RESERVES FOR STRUCTURED SETTLEMENT AND SIMILAR REPORTING ANNUITIES

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o   In the last year or so, there have been two new NAIC guidelines, IX-A and IX-B, on this subject. New York Regulation 126 also has undergone fairly substantial changes and the transition period for including new business is upon us (1990 for New York and 1993 for IX-A and IX-B). This session covers:
--   Substandard reserves
   •   Guidelines IX-A
   •   NY Regulation 126, Section 95.12(h)
   •   Mortality study implications
   •   Appropriate mortality for GAAP
--   Interest rates (IX-B and 95.12(f) and (g))
   •   "Excess Benefit" reserve option
   •   Graded interest rate option
--   Implications for cash flow testing
   •   The "Pairing" of assets and liabilities requirement
   •   Earning more than the valuation rate
   •   Future grading of reserves versus current requirements
   •   Reinsurance
--   Proposed Illinois cash flow testing requirement for 1991
--   Taxes
   •   Effect of the AFIR (AFR) on pricing
   •   Implications of IX-A and IX-B on tax reserves (moving to the new basis)
--   Pricing/return on investment
--   Handling the phase-in period for in-force business
--   GAAP considerations
   •   Level of mortality required for FAS 60 purposes
   •   Are level interest rates required for certain-only annuities?
   •   Is a DAC asset (and amortization thereof) required?

MR. STEVEN A. SMITH: Our first of three speakers is John Paige, Second Vice President and Associate Actuary of Transamerica Occidental who is responsible for financial reporting and investment liaison for settlement annuities. Transamerica Occidental has about $1.8 billion worth of settlement annuity reserves and about 14,000 policies and they've been in the business since about 1980.

John is going to talk primarily about the second and third major bullets in the program: interest rates and implications for cash flow testing.

OPEN FORUM

MR. JOHN W. PAIGE: I look around the room and I think I am about the only white-haired guy here. So what do you think about when you're the only white-haired actuary in the room? Well, for some reason, I thought about some old World War II fighter pilot movies. You remember there were old fighter pilots and bold fighter pilots, but not many old and bold fighter pilots. I was looking around the group and I was thinking that there are probably old structured settlement actuaries and there are bold structured settlement actuaries. But you wonder in 10 or 20 years if there'll be any old, bold structured settlement actuaries.

Actually I'm 23 years old. My hair was black before I met Steve and Don and IX-A and IX-B.

My major assignment is to describe the main provisions of Actuarial Guideline IX-B. The purpose of IX-B is to clarify the methodology for valuing single premium immediate annuities. The corresponding part of New York Regulation 126 is Section 95.12, paragraphs (a) through (g).

It is important to note that the guideline is a clarification of the Standard Valuation Law. Reserves using the guideline should qualify as tax reserves.

The Guideline very specifically defines what shall be considered an annuity. The requirements for an annuity are as follows: (1) a series of payments not less frequently than annual; (2) payments are paid over a period of at least five years; and (3) payments in any one contract or calendar year do not exceed 115% of payments in the prior year.

An immediate annuity is an annuity wherein the first payment begins in 13 months or less from issue. A deferred annuity is an annuity wherein payments begin more than 13 months after issue.

Any payments in excess of the 115% limitation are considered lump sums. The guideline states that contracts may consist of combinations of annuities and lump sums. A lump sum is anything that isn't an annuity. Typical lump sums in structured settlements might be a series of payments payable every five years for 40 years or a deferred four-year annuity for a "college fund."

INTEREST RATES
Valuation interest rates are determined by issue year and a "guarantee duration." This duration is defined as the number of years from the date of issue to the date the first payment begins. Table 1 shows the 1989 plan type A rates.

TABLE 1

1989 Plan Type A Rates

Guarantee Duration	1-5	6-10	11-20	21+
Valuation Rate	8.75%	8.25%	7.25%	6.25%

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

As examples, an immediate annuity of $1000 per month for 20 years certain and life would be valued at 8.75%. For the same annuity deferred for 12 years, the valuation interest rate would be 7.25%. A series of lump sumps at the end of 10, 15, 20, and 25 years would have valuation rates of 8.25%, 7.25%, 7.25% and 6.25%, respectively.

At the beginning, we talked about separating benefits into two categories -- annuity benefits and lump sum benefits. Once the benefits have been categorized, Guideline IX-B specifies three valuation alternatives: carve out, graded interest, and other.

In the carve out approach, annuity benefits and lump sum benefits are valued separately. The annuity payments must meet the two requirements -- payments over five or more years and in a contract valuation no payment can be greater than 115% of the prior year payment. In the group valuation method, all payments for a calendar year are combined and no year's payment can exceed 110% of the prior year's payment. Plan type A rates are used to value the annuity payments.

What is a lump sum payment? It's any payment that is not an annuity payment. Each year's lump payment is valued by the appropriate plan type A with the guarantee duration being the number of years from issue to the first payment or installment. New York Regulation 126 requires the use of plan type B interest rates for lump sums.

In applying the 110% or the 115% rule, lump sum payments in the prior year cannot be included in the calculation.

Table 2 shows a contract paying $10,000 a year for 40 years, lump sums of $10,000 every five years and a "college fund" of $15,000 in each of years 9, 10, 11, and 12. The main point to note is that although the "annuity" provides payments of $10,000, a portion of the "lump sum" is carved into the annuity. The remainder follows the rule that any payment that is not an annuity payment is a lump sum payment. The annuity payments are valued at the immediate plan type A rate for the issue year. The lump sums are valued at the appropriate plan type A (or B, New York) rate for the guarantee duration.

A typical single issue year block of structured settlements will have a series of annual payments that increase slightly for 20-30 years with large spikes of lump sums at five-year intervals. For reserves, the three components will be as follows: (1) the "true" annuity payments -- reserved as annuity payments; (2) some portion of the lump sums that have been carved into annuity payments; and (3) the remainder of the lump sums -- reserved as lump sums.

The second method available to us is the graded interest method. In this method the reserves for each contract are the greater of the "level interest rate reserve" and the "graded interest rate reserve." The "level interest rate reserve" is calculated for each contract by computing the present value of future benefits using appropriate plan type A rates.

For each contract, calculate an interest rate X that will equate the present value of future benefits at issue to the "level interest reserve" at issue when X% is used for the

first 20 contract years and the 21+ plan type A rate is used for later years. This calculated rate, X%, cannot be greater than 115% of the "level" interest rate.

TABLE 2

Carve Out Example:
$10,000/yr 40 Year Certain
$10,000 Lump Sum Every Five Years
$15,000 College Fund in Each of Years 9, 10, 11, 12

Year	Annual Payments, $	Annuity Payments, $	Lump Sum Payments, $
1	10,000	10,000	0
2	10,000	10,000	0
3	10,000	10,000	0
4	10,000	10,000	0
5	20,000	11,500	8,500
6	10,000	10,000	0
7	10,000	10,000	0
8	10,000	10,000	0
9	25,000	11,500	13,500
10	35,000	13,225	21,775
11	25,000	15,209	9,791
12	25,000	17,490	7,510
13	10,000	10,000	0
14	10,000	10,000	0

The "graded interest reserve" is then calculated using X% and the 21+ plan type A rate. A group valuation may be used for determining X% for all contracts in an issue year instead of a contract by contract valuation. Assume all contracts in a single year are issued as a single contract.

The third method is "other." The Guideline states and I quote, "Any other method producing reserves at least as great as (a) or (b) and specifically approved by the Commissioner."

The following material compares the graded interest and carve out approaches. It's the same annuity illustrated earlier -- $10,000 a year for 40 years, $10,000 lump sums every five years, and $15,000 in each of years 9, 10, 11, and 12. The interest rates were based on the 1987 valuation rates. The carve out reserve used all of the plan type A rates. X% in the graded interest case was 8.26%. That is, a reserve calculated with an interest rate of 8.26% for the first 20 years and 6% thereafter was determined to be equal to a level 8% reserve at issue. The main point to note here is that the carve out reserves are 2% higher than graded interest reserves at issue, becoming lower at about year 8. At the peak difference, the graded interest rate reserve is about 14% higher at year 20.

At this time, with the desire to substitute some facts for appearances and some demonstrations for impressions, I decided to play around on my PC. Was there anything

special about the choice of 1987? Two more issue years were tried with the following results (Table 3):

TABLE 3

Issue Year	Carve Out 0 Year	Carve Out 20 Year	Graded Int. 20 Year	Immediate Annual	X%
1987	102	71	81	8.00	8.26
1989	103	73	86	8.75	9.05
1990	103	72	83	8.25	8.54

Again, remember that we are setting the initial graded interest reserve to a base of 100.

Nothing very exciting here. Maybe we should try one of those better cases from a good broker. Instead of level lump sums, let's increase them $5,000 every five years, even better, let's make the increase $10,000 (Table 4).

TABLE 4

Periodic Increase	Carve Out 0 Year	Carve Year 20 Year	Graded Int. 20 Year	Immediate Annual	X%
0	102	71	81	8.00	8.26
5,000	107	92	102	8.00	8.33
10,000	110	110	119	8.00	8.38

Let's try the base case one more time and be a socially responsible actuary. We will use an annual cost of living increase on the annuity to provide for the very gradually inflating needs of our measuring life.

I would caution you not to rely on these numbers. They were done during a dark night of the actuarial soul, are unchecked, and are dependent on my very limited programming and actuarial skills (Table 5). However, I hope they will encourage you to go home, try it yourself, or have an actuarial student do it for you to get a feel for the numbers and what affects them. If you're going to be in the structured settlement business, you might as well get used to large distant numbers approaching at exponentially increasing speeds.

TABLE 5

Annual Increase	Carve Out 0 Year	Carve Out 20 Year	Graded Int. 20 Year	Immediate Annual	X%
0%	102	71	81	8.00	8.26
2%	102	96	112	8.00	8.34
3%	102	111	130	8.00	8.39

You must comply with Guideline IX-B by 1990 for 1990 and later issues and by 1993 for all issue years. New York requires compliance with Regulation 126 by 1990 for all issue years.

Here are a few things to consider in your cash flow projections. Guideline IX-B states that the examiner should test that the assets are sufficient to support the liabilities. Cash projections should be done using various interest scenarios -- particularly declining interest rate scenarios. We convinced management they'll be rich if interest rates increase, but everyone seems to worry about declining interest rates. Test with cash flow projections. Also, you should compare the dates of issue and interest rates of the liabilities with the dates of acquisition and yields of their supporting assets. You may have started with nice high-yield assets in 1982. The assets supporting the liabilities may be invested in something a little bit lower today. The examiner may request a new valuation with a revised date of valuation more appropriate to the supporting assets. This is most significant when high-yield assets may have been exchanged. The guideline seems to indicate that action is indicated if the reverse is true. Interesting thought -- if interest rates go up, it may be appropriate for the actuary to revalue at a higher interest if the supporting assets are now invested in high-yield assets.

I'm going to use a very simple example just to make a point. We have all seen presentations that show durations of the assets and liabilities of a typical bond portfolio and a typical structured settlement block. One key point to remember in structured settlements is you're not talking about asset matching. You're talking about asset management. You are always looking for a longer asset. For my example, I used 9% annuities and used a hypothetical asset with a stream of annual payments for 30 years, which may be difficult to find in the market. The liability is a 40-year annuity. The duration of your assets is 9.7 -- for the liability, 10.8. This looks pretty close. But let's say you hang on to those same assets and move down the curve. Twenty years later you have a liability with a duration of 7.8 matched with an asset with a duration of only 4.8. If you are intrigued with playing around with the algebra of this, you can determine the duration for an infinite stream of payments. In the example for 9%, the duration is 12.1. The duration for a corresponding 50-year asset is 11.4. I am emphasizing this point because in talking about duration numbers with management, it might appear that 12.1 and 11.4 are a pretty good match. Your management might feel differently if you explained that you were guaranteeing in perpetuity a series of annual payments and the only available asset matured in 50 years. Just something to think about.

Another concern is the requirement to grade to a lower interest rate than the current interest rate. If you choose to set up guideline IX-B reserves, these will be stronger reserves than level interest reserves. In any projection of statutory earnings, this may make your company appear worse than the company holding level reserves during the interim period.

In your actuarial opinion you may choose to comment on the fact that you are holding these stronger reserves. Note that if interest rates drop, you are building toward a reserve that in 20 years will be a conservative 6% reserve rather than the 8% reserve if you were holding level interest rates.

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

I will briefly mention a couple of reinsurance considerations. This pertains to Guideline IX-A, but -- an important consideration for reinsurance. There are blocks of this business that may be candidates for reinsurance. But under Guideline IX-A, documentation to support your substandard ratings must be in your files. Relevant hospital records, treating physician reports, and/or medical evaluations that support your particular substandard rating are required. You may be reinsuring a block where lives have improved as mortality risks. You might say that from an annuity basis it hasn't improved, it's worsened. The annuitant's health has improved. The reserve and your files should support the rating on which you're basing your price. The file must include the current information that supports the substandard rating.

To repeat what was said in the discussion of IX-B, the valuation should reflect the date of acquisition of the majority of supporting assets. If you are buying a block of this business for cash, the assets you're going to be supporting this with are current assets. These assets may have very different yields from the yields of assets that the ceding company was using at the time they priced the block. Your valuation should be based on the acquisition date of the supporting assets for that block.

To summarize the impact of Guideline IX-B, reserves are going to change. The incidences of increases and decreases of reserves are going to change. You need to see how this fits into the overall surplus picture of the company. Also, as reserves change, if you are matching assets to liabilities, you may need more assets or assets with different characteristics to support a given segment. Yields of these new assets may be different from the yields of the assets you had at the time the annuities were sold. The actuary may have been comfortable with the relationships between various financial items in GAAP and statutory reporting. These are going to change. The actuary should be sure to understand what's going on and management should understand what's going on as these change. Numbers, rules of thumb, and approximations that they know, have relied on, have changed. You want to test the carve out versus the graded interest method to see what you're comfortable with as an actuary. Finally, since you do have the choice of seriatim or group valuation, test and see which is more appropriate to your block of business.

MR. SMITH: Next, Don Fritz is going to speak primarily about Guideline IX-A and a couple of GAAP issues. Don is Senior Vice President for product management CONSECO/Western National, which has been in the business since about 1978 and has about a billion of reserves and about 8,000 policies in-force.

MR. DONALD E. FRITZ: I am going to start by going into a little bit of the history of Guideline IX-A.

Much attention has recently been focused on the mortality associated with structured settlements, particularly substandard mortality. First came Regulation 126 and then NAIC Guideline IX-A. Now the SOA is planning a mortality study. Substandard mortality on structured settlements, for those of you who aren't familiar with it, has a large degree of subjectivity and a lot of underwriting judgment. There is very little information on some of the impairments that we underwrite. A typical substandard case involves a life that would frequently be uninsurable for life insurance purposes.

1783

In early 1988 there was an unpublished article written by Abe Gootzeit, which I don't think he really meant to be interpreted the way it was. It stated that the reserve method most commonly used to handle substandard structured settlements (by rated age) was too liberal. It suggested that mortality over time tends to go back towards standard.

In response to this or perhaps to other concerns, New York Regulation 126 was amended in 1988 to require that all substandard reserves be graded to standard at the end of 20 years. This was also proposed to the NAIC Actuarial Task Force as Guideline IX-A in December 1988. Grading reserves to standard in 20 years would cause a substantial increase in reserves for most companies. The best example, I think, is if you took a 20-year-old and rated him as a 60-year-old. Under rated ages, that person would then have reserves as if his attained ages were 60, 61, 62, 63, and so forth.

Under the original Regulation 126 language and proposal of IX-A, (grading into standard mortality in 20 years) the person's age would in effect go 60, 59, 58, 57, all the way down to 40, then start back up. When we looked at the long-term effect that this proposal would have, we calculated that by the year 2008, our in-force block would have reserves 40% higher than what we originally thought they would be. The aggravating thing was that there really wasn't a whole lot of evidence to indicate one way or the other what the right answer was.

We put together an industry group to develop an alternative to the NAIC proposal. We basically realized there were three major methods that one could use for these reserves:

1. The rated age method, which is what was then being used by most companies, according to what I understand. There was an article in the *Transactions* by Naftali Teitlebaum, and rated ages seemed to be the popular method at that point. Under that one, mortality rises gradually over time. But the reserves tend to reach zero before the insured reaches the end of the mortality table. For example, if you rate a 20-year-old person as if he were age 60, the person will be assumed to reach the end of the mortality table 55 years later. But of course, since he was only 20 years old at issue, he'd really be only 75 years old after 55 years.

Substandard Reserves
83A Mortality, 8.75% Int., $1,000/Month of Lifetime Income

Rated Age:
o   Mortality rises gradually
o   Reserve reaches zero before insured's true age reaches end of mortality table

Percentage Extra:
o   Mortality rises gradually
o   Reserve approximately the same as rated age initially, then rises relative to rated age, but does not reach zero until end of mortality table

Constant Extra Deaths:
o   Mortality starts much higher, then rises more slowly than other two methods
o   Reserve starts lower, then rises above other two until end of table

2.   Another methodology that was possible was the percent extra, where you took standard mortality times a multiple, just like we do for substandard life insurance. Under this method, mortality also rises gradually. The reserve is pretty much the same as the rated age mortality. You can probably rig this method to reach zero at the end the mortality table, however. I guess you could do the same thing for the rated age if you wanted to.

3.   The third method that seemed to be around is the constant extra death method. You calculate a constant extra that you add to the q at each age. Therefore, the expected mortality starts out much higher, but rises much more slowly. The reserve actually starts out lower, slightly lower than the other two methods, but then rises above the other two. A standard reserve at the end of the table.

After looking at it and spending a lot of time analyzing the different methodologies, the NAIC advisory committee decided to recommend that the constant extra death method be the one that should be used.

Chart 1 indicates the way the reserves on a possible, typical case might run. It's based on 1983a, 8.75% interest and $1,000 a month benefits. You can see that the percentage extra and rated age run almost parallel right down to the end of the graph. The constant extra death reserve starts out slightly lower but about 10 years out it crosses over and then is quite a bit above the other two.

So, over time, the rated age mortality and the percentage extra mortality produce about the same reserves. The constant extra death reserve is quite a bit above the other two, but, while not shown in the graph, substantially lower than the proposed standard reserves in 20 years would have been.

Table 6 actually shows the mechanical calculation of the three types of reserve mortality. The second column is 1,000 qx. That's just 1983a standard valuation mortality. The rated age 50 column is the same as the first column, starting at attained age 50. You can see that it ends before you get to the end of the mortality table as far as the original actual age would be concerned.

All three of the columns on the right have all been calculated to have the same life expectancy, because one of the keys in the way that Guideline IX-A was structured was that the life expectancy was the important number. Of course, that's the way the underwriters usually tend to express it.

The fourth column talks about a percentage extra where it's calculated 1348% of standard mortality. That produces again the same life expectancy as the rated age 50.

The fifth column is the constant extra death method. The constant turns out to be 23.57 extra deaths per 1,000. As you can see, that makes a big difference in what you're using the very first year in the way of a mortality assumption and that will become more important when you start comparing your actual versus expected mortality. Steve will get more into that in his part of our presentation.

CHART 1
SUBSTANDARD RESERVES
83A Mortality, 8.75% Interest, $1,000/Month of Lifetime Income

Thousands ($)

Standard

Constant Xtr

Percent Xtr
Rated Age
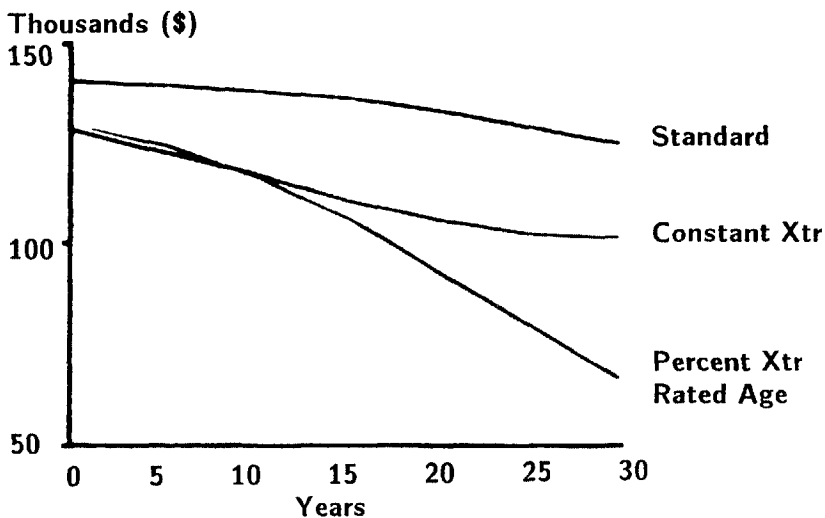
Years

TABLE 6

1983a MORTALITY RATES

Actual Attained Age	1000 q_x	Rated Age 50	1348% of True Age Mortality	True Age Mortality Plus 23.57 Extra Deaths per 1000
20	0.505	4.057	6.807	24.075
25	0.622	5.994	8.385	24.192
30	0.759	8.338	10.231	24.329
35	0.917	12.851	12.361	24.487
40	1.341	21.371	18.077	24.911
45	2.399	35.046	32.339	25.969
50	4.057	57.026	54.688	27.627
55	5.994	90.987	80.799	29.564
60	8.338	134.887	112.396	31.908
65	12.851	191.214	173.231	36.421
70	21.371	270.906	288.081	44.941
75	35.046	405.278	472.420	58.616
80	57.206	634.814	768.710	80.596
85	90.987	1000.000	1000.000	114.557
90	134.887			158.457
95	191.214			214.784
100	270.906			294.476
105	405.278			428.848
110	634.814			658.384
115	1000.000			1000.000

The fact is that the mortality on the constant extra death methodology changes very little for the first 20-25 years. It isn't until you get up to the 25th or so years where you really start seeing it increase, which is what produces the reserve anomalies we saw before, why the constant extra death method produces so much higher reserves farther out, because the death rates are quite low compared with rated age death rates.

Table 7 shows a model of this. By the way, for most of these tables, I am indebted to Steve Smith, who wrote an article originally when we were looking at IX-A. I've taken these number from his exhibits that he had for that article.

TABLE 7

Substandard Reserves
83a Mortality, 8.75% Interest
Model Office
100,000,000 Initial Rated Up Age Reserve
(Assuming "True Age Plus 23.57 ED'S/1000" Mortality)
True Age: 20(M)

	True Age Mortality	Rated Up in Age to 50	1348% of True Age Mortality	True Age Plus 23.57 Extra Deaths Per 1,000
Life Expectancy	59.50	31.07	31.08	31.08
At Issue	111,897,866	100,000,000	100,039,397	97,847,215
5 years	104,422,666	88,872,279	89,243,876	88,096,466
10 years	97,445,514	77,383,589	78,256,978	79,023,774
20 years	84,276,551	54,092,520	55,727,624	65,080,551
30 years	70,755,824	34,596,621	36,263,931	55,838,516

The comparative reserves are all based on $100 million of initial rated age reserves. The life expectancies on the three substandard methods are all basically the same since they are calculated to be that way. The first column after "Life Expectancy" is the true age reserve for this particular example.

At issue, the reserves on the substandard basis are pretty much the same. Constant extra deaths are about 2% lower and the true age (or standard) mortality is almost 12% higher.

But when you get out to 20 years, you can see the divergence. Again, the percentage extra and the rated age reserves are pretty much the same. The constant extra deaths are roughly 30% higher and standard reserves, of course, are quite a bit higher.

The NAIC believed that the constant extra death approach was reasonable and the NAIC Actuarial Task Force adopted it as Guideline IX-A in June 1989. As I understand it, New York also adopted it in its 1989 Regulation 126.

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

Effective dates are similar to IX-Bs. For new business, you have to start holding these reserves in 1990. For all your other existing business, you have to do it by 1993.

I think that New York's regulation is immediate, is it not? It was 1989?

MR. SMITH: It's all business by 1990. The regulation first affected 1987 and later business, with the three-year phase-in period ending in 1990.

MR. FRITZ: There are one or two things that need to be remembered when we're talking about Guideline IX-A. One was what John talked about earlier, and that is, in order to continue to use substandard reserves, you have to maintain all your mortality records, your doctor's reports, hospital reports, and so forth. Not just at the time of issue. I was reminded when he talked about that, if you're going to be buying a block of business, you'd better make sure they've got adequate records.

The other thing to remember is that this IX-A really only applies to a limited number of substandard annuities. It only applies to structured settlements, workman's compensation cases, and long-term disability buy outs. If you're not in one of the specific classes, you're supposed to hold standard reserves, even if you priced at substandard.

MR. SMITH: The important thing there is you've got to make sure that whoever is underwriting the case knows that. Because otherwise you'll get in $100,000 premium and may have to put up a $200,000 standard reserve, or something like that.

MR. FRITZ: That will get their attention once they've done it, I'm sure. Because of all this attention on structured settlement and mortality, the Structured Settlement Trade Association, a trade association made up of structured settlement insurance companies, brokers, and various other people who are support groups to those groups, had been trying to put together a mortality study, but they had a sort of inherent conflict of interest. In 1989, the SOA agreed to go ahead and do a study that will look at both standard and substandard mortality.

The SOA should be getting data later on this year or in early 1990 as I understand it. I certainly think it would be in the interest of any company writing structured settlements to contribute data to this if they possibly can, because there are two things that the study will help clear up. One is that getting true information on structured settlement mortality, particularly standard mortality, would help quite a bit in clearing up some of the different pricing methodologies that have been used. Just by getting solid data on which to rely.

Also, I suspect that mortality is higher than we're being required to use under the current statutory rules. If the mortality is higher, the reserves could be lower. I believe we might be able to get some relief on the standard reserves. I certainly hope so.

So if anybody is thinking about participating, and you've got structure settlement information, I think it would be in your best interest to participate.

Steve is going to talk more about this, but when you get into using the constant extra deaths as the way you set mortality in valuation, you need to be very careful on how you do your actual versus expected studies, because I think you can easily get misled as to why your mortality results ended up what they are. As I said, Steve is going to talk more about it. He's got a lot more experience in dealing with this already, so I'll leave it to him.

GAAP CONSIDERATIONS
Because of the NAIC's decision in statutory reserving for the appropriate mortality for a substandard structured settlement, I'm not sure I would agree that that's the correct way to do it for GAAP. The incidence in mortality that we saw here, where you had very high early mortality rates, would tend to cause your GAAP results to look very different than what you might be used to seeing. I think it would probably distort them beyond recognition. You would tend to have your release of risk from mortality be very slow and probably very much below what's actually going on.

Everything I've looked at (in the limited mortality information that's available in substandard) indicates that for most impairments, there's a very high initial death rate followed by a movement towards standard after that point. Since most structured settlements, I believe, are written after they've gotten past that high initial death rate, you could very much be fooling yourself if you thought that that was going to happen in your actual studies in your GAAP. And you could very much hurt your income down the road.

I think Steve is going to talk a little more on that too.

There are a couple of other issues that relate primarily to GAAP that are smaller ones. One is, when is a contract that has some level of mortality going to be an investment contract? And when is it going to be a life contingency contract?

At CONSECO, we have taken the position that any contract that has any mortality at all should be considered life contingent because as you go through time, you're going to have the life contingent piece of it become more and more important. And if you don't start it out as a life contingent contract, you're going to probably end up having to switch accounting models somewhere along the way, which may cause some great discontinuities.

Another question has to do with investment contracts. Any annuity certain has been considered an investment contract under FAS 97. The question there is do you use level or graded interest rates in setting your GAAP reserves?

We did a study of our annuity certain contracts, and, in our case, less than 15% of the reserves were on contracts that went over 20 years. Therefore, we just used whatever we had been using before at the graded interest, because it made very little difference. I suppose over time as you got toward the end, if you had a lot of those contracts, and you didn't write any new business, that would become very important.

However, I believe if you're writing a lot of new business, that should make very little difference in what you have in terms of reserves. So we went ahead and used our graded interest rates. It doesn't mean that you would have the same answer for yourselves, but that's what we were finding.

The other issue that comes up on structured settlements has to do with setting up deferred acquisition cost (DAC) on structured settlements. I don't know if anyone else was like we were. We, and I suspect a lot of you, had netted out. You might net DAC against the initial premium, and set up a reserve basically net.

What we did under FAS 97 basically ended up saying that we would set up DAC for the amount of the acquisition cost and we set up the unearned revenue reserve for the deferred revenue item and ran them off at the same rate. So we ended up having no income effect at all from having gone to FAS 97 on those contracts.

MR. SMITH: My company, First Colony Life, has been in the structured settlement annuity business since 1978. At year end 1989, we had almost $2 billion of settlement annuity reserves and about 14,000 contracts in-force.

MORTALITY STUDIES
The first topic that I am going to cover is mortality -- an extension of some of the things that Don Fritz discussed.

There can be a significant difference between actual to expected mortality ratios on the rated age basis and the new constant extra deaths mortality basis required by NAIC Guideline IX-A. Bill Bryan, of SAFECO, in a similar presentation to this session at the recent Hartford meeting, gave an example where the mortality ratio was 146% on a rated up in age basis but only 23% on the Guideline IX-A constant extra death basis. Those ratios may seem far out, but probably not by as much as you would think.

During the period 1986-1988, First Colony Life's rated age actual mortality on substandard cases was about 150% of rated age current population mortality and about 220% of rated age valuation mortality, but only about 60% of constant extra death valuation expected mortality. These ratios were based on a total of 69 actual deaths, so the results presumably have some credibility. Our ratios for the period are high, however, because we had one large death claim with a significant amount of reserves released. Without the large claim, actual to expected rated age ratios would have been close to 100%.

One of the points that I want to make or reinforce with regard to mortality studies for substandard business is that care will have to be taken in interpreting the mortality ratios required by NAIC Guideline IX-A and Regulation 126, Section 95.12(h). A mortality ratio under 100% for annuities is bad, not good. The implication is that reserves might be insufficient.

There are at least three reasons why I believe that our mortality ratio of 60% on a constant extra death basis does not necessarily mean that reserves are inadequate.

First, what is important to an immediate annuity reserve is the mortality assumption used to discount future benefits. The constant extra death method produces a fairly rapidly decreasing mortality assumption in the early durations. If actual mortality exceeds constant extra death valuation mortality at the early durations, I conclude that reserves are conservative indeed.

Second, most contracts have a significant certain period which significantly reduces the effect of mortality on reserves in the early durations.

Finally, and most importantly, there is this. As Don pointed out, reserves on the rated age and IX-A constant extra death bases are very close to each other initially, with rated age reserves generally being slightly higher initially, but falling fairly far below IX-A reserves after 15 or 20 years, with a crossover point of 5-10 years after issue.

Since our rated age valuation mortality ratio was 220% and our IX-A reserves are close to rated age reserves, it seems clear that we are not underreserved. Since the industry typically quotes substandard cases at a standard price at a rated up age, our experience of 150% and 220% on the pricing and valuation rated age bases, respectively, means, at least for our 1987-1988 experience, that we have not made gross errors in pricing substandard business: actual mortality is higher than rated age mortality. We have not rated up the age too far.

On the other hand, if mortality ratios are below 100% on both the rated age and constant extra death bases, then reserves may be inadequate.

Now I'd like to share some additional First Colony Life mortality experience with you.

For our standard business, mortality has been at only 94% of current population mortality (without allowance for future improvement) and 128% of statutory valuation mortality. If there is mortality improvement, then mortality ratios will likely be even lower than 94% of population mortality in the future. Our experience here in is based on 121 actual deaths, so the data are statistically significant.

This strongly suggests that a company using out of date population mortality or current mortality without significant allowance for mortality improvement is way off the mark on its mortality assumption. What I think is happening here is that when a "regular population life" gets a significant amount of extra money from a structured settlement, he lives better and has better medical care. Consequently, he exhibits mortality that is significantly lower than standard population mortality. Our experience indicates that this is particularly true for standard cases during the first few contract years. That is, we seem be getting some antiselection, at least in the early durations.

Another possible reason for antiselection is the widespread use of quote disks. Brokers can easily select against the company if a fair price is not used for each type of benefit, especially increasing benefits and lump sum payments.

Finally, there is the effect of paid for dated back contracts: for many contracts, by the time a contract goes in-force, a number of months may have elapsed from the "effective

date," so there is no chance of death between the "effective date" and the "paid for date" as had been assumed in pricing.

Our mortality experience that, for pricing and GAAP reserve purposes, is important to (1) assume better than current population mortality, (2) allow a sufficient initial mortality margin, and (3) provide for both early duration antiselection and future mortality improvement.

GAAP CONSIDERATIONS
Since I just finished talking about mortality, I'm going to talk next about a potentially critical item: the GAAP mortality assumption for substandard business. In particular, don't get caught in the trap of using the constant extra death method required under Guideline IX-A for GAAP purposes. It will almost assuredly affect your GAAP earnings in an adverse manner.

Remember the mortality ratios that I indicated for rated age versus the IX-A constant extra death method. For my company, actual mortality is currently above pricing or rated age mortality, but below constant extra death mortality.

If your company is like mine, you set up an initial GAAP reserve equal to the net consideration, perhaps by solving for an interest rate in the first 20 years that makes the initial reserve equal to the net consideration. Or perhaps the "solved for interest rate" gets you to the gross premium and you set up a DAC for acquisition expenses. Your GAAP reserve starts at a point where you report no gain or loss at issue, but then you have interest and mortality gains or losses after that point. If the reserve mortality assumption anticipates constant extra death mortality and you don't get it, which is very likely at the early durations, then you may have significant GAAP mortality losses.

What we have done for GAAP purposes to provide for adverse mortality deviation is to use rated age mortality initially, graded into constant extra death mortality at the earlier of 35 years after issue or attained rated age 85. This appears to achieve an acceptable GAAP result while still adding a provision for mortality deviation.

In addition, carefully consider the potential effect on GAAP earnings (and on pricing) of early duration antiselection.

For substandard cases, we currently are seeing evidence of significant early duration antiselection. The issue here in is closely related to the comments I just made on the use of constant extra death mortality for GAAP reserves. In particular, consider the following. Suppose you have a life that is actual age 35, but your underwriting process determines that a fair price is that for a standard life at age 60. You may have arrived at this conclusion by assuming standard age 60 mortality was appropriate or that actual mortality will be 500% of age 35 standard initially, graded to 2000% mortality by duration 15. Or maybe you thought that mortality would be like age 50 initially, graded to age 7 some later duration with an average of age 60. Our medical directors indicate that anticipated lower early duration mortality is a common occurrence.

If you use rated age reserves, the reserve will assume standard age 60 mortality initially. If you only get age 50 mortality or 500% of age 35 mortality, your GAAP earnings will be very poor. It is important, therefore, to anticipate these nuances in establishing your GAAP mortality assumption. It is also important to recognize them in pricing.

Another GAAP issue related to mortality, and already addressed by Don, is how much of a mortality element must there be in a contract in order for the contract to be considered a "limited payment contract," i.e., one containing a "significant insurance risk"?

We have come to the same conclusion as Don's company. If, on any contract, a significant portion of the reserves will be for life contingent benefits after only a few years, it does not seem appropriate to us to change the accounting model in midstream. Our view, therefore, is that if there is any mortality element in the contract at issue, the contract is limited pay. If there is no mortality element at issue, then the contract is an investment contract.

Speaking of accounting for investment contracts, there is one aspect of such accounting with which I strongly disagree with our auditors. The issue is whether we can use graded interest rates to calculate GAAP reserves for certain-only contracts.

For limited payment contracts, i.e., our regular settlement annuities, in order to place an appropriate adverse deviation provision for interest into our reserves, as I indicated previously, we solve for an interest rate for the first 20 years, with lower interest rates after our initially acquired bonds have assumed to have been called or matured. We also do the same thing for our certain only annuities.

The issue here, if I understand our auditor's point of view, is whether FAS 91, paragraph 18, requires the use of the "interest method." The objective of the interest method is to arrive at periodic interest income (including recognition of fees and costs) at a "constant effective yield." The examples in FAS 91 primarily relate to mortgage and amortization of fees or costs thereon.

The question is, does "a constant effective yield" require the use of level interest rate for a 40-year certain-only annuity? Personally, I would like to think not. And I see that Don's company feels the same way about the issue. They also use graded interest rates for GAAP purposes on certain-only contracts.

The difference between a 40-year certain-only contract and a 40-year certain and life thereafter contract is very small. If it makes sense or it is required to use graded interest rates for limited payment contracts, actuarially speaking, it makes just as much sense to use graded interest rates for the 40-year certain-only contract.

Currently, we are steadfastly refusing to move away from graded interest rates on certain-only contracts. Our auditors currently are accepting our practice on the basis that the "error" is not material. The difference will grow over time, however, and conceivably it could become material sometime in the future.

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

I would be very interested in your views on this subject. I strongly believe that our auditors are taking a position that is either wrong or at least does not make good actuarial sense. I am thinking about it, let me ask for a show of hands on this question.

How many companies have GAAP reserves for settlement annuities? About 19 or 20. Of the people who have GAAP reserves and just raised your hands, how many of you use graded interest rates for certain -only contracts? Sixteen or seventeen. How many of you with GAAP reserves (and who raised your hands to the question, do you have GAAP reserves?) use level interest rates for certain only contracts? One? From the responses, it appears that most of those companies represented in the audience who use graded interest rates for GAAP reserves on settlement annuity contracts with life contingencies also use graded interest rates for GAAP reserves on their certain-only contracts. Of those companies with GAAP reserves, how many are using level interest rates for settlement annuities? Four. How many of you also use level interest rates for certain-only contracts? It looks like the same hands.

Since there are about 60 people in the audience, I guess that the other 35 or so people either represent mutual companies that don't have GAAP reserves or don't know what their company is doing. The overall conclusion that I reach from this informal survey is that it appears that companies are using graded interest rates for both limited pay settlement annuities with life contingencies and certain-only contracts or they are using level interest rates for both types of contracts. Few, if any, companies are using graded interest rates for limited pay settlement annuities and level interest rates for certain-only contracts. There are no hands indicating objection.

Another GAAP issue that we have had come up is whether a DAC asset is required for acquisition expenses. Until recently, we had been basing our immediate annuity reserves on the statement on page 81 of *Audits of Stock Life Insurance Companies*: "A reserve for future annuity payments and expenses should be provided in an amount approximating the consideration less acquisition expenses." This provision prevented companies from taking a large portion of future profits on single premium policies into earnings at issue of the contract. We used this statement as the basis for not showing a DAC asset at issue. We have an implicit DAC which is in effect, therefore, netted against the reserve. There is no gain or loss at issue.

Our auditors have indicated, for investment contracts, that in the future we must show a DAC asset and amortize it. They believe that the audit guide is superseded by FAS 60, which states that "Acquisition costs shall be capitalized and charged to expense in proportion to premium revenue recognized." In addition, the "Practice Bulletin" of December 5, 1989 indicates that "DPAC related to investment contracts should be reported as an asset, consistent with the reporting of DPAC insurance products covered by FAS Statement 97."

For limited payment contracts, we are still discussing the issue. It is possible that we will be charging off deferred policy acquisition cost (DPAC) in proportion to premium, which would mean at issue for single premium contracts, which in turn would imply that our former practice of setting up an initial reserve equal to the net consideration is correct.

The other side of the coin is that if DPAC should be shown for investment contracts at one end of the spectrum, and for insurance contracts at the other end of the spectrum, then it seems likely that DPAC should occur for all contracts in between. As I indicated, we are still investigating the matter for limited payment contracts.

PRICING/RETURN ON INVESTMENT

Under the heading of pricing/return on investment, I plan to discuss (1) the effect on profitability of different levels of "spread margins," (2) the difference between assuming a spread and running multiple scenarios with real assets, and (3) the effect of NAIC Guidelines IX-A and IX-B.

Table 8 indicates a number of things about how the world may have seemed before Guidelines IX-A and IX-B came along. The results are for a standard age 35 male annuitant receiving a level annuity benefit of $10 per month for 20 years certain and life thereafter. Before Guideline IX-B came along, most companies were probably using level interest rates for statutory reserves.

TABLE 8

Before IX-B
Age 35, 20 C&L

Reserve Basis:	Level Interest Rates					
Interest Spread:	"Assume a Spread"					
Interest Spread (BP) (After all expenses)	50	100	150	50	100	150
Pretax Strain Percentage At Issue	30 Year After Tax Return on Investment			Present Value of AFIT Profits at 10%		
5%	24.7%	34.9%	44.4%	5.3%	10.6%	16.3%
10%	16.0	22.0	27.5	4.1	9.5	15.4
15%	13.0	17.4	21.5	2.9	8.4	14.4

For many companies, pricing has been done on an "assume a spread" basis. That is, you went to the investment department and asked them, "What can I get on long-term bonds?" If they responded that they could get 10.25% and you needed 25 basis points for investment and general expenses, you might have done your "pricing" by taking the present value of benefits at 9% for 20 years and 6% thereafter, thereby giving you an assumed spread of 100 basis points for the first 20 years after investment and general expenses. You then loaded the resulting present value for commissions, premium taxes, and perhaps a little more for profit margin and you had your premium. Profits resulted from obtaining a 100 basis point interest margin, less perhaps something for C-3 risk (the risk of loss due to changes in interest rates), which wasn't really analyzed. You basically just "assumed a spread."

Table 8 indicates a number of things. The first is that profitability, whether measured by return on investment (ROI) or as a 10% present value of after tax profits, is a function of initial surplus strain. The larger the strain percentage, the less profitable the business. The definition of ROI that I am using here is "the interest rate at which the present value of after tax statutory profits is equal to zero."

Second, profitability levels seem quite acceptable, even at an assumed spread of only 50 basis points. My definition of spread, by the way, indicated in Table 8, is after investment and general expenses have been covered. If investment and general expenses total 25 basis points then a net spread of 50 basis points is obtained by earning 75 basis points over your pricing interest assumption.

Now along comes Guideline IX-B. Since level interest rate reserves are not appropriate as a basis for valuing contracts that may last 50 or 60 years, let's say you decide to use "option 2" of the guideline to cover your lump sum benefits, which reduces initial strain as compared with "option 1" (reserving for lumps at a lower interest rate).

My personal belief is that the graded interest rate reserves of option 2 are far more appropriate as a reserve basis than are option 1 reserves whether there are additional "lump benefits" or not. For example, most companies no longer have assets earning enough to support a 13.25% forever interest rate basis for 1982 issues. Probably half of assets acquired in 1982 have been called or traded away by now.

In any event, Table 9 compares the profitability before and after IX-B. Once again, profitability is on an "assume a spread" basis. Pretax strain at issue is at 10%. That is, the first row of profitability figures, on the level interest line, is the same as the middle (10% strain) row of Table 8.

TABLE 9

Effect of IX-B

Pretax Strain at Issue:	10%					
Interest Spread:	"Assume a Spread"					
Interest Spread	50	100	150	50	100	150
Reserve Basis	30 Year After Tax Return on Investment			Present Value of Profits at 10%		
Level Interest	16.0%	22.0%	27.5%	4.1%	9.5%	15.4%
Guideline IX-B Graded Interest	9.6	16.4	22.2	-0.3	5.2	11.0

Here we see that profitability is substantially reduced by the graded interest reserves. Profit levels that were acceptable have been reduced considerably.

The present value of profit with only 50 basis points of interest margins is slightly negative (-0.3%), which means that ROI is below 10% (9.6%). That is, the present value of profits at 9.6% is equal to zero.

Now we come to "reality." Table 10 compares "assuming a spread" with the results of 40 random trials with two different bond investment strategies: par bonds and 8% coupon discount bonds. Two initial spreads, 100 and 150 basis points, are also compared for par bonds.

TABLE 10

Reality

Reserve Basis:	IX-B		
Initial Strain:	10% Pretax (6.6% AFIT)		
	Average Ending 30 Year Surplus	Times Negative (Largest)	Present Value of Profits at 10%
Assume a Spread of 100 BP After Expenses	644	NA	5.2%
40 Random Trials 100 BP 30 Year Par Bonds, 5 Years Call Protection	228	16(802)	-0.5%
65 BP Discounts	263	15(576)	0.3%
150 BP 30 Year Par Bonds, 5 Years Call Protection	479	14(768)	1.4%

In Table 10, I have not shown ROI. I was not sure the results are meaningful when there are multiple negatives in the present value calculation, meaning that there may be multiple solutions or no solution, i.e., no interest rate or multiple rates at which the present value of profits is equal to zero. Instead, I have shown the average ending surplus number and the 10% present value of statutory profits. The values for the "assume a 100 basis point spread" correspond to the values in the previous table. In particular, the 5.2% present value of profits is the same. In addition, I have indicated, for the 40 scenario results, the number of times out of 40 trials that ending surplus was negative, as well as the largest ending negative surplus.

The results are not at all encouraging. The "bottom line," if you will, is that actual profitability is far less than what would be imagined by just assuming a spread.

Considering first the 100 basis points initial spread using 30-year par bonds, we see that the average ending surplus of 228 is roughly 65% lower than the assume a spread ending surplus of 644; the present value of profits at 10% has disappeared; and lastly, 16(40%)

of the 40 trials end up losing money. The largest negative of (802) is 55% of the gross premium of just over $1,400. Most of the "problem" is caused by falling interest rates, which results in assets being called and refinanced.

Investing in (8%) discount bonds yielding an initial spread of only 65 basis points, but with more call protection, gives approximately the same unacceptable results. Even investing in par bonds with 150 basis points of initial spread does not increase profitability to acceptable levels.

While it is not shown in the table, I can tell you that the Regulation 126 work that we have just completed for the 1989 year end indicates that long tranche collateralized mortgage obligation (CMO) assets do not seem to do as good a job as regular bonds in cash flow testing. That is, we were able to obtain better cash flow testing results for our settlement annuity block by largely eliminating the long tranche CMOs from the supporting asset portfolio. I found this to be a surprising result since we had generally assumed that long tranche CMOs were fairly well suited to many aspects of settlement annuities.

The conclusion is that it is difficult to make profits on the business at only 100 basis points of spread. Careful management of the call risk is absolutely essential to making any profits at all.

Table 11 looks at the profitability of substandard annuities. All of the profitability numbers in this table, which are for a male age 35 rated to age 65, are on the "assume a spread" basis and therefore overstate profitability relative to reality, as we saw in the previous table. The top row of the table indicates that using rated age mortality and level interest rate reserves generally implies acceptable levels of profitability. Both Guidelines IX-A and IX-B require higher reserves at the longer durations after issue. Guideline IX-A, however, generally reduces initial strain, as compared with IX-B. The net result is that profitability is reduced, but not as much as for standard business, assuming that your mortality assessments are correct, which obviously is critical, and without considering the C-1 and C-3 risks, which probably again makes it difficult, but hopefully not impossible, to achieve acceptable levels of profitability.

TABLE 11

Substandard Lives

	Age 35, Rated to Age 65 10 Years Certain & Life	
Interest Spread:	"Assume a Spread"	
	30 Year After Tax Return on Investment	Present Value of Profits at 10%
Level Interest, Rated Age	21.6%	6.5%
IX-A, B	17.0	4.0
Standard IX-B Reserves	8.7	-4.4

OPEN FORUM

TAXES

The Applicable Federal Interest Rate (AFR or AFIR) will be 8.37% for 1990 issues and will therefore affect profitability because, for the first time, the AFR will exceed the valuation interest rate. This will cause initial tax reserves to be lower than initial statutory reserves thereby reducing the amount of net cash available to fund the benefits because of income taxes. In January, I was predicting the immediate annuity valuation interest rate to be 8%, which, with an 8.37% AFR, would have meant that our pricing interest rate would have had to be perhaps five basis points lower to cover the additional income taxes that would have been paid at issue. The current difference of one basis point between the AFR and valuation rates will reduce the effect to only two or three basis points. The effect on deferred settlement annuities (without cash values) is far more striking. For example, consider a situation where the statutory valuation rate is 6% (over 20 years deferred), but the AFR is 8.37%.

An additional consideration is how will the AFR come into play as compared with, say, graded interest reserves? Would the comparison to the AFR be made on the total reserve for a policy, which I think is correct, or by comparing the AFR to the graded interest rate on a contract year by contract year basis and using the higher interest rate in each contract year, which I don't think is correct?

Suppose, for example, you have a 20-year certain and life annuity that is reserved on the new IX-B graded interest rate reserve basis. Suppose further that the level interest rate reserve basis would have been at 8.25% forever. When you solve for "X%" for the first 20 years, with a tail interest rate of say 6%, you get say 8.8% for "X%." That is, at issue, the present value of future benefits at 8.25% forever equals the present value at 8.8% for 20 years and 6% thereafter.

Now suppose that three years later the life dies, leaving a 17-year certain-only reserve. Should the 17-year present value after death be calculated at 8.8%, which seems to violate the statutory limit of 8.25 as the maximum interest rate? I believe that the correct interpretation is that at the moment of death, the reserve should move from 8.8% and 6% to 8.25% for statutory purposes and probably 8.37% (the assumed AFR) for tax purposes. If the original certain period was 30 years instead of 20 years, the facts would be different.

PROPOSED ILLINOIS CASH FLOW TESTING REQUIREMENT FOR 1991

With regard to the proposed Illinois cash flow testing law, I believe that something like the following is reasonably accurate. It is my understanding that Larry Gorski of Illinois strongly supports the valuation actuary concept, and that he intends to move Illinois forward as quickly as possible on some basis with the idea. In January, when it appeared that the NAIC was moving fairly slowly with the valuation actuary concept, Larry formed a working group to create a law or regulation, probably similar to, or at least based on Regulation 126 of New York. The working group had its first meeting in early January, 1990. I understand that it met again within the last month.

Larry's target date for taking effect is 1991. My understanding is that if Illinois goes forward with its own type of legislation, a number of forms of annuities, such as SDPAs,

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

GICs, immediate and structured settlement annuities, etc., would be covered initially. That would be similar to the way New York's Regulation 126 has evolved.

Recently, however, the NAIC moved forward in a significant way with the valuation actuary concept. It now appears to me that it is likely that we will see the NAIC adopt changes to the standard valuation law in 1990 which will enable the valuation actuary concept, with NAIC regulations requiring an annual actuarial opinion and memorandum being exposed and adopted in 1991. If this happens, perhaps Illinois will follow the NAIC. If the NAIC does not move quickly, it may well be that Illinois will adopt its own law and/or regulations.

While there are a lot of companies that are not in New York and hence not required to do an actuarial opinion and memorandum, most companies are licensed in Illinois. So it would appear that, one way or another, it is likely that most companies will have to do cash flow testing for year end 1991.

FROM THE FLOOR: For GAAP, we're treating the entire in-force block as an investment contract. Maybe that's right and maybe that's wrong. My contingent reserves now are only 10% the whole. The auditor's concern was that it's not appropriate under FAS 97 to put in adverse deviation. Our response was that a "best estimate" over the 40- or 50-year lifetime wouldn't be a level interest rate anyway. It's hard for them to counter argue against that. We're using graded reserves for GAAP purposes.

I'm wondering, how anyone can justify using level interest reserves for statutory reserves where statutory reserves go on for 40, 50 years also?

MR. SMITH: Well that won't be allowed after 1993 for any in-force business. And not for any new business, starting this year (1990). From now on, you won't be allowed to use level interest rate reserves.

FROM THE FLOOR: Well for the carve out you could, right?

MR. SMITH: Under option 1 of IX-A, you can use level interest rates for each piece. But then you have to reserve for any lumps at a much lower level interest rate, giving an average result that is somewhat similar to the use of graded interest rates for run of the mill settlement annuities which typically do have lump payments.

If, however, all you are selling is retirement annuities with level $1,000 a month benefits, I guess you could use level interest rate reserves. Level interest rate reserves are both permitted and appropriate for level benefits annuities sold at retirement ages. If you are selling those at age 65, whether or not you have graded interest rate reserves is not going to make much of a difference at all, because the mortality has a big impact at the older ages and with shorter certain periods. Furthermore, your initial investments are likely to last for the average duration of benefits.

However, if you are selling at age 20, mortality will have an impact.

The business is going to last a lot longer than you can invest initially. My opinion, whether or not level interest rates are permitted, is that it is then not appropriate to use level interest rates because your initial investments will mature before the contract ends.

We have been using graded interest rates similar to what is now going to be required by IX-A for a number of years. Every year, in my New York actuarial opinion, I tell Mr. Callahan that if interest rates are still high, 10 or 15 years from now, we plan to ask for a reserve weakening. And I really do think, I really do, that he will buy into that because he's not just a one way guy on that particular point.

The other thing is that you said you were using FAS 97 for all of your limited pay contracts?

FROM THE FLOOR: For the structured settlements we're taking the position that we should use FAS 97 if they're investment contracts.

MR. SMITH: What you're saying is that there's no significant mortality element in them.

FROM THE FLOOR: Which I agree probably is not a good choice.

MR. SMITH: Well, a significant mortality element will certainly develop over time; and it would become appropriate to change over your accounting model, which would cause problems or at least discontinuities.

FROM THE FLOOR: I'm wondering, though, on statutory reserves, if you use a carve out method, you have in effect a graded interest rate for the spikes. But for that core of benefits you use level interest rate for everything.

MR. SMITH: You are currently permitted to. If you use the first option and you hold higher, lower interest rate reserves just for the spikes, you may use level interest rates for the core of benefits. But remember Don's graph pointed out that there really wasn't all that much difference, even after 20 or 30 years. I seem to remember that there was a 14% difference.

FROM THE FLOOR: Which will grow over time.

MR. SMITH: Yes, it will grow over time. Remember also that in order to use the graded interest rate option, you have to use the graded interest rates on everything. Not just the contracts with lumps. If you have just $1,000 a month at age 25, you've got to use a graded interest rate on that contract too. You have to test to see which one is going to give you the better results (lower reserves) and whether or not you feel that the level of reserves will always be adequate.

If most of your settlements have lumps, like ours do, you may find that particularly in New York, that the initial strain under the carve out option can be 4%, 5%, 6% more, depending on how your lump patterns are. This happens because you have to do the

lumps on plan type B GIC rates instead of plan type A rates, as permitted by IX-A outside New York. There is much less difference in the levels of initial strain between the two options under Guideline IX-A outside of New York.

I also believe, however, that, for both statutory and GAAP purposes, the valuation actuary has to factor into his choice of valuation interest rates the fact that his liabilities will likely long outlive the company's initial investments, making graded interest rates for all contracts probably a more appropriate or at least a safer choice.

MS. CECILIA C. H. CHEN: I am the pricing actuary. I have three questions, the first of which is for Don. What is the deferred revenue from single premium immediate annuity (SPIA) contracts?

MR. FRITZ: One that has life contingencies? That's a limited pay contract under FAS 60? FAS 97 changed FAS 60 such that you should set a deferred revenue item if you have basically less than a 20 pay life contract. We interpreted that to say that we have to set up a deferred revenue item on the structured settlement.

MS. CHEN: My basic knowledge of deferred revenues is from universal life contracts for the front-end charges or front-end load. In this case we really don't have any front-end charges.

MR. FRITZ: We concluded that the way a structured settlement is priced gen-erally, is that you discount back the benefit stream. Then you add on a loading for the commissions, premium taxes, and those sorts of things. We interpreted that as being a front-end load and that's basically what we set up as a deferred revenue item.

MS. CHEN: My second question is, if there is any mortality, why do you use FAS 60? When you talk about "significant mortality," do you mean the overall? Like say 5 or 10%?

MR. FRITZ: In terms of when a contract is an investment contract? Or when it's a limited pay (FAS 60) contract?

MS. CHEN: Correct.

MR. FRITZ: Well, I think FAS 97 says that if the contract has, I have forgotten the exact wording . . . .

MR. SMITH: I believe the terminology is "significant insurance risk."

MS. CHEN: Right. So if it's like 5% or less, it won't be significant or something?

MR. FRITZ: When we looked at it, we came back to the argument again that maybe it's not significant today, but what's it going to be 10 or 15 years from now? It's going to be significant then.

MR. SMITH: And how would you change your accounting model in midstream? If you call it an investment contract, you don't show premium which I don't like to do. By the way, our board of directors likes to see the premiums shown as premiums if there's any legitimate reason to do so, and I agree with them. But if you start out with no premiums and you go through the investment contract accounting model, you may wind up with an entirely life contingent reserve. By that point, or somewhere before that point in time, you ought to be on the other accounting model. My company just starts with it.

I think that probably the vast majority of companies are doing the same thing. This specific question is the first question on a survey of 31 companies that Bob Stein at Ernst & Young is conducting. Within a month or two he should have the results.

MR. FRITZ: Also, the accounting firms kind of like that answer anyway because it does defer income.

MS. CHEN: My third question is about the definition of level or graded interest rate. For each individual period of certain contract, can we use a different interest rate?

MR. FRITZ: You're saying that a 10-year contract might have an interest rate of 8%? And a 20-year contract might be 7%? And a 30-year contract might be less than that?

MS. CHEN: Correct.

MR. SMITH: Are you talking about doing this for GAAP or statutory?

MS. CHEN: For GAAP.

MR. SMITH: You need to do something to get you back to the net consideration as an initial net reserve.

MS. CHEN: I agree.

MR. SMITH: How are you getting back to the net consideration? Are you solving for an interest rate that gets you back?

MS. CHEN: Yes. That's what we're doing.

MR. SMITH: Okay. When you have a 10-year certain-only annuity, I think she's saying, solve for X% for 10 years. So you get a level interest rate for 10 years. We do this also. If we have 20 years or less on a certain-only annuity or any kind of annuity, we wind up with a level interest rate reserve. Period. End of paragraph. If it's more than 20 years, stick on a tail interest rate and solve for the first 20 years' interest rate such that we get back to the net consideration. So you're right. The graded interest would only come into play on a contract that's more than 20 years in our case.

MR. BARRY PAUL: Can you elaborate on why you believe Guideline IX-A mortality is not appropriate for GAAP?

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

MR. SMITH: Remember that we solve for the initial reserve interest rate. Say we have $100,000 gross premium and $5,000 of expenses. Our initial net reserve is $95,000. We may have that, or we may have $95,000 plus $5,000 equals a $100,000 initial liability with a $5,000 DAC. But in any event you get an initial net reserve of $95,000.

What you have is a reserve that is the present value of future benefits at mortality and interest. Whether or not you've solved for the interest rate, you're getting back to that $95,000 initial reserve. If you then start looking at a Fackler retrospective accumulation of the reserve, and if the constant extra death mortality assumption assumes 25 deaths per 1,000 (but rated age monthly expects only four deaths per 1,000), and you're only getting say five deaths per 1,000, then the actual to expected mortality ratio is 125% on the rated age basis.

However, on the constant extra deaths expected basis, where the expected is 25 deaths, you're going to wind up with five actual deaths divided by 25 expected, which is a 20% actual to expected mortality ratio. Now I ask you what will happen to your GAAP profits with a 20% actual to expected mortality ratio? They will be terrible. You're going to wind up with significantly more reserve increases than the reserve assumption expects because fewer people died. We have tested this out and observed the results.

I guarantee you that if you have any significant amount of substandard business, you don't want to use IX-A for GAAP purposes because it will just beat the heck out of your earnings.

MR. FRITZ: Basically, the constant extra death methodology of IX-A was chosen because it was mathematically convenient, as opposed to being "correct." For substandard business, the mortality that we have observed, what little of it there is, is somewhere in the middle between constant extra death mortality and rated age mortality. If you were going to give the theoretically correct answer as to what the mortality should be, it would probably be a mixture of those methods. The reason why I think the regulators were comfortable with constant extra deaths and I think the reason why you use it, Steve, is because it tends to produce a higher reserve as you get farther out. In my opinion, the methodology was chosen for mathematical convenience and the reserve level it produces rather than whether that's the right death rate.

MR. SMITH: Getting back to Barry's question from the floor. For GAAP earnings purposes, it is important that the annuitants or "measuring lives" die according to the reserve mortality assumption. When you take a guy that's age 20 and you rate him up to age 60, you are expecting significantly higher death rates, but probably not near the level that will be assumed by the required IX-A methodology. To the extent that people really die at a rate near the IX-A assumed rate, you should have reasonable GAAP earnings if you use the IX-A mortality assumption in your reserve calculations. If mortality is actually closer to rated age mortality, your GAAP earnings will be terrible.

For statutory purposes, IX-A requires you to be progressively more conservative as time goes on. If you don't get those IX-A deaths, your reserves won't go to zero as they will under the rated age methodology.

For example, if you rate a life up to age 60 and the mortality table goes to 115, under rated age methodology, the reserve is going to approach zero before you get out 55 years from issue because the qx will be approaching 1.0. If the annuitant, in fact, lives 20 or 30 years, you may want to say that you made a mistake. And that's what Guideline IX-A does. It, in effect, grades into standard reserves at the very end of the mortality table relative to actual attained age as opposed to rated attained age.

The originally proposed IX-A would have required standard reserves in 20 years as opposed to at the end of the actual attained age mortality table. Grading to standard reserves in 20 years typically would have meant that your reserve would have actually increased substantially every year after issue for a long time, probably 20 years, instead of decreasing as you might have expected.

We had calculated that if the original proposed guideline requiring grading into standard in 20 years had been adopted, we would have had to increase our prices on substandard business by 15-20% of premium. And even then, we would have had years and years of statutory losses because the reserve increase would have been the equivalent of between 300 and 500 basis points of annual yield. No company has spreads like that. We would have wound up, not only with a huge initial statutory loss, but continuing annual losses, probably until the guy died; and that was just a totally unacceptable situation.

MR. PAIGE: I would emphasize that Guideline IX-A in no way purports to actually track the mortality curve. It was an approach that we all generally agreed was a reasonably conservative approach and was a heck of a lot more reasonable or realistic than going to standard mortality in 20 years. I don't think mortality is going to follow the constant extra death curve. I think it is going to be somewhat worse probably than rated age, although, at this point, I don't have much evidence of what it will be.

MR. PAUL: I grant that. But why wouldn't that degree of conservatism or at least a certain degree of conservatism still be desirable at the tail even on a GAAP basis?

MR. SMITH: I agree that some degree of conservatism is appropriate for the GAAP tail mortality assumption, but not for the first few years. What we currently do in GAAP, as I said, is to start out with a rated age mortality assumption for the first 10 years, then grade linearly to constant extra death mortality at the earlier of age 85 or 35 years after issue. If the rated age is above 60, the grading starts immediately. The grading is over a maximum of 25 years. For rated age 70, for example, the grading starts immediately and occurs over the remaining 15 years to rated age 85. For rated age 40, however, we use rated age mortality for 10 years, then grading into constant extra death reserves over the next 25 years.

We believe that this generally produces reasonable levels of GAAP earnings for the first 5 or 10 years, while throwing in gradually increasing elements of adverse deviation provisions. The primary point that I was trying to make in my formal presentation was that, in my opinion, you don't want to start off with constant extra death mortality right after issue because it would likely have a substantial adverse impact on GAAP earnings.

RESERVES FOR STRUCTURED SETTLEMENT ANNUITIES

MR. FRITZ: There is a significance between a realistic mortality assumption and one that produces reasonable reserves.

FROM THE FLOOR: I have a question regarding the effect or expected effect of the IX-B phase in. Has any work been done in estimating the dollar impact of the phase in?

MR. SMITH: At my company it's going to have very little impact for either Guideline IX-A or IX-B because we have been using essentially Guideline IX-A since 1978 on the substandard. In addition, we have been using some form of graded interest rates since 1982 -- not the New York method or the Guideline IX-B method, but some form. So, for us, it's going to be a very marginal change.

Other companies will have to test the potential impact.

MR. PAIGE: You are going from a reserve that is not that much different at issue to a reserve that is at a lower interest rate at 20 years. The impact of the change is going to depend on your average duration.

MR. SMITH: Suppose that you have an 8% level reserve and that under the graded method you have to reach 6% 20 years out. Under the graded method, your initial reserve is a present value at "X%" for 20 years and 6% thereafter. When you solve for "X%," say you get 8.8%. When you're out one year, then you have a present value at 8.8% for 19 years and 6% thereafter. The initial reserve was 8% level and winds up at 6% level for years after the 20th. That amounts to a strengthening of about 10 basis points per year.

If you want to estimate the impact, I would do this. Segregate your statutory reserves by year of issue and level interest rate. For each block, estimate the IX-B ultimate interest rate and reserve, perhaps with a model. Then, for anything that's in the first year I'd use the difference between your actual level interest rate reserve and the estimated reserve at the tail rate, times 2.5% because, on the average you're only out half a year and you have 19.5 years to go before you reach the ultimate level tail interest. For policies in the second duration, use 7.5% of the estimated difference. For the third policy year, use 12.5% of the estimated difference, etc. I think that you can get a pretty good estimate of the impact in that way.

MR. KENNETH FAIG: Granted that underwriting a substandard retirement annuity is a losing proposition under the current regulations. I wonder whether there's a market there given that the need to liquidate wealth often is correlated with deterioration of health?

MR. SMITH: I think that there probably is a market. How profitable the market is, given the IX-A requirement of standard reserves, well, that's another question.

We had something like 25 or 30 such cases in-force at the end of last year. But they were, as I said, originally priced on a basis that assumed say a $100,000 reserve. And now we've got to hold reserves of $175,000 or $200,000 on each policy. In the future, when we price them, we're going to take that into account.

This next comment is important. Given that you now have to hold standard reserves on substandard retirement annuities, you'd better make sure that your medical directors are able to identify those applications for which the company cannot hold a less than a standard reserve. You have to separately decide how you're going to underwrite and price those contracts and what kind of profit margins you're going to want on them.

Bob Callahan of New York told me, when we were developing IX-A and the identical section of Regulation 126, that if we can show him in four or five years that the industry is handling the vast majority of the business acceptably, i.e., the settlement annuity business, he will be agreeable to including retirement annuities. But not now.

There is a real need to be able to sell substandard structured settlement business on a basis that can be profitable for the companies. There's a market out there. It's a very difficult market to try to make a profit in. The cases really get "shopped." For example, we just did a survey on one case that had been underwritten by 12 companies. The actual age was 10 and the rated ages that were quoted ranged from 13 to 72. You say, well, 72 obviously got it. But it wasn't 72, for whatever reason. It was the one that rated at age 69. Normally that's not the range of diversity of opinion. Even where you find that the rated age quotes are fairly close together, you still have quite a difference.

It is a tough market, which is at least part of the reason that the regulators have been concerned that reserves are not conservative enough. But the regulators (at least Bob Callahan) are not yet ready to allow us the same kind of reserving procedure for substandard retirement annuities. You may or may not have the same level of under-writing information that you have on a settlement annuity. When you underwrite a substandard settlement annuity, you are probably basing your underwriting on a 20- or 30-page document that was the legal justification for the suit. You may not have the same amount of information on a substandard retirement annuity.

By the way, I would point out that we do not let lay underwriters underwrite our settlement annuities. Only the medical directors or M.D. professionals underwrite them. This is because the typical underwriter is used to handling up to say Table 16. But on a case that's say 3,000% mortality, he may have no idea what to do. Our belief is that underwriting must be done by someone that has studied medicine in detail. On a substandard case, since there is a significant mortality element, it is very important to get a good underwriting evaluation.

We have one substandard case on which the annual expected reserves released is more than $240,000. Every year that that life does not die, the company loses that amount. You better believe we're checking to ensure that he is alive every year. When he does die, we make a large profit through a reduction of the life contingent portion of the reserve. What is important here, at least potentially, is that the underwriter may have a very different underwriting opinion if he knows about the level of annual loss each year that the life does not die, or the amount of statutory strain because the case being underwritten does not qualify for less than a standard reserve. When the financial risks become large, the prospect for gain must also increase at least proportionately, assuming that you want the risk at all.