

# RECORD, Volume 27, No. 2\*

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Toronto Spring Meeting

June 20–22, 2001

## Session 35PD

### To Cash Flow Test or Not To Cash Flow Test

**Track:** Smaller Insurance Company/Financial Reporting

**Moderator:** SUSAN M. REITZ

**Panelists:** CHRISTOPHER H. HAUSE  
BRUCE D. SARTAIN

*Summary: Among the revisions to the Actuarial Opinion and Memorandum Regulation is the removal of the Section 7 exemption. Actuaries are faced with performing asset adequacy analysis. The main concern is how to effectively devote their limited resources to meet the requirements of the regulation.*

*Panelists cover the following:*

- *Requirements for filing an opinion on asset adequacy*
- *Satisfying Actuarial Standards of Practice*
- *Minimum requirement for examination of assets*
- *Methods for performing asset adequacy analysis including cash flow testing*
- *Examples of blocks of business and methods employed*

**MS. SUSAN M. REITZ:** I'm with Illinois Mutual Life Insurance Company. Most smaller companies have been exempt from doing annual asset adequacy analyses (AAA) for the last 10 years—since the regulation has been in place. However, as most of you already probably know, the Section 7 exemption is probably going to be removed from the Actuarial Opinion and Memorandum Regulation (AOMR).

The main purpose of this session is to give you an idea of when AAA does and does not require cash flow testing. We also are going to present some alternative methods to performing AAA. Our first speaker will be Bruce Sartain. He's with the Illinois Department of Insurance. Bruce is going to be covering the changes that have been made to the AOMR and some changes that are being made to the relevant Standards of Practice. He's going to be focusing on what these documents

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do or don't say about cash flow testing in particular.

Our second speaker is Chris Hause. He's with William M. Buchanan & Associates. Chris will be presenting some case studies in which alternative cash flow testing was used to perform AAA. Then I will be taking a couple of minutes at the end to talk a bit about what we have done at Illinois Mutual for our AAA.

**MR. BRUCE D. SARTAIN:** I've been with the Illinois Insurance Department for about eight years now, and since the time I've started there, I've reviewed actuarial memorandums that are done in support of AAA. I'm here today to give you one regulator's perspective on AAA. In cash flow testing, specifically, these views are not by any means the official views of the Illinois Insurance Department. I'm going to talk about three general topics:

1. The revisions to the AOMR that are now making their way through the NAIC process and the status of the AOMR.
2. The revisions to the Actuarial Standards of Practices (ASOPs) which have to do with AAA and are also being revisited by the Actuarial Standards Board (ASB).
3. What these documents say about AAA and cash flow testing—specifically, when to do it, when you really don't need to do it, and other AAA methods.

Starting with the first topic, the revisions to the AOMR, AAA will be required of all companies. The smaller companies that have been exempt for many years, now, maybe for the first time, have to deal with the issue.

The details of the AAA are really left up to the appointed actuary. The main example of that is that the New York 7 interest rate scenarios for cash flow testing are removed from the AOMR, so it'll be up to each appointed actuary to take a look at what he or she thinks are appropriate interest rate scenarios if cash flow testing is done.

There are also huge changes in the requirements for state of filing opinions, but I'm not going to talk about any of those. A regulatory asset adequacy issues summary, which is better known currently as the memorandum executive summary, at least in Illinois, will be an actual requirement in the regulation.

The status of the revised AOMR is that it has passed the Life & Health Actuarial Task Force and, at this month's NAIC meeting, it passed both the A Committee and the B Committee unanimously. The next step will be for it to pass the executive committee and then plenary, and both of those could happen by September 2001. Then we'll have a new model AOMR, and then it will be up to the various states to decide whether to adopt it or not to adopt it.

The second topic is the revisions to the ASOPs that apply to AAA—basically #7 and #22. They both had small name changes. This work has been going on parallel to

the AOMR work and could finish by September if everything goes smoothly and there are no surprises. ASOP #7 talks about cash flow testing, not only under the heading of AAA, but also under the heading of other purposes as well. The same comments apply to ASOP #22, except it is only for AAA.

If these two ASOPs are adopted in September of 2001, then ASOP #14 will go away. It'll be incorporated into these two ASOPs. ASOP #5 is mentioned in ASOP #22 for loss ratio methods. That's already been revised as of December 2000.

So basically we're talking about the revised AOMR and ASOPs #7 and #22; what they say, first of all, about AAA in general. Starting with the AOMR, the overarching concept hasn't changed. The reserves, in light of the assets, still must make adequate provision for the liabilities of the company. The revised AOMR is also the same as the current AOMR in stating that the ASOPs must be followed. Because the ASOPs are mentioned in the regulation, they're really given the weight of a regulation.

ASOP #22 also stays basically the same in requiring that reserves must be adequate under moderately adverse conditions. In the revised ASOP #22, however, there is an attempt to define moderately adverse conditions. Now, moderately adverse conditions are defined as one or more unfavorable events that have a reasonable probability of occurring. Now the question will be not what moderately adverse means, but what a reasonable probability is and which events have this reasonable probability of occurring.

There's an explicit mention in the AOMR that the appointed actuary is to be allowed to use his or her professional judgment. A good example of that is removal of the New York 7 interest rate scenarios. I think that some actuaries want this professional judgment, and I think some don't, but it seems to be the wave of the future. The trend in a lot of areas is to allow actuaries more judgment, beginning with triple X and the ability to adjust deficiency reserve mortality. I know that when the project to update the 1980 Commissioners Standard Ordinary (CSO) mortality table began, there was talk about allowing actuaries to adjust tabular mortality with company experience. In an effort to get the new mortality table adopted as quickly as possible, for now that's been set aside.

ASOP #22 says that professional judgment needs to be used in choosing the appropriate AAA method. What do these documents say about cash flow testing specifically? The AOMR basically says nothing. You really have to look to the ASOP to get direction on cash flow testing. AAA does not equal cash flow testing. When I started with the Department eight years ago, there seemed to be confusion on this point; I think there's less confusion now. People need to understand that cash flow testing is just a subset of AAA.

The most important point in this presentation is in ASOP #22 draft, Section 3.3.2. It states, "Cash flow testing is generally appropriate for products or investment

strategies where future cash flows may vary under different economic or interest rate scenarios." There are two points that I want to make in this regard:

1. The phrase is "products or investment strategies," so it's almost a faulty question to ask whether a certain liability needs to be cash flow tested. It doesn't go far enough. The asset side needs to be looked at.
2. It mentions economic scenarios as well as interest rate scenarios, although I think people really focus more on interest rate scenarios.

From this central idea in ASOP #22, ASOP #7 then talks about examples of situations that may need to be cash flow tested:

1. The first example is long-duration liabilities, and the example given is structured settlements. The question is, "Does that meet the standard that cash flows may vary by economic or interest rate scenarios?" If the assets are shorter than the liability, then the interest rates that are available when that asset matures will determine future cash flows. That clearly meets the standard of when cash flow testing needs to be done.
2. Next is new, or rapidly growing lines of business. In my opinion, it seems like this is an example of ASOP #7 having to do with more situations than just AAA. For AAA purposes, I don't quite see how a new or rapidly growing line of business would necessarily lead to the need for cash flow testing.
3. Next is significant risk of antiselection on options granted. A good example of this would be the option to lapse on deferred annuities. Does this meet the standard of cash flows varying by interest rates? I think it does. An annuity owner is more likely to lapse if interest rates spike up, and that would create cash flow that would not be there if interest rates stayed level.
4. Next are asset risks. There are four types:
  - Noninvestment grade bonds  
This is an example of future cash flows varying by an economic scenario. If the company owns these bonds and the economy goes into a recession, there are more defaults than expected and cash flows decrease.
  - Mortgage-related assets  
These clearly vary by interest rates. As interest rates decrease, people refinance and cash flows come in that wouldn't come in if interest rates stayed level.
  - Illiquid assets  
Real estate is an example of an asset where either interest rates or economic scenarios could change the cash flows. If interest rates and mortgage rates go up, people are less likely to buy real estate; if there is a recession, people are less likely to buy real estate.

- Leveraged assets and structured securities  
These are not in the AOMR, but with these assets, the actual cash flows are directly influenced by interest rates. The interest rates determine what cash flows are paid.

Callable bonds are not directly mentioned in the ASOP either, but it seems like a very common asset class that at least needs to be looked at because, obviously, those cash flows vary by interest rates also.

Mismatches may lead to cash flow testing. As an example, consider a company that has a five-year level term product that it's sold, and it decides to support that term product with long-term assets, let's say 20-year noncallable investment-grade bonds. You have a situation where the liability cash flows are not sensitive to interest rates and you have an asset where, if the asset is held to maturity, those cash flows are not sensitive to interest rates. When you have death claims on the term insurance and you have to sell a bond; clearly, what's happened to interest rates in the meantime will affect the cash flow that you get from that bond. The fact that there's a mismatch means that cash flow testing would be required.

So there are three things you have to look at to decide whether or not cash flow testing is required: the liability side, the asset side, and how well matched those two sides are with each other.

With whole life, there are a couple of other things going on, more so than with term insurance. The liability by itself may be considered interest-sensitive if it's participating or there are policy loans. I believe that most companies cash flow test whole life. I base that mainly on the Actuarial Opinions that we got this year from small fraternal companies in Illinois that I believe sell only whole life insurance. In the Actuarial Opinions, they told us what AAA method they used. All these small fraternal companies were doing cash flow testing. I'm not saying you have to, but other companies out there are.

This is probably the second-most important part in my presentation. If you're uncertain whether or not you should be cash flow testing, then you should be.

The last topic that I'm going to talk about is AAA methods other than cash flow testing. Just as before, the AOMR really says nothing. You have to go the ASOPs to look at this issue. ASOP #7 talks about situations that may not require cash flow testing in general:

1. Short-term products supported by short-term assets.
  2. Liabilities and assets relatively insensitive to changes in interest rates.
- Finally, ASOP #22 talks about five other methods of AAA besides cash flow testing:
- The gross premium reserve test  
The example given is term insurance backed by noncallable bonds. This is the

one spot that noncallable bonds are specifically mentioned. I would just add the words "closely matched" before noncallable bonds.

- Demonstrated conservatism in the reserves

This occurs when the assumptions in the reserves are so conservative that it's pretty clear that the reserves would be adequate under most scenarios.

- Demonstration that the risks are not subject to material variation

The example given is variable annuities with no guarantees and no unamortized expense allowance. I don't know if those kinds of products exist anymore. It seems like all variable annuities have guarantees now and have the unamortized expense allowances associated with them. I think a lot of regulators would argue that there are always expense risks because expense charges use a percentage of the assets. If the asset values go down and stay down, then the actual expenses of the company may not be able to be recovered.

- Risk theory techniques (if all the cash flows are short term)
- Loss ratio methods

So to sum up, let me just highlight again that Section 3.2 of ASOP #22 is the place to start when trying to decide whether or not you need to do cash flow testing.

**MR. CHRISTOPHER H. HAUSE:** I'm going to talk about cash flow testing alternatives and include some case studies that we've run into in our consulting practice under some unusual cases. Sometimes these probably should have been Section 7 opinions, but the commissioner required Section 8 opinions. In other cases, the actuary or the company felt like it really did need an inspection, or at least, a verification of the assets. There are some of us who believe that signing a Statement of Actuarial Opinion without even looking at the left side of the balance sheet is an incorrect thing to do, and I happen to share that opinion.

We're going to look at several cases in which other methods may be more pertinent and cost-effective than cash flow testing. You want to know that you're getting the most effective types of testing. You may want to apply these methods to some of the blocks that you have. Say you have a certain block that you think probably does not need cash flow testing. What kind of methods can you use? You're still going to have to address the requirement that the reserves be adequate in light of the assets.

These methods can be used in addition to cash flow testing. When we talk about risk in an insurance environment, we address economic risk and interest rate risk. Certainly there are other risks involved, and when you're done with cash flow testing, do you stop looking at risk now that you've examined all the possible interest rate scenarios? I don't think that's wise.

The cases selected have modest cash flow considerations. That is, the liability cash flows are unaffected by interest rate fluctuations, or reinvestment or disintermediation risks are minimal. And hopefully that meets the criteria in ASOP

#22—that you have matching and you don't have a lot of policyholder or asset options that can be used to the company's detriment.

Let's review what we do at year-end to calculate reserves. The first thing we do is calculate the reserves. The statutory accounting method gives us formulas, tables, methods, and interest rates. If we're doing our job right, even currently, we're testing the adequacy regularly. We demonstrate that the reserves are redundant. We do loss ratio tests. We do actual-to-expected studies. We do expense studies. Maybe we do a gross premium valuation or maybe we do a five-year projection or something like that as part of our year-end work. I'd be surprised if anyone in this room hasn't done at least something like that.

Then we go to the key deviations. Where can they go wrong? If you have a term block that's heavily reinsured, you say, "Well, my mortality risk is all covered." What about your expense risks? Didn't you invest a lot of money to write that rate book, or to upgrade your triple X reserve systems? I'm sure that a lot of you are going through that right now. You have an investment, and if your production doesn't come up, is your investment gone? How are you going to allocate that expense over the life of, say, a term block, and isn't production possibly a risk? Now that's a future risk. That doesn't have to do with the business that's on the books. But still, it's a risk that your production won't be able to amortize your expenses involved in getting into a block.

Like I said before, I think that you have to at least sneak your eyes over to the asset side, even if you're just signing a Section 7 opinion. You have to examine the assets. You examine nonactuarial risks, and we'll talk about those a little bit, especially with regard to the major medical line of business. How do we address those? Where do we address those? Do they even belong in your executive summary, saying that you looked at this, decided it's a nonactuarial risk or it can't be easily quantified using actuarial methods, and you considered it but no provision was made for it? Is that an appropriate statement to be made about something like a regulatory risk?

The last thing to remember is to document everything and keep your records. We take great pains with our clients to make sure that all of our files are available to them. We visit their auditors on site to make sure that the examination process isn't drawn out by items that appear to be missing from the Actuarial Opinion.

What we're going to do here is identify and consider elements or occurrences of risk that we suspect may make our reserves inadequate in light of the assets backing those reserves under a termination of new business assumption.

General types of risk assessment should be considered such as the distribution of risk by geography and occupation, especially if you are heavily concentrated. Obviously, you have to consider, at least, weather-related risks or disasters. If you've considered them, how have you provided for that in your reserves? You can

do that through reinsurance easily.

Credit disability is typified by short duration of liabilities. Very simply, if you have a block of newly written credit reserves, within one year half of your reserves are gone in the form of either refunds, claims, or amortization of the unearned premium reserves. They're very short. We hope there is very minimal disintermediation or reinvestment risk. The disintermediation risk certainly can apply if you're too long on your assets.

Claim reserves on disability can represent a fairly major portion of your total liabilities involved. There's been some suggestion of deterioration of loss ratios based on a closed block. There are also some other problems with termination of new business, like allocation of expenses. We'll get to that in a minute.

Traditional whole life obviously is of longer duration. You could possibly have some reinvestment risk creeping in. How can you either adjust reserves or adjust your policyholder values? Many times that's not possible with non-par whole life or paid-up whole life. For instance, you may not have any opportunities. Once again, allocation of expenses is a problem. Allocation of assets is going to be a problem that I'm afraid you're going to have to solve all on your own. Make sure that you have the right assets and that you don't double count. When it comes to cash flow testing, you can't use the same assets twice. That's going to apply even if you cash flow test one block and not the other—you still have to have assets available for the block that's not cash flow tested.

There may be an opportunity to do some aggregation in traditional whole life. We'll talk about that in one of my case studies.

Major medical is typified by high cash turnover and a very short tail on the claim reserves. Typically you have effective reinsurance on claims and claim reserves for large claims. We at least hope that you have some level of aggregate reinsurance, specifically stop loss.

With major medical, the reinvestment risk is minimal. Obviously, once again, there is a deterioration of loss ratios associated with a closed block. You have some claim cost inflation, and sometimes certain sub-segments of your major medical block may be experiencing faster rates of inflation than others.

You also have the regulatory risk and the possibility of government intrusion causing dislocation in your block of major medical business. Once again, that may be what we call a nonactuarial risk, but I think it's a real risk to the sufficiency of our reserves regardless.

Why are we going to try to avoid cash flow testing? It's quite possible that by the time we're done with some of these processes, avoiding the cash flow testing was more trouble than it was worth because you basically have to do the same things.



I'm going to suggest that you can, through alternative methods, reveal more about the risks in your block of business than fluctuating interest rate scenarios may be able to do. And you may be able to, on a shortened basis, satisfy yourself and hopefully the regulator as well, that you have considered the liabilities in light of the assets sufficiently enough to sign that opinion.

Let's talk briefly about the sources of data before we get into the case studies:

- You have your statutory annual statement information. There's lots of information on the annual statement. You've got to allocate your expenses by line of business. If you do cash flow testing, you have one allocation of your expenses by line of business that's consistent with an internal expense study or with something else you've done. But if you total it all up and it doesn't equal your annual statement expenses for that line of business, you obviously have a problem.
- For those of you who do other financial statements, generally accepted accounting principles (GAAP) and tax data can be very helpful.
- Profit tests can be helpful in terms of projections or gross premium valuations.
- Your own company experience studies and industry experience studies can help identify emerging experience in a block of business, relative to the expected.
- Perhaps you've done an appraisal for tax reasons, because someone wanted to consider acquiring you, or for some other reason.
- Some people have done value-added calculations, embedded value calculations, or other measurements of profitability. Those should be very very good sources of data.
- Return on equity calculations and, of course, deferred acquisition cost (DAC) recoverability tests for those of you doing GAAP, are other sources of data.

Now I'd like to present some illustrative cases. The first one is a line of business that I'm very familiar with. In this case, the actuary for the company decided that it would be appropriate to examine the assets underlying it, mostly for his peace of mind and also to demonstrate some things to his management. So he insisted that we do an opinion in light of the assets.

The first case is single-premium credit life and disability. How is that going to run off? What are the reserve runoffs going to look like? What is your risk? If you have a refund liability, it would be approximately the unearned premium less the recoverable commission. That may or may not be more than your loss ratio on that block. For instance, if your effective commission rate is 40%, on a refund situation you have a liability of 60% of the unearned premium. If your loss ratio is only 40%, then you hope for better persistency because you're going to pay out less on your unearned premium if that persists. That's the refund versus claims situation. If you're going to try to be conservative, it's nice to know which direction a variation in persistency assumptions is going to take you.

Next is the recoverability of those commissions. Right now, you may be recovering more than 90% of commissions on chargebacks. Maybe you have some situation such as distressed businesses that generally don't return your commissions. You also need to consider fluctuations in claim levels, including a deterioration. Credit disability is notorious for going with the economy so you have to look at those fluctuations in claim levels in terms of that economic scenario. If we do enter a recession, credit disability claims are going to go up.

Most credit insurers have a significant portion of their expenses related to generating new business. If you are doing cash flow testing on a terminated block or a runoff block, how do you select your expense assumption? Many people will relate expenses to earned premium or unearned premium in force or some other such measure. But certainly there are some dangers in trying to match up general expenses as they appear on the line of business with the precipitous drop that happens when you stop writing new business. It's appropriate and it must be explained, and you'd better have some good backup, including perhaps some experience studies to validate the huge drop in or nonexistence of new business writings.

Now you have to select some assets. Ideally, the short-term liabilities for this block are backed by short-term assets. In the case study that we looked at, we start with the cash. We have a serious need for liquidity here. As I mentioned earlier, nearly 50% of the reserves are run off by the end of the first year.

We selected the cash, the short-term investments, the bonds near maturity, and there were a few mortgage-backed securities of short duration. Once again, we had to be careful not to pick assets that were specifically allocated to other lines.

We were able to show that we had satisfied what we thought were the three important elements of examining the assets. First was the yield, which in credit insurance is fairly simple. The investment income required to maintain reserves on credit disability is zero, because it's an unearned premium reserve. There is a mortality reserve for credit life, but the interest rate is about three percent, and there's virtually no problem at all to demonstrate an adequate yield. The second element is liquidity, which I've already addressed. Third is quality. The company that I was examining had absolutely no quality problem. These were investment-grade bonds, government backed securities, and cash. But the key was the liquidity.

In the next block we'll look at, liquidity was not the determining factor, but we had enough assets that matured within the following three years. We did run into a situation where in one year we had to borrow from the next year, but the yield and the excess reserves were high enough so that it really wasn't a consideration. The interest rate would have had to have been extremely high to have generated enough capital loss to have to cash that bond in early.

We were able to sign an Actuarial Opinion in light of the assets, without doing cash flow testing. I'm not saying that you have to go through all those steps, or that you're going to be as lucky as I was at finding most everything to be in order—the recoverability of commissions, an expense study, and sufficient assets of short duration. If you're not that lucky, you're going to have to make some decisions about what to do. Ideally, you can attack that problem in September so that any adjustments to the asset portfolio or any expense studies or loss ratio studies can be done to your satisfaction, so you don't have any sleepless nights at year end.

I'm going to discuss a block of traditional life insurance. We had a situation in which the company's major line of business was health insurance, but it had a block of business that was traditional life and it qualified for a Section 7 opinion. In this case, the commissioner wanted to see a Section 8 opinion for this company. Another consulting actuary did the cash flow testing on the major medical block of business but he did not have experience in traditional life. He wanted us to supply a Section 8 opinion with regard to a block of mostly paid-up life. There was some old retirement income, some paid-up juvenile-type policies, and some annuities in payout status. Altogether, it was a bunch of traditional life and annuities junk from the '60s, '70s, and '80s. Although we didn't see the need for it, we'll look at the reserve adequacy we did to provide a Section 8 opinion on a block of traditional life that had no dividends and essentially no flexible interest. The interest rates credited on the few deferred annuities that were left were either at guarantees or close to it. I think the guarantee was 4%, which might tell you when they were written.

We looked at emerging mortality experience versus valuation and pricing—your actual to expected. In this case, there was very little mortality left on the retirement income endowment plans. As a matter of fact, it was a blessing and a curse because there were no margins in the mortality assumptions from which to draw profitability. The expenses allowable were of particular concern. I don't know if you have priced juvenile plans for a while, but it's difficult for the investment spread on a small paid-up policy to cover any level of expenses. If you have a stand-alone \$5,000 juvenile paid-up policy the cost per policy per year to maintain it has to be miniscule to be covered by the investment spread, especially with today's investment rates. The same situation exists with old, small annuities in payout status. That creates a problem in reserve adequacy.

We did a gross premium valuation based on emerging experience, known experience, and allocation of annual statement expenses, because there was no expense study for such a small, insignificant line of business. The only real consideration in terms of cash flow testing would be if interest rates were to spike up terribly and everyone were to take a maximum policy loan. Normally that would be a real risk, but it wasn't for this company because, if anything, it was too liquid.

Its main line was major medical. It had very few investments, if any, longer than five years.

Regarding assets, once again, the yield was a serious concern because we were trying to support 3%, 4%, and 4.5% reserves with interest rates that were just about that. The duration of the liabilities was much longer than the assets that they had. The quality was the saving grace in this case. The quality was very fine. The company had no intention of trying to stretch quality to get yield in any case.

Because the investment spreads are barely being covered, if we allocate any expenses at all to this business, we'd have a problem, especially because it's a declining block. Would it be material? No, it wouldn't. That was clear, but we were specifically asked for a Section 8 opinion with respect to this block of life insurance. Marginal cost allocation could be considered. I'm not quite sure how the regulators or the people who might look at it may view it, but perhaps with a marginal line of business such as this, it could be justified. For instance, if you have a part-time person who has to pay a claim once a year, perhaps you could do some marginal cost allocation as opposed to, say, a \$15 to \$20 per policy per year type of assumption.

Other possible solutions include asset selection and pre-year-end adjustments to assets, but these are all in the thinking ahead stage. Finally, there are mortality margins, which we did not have available to us in this case. There weren't enough mortality risks on this whole block of business to worry about. As a last resort, or maybe that ought to be the first tendency, reserves could be increased. But management is usually reluctant to raise reserves, particularly on small blocks of business.

In this case, the saving grace was the medical line of business that the company was writing had a companion group life written along with it. We did a projection on the combined individual life and group life lines of business and were able to demonstrate consistent profitability, even though the margins on the stand-alone traditional individual life were nonexistent. But when combined with the group life, we were successful in doing a cash flow projection with static assumptions that showed the business was profitable, even in a low-interest rate environment.

We were exposed to a situation in which a Section 8 opinion was required for a block of major medical policies. We interviewed people who provided the Section 8 opinion. I think it's an important line of business because it has such unusual risks relative to life and annuities.

Once again, we calculated the reserves and tested them for adequacy. In light of all the risks covered by the policies, that was quite a job. I had no idea of all the risks that had to be considered and many of them were dismissed or considered nonactuarial in nature given the current Section 8 wording. Selection of future claim experience is obviously very important, especially in areas like prescription drug costs. The company thought there was a nice progression in overall loss ratios that wasn't concerning them too much, but its prescription drug costs were hidden inside of that. The company was just seeing the tip of the iceberg. If that trend

continues, and I don't see any reason why it shouldn't, there's a definite indication of some problems later on.

If your rates are guaranteed renewable, how timely are you going to be able to secure rate increases in light of the emerging claim experience? Fluctuations in claim levels need to be considered, as we've discussed. Regulatory risk includes not being able to secure rate increases as well as mandated benefits and mandated renewability.

There's also a serious litigation risk. For example, the company had a surprisingly large number of lawsuits filed against it at the time, mostly for nickel-and-dime amounts. How are those reserved on the company's books? Is that covered within claim reserves? In this case, the company got an opinion from its legal department and outside legal advisors as to the feasibility, collectibility, and likely result of that litigation. We were satisfied that the company's reserves were adequate based on that.

Another risk is that state insurance pools or other options available through the federal government or state government may cause a loss of healthy lives in the group, which would cause a deterioration in the claim reserves. How possible is that? Is that nonactuarial? I think those risks have to be at least considered.

When we look at our assets relative to our major medical block, we once again look at yield liquidity and quality. The key here is liquidity with a subemphasis on quality. Obviously, you want to stay short and high quality in your major medical block of business.

If you get to the end of this exercise and you've done your work, signed your opinion and you've written your memorandum, I think the next thing that you ought to encourage your companies or clients to do is to find other uses for the data that you just dug up. Not only planning for next year, but also for risk analysis, DAC recoverability and asset management. Other management actions, such as securing a rate increase or improving expense allocation, may be dictated by the results of what you come up with doing your Section 8 opinion.

In summary, Bruce taught us all about our responsibilities—what we have to do, what we have to consider, and what the new rules are. There's going to be a lot written on this, and I'd encourage you to read it. Don't wait until January 3<sup>rd</sup> of the year after your first Section 8 opinion. Do it well in advance. Know what you're going to do. Map it out and try to take steps prior to year-end from the asset or expense allocation side to make sure you have as few problems as possible.

Make use of existing information. By that I mean, if your company is doing an expense study, perhaps you can guide the way that expense study is done so that it's most useful to you and what you need to do at year-end.

Consider all the risks. Examine the assets for weaknesses. That is going to be a matter of linking assets with liabilities and asking what can go wrong in the case of the credit life. For example, the worst thing that can go wrong is if your investment officer decides that he needs to go long just to start achieving yield or something like that. But when you're looking at your existing assets, really ask yourself what can go wrong. Either your auditor or your regulator will be asking you what can go wrong with your assets so you have to have a good answer.

The opinion and memorandum isn't something that you should take lightly. The Section 8 opinion, especially for those of you who are doing this for the first time, is going to be fairly detailed and it's going to need an analysis of the issues. If you come up with a cash flow test that has negative ending surplus, or if you come up with a low interest rate scenario that causes losses in a traditional life line of business, you don't necessarily have to raise reserves, but you should raise an issue in your memorandum. Once again, look for other ways to use the information that you learn. You can help your companies manage themselves better using this information. Don't let the effort go to waste.

Table 1

### Illinois Mutual Basic Information

|                 | 1992          | 2000          |
|-----------------|---------------|---------------|
| Total Assets    | \$421 million | \$660 million |
| Actuarial Dept. | 3             | 4             |
| Asset Adequacy  | Consultant    | In-house      |

**MS. REITZ:** My company is a fairly small insurance company (Table 1). In 1992, our size was such that we were required to do cash flow testing but we only had to do it every three years. But between then and 1995, we passed the \$500 million mark and were faced with doing annual AAA. There were some changes in the actuarial department, partly related to cash flow testing. The chief actuary decided that it was time to retire. They brought in a new chief actuary who thought he

didn't really want to do the cash flow testing, so I got hired. The actuarial department has grown slightly in size. In fact, in 1992, we had two actuaries and one support person. As of last year, we had four actuaries and no support people. So it certainly has affected us as far as what we do with our expenses and such.

Table 2

|           | Lines of Business<br>Reserves/Total Liabilities |      |
|-----------|---|------|
|           | 1992  | 2000 |
| DI        | 25%   | 30%  |
| Life      | 29%   | 33%  |
| Annuities | 37%   | 29%  |

We had to look at our liabilities to decide what kinds of risks we had and whether or not we needed to do cash flow testing because of that liability make up. We're fairly evenly spread today, and in 1992, between three main product lines—the disability income (DI) and life and annuities (Table 2). The DI portfolio is mostly guaranteed renewable individual DI in the blue- or gray-collar market. There really isn't a whole lot of policyholder sensitivity to interest rate scenarios for this particular block of business.

The life and annuity portfolios, however, had a lot of different products in them, most of which had some sort of interest rate sensitivity. The whole life products had dividends and fixed policy loan rates. The universal life products, which make up the bulk of the life portfolio, generate problems related to cash flow on the way out, when surrenders are affected by interest rates, and cash flow on the way in, when premiums are affected by interest rates. Certainly, our life portfolio was going to need to have some cash flow testing, as were the annuities. These are flexible premium retirement annuities. The cash flows coming in and going out are affected by interest rates. We knew that we were going to have to do significant amounts of cash flow testing on at least two-thirds of our reserves.

Table 3

| Asset Mix as Percent of Total Assets |      |      |
|--------------------------------------|------|------|
|                                      | 1992 | 2000 |
| Bonds - CMO                          | 1%   | 12%  |
| Bonds – Non CMO                      | 52%  | 58%  |
| Mortgage Loans                       | 27%  | 13%  |
| Other                                | 20%  | 17%  |

The second thing we needed to do was look at our asset portfolio. Table 3 shows a very general picture. We do have some collateralized mortgage obligations (CMOs). In fact, we have more of them now than we had eight years ago. We purchase very stable tranches that are very bond-like, but you still have that risk that interest rates are going to plummet and people are going to pay off their mortgages and refinance, and then your tranche is going to pay off sooner than you expected. There is interest rate sensitivity in the CMO portion of the portfolio. Unfortunately, when it comes to modeling CMOs to do cash flow testing, you're facing a lot of work.

The non-CMO type bonds are almost all investment grade. Something like 98% of the portfolio is NAIC class one or class two. There are not too many callable bonds. I don't have an exact figure, but I would say it's less than 10%. They're very stable investments. The mortgage loans are definitely subject to interest rate sensitivity. These things are going to prepay just when you don't want them being prepaid. When yield rates are low, suddenly everybody wants to refinance and you're faced with cash flow. So then you need to reinvest at the current low interest rate environment.

The "Other" category at the bottom of Table 3 is assets that we mostly consider as backing our surplus portfolio. These are things like the home office building, the real estate that we own, stocks that we own, and some affiliates that we own either entirely or partially. I attempt to ignore that portion when I'm thinking about interest rate sensitivity.



Table 4

Percent of Total Actuarial  
Liabilities by Method  
2000

|  |       |
|--|-------|
| Cash Flow Testing  | 89.6% |
| Conservative Reserves with<br>Stable Liabilities               | 6.3%  |
| Short-term Fixed Liabilities<br>Matched with Short-term Assets | 0.6%  |
| Loss Ratio Analysis  | 1.5%  |
| Not Tested   | 2.0%  |

A significant part of both liabilities and assets demonstrates interest rate sensitivity. We needed to decide how we were going to do AAA. We ended up doing cash flow testing almost everything (Table 4). We didn't need to cash flow test everything. It was certainly possible to construct a segmented DI portfolio made up of long term noncallable bonds and be done with it. But in 1992, everybody was unsure about what we were supposed to be doing so we were a little bit worried that maybe we would be required to go back and do cash flow testing on the DI block. We had to do cash flow testing on a lot of our liabilities anyway. We had to buy the software and model our assets, so we were going to be running all sorts of interest rate scenarios. To be on the safe side, we decided to do cash flow testing on the DI portfolio as well. Considering where we were, it really wasn't that much additional time or work and we found out that having that DI portfolio stabilized our aggregate results. We liked that, so we kept them in there over the years. If we had only DI, we probably would not be doing cash flow testing.

The other categories of liabilities in Table 4 include conservative reserves with stable liabilities, which are things like waiver of premium and accidental death benefit. The valuation rate is 2.5% or 3%, and the valuation mortality tables are extremely conservative in light of experience. We need to demonstrate these things, but we don't do cash flow testing—especially on what's essentially a fairly insignificant portion of our business.

Short-term fixed liabilities matched with short-term assets are mostly unpaid claims at the end of the year. Loss ratio analysis relates to a closed block of major medical

policies. We probably never would have done any sort of AAA on this block. I think you're allowed to leave 10% of your reserves out of AAA. But we were trying to sell it and, as part of the process, we developed a Lotus spreadsheet, which used the loss ratios to project future benefits. We ended up not selling it, and because we had the spreadsheet, we decided to use it to analyze our asset adequacy every year.

We don't test the very small, classic liabilities. We have a little bit of immediate annuities and a very small block of group DIs. We consider those to be immaterial so we don't do testing on them.

Table 5

## Asset Adequacy for DI

- Lapse Rates - 5 years of exposure
- Morbidity - Actual/Expected study
- Reinsurance cost - modeled as a percent of premium expense
- Sensitivity tests include - 125% incidence rates & 95% termination rates

I want to talk some more about DI because, as I mentioned earlier, we chose to do cash flow testing on DI, even though we didn't really feel that it was needed (Table 5). However, cash flow testing is not sufficient for disability income. While the policyholder behavior is not affected by high interest rates versus low interest rates, and we had an asset portfolio that is also not extremely affected by high interest rates and low interest rates, DI is extremely sensitive to different economic scenarios. During a recession, claims are up and they last longer. During good economic times, claims are down and they're for a relatively brief period.

To address this, we did sensitivity tests to see what would happen when we increased our incidence rates by 25% and reduced the termination rates to increase the length of the claim. That way, we felt that we were covering the potential for economic imbalances.

Table 6

## Tools Used for Asset Adequacy

- TAS
- BondEdge
- Bloomberg
- Internet
- MS Access
- MS Excel
- MS Word
- Monarch
- Lotus 1-2-3

Table 6 gives you an idea of some of the various tools that we use to do AAA. I'm not making any recommendations one way or another, I'm just trying to give you an idea of some of the things that will be useful to have if you don't have them already.

**MR. HENRY N. COLLIE:** (Assurant Group) Can you comment on whether there will be any changes in risk-based capital (RBC) requirements in light of the increased focus on asset adequacy testing?

**MR. SARTAIN:** I don't get involved very much in RBC, but my overall impression is that those changes have already happened. When you test for C-3 risk, there's some incorporation of AAA, but I'm vague on it and I think it's in the past, rather than something in the future.

**MR. STEPHEN M. ARNHOLD:** (Fortis Insurance Company) Bruce, you mentioned that the Regulatory Issue Summary is something that's going to need to be filed with all the states?

**MR. SARTAIN:** That's part of the revised AOMR. Remember, that it's not a done deal at the NAIC yet, and then each state has to adopt it or not adopt it. If it's adopted in a state, that requirement is in the AOMR and then you'll have to file it in that state.