Reserving and Nonforfeiture for Return of Premium Term Insurance:**

A conference call was held to discuss reserving and cash value issues related to ROP provisions in term products. Industry and regulators discussed Section 8 of the nonforfeiture law that was intended to address deposit term products. The consensus was that the concepts should also apply to ROP provisions. It was noted that Utah, Washington and New York do not allow ROP in life products. Mark Peavy will prepare a survey to the states related to the existence of these products in state filings. LHATF will then prepare a report to the Life (A) Committee on the results of the survey regarding the existence/prevalence of these types of products and what, if any, actions should be taken.

**8. Other Matters:** It was noted that during the NAIC meeting an ABCD/Regulator Liaison Meeting will take place to hear life/health regulatory actuaries' issues and concerns.

**ABCD/REGULATOR MEETING**

A special liaison meeting between the ABCD and regulators was held to determine if there were specific issues that needed to be addressed on the life and health side. Frank Irish of the ABCD began with a statement emphasizing the increased reliance placed on actuaries by the regulatory framework including:

- Cash-flow testing/asset-adequacy analysis
- P&C loss reserve opinions
- XXX Mortality and X Factor Certification
- Illustration Actuary

- Health Rate Filings
- C-3 RBC Interest Rate Testing
- Equity-Indexed Life and Annuity Certifications
- Pending Projects, such as C-3 Phase II

Therefore, regulators place a significant amount of reliance on the actuary's professionalism and judgment.

The Academy then briefly discussed requests for guidance (RFG), which are usually handled by a single member of the ABCD, and stated that regulators should feel free to use such procedures. Regulators noted that it appears compromises have been made in complying with the Long-Term Care Model Regulation in the area of margins, and that the probability of future rate increases may be high for certain products. Finally, it was noted that in Canada, the Canadian regulator has begun to grade the actuarial memorandum as part of its review process.

**EXECUTIVE/PLENARY**

Executive/Plenary adopted the following items as part of its regular meeting:

Revision to Health Reserves Model Regulation: Section 2—Guidance clarifying procedures to be used in DI claim reserves with respect to recognition of a company's own experience in the first two years of a claim (or five years with Commissioner's approval).

Actuarial Guideline 34 Revision: This revision addresses GMDB reserves in variable annuity contracts and recognition of the dollar-for-dollar free partial withdrawal provisions contained in many VA contracts, utilization of which could serve to lock in death benefits. This revision would not require future recognition of dollar-for-dollar partial withdrawal utilization in basic GMDB reserves; however, the VA contract reserves with guarantees would be subject to a stand-alone asset adequacy analysis.

Finally, many out-of-date models were eliminated from the NAIC framework, based on reviews by various committees and working groups.



**RISK-BASED CAPITAL TASK FORCE**

Several working group and task force meetings are described below.

**1. Life Risk-Based Capital Working**

**Group:** Discussion by the Life RBC working group focused on the C-3 Phase II project as well as certain aspects of C-3 Phase I.

**C-3 Phase II Project:** Bob Brown representing the Academy gave an update with respect to the status of the final Academy report. Stochastic scenarios have been posted on the Academy's Web site. The factor approach for GMDB is close to being finalized. The Academy recommended that the Life RBC Working Group put in a placeholder in the RBC formula for C-3 Phase II in order to allow for a 2004 effective date. Issues with respect to methodology/instructions, etc. can be addressed in the next six-month period to finalize the RBC instructions by the June 30, 2004 deadline. If all the issues are not resolved, the Life RBC working group would still have the option of deferring the effective date to December 31, 2005. The Life RBC Working Group received various comments from interested parties including two company objections to the timing of the project because complete analysis of the impact on the industry has not yet been quantified. The ACLI provided specific comments on volatility. The ACLI proposal would blend the capital held as of the prior year-end with the CTE 90 capital calculation as follows:

	Weight for Prior Year Capital Held	Weight for CTE 90 Based Capital at Current Year End
Year 1	80%	20%
Year 2	60%	40%
Year 3 – on	40%	60%

The proposal as constructed has no mechanism to adjust for business volume levels in the blending. New York asked for economic support for dampening volatility.

The working group discussed the life trend test, because the volatility that might be introduced by C-3 Phase II could result in companies' triggering the trend test company action level. Regulators indicated that if they decide to introduce smoothing or dampening of volatility, then the effect of C-3 Phase II should be included in the trend test.

The ACLI also argued for dates similar to those allowed for C-3 Phase I, which permit use of September 30 calculations, provided the actual RBC calculated at December 31 is within a specific tolerance, and also proposes credit be accorded in the RBC computation for excess statutory reserves.

Several others voiced support for moving ahead, noting that there is nothing in the current C-3 RBC framework for GMDB, simply the 1-2 percent factors for VAGLBs.

The Life RBC Working Group adopted the formula change, and the draft instructions were exposed for comment with the understanding that there are many issues to resolve, as the instructions must be prepared by June 30, 2004.

Next, the Regulatory Oversight Working Group discussed mortality assumptions to be reflected as part of C-3 Phase II modeling. Several regulators feel that the prudent best estimate approach proposed by the Academy should be loaded for margins for adverse deviation. This is both a basic reserve issue as well as an RBC modeling issue. The Academy has suggested 65 percent of the GMDB table mortality as representative of company experience. Regulators are apprehensive that not all

deaths have been considered in the experience comparisons, particularly in cases where there is no enhanced death benefit. The regulators continue to consider whether some benchmark minimum such

as 85 percent to 100 percent of the GMDB table is appropriate, although a proposal to introduce this requirement was defeated during the LHATF meeting as well as at the Life RBC Working Group meeting.

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**Academy ModCo Proposal:** The RBC Working Group is continuing to study RBC issues related to ModCo Reinsurance and the effect that exclusion of the ModCo portion of the dividend liability has on the total adjusted capital calculation.

**Worker's Compensation Carve Out:** The Academy reviewed various comment letters and has decided to refine one of the factors from 9.5 percent to 6 percent of loss recoverables. Certain companies continue to object to the factors, because they are based on a larger category of P&C business rather than simply worker's comp. The Life RBC Working Group adopted the W/C carve out proposal, which will specify the following factors for 2004 year-end Life RBC.

Premium Factor	36.4%
Reserve Factor	34.7%
Reinsurance Recoverable Factor	6%

**C-3 Phase I and New York Proposal:** The Life RBC Working Group will continue to consider a New York proposal to require C-3 Phase I testing for all companies, under the assumption that the C-3 basic factors are too simplistic and reflect an assumption that a company's assets and liabilities are closely matched. The second proposal would propose standards for C-3 Phase I opinions and supporting memoranda comparable to the AOM for reserves.

Finally, Larry Gorski, the Chair of the Academy's Life Capital Adequacy Subcommittee, raised an issue related to equity indexed annuities, where it appears that EIA should be included in the significance test for C-3 Phase I, but are illogically precluded from being in the C-3 Phase I testing that might result. Also, the Academy has proposed that companies be allowed to do the C-3 Phase I testing even if they are exempt, provided they don't switch back and forth between the formula and the testing approach.

**2. RBC Ad Hoc Subgroup:** The Ad Hoc Subgroup of the RBC Task Force forwarded its report to the RBC Task Force with a recommendation *not* to proceed with the P&C ACL proposal which would have increased base RBC by 50 percent for P&C companies.

However, the subgroup recommended that it continue to study the trend test and external factors such as Sarbanes/Oxley, which may serve to strengthen the overall system. One idea being considered is adding another trigger level within RBC to possibly get to a point where a company's corrective action plan could be triggered somewhat earlier than in the current RBC framework. It was noted that certain risks of P&C companies such as catastrophes, nature of claim reserve understatements, etc., create significant industry differences, such that the trend test may not be as effective for P&C companies.

Finally, the ad hoc subgroup hopes to study operational risk in more detail in 2004 and will begin reviewing sources, types, definitions and methods of measuring operational risk.

**3. RBC Task Force:** The RBC Task Force received reports from the life, health, P&C and Ad Hoc working groups. Discussion focused on an issue raised by the AICPA related to disclosure in the footnotes to the financial statements of differences between state prescribed or permitted practices that impact RBC reporting.

The group decided that disclosure should be in the confidential RBC report rather than in the footnotes to the financial statement because the RBC detail was intended to be confidential. The task force will recommend that the Statutory Accounting Principles Working Group not adopt the AICPA proposed guidance but rather develop a disclosure note as part of the confidential RBC report.

## VALUATION OF SECURITIES TASK FORCE

I attended the Invested Asset Working Group and the SVO Oversight Working Group meetings.

### 1. Invested Asset Working Group:

– BA Asset Proposal: The scope of this project was scaled back to focus on those assets in Schedule BA where the insurer is getting favorable AVR, RBC factor treatment. The SVO would begin to review those assets where favorable treatment via the bond or preferred stock look-through approach in Schedule BA results.

– Possible Modification of RBC for Preferred Stock: This request originally came from New York's Mike Moriarty, who noted that rating agencies no longer maintain two rating scales: one for bonds and one for preferred stock. This unified scale approach began in 1996 with the last rating agency moving to a single scale during 2001. On preferreds, the rating agencies now reflect any items related to structure of the security directly in the rating itself. The NAIC will review whether its two-tiered structure bonds/preferred needs to be revised, given the rating agency approach and the use by the RBC system of ratings by Nationally Recognized Securities Rating Organizations (NRSRO).

It appears that, given the NAIC RBC structure, there is a double counting of RBC in that higher preferred stock RBC factors are being used for preferred ratings that are on a unified bond/preferred scale. The IAWG asked the SVO Oversight Group to develop standards for notching that could be considered for AVR/RBC.

### 2. SVO Oversight Working Group:

– Dominion Bond Rating Service (DBRS): This rating agency was added by SVO Oversight as a NRSRO (along with Moody's, S&P and Fitch).

– SVO Proposal for NAIC 3-5: The SVO Oversight Working Group will consider a proposal from the SVO to eliminate AVR for NAIC 3-5 securities and to carry these securities at market value in the life statement similar to the approach used for P&C companies.

## ACCOUNTING PRACTICES AND PROCEDURES TASK FORCE

Various meetings of working groups reporting to the Accounting Practices and Procedures Task Force are described below.

### 1. Statutory Accounting Principles Working Group:

– Hearing Agenda: SAPWG continues to work on SSAP No. 88. Investments in Subsidiary Controlled and Affiliated (SCA) Entities. Issues to be resolved include the 20 percent bright line test, definition of revenue and certain other issues. SAPWG adopted SSAP No. 89, Accounting for Pensions, which replaces SSAP No. 8. This SSAP clarifies the guidance for accounting for the additional minimum liability (AML), as this issue was highlighted by the downturn in the markets in 2001 and 2002. SAPWG clarified that this new guidance (where AML runs through capital and surplus similar to unrealized gains and losses) would not require restatement of prior periods' financial statements.

– Meeting Agenda: Incorporation of 2001 CSO into codification was discussed at the meeting agenda. Texas was pursuing a customized solution to codification disclosure, given that 2001 CSO is effective in Texas during 2003. The SAPWG decided that the best solution was to incorporate a January 1, 2004 effective date, which will coincide with the majority of the states' regulations. It was noted that the materiality test should be reviewed if a company is dealing in Texas with the 2003 stub year for codification disclosure purposes.

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**2. NAIC/AICPA Working Group:** Material discussed by the NAIC/AICPA working group includes: 1) a summary of responses to Sarbanes/Oxley by the banking and thrift industry for comparison purposes and 2) a comparison by NAIC staff of Sarbanes/Oxley to the NAIC Model Audit Rule. The working group reviewed various aspects of the NAIC staff comparison, and most likely will incorporate relevant material from Sarbanes/Oxley into its Model Audit Rule.

The NAIC/AICPA working group briefly discussed security issues raised by accounting firms related to the availability of their electronic CPA work papers during examinations, and will continue to work through the issues in order to make the examinations more efficient.

**3. International Accounting Standards Working Group:** The working group discussed the NAIC's October 30, 2003 response to the IASB insurance contracts paper. Also noted was a comment paper from the International Association of Insurance Supervisors (IAIS). Finally, the IASWG discussed an initiative by the IASB foundation to review its constitutional arrangements. Regulators and the industry have raised on several occasions the lack of complete openness in the IASB standards setting process. The mismatch problem continues to be the biggest problem with the IASB fair value approach.

**4. Insurance Securitization Working Group:** This working group dealt mainly with P&C issues at this meeting, but it was noted that final papers from the IAIS dealing with non-life securitizations and life securitizations are available on the IAIS Web site ([www.iaisweb.org](http://www.iaisweb.org)).

Department on November 17, 2003 on Rating Issues and Outlook for U.S. Insurance Sector. The working group also received a presentation given by IMSA on reputational risk.

Other areas that the NAIC Working Group is investigating relate to the different views of rating agencies related to covariance. S&P does not recognize covariance. Fitch is in the process of incorporating covariance into its new capital formula.

The working group will also survey rating agencies on how they view operational risk at the request of the RBC Task Force Ad Hoc Subgroup.

**2. Reinsurance Task Force:** This working group continues to consider arguments from non-U.S. reinsurers related to relaxing the standards for collateralization. Issues that continue to be road blocks include the ability to rely on foreign companies' financial statements and the enforceability of U.S. judgments in foreign countries under the terms of a reinsurance contract. It was pointed out that the United Kingdom might be a lot closer to the United States in its regulatory framework than the E.U. might be. Items highlighted by the U.S. industry as areas of difference include:

- Affiliated transaction controls in the United States
- Capital requirements in the United States
- Actuarial opinion required for P&C companies in the United States
- Credit for reinsurance and risk transfer requirements in the United States

The task force may revisit the working trust concept if progress on the collateralization requirements cannot be made. ☒

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The next NAIC meeting will be held March 11-16, 2004 in New York City.



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## OTHER MATTERS

**1. Rating Agency Working Group:** The Rating Agency Working Group discussed a presentation provided by S&P that was prepared for the New York Insurance

explain to senior management when earnings are reported each period. Likewise, they will be difficult to reconcile from period to period. Establishing a reserve in lieu of the account value using Methodology Two (i.e., excess benefits are defined as death benefits paid throughout the entire lapse-protected period) also eliminates the loss in the later policy durations, but results in a smoother emergence of profit (as a percent of premiums or policy assessments and gross profits), and therefore may produce a more desirable result.

It seems clear that the SOP establishes a requirement to hold an additional reserve for lapse-protected products. The methodology for doing so is substantially less clear, which creates opportunities for actuaries to give insight to senior management by illustrating the consequences of the alternative methodologies. ☒

## PERFORMANCE MEASUREMENT SEMINAR

Plan on attending the Performance Measurement for Life Insurers Seminar immediately following the Valuation Actuary Symposium in Boston. This will be a one-day seminar starting in the afternoon of September 21. Co-sponsored by the newly formed Risk Management Section and the Financial Reporting Section, this seminar will cover the practical aspects of:

- Accurately measuring performance using existing accounting bases, such as U.S. GAAP
- Likely issues of implementing fair value under international accounting standards and its use in measuring performance
- Company-tailored approaches such as embedded value (EV) and risk adjusted performance measurement
- Rating agency reaction to EV disclosure
- Analysts' views of insurance company performance measurement and the need for greater transparency
- Measuring investment performance transfer pricing techniques and other approaches linked to financial results
- The pros and cons of using total return approaches in asset management
- Implications for executive compensation programs

Don't miss this opportunity to interact with the leading experts in these fields. Look for registration information on the SOA Web site and in your mailbox soon!

# Articles Needed for *The Financial Reporter*

Your ideas and contributions are a welcome addition to the content of this newsletter. All articles will include a byline to give you full credit for your effort. *The Financial Reporter* is pleased to publish articles in a second language if a translation is provided by the author. For those of you interested in working in further depth on *The Financial Reporter*, several associate editors are needed. For more information, please call Jerry Enoch, editor, at (765) 477-3220.

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## **PREFERRED FORMAT**

In order to efficiently handle files, please use the following format when submitting articles:

Please e-mail your articles as attachments in either MS Word (.doc) or Simple Text (.txt) files to the newsletter editor. We are able to convert most PC-compatible software packages. Headlines are typed upper and lower case. Please use a 12-point Times New Roman font for the body text. Carriage returns are put in only at the end of paragraphs. The right-hand margin is not justified. Author photos are accepted in .jpg format (300 dpi) to accompany their stories.

If you must submit articles in another manner, please contact Bryeanne Summers, 847-706-3573, at the Society of Actuaries for help.

Please send articles via e-mail or in hard copy to:

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Thank you for your help.



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