

**1995 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 20

Regulatory Expectations From Asset Adequacy Analysis

Donna R. Claire

John F. Gies

Larry M. Gorski

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

MS. DONNA R. CLAIRE: This session is on regulatory expectations from asset adequacy analysis. This is an opportunity to hear from the other side. We will hear from two of the regulating actuaries who have been heavily involved in valuation issues: Jack Gies and Larry Gorski. Both of them are members of the Life and Health Actuarial (Technical) Task Force of the National Association of Insurance Commissioners (NAIC). Both are also part of what we consider the new order of the task force -- people who are willing to listen to all sides of an issue before making a decision. They do not close off discussion or impose their rules just because they are the regulators. I have enjoyed working with both of them on issues involving the task force and general valuation issues. They may not always agree with me, but they do listen. However, what they think does have a major impact, because, after all, they are the regulators.

In preparation for this panel, I submitted my ten favorite questions to both of them. Jack Gies, FSA, MAAA, is from Connecticut, a state that is heavily involved in variable annuity issues. He is going to address some of the questions from that point of view.

Larry Gorski, FSA, MAAA, is with the Illinois Department of Insurance. He has been involved with the valuation actuary concept since its beginning. He is also heavily involved on the asset side of the balance sheet. He will be addressing some of the general questions as well as those specifically related to assets.

MR. JOHN F. GIES: I want to make a few broad comments to begin with, and then proceed with some comments on minimum death benefit on variable annuities.

It's clear that there's great and accelerating change in companies and in the regulation of companies, and particularly in the actuary's role within the company. We're moving from a regulatory framework where we've had reliance on formulaic standards and implicit margins. That system was very much suited to the times and it worked well. Through the force of change, technology, competition, and

1995 VALUATION ACTUARY SYMPOSIUM

the preciousness of capital, we're shifting to a valuation system which involves explicit margins and scenario-based testing. It's a system in which the skill sets that are required of actuaries are different than they were in the past.

We ought to ask ourselves, in the face of all this change, are companies safer today than they were several decades ago? We ought to ask ourselves the question, are actuaries more regarded today for broad informed wisdom or are they increasingly viewed in a technical narrow context? I don't think there are answers to those questions, other than that the answers are in the making. It seems clear to me that favorable responses to that question will be a function of how well we deliver on our applied promises made to consumers. I think it's at this level of abstraction that both public and private actuaries have very similar goals.

I, and I suspect that many of you, view the regulatory processes as largely a voluntary process. It seems to me that the public and the private sector actuary have a joint contribution and joint participation in this regulatory framework, particularly in view of our common training and our common approach to problem solving. So with that as a theme, I thought I would give you some insight into the regulatory process. I asked our department, what are the key issues? How do you respond to some of the things that Donna cited? I'd like to relay some of the responses from our department because it sharpens the focus on the professionalism issue.

There was concern expressed that in this new environment that expertise is sometimes too often directed to the achievement of minimal defensible provision for future contingent events. There was concern that the determination of safe harbors too often predominates the process, at the expense of really understanding the risk in the products. Another concern was expressed about a perceived infatuation with software and the production of numeric answers. Another comment was made that broader experience and more interpretative skill needs to be brought to the process. Another comment was made that the technology distraction should be filtered out and qualitative judgements should be improved. There was also sentiment for a simpler process -- one that's more transparent. There was concern expressed about overly complex solutions to problems.

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

The comment on simplicity and transparency is one that's offered in the best sense of the word. Oftentimes people think of simplicity as a negative quality, but in this context, it is a positive quality. I think you'll see, from some of the subsequent comments that, in fact, we do perform very complex valuation processes. However, we need to communicate concepts that people outside our profession can understand.

Many of you may have responded to the Society of Actuaries request for comments on the educational system. One of the comments that I offered was that we need to do much better in terms of improving the communication skills in our profession. We need to be able to communicate very technical subjects in a way that people outside of our profession understand it. That should be a part of the examination process in my opinion.

I think it may be time to take a step back and ask what is really occurring when the opinion and asset/liability cash-flow analysis is performed. Both the public and private sector have an interest in the fair reporting of liabilities. The deferred and contingent character of the insurance mechanism, of course, is more complicated than in most businesses. Consequently, terms like assumptions and credibility and value judgements are part of our vocabulary and a key part of our job.

I'd like to end this segment with a rhetorical question: where do we public and private actuaries land on these issues? Do we support a balance sheet provision for future contingent events under plausible adverse circumstances. Who is responsible for maintaining and nurturing this conservatism? Is it the sole responsibility of the regulator to enforce conservative practices? It seems to me that this capacity to deliver implied promise to the insuring public is a joint responsibility. I suspect that the vast majority of you would agree that it's a joint responsibility of public and private sector actuaries. Those are the comments from the department.

I'd like to address this issue of variable annuity. Larry is going to help me out. Larry has been involved with the American Academy of Actuaries in a work group headed by Steve Preston and Tom Campbell on this minimum graded death benefit issue. Quite frankly, we in Connecticut are very pleased with the progress of that particular group of people.

1995 VALUATION ACTUARY SYMPOSIUM

First, some background because not everyone is familiar with this particular benefit on variable annuity. Historically, the death benefit on variable annuity would be a waiver of the surrender charge on death. In effect, an individual would receive the account value as the death benefit, be it high or low. Recently products have been developed where the book value death benefit is significant and is funded by a market-value asset. The risk, of course, is that the asset is volatile and can go down in value as well as up; it can leave the company with a substantial exposure. So we've asked for an analysis of the economic effect of this volatility or this risk as part of our audit of several companies.

Consider some of the reserve methods that are currently in place. With respect to incidental death benefits; a one-year term cost was applied to a modest amount at risk, such as on the waiver of surrender charge.

The newer forms of death benefits have been described as nonincidental. There is a good deal of risk involved in these designs, and in Connecticut, we considered the variable life insurance law to capture the risk in these products. That regulation suggests a one-third drop in the assets as a way of capturing short-term volatility potential in the assets. It also suggests a determination of any current deficit between the promised book value death benefit and the assets, and the use of a level-premium reserving mechanism with respect to that element.

In asking for the economic analysis of risk, a number of things had to be done. A device had to be found to model, in the stochastic fashion, the future account values and compare them with the future death benefits.

We considered nine or ten generic mutual funds; bonds, international bonds, stocks, growth and income-type funds. We determined the means and standard deviations of the returns in those particular funds. We also considered correlation of these funds. The result was an analysis that produced present value of death claim costs on a stochastic random basis.

We first tested the waiver of death benefit that I described earlier. This is an incidental death benefit, and the important characteristic is that the claim pattern is fairly stable across all the random trials.

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

There's not much volatility in this particular benefit, which confirms the reserving methods that have been applied historically.

We ran 100 trials with respect to a nonincidental death benefit, and in this case, the death benefit was premium accumulated at 5% (Chart 1). That's the book value death benefit that's promised. The volatility demonstrated with the stochastic analysis produced an interesting result. For more than half of the cases, the present value of death benefit cost was very low and stable. There is a real leap in the tail scenarios. In particular, there are several trials where the present value of benefits were out in the \$125-235 million range. This is a death benefit design that clearly has a risk way out there on the tail.

The conclusion from this study is that a different perspective and a different reserving mechanism should apply to enhanced death benefits. A very powerful assumption in valuing these results is the length of time over which investment experience is monitored.

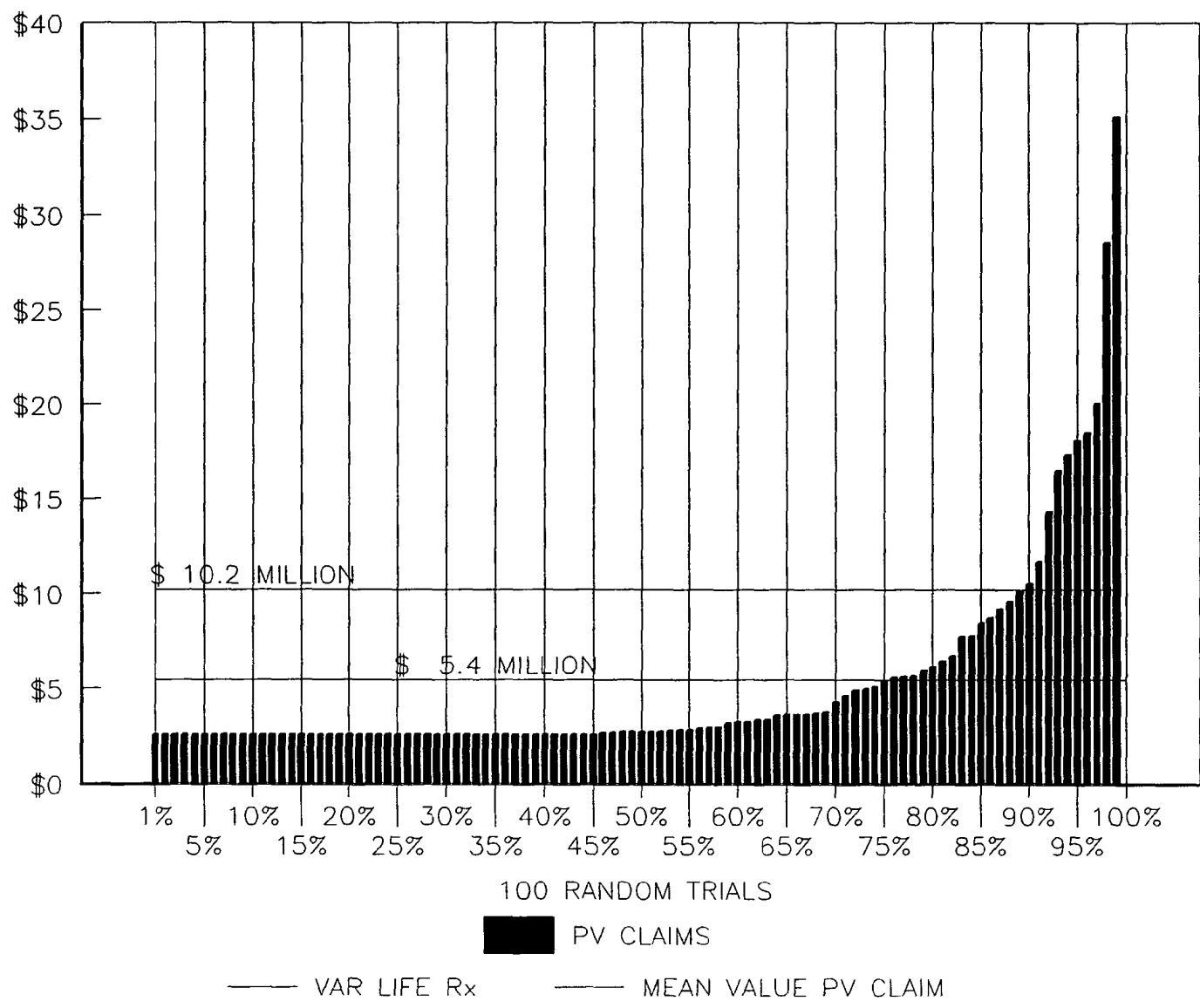
We looked at two different investment epochs. The first was a decade's worth of mutual fund experience. Another was a period of time that extended back to 1945 and forward through to 1993. The selection of the exposure period made a major difference in the display of the riskiness of a particular benefit, because the volatility of capital markets is not adequately captured in short time frames.

The position of Connecticut with respect to these nonincidental death benefits is that the variable life insurance law should be applied with the full one-third drop. We look forward to the work that Steve Preston and Tom Campbell are producing for the American Academy of Actuaries. We think they're on the right track. As I understand their processes, they're similar to what I've described this morning.

MS. CLAIRE: As you can tell, the regulators don't just make up a law. Again Connecticut did suggest the one-third drop following the variable life rate. That was based on research done by actuaries in the department. However, in response to industry questions, there is an Academy group

CHART 1

PV VA/GMDB 5% Growth Plus Waiver SC



REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

under Steve Preston and Tom Campbell who are trying to answer this question. As we said, the industry and the regulators are working very close on this matter.

MR. LARRY M. GORSKI: I summarized the comments that the NAIC received relative to the last exposure, which was late last year, of changes to the actuarial opinion memorandum regulation. In addition to the summarization of comments, and there's about 30 different generic comments that were presented; I also have a response to those comments. In some cases I agree with the comments; in some cases I don't. In some cases I just make some minor modifications. What I'd like to go through are four issues that probably received the most comments. I'll give a brief introduction as to what the issue is, what the nature of the responses were and what my reactions were to them.

The first issue is probably the most controversial. It has to do with the issue of reliance. In the Opinion Memorandum Regulation, I included a section captioned, "Reliance on the Analysis of Other Experts." It read as follows: "If the appointed actuary does not express an opinion as to the accuracy and completeness of asset-oriented information such as asset cash flows under different interest rate scenarios, the rate of default on debt obligations, or other forms of analysis, the person relied upon by the appointed actuary for this information must either be a member in good standing of the American Academy of Actuaries, qualified to provide such information, or a Chartered Financial Analyst." So clearly I was trying to limit the appointed actuary's ability to rely on someone. Of all the issues faced by regulatory actuaries this is one issue that has been difficult.

The actuarial profession, until very recently, has not been as active in the investment analysis area as we would have liked. And there has been a lot of reliance on other experts. For instances other experts could be anyone. So I was trying to put some discipline to the process, but as I said, this particular issue received significant comments. A comment was there are many qualified people, qualified investment experts who are not actuaries or Chartered Financial Analysts (CFAs). Another comment was that even though one may be a CFA, by the nature of the CFA requirements, that person may not be an expert in the mortgage loan or real estate area. I began to understand this is also a true statement.

1995 VALUATION ACTUARY SYMPOSIUM

Taking into account the number of comments and the range of comments, I finally decided that for the next exposure draft, this requirement will be dropped. I walked away with the feeling that maybe a half a loaf is better than no loaf at all. This was going to be a very contentious issue. I'd rather adopt some of the other changes I had recommended or suggested, as opposed to this one. So for at least the next go around, there will not be any requirement in this particular area.

The next item had to do with some of the details of the regulatory asset adequacy issue summary. For those who have not been keeping up to date in this area, it was initially called The Memorandum Executive Summary, and for various reasons we finally decided to change the name; we're now calling it the Regulatory Asset Adequacy -- Issues Summary. I had placed in the last exposure draft the following requirements; it reads: "Regulatory Asset Adequacy -- Issues Summary (RAAIS) shall specify the amount necessary to eliminate all negative ending surplus values under each of the required interest scenarios. The ending surplus should be determined by appropriately marking to market any remaining assets and liabilities. The market value of liabilities may be based on the appropriate cash value." This also generated a significant number of comments. Some people were interpreting this as a requirement for asset adequacy analysis in and of itself. That wasn't the intent. This was designed primarily to be able to generate data on a company's specific basis to be able to monitor the margins and reserves over time.

In order to do that one needs some common denominator for a particular company, and requiring everyone to mark remaining assets and liabilities to market was a way of accomplishing that. I recognize that the issue of marking liabilities to market is not definitively answered yet. In the case of contracts with cash values, I'm giving a safe harbor there. In general, the marking of liabilities to market is still an issue that different actuaries will answer in different ways. I recognize that and I can accept that, but I am still moving forward with this idea in the next version of the Opinion Memorandum Regulation. It's a way of dealing with the issue of consistency in data for one company over time and between companies.

One of the issues that I'm also involved in is the life risk-based capital formula. People who are involved in that probably realize the C-3 component, or the interest rate component of the risk-based

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

capital formula is very crude. It's a very simple-minded approach that tries to quantify that element of the risk-based capital formula. You may not be aware, but at least one rating agency (I believe it's Standard and Poor's) is now in the process, or even has modified its internal risk-based capital formula to explicitly, in a formulaic way, recognize interest rate risk.

The Property and Casualty Risk-Based Capital Task Force is also considering interest rate risk in their formula. And there are regulators (myself included) who would like to address interest rate risk in the risk-based capital formula, in a more refined fashion. I intend to use the results from this type of analysis of cash-flow testing or asset adequacy analysis as a basis for more rigorously quantifying interest rate risk for risk-based capital purposes. So this is really a stepping stone in my view to trying to deal with the interest rate risk at the risk-based capital level also. So the last line will remain in the next version of the regulation.

Another topic that was hotly contested was the details of the actual memorandum. I had included the following item in the earlier draft: "Schedules under each required interest scenario showing the cash flows by each of the major items of incomes, benefits and expenses for each period in the projection period should be contained in the memorandum." This actually was not one of my initial ideas for the RAAIS; the memorandum executive summary was something that came out of discussions of one of the Life and Health Actuarial Task Force meetings. By reviewing the comments from the industry, I believe that this particular requirement would be burdensome and probably would not answer the objectives that we're trying to accomplish. And so, this requirement will be scrapped. So for those who commented on it, you can feel relieved that we won't be asking for that in the RAAIS or in the memorandum. I think part of the rationale was that we do recognize that the memorandum is really designed for company management. While it's available to regulators on request, it's something that's a management tool and not a regulatory tool per se. All this information is sort of clout from the major issues, so I decided to scrap this particular one.

The last item was possibly one of the most innovative, and it deals with some of the additional considerations for analysis. I had included the concept of yield curve normalization. When I was working on this, yield curves at particular year-ends were rather flat. It seemed to me that using a

1995 VALUATION ACTUARY SYMPOSIUM

flat yield curve as the basis, as the starting point for all projections under the seven different required issue rate scenarios, didn't make much sense. So I included, within the Opinion Memorandum Regulation, the following additional consideration. It reads as follows: "In the event the yield curve at the inception of the analysis period is such that the excess of the annual effective interest rate for ten-year Treasury bonds, over the annual effective interest rate for 90-day Treasury bills, is greater than 300 basis points or less than 50 basis points, the appointed actuary must normalize the slope of the initial yield curve over a period not to exceed two years."

So basically what I'm saying is that if the yield curve is very steep, very flat, or inverted, you have to normalize it to a more typical type yield curve. There's a lot of ambiguity in here. There are many generalities in here and that was intentional. I didn't want to specify a particular method for yield curve normalization. I think that's within the realm of the valuation actuary. On the other hand, I wanted to make sure that if those circumstances did exist that the actuary would take that into account. So, in my view, it's a proper blend of generality and specificity.

There were some good comments in this particular topic. One was that in times of high interest rates, it made more sense to have a test based on relativity between the long and the short end as opposed to the absolute 300 basis points. So in the next version of this, we'll have an additional component of the test specifying that if there's a percentage relationship that is crossed, when the long end exceeds the short end, that will also require a yield-curve normalization. Also, I think the language is a bit confusing in that a few people commented on the fact that they did not think it applied to inverted yield curves, and I've clarified that also. So the long and short of it is that this one will also be in the next version of the Opinion Memorandum Regulation which should be coming out probably within the month or so.

Another one of the questions that Donna had on her inventory of issues was, are regulatory actuaries using the Collateralized Mortgage Obligation Flow Uncertainty Index (CMO FLUX) scores? Is there anything new happening in that particular area? The answer is yes. In Illinois and in other states we use the FLUX score mechanism for prioritizing our review of opinions and memorandums. In

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

particular memorandums we do review all actuarial opinions of domestic companies, and then, based on FLUX scores, we review the opinions and memorandum of certain foreign insurance companies.

The new project that's on the horizon is the development of a user's manual for the FLUX scores. The FLUX scores are not only used by the actuary; they're also used by our field examiners and our analysts who are people other than in-house actuaries. The user's manual has about 15 or 16 different case studies, and the case studies involve various permutations of CMOs in relationship to the total asset portfolio, the types of CMOs held, some asset/liability considerations and also, sophistication of the company. Based on those four general ideas, we have permutations of those ideas. Then we develop a suggested response by the actuarial examiner, the financial analyst, or whomever might be the user of the user's manual and the CMO FLUX scores. So that's something that is on the horizon for regulatory use.

Another question that comes up is, do regulatory actuaries feel that asset adequacy analysis or cash-flow testing is working? Well, I think it's very difficult to answer that question in the general case, unless one would look at each and every memorandum. In preparation for this meeting, I took a look at the annual statements of companies that had reserves increased because of asset adequacy analysis. There were a couple of problems related to that.

In the first place, there were about 140 companies nationwide that had reported in the specific line item that reserves had been increased for asset adequacy analysis purposes. However, when actually checking the annual statement we found out that, in many cases, the line number assigned for the additional reserves is being used by another purpose for the company. So any type of computerized analysis or computerized reporting off that line number was ineffective. So I had my associate go through all companies that were licensed in Illinois, to see whether the line was being used properly. Of about 100 companies licensed in Illinois that had what we thought were increases in reserves due to asset adequacy analysis, only about one-third of them actually, legitimately did increase reserves for that reason.

1995 VALUATION ACTUARY SYMPOSIUM

We prepared Table 1 that gives some indication of the magnitude of increases for those 33 companies that had increased reserves. You can see that in about half the cases, the increase is quite minimal -- less than one-half a percent. But another 16 or 17 would have what I would consider to be substantial increases of one-half percent or greater. And there are a couple of cases, some outliers, where there have been significant increases as a result of asset adequacy analysis.

TABLE 1
Life Companies and Fraternal with Additional
1994 Reserves due to Asset Adequacy Analysis

Count	Add'l Reserves	Total Reserves	Add'l %
1	\$15,000,000	\$4,192,620,239	0.4
2	7,500,000	757,288,715	1.0
3	35,000	4,709,265	0.7
4	100,000	24,175,994	0.4
5	18,964,977	25,434,840,979	0.1
6	1,250,000	88,332,526	1.4
7	15,000,000	2,658,177,657	0.6
8	1,396,258	47,962,320	2.9
9	10,000,000	5,656,894,345	0.2
10	12,500,000	454,468,762	2.8
11	3,000,000	4,248,914,957	0.1
12	28,791,641	30,545,922,340	0.1
13	40,000,000	4,788,989,981	0.8
14	1,500,000	130,306,437	1.2
15	2,600,000	400,353,370	0.6
16	5,000,000	562,489,619	0.9
17	2,000,000	664,056,284	0.3
18	647,249	306,505,575	0.2

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

TABLE 1 (continued)

Life Companies and Fraternal with Additional 1994 Reserves due to Asset Adequacy Analysis

Count	Add'l Reserves	Total Reserves	Add'l %
19	\$1,999,799	\$130,150,918	1.5
20	25,000,000	103,323,270,520	0.0
21	1,100,000	66,974,987	1.6
22	450,997	192,036,728	0.2
23	2,400,000	4,049,626,979	0.1
24	400,000	222,271,598	0.2
25	313,748	154,840,299	0.2
26	14,000,000	190,669,122	7.3
27	1,260,000	277,522,625	0.5
28	300,000	83,460,885	0.4
29	250,000	8,245,572	3.0
30	1,327,433	142,984,620	0.9
31	56,500,000	366,972,042	15.4
32	90,000	76,145,132	0.1
33	850,000	3,141,302,764	0.0

Companies showing additional reserves in annual statement: 140

Not licensed in Illinois -- could not check against actuarial opinion: (42)

Annual Statement is incorrect -- no additional reserve: (65)

Confirmed additional reserves set up: 33

So while I can't be definitive, I do feel that the profession is taking its responsibilities seriously, and is discharging those responsibilities in a professional manner. And that's going to become an important question for me in the next couple of weeks. The Asset Valuation Reserve/Interest Maintenance Reserve (AVR/IMR) Task Force's meeting is on October 2, 1995, and one of the issues we're going to be discussing is whether the negative IMR concept should be permitted. The IMR is a way of capturing interest related gains and losses. But it's floored at zero. One of the issues that the industry has been pressing for the last couple of years is to recognize a negative IMR. I've been tying that to the asset adequacy or cash-flow testing, and for me to be able to buy into the idea, I have

1995 VALUATION ACTUARY SYMPOSIUM

to feel comfortable that the actuary is doing a good job. This is giving me some indication that they seem to be.

Now the reason why everyone is here is because of my October 31 letter. And just like at the Academy Awards, the answers are right here in this sealed envelope and I will now reveal them.

The first issue that will be addressed in the October letter is the issue of Regulation XXX. Regulation XXX has been discussed before. I do want to make sure everyone hears about it first hand. Illinois is going to adopt the regulation either later in 1995 or early in 1996, with an effective date of January 1, 1997. I wanted the industry to be fully aware of what our intentions are, so there's a level playing field. Second, I want to make sure that there are no internal problems. In our discussions over XXX there was a split view between the actuarial section and our policy form and consumer-type people. And I didn't want to have any problems with the policy form approval process, so we're giving everyone plenty of time. By everyone, I mean both the companies and the industry, both the industry and the regulators to prepare for the eventual implementation of Regulation XXX.

While I feel 100% certain that we're going to move ahead with it, there's always a remote possibility that the letter writing campaign by the unnamed individual from the northeast will convince others within our department that it's not a good idea. I had to respond to two letters sent to our governor's office, that made their way to our insurance department, which then found a way to my desk. I'm working under the assumption that we will be adopting and implementing XXX as indicated.

Another issue that's going to be addressed in the October letter has to do with reporting additional reserves in the actuarial opinion. I told you about the reporting problems where companies were using the additional reserves line in the annual statement for something other than additional reserves. Another problem my associate uncovered is that there have been cases where the company has set up additional reserves -- it's reported in the annual statement, but it's not identified in the chart that's suppose to accompany the actuarial opinion. And I know what the charts identify is recommended language. I think it's more than just recommended; it's the required format. And if you're going to

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

be setting up additional reserves, it's going to be very helpful to have that report in the actuarial opinion, so that's something that will be addressed in the October letter.

I also have a few brief comments concerning the enhanced death benefit and variable annuity products as Jack discussed. I am active in the Academy group dealing with that. There are some differences of opinions on the details of its project. But in general, I agree with the direction they're moving. And my letter won't be much more specific than that, except that it should recognize those death benefits in a reasonable actuarial fashion.

The last item that my letter will deal with will be a modeling of asset questions. And I really am not yet comfortable with the way valuation actuaries are dealing with the modeling of derivative instruments, whether stand-alone or embedded in fixed-income securities. Based on Schedule DB filings in the annual statement, approximately 10% of the companies are using derivative instruments. When you look at the actuarial memorandum supporting the opinions for those companies, there's a wide variety of practice ranging from no recognition at all to a very limited hand-waving type recognition. In some cases, there's a more rigorous recognition.

Obviously the cases where it's completely ignored are the most disturbing to me and other regulators. In the same vein, fixed-income securities are continually evolving. There was something in a recent *Wall Street Journal* issue dealing with foreign securities that were being repackaged into a trust agreement. Participation certificates were issued from that trust. Clearly they are foreign securities, but because of the trust mechanism they almost look like U.S. securities, and one can do those types of machinations with almost any type of combination of bonds and derivatives.

Those are the kinds of issues I want the valuation actuary to be on top of at the company level. In many cases, the actuary will be relying on an investment person, but I do expect some level of due diligence with respect to the asset modeling issue and with respect to derivatives and fixed-income securities with embedded options.

1995 VALUATION ACTUARY SYMPOSIUM

MS. CLAIRE: One of the other issues I've seen raised is, how is reinsurance being handled? Do you guys have any answers about whether it's being handled properly by valuation actuaries?

MR. GIES: I think generally it's being handled appropriately. Obviously you're testing the net reserves in most cases. There has been one circumstance where I felt that a cash-flow testing on the gross reserves given the ceding companies nonaccreditation in the state ought to reflect cash-flow testing results with respect to the gross reserves as opposed to relying on the reinsurance contract. But generally I haven't seen any real problems in that particular area.

MR. GORSKI: I guess one of the tricky issues that we've dealt with is, let's say you have a Section 8 company -- a company that is required to do asset adequacy analysis. The company is ceding some business to a Section 7 company, which is not required to do asset adequacy analysis, and the actuary at the Section 8 company, the ceding company, relies on the opinion of the Section 7 company for his or her opinion at the ceding company level. It's a pretty confusing circumstance, but that is something that is troubling to me -- if the ceding company, which is a Section 8 company, has to do cash-flow testing, the actuary, in order to legitimately sign off on his or her company opinion, needs to go beyond a Section 7 opinion at the assuming company level. And there are other issues like that. But that circumstance does come up more frequently than we would like. It involves communication with that company.

MR. STEPHEN J. PRESTON: I'm the cochair of the Academy working group on minimum guarantee death benefits for variable annuities. I just want to make a couple of comments to follow up on what Jack and Larry said, because we've received a lot of questions on this particular topic at the meeting.

Our group has spent several months looking at this variable annuity death benefit issue. We agree with Jack's comment that the cost is extremely volatile. Furthermore, they tend to be at the tails of the distribution. We've tried to come up with a deterministic reserve approach for this. We've come to the conclusion that you really cannot value these risks with a simple formula. We've come up with a two-tier approach.

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

First is what we're calling a prospective reserve which is designed to cover some of the volatility risks that Jack brought up. Rather than have an arbitrary drop, like a one-third drop, we believe that it should be based on the actual fund types. For example, if you have a money market fund, the volatility risks are significantly lower than they would be on let's say an aggressive equity fund. So we're coming up with drop factors based on fund classifications.

The other problem with that reserve is that it doesn't really recognize the characteristics of the policy. For some of these tails that Jack is referring to we're coming up with a stochastic type approach that would focus in on some of those tails. Some of the other issues that we're looking at are asset adequacy testing, risk-based capital, mortality bases, and reinsurance. And as we move forward we certainly like to get comments from people that have worked on this product. It's a big undertaking and we need comments to make it happen.

MR. GORSKI: I have a response to Steve's comments. One of the critical issues I believe is how one would blend the short-term fluctuation reserve and the long-term reserve. That's one of the details that needs additional thought. There is some disagreement between the professionals at the Academy and the regulatory actuaries. The approach being suggested now is to use a weighted average of the two reserve components. From a regulatory perspective, we were envisioning something more related to the maximum of the two components, or it may even be the sum of the two components. And so that's one area where there is some difference of opinion at this particular point.

MR. PRESTON: I think that's a good comment. There are some trade-offs when you take the greater of the two reserves, with respect to having a reserve that fluctuates significantly from year to year. We'll be working with the regulators to try to come up with something that doesn't fluctuate as much, but that, at the same time, addresses the adequacy concern.

MR. GIES: I'd like to add to Larry's comments and Steve's as well. I know you have a sense of the very complicated nature of a stochastic approach to this kind of volatility. I met with an A&H actuary who works with disability income. And he said, "You know Jack, I think the real problem

1995 VALUATION ACTUARY SYMPOSIUM

in this line of business is the volatility. We haven't been able to capture in our pricing, or in our thought processes the real volatility in that particular line of business." The person has a Ph.D. in statistics, and has more knowledge about these approaches in his little finger than I do. It was very interesting, because it fed right into the minimum death benefit thought process as well.

As we perform this research analysis, which is absolutely essential, and as we accumulate a body of knowledge, we have to be aware that the valuation system that we put in place has to be simple and transparent enough so that it's available to everyone. Large and small companies ought to reflect the risk structure. The proxies aren't bad. We don't have to put mechanisms in place that are finely tuned to every single nuance in the particular risk design.

So I really applaud the work that Steve and his group are doing. I hope they take, as part of their charge, the thought process too. The work product that they deliver, in addition to doing an excellent job of capturing the risk, ought to be of such a form that all of the practitioners can have access to it. You don't necessarily have to be a rocket scientist in order to have such a product.

MR. GORSKI: Another challenging issue relative to the project Steve and Jack are talking about is that the Monte Carlo component is referred to as a retrospective component of the reserve. The issue is that with any type of Monte Carlo approach you obviously need input assumptions. You'll need assumptions as to the volatility of the reserves on the mutual fund component for the variable annuity fund you're trying to model. One may need to consider mean returns and other factors.

The issue is whether those assumptions on a per-fund basis should be established in the law on regulation or be left open to actuarial discretion. Heretofore, when you're dealing with statutory formula reserve assumptions, at minimum, assumptions have been spelled out. It seems like, in this particular area, we're starting to cross over into formula reserves with actuarially justified assumptions. That should be an interesting challenge for Steve's group and the actuarial task force to deal with.

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

MR. JOHN M. O'SULLIVAN: I applaud you on your interest in the guaranteed minimum death benefit; I think that's probably something that's overdue. The slides that John had prepared were quite interesting. I noticed that a 90th percentile level of confidence was pegged as the level cost in using the retrospective approach. I wondered if anybody would care to comment on what would be an appropriate percentile choice in setting the retrospective reserve. Also, how does that compare with the inherent conservatism in some of the other reserves. Are most of the reserves up at a 90th percentile or are they, in fact, at a much lower level?

MR. GIES: Well, that's a very good question. And I personally think that the body of knowledge is really in the process of being developed and articulated. We're going to look forward to the work of Steve and his group.

But it seems to me that basic reserves probably should be in the range of 70-90% -- that's a fairly broad range. Risk-based capital clearly ought to raise that level of confidence. It's interesting with the variable annuity product to lever that the risk-based capital contribution is almost insignificant. There are two ways to get at that particular issue: you can develop more meaningful risk-based capital elements or perhaps capture in the basic reserve in the absence of RBC.

What level of confidence the reserving mechanism should deliver is an excellent issue. If the spike of that tail is too high, even if it's one or two occasions out of 100, I think the actuaries really ought to take a look at the product design and determine whether they can't ameliorate that spike. At some point, you can't really price, and you can't reserve for a catastrophic kind of circumstance.

MR. GORSKI: My response is probably not too dissimilar to Jack's. My intuitive feeling as to the level of confidence in formula reserves is somewhere around 75%. Jack also pointed out an interesting relationship among formula reserves, cash-flow testing and risk-based capital. One of the issues that we struggle with in risk-based capital is trying to keep the formula as simple as possible. Because we're dealing with complex or range of enhanced death benefit designs, and an asset fund supporting those designs, it seems to me that there should be more rigor put into the formula reserves in this particular case and leave RBC at a somewhat simplistic basis yet. I'm not saying we should

1995 VALUATION ACTUARY SYMPOSIUM

not increase the RBC charge, but I think the level of refinement should be at the formula reserve basis.

DR. DAVID N. BECKER: I really have an observation rather than a question. One of the items that was discussed by Larry with regard to changes in the model regulation deserves some attention, and that is this issue of market values. The issue is much too sophisticated to go into here, but I would like to comment that as part of a prior panel discussion, the letter that the people at Lincoln National wrote to the NAIC with regard to those proposed changes had an extensive section discussing the use of market values. I would strongly encourage everyone to read it. If you don't have it, you can contact me at Lincoln National, and we'll be happy to forward it to you. I strongly encourage you to read that material, and look at the arguments that are made, and the issues that are raised with regard to the reliance, or even the use or any kind of regulatory demand for market values. We think this is a serious issue and everyone ought to take a look at it. It has not been treated adequately in any of the discussions.

MS. CLAIRE: What happens when either of you guys are not happy or are uncomfortable with an actuarial memorandum? What type of process do you go through with the company? What are the steps involved?

MR. GIES: In Connecticut we have two ways. We have an annual review of selected memoranda, and that would probably be responded to with a letter. And there would be a dialogue established probably by telephone or letter, depending on the nature of the problem that we ascertained.

The other way that we use actuarial memorandums is in our audit of the reserves. And it's at that point that a very thorough analysis is performed. That, of course, gets resolved with the chief actuary, the appointed actuary in terms of a discussion of the issues as the examination rolls forward.

MR. GORSKI: It's a long drawn out process in reviewing both your opinions and the memorandums. My associate Bruce Sartain, really does the bulk of that work. There's an extensive series of letters going back and forth, when we're trying to resolve issues. Many times we ask for a

REGULATORY EXPECTATIONS FROM ASSET ADEQUACY ANALYSIS

restatement of the opinion to deal with a particular issue. This year we have a very troublesome opinion memorandum, and I think we actually will be going to the Actuarial Board for Counseling and Discipline (ABCD). It's a situation in which the actuary stated that reserves are inadequate, but because of surplus considerations they're not going to be raised by the company. He really didn't identify the amount of additional reserves necessary.

Furthermore, in correspondence, the actuary sort of backed off from the initial statement and suggested a lower level of reserve additions to cover the issue which was unsatisfactory to us. So we're at the point now where we will be going to the ABCD to deal with difficult issues. The first couple of years of review process is a training period for both the company and us. There's a tremendous amount of unresolved issues that continually crop up in the process.

I think we're at the point now where we know what we're doing and the actuaries should know what they're doing. If there is a significant difference, we will be going to the ABCD. We won't be doing that initially; we'll give the actuary an opportunity to explain his or her rationale in the process. But where there is a fundamental difference, we will be moving forward with the ABCD.

