

**1996 VALUATION ACTUARY  
SYMPOSIUM PROCEEDINGS**

**SESSION 9**

**Practitioners' Forum**

**W. Michael Pressley, Moderator**

**Errol Cramer**

**James E. Hohmann**

**Stephen A. J. Sedlak**



## PRACTITIONERS' FORUM

**MR. W. MICHAEL PRESSLEY:** I am a principal in the Dallas office of Tillinghast-Towers Perrin and am serving as moderator of this session. Serving with me on the panel are Jim Hohmann, who is senior vice president and chief actuary at Zurich Kemper; Errol Cramer, who is senior actuary and a director at Allstate Life; and Steve Sedlak, who is vice president and corporate actuary at Nationwide.

**MR. JAMES E. HOHMANN:** I am the chief actuary at Zurich Kemper Life. Zurich Kemper comprises four life companies: Federal Kemper Life, Kemper Investors Life, Zurich Life Insurance Company of America, and Fidelity Life Association. The stock companies are owned collectively by two separate groups. Zurich owns 80%, and the Insurance Partners own 20%. This is important from the perspective of the comments that I will make. The Swiss have a much longer and strategic outlook on the business; accordingly, they are more interested in the value that we can bring from the perspective of economic value added, and so on. The partners have a shorter, more financial type of view of the operation; accordingly, they are more interested in things like purchase accounting, and so on.

Prior to joining Zurich Kemper, I was with Tillinghast-Towers Perrin for nine years and, prior to that, with Peat Marwick. I have been consulting for about 14 years. I have only been with Zurich Kemper since December 1995, so unlike some of my colleagues, I will probably be talking a little bit more about our vision and where we are headed and some of the things we have done to begin to move us there as opposed to what we have accomplished so far.

**MR. ERROL CRAMER:** I am in the corporate actuarial department of Allstate Life. We are an accumulation of about six or seven life insurance companies, and my role is to act as appointed actuary for most of these companies. This includes pricing as well as valuation oversight. It also includes communicating with our parent; my job is to make sure that the life company, which is complex for property & casualty (P&C) people, is able to be explained in clear terms. I have been

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involved in a variety of valuation-related industry advisory groups. I am currently on the Life Risk-Based Capital (RBC) Committee, the Asset Valuation Reserve and Interest Maintenance Reserve Committee and a variety of other committees.

**MR. STEPHEN A. J. SEDLAK:** I am the corporate actuary with the Nationwide group of companies. The Nationwide group of companies consists of a P&C parent, a mutual company. We consist of one really large life company and a few smaller ones. As the appointed actuary for the two Columbus-based companies, I am responsible for the cash-flow testing for the whole life company enterprise.

**MR. PRESSLEY:** Our objective is to address a number of issues that are relevant to the work of various types of actuaries who are involved in producing financial projections of various kinds for various purposes, interpreting and communicating the results of these projections to insurance companies, senior management and perhaps other audiences, and in using the results of these projections to make decisions that will have an impact on the future operations of the companies.

In preparing for this session, we have identified a number of issues that we plan to discuss and think will be of interest to you. These issues can be grouped into two broad categories or sets. One set of issues is relevant to the work of the appointed actuary, as he or she is doing the work necessary to form an opinion about the adequacy of reserves. The other set of issues is relevant to the other uses that can be made of the various tools that have to be developed in order to do the cash-flow-testing work.

I am going to start with some discussion about the interest rate scenarios that are used in cash-flow testing. I would like to know something about the number of interest rate scenarios that are used in forming an opinion about the adequacy of reserves. I will start with Errol and let him say something about that in his work with Allstate.

**MR. CRAMER:** Where cash-flow testing is required, it is very well-known that a minimum of seven specific scenarios are prescribed. The seven scenarios serve as a good base, but I would be surprised

if people do not do more testing than the seven. We used a stochastic method to produce 1,000 interest rate scenarios. We then did some stratified sampling to identify a smaller set of 20 that represent these 1,000 scenarios. There are a variety of methods that can be used to identify the smaller set of representative scenarios. I believe that there is an article describing this type of approach in a recent issue of the *Financial Reporter*.

I think the important thing is that, while the seven prescribed scenarios serve as a base, it is often necessary to look at a broader range of scenarios.

**MR. SEDLAK:** For our cash-flow testing we go beyond the seven, for a total of 20 "deterministic" scenarios. We regard the additional 13 scenarios as sensitivity tests. One is intended to look at a base line: it is essentially a flat yield curve and looks very much like the first scenario. The other 12 are designed to be even more extreme than the famous New York seven. They are intended to "kick" or shock the company to see what crawls out of the woodwork that might be of concern. In addition to these, we do 200 stochastically generated scenarios to get a picture of the distribution of results. I think a valuation actuary needs to be concerned with the tail of that distribution which is really where we ought to be concerned as valuation actuaries.

**MR. HOHMANN:** We do the prescribed seven scenarios and attempt to leave it at that for cash-flow testing. The reason we do that is because we have about four or five other applications that deal with different models for which we do substantially more scenarios. If we do well under the prescribed scenarios, we will stop. If we do not, we will do more. We are domiciled in Illinois. Larry Gorski from the Illinois Department of Insurance will talk to us from time to time. If there are specific scenarios that he is interested in, we will do those as well. From our perspective, the cash-flow-testing exercise is one that we have not leveraged into management information per se. The reason for that is we have seen shortfalls in the models we currently use for that purpose. Instead, we have multiple models that we use for multiple purposes, and we do many more scenarios for different reasons under the different models.

**MR. PRESSLEY:** I suppose that, if you run the projections under enough interest rate scenarios and if you run projections testing the variability of other assumptions, you are going to find a number of scenarios that produce good results (i.e., suggest that the reserve is adequate under these scenarios) as well as other scenarios that do not produce good results (i.e., suggest that the reserve is not adequate).

I would like to talk about precisely what projection results you look at to determine whether you have a good result or a bad result. Some of the things you might be looking at include book surplus and market surplus at the end of the projection period. You might also be looking at some of the values in the interim years of the projection. I would like to talk a little about that, and about the relative weight that you give these various factors as you evaluate the projection results.

**MR. SEDLAK:** I think the place to start is to recognize that we are looking at reserve adequacy and that we do not consider surplus in evaluating the adequacy of reserves. In other words, the reserves, given the assets underlying them, must be sufficient to fulfill your obligations under some given set of assumptions that you are looking at.

*Having said that, another definitional issue to consider is the time frame. Are we just looking at the net impact over the entire projection period? Alternatively, is it necessary that you not make a surplus incursion at any point during the life projection? I do not know whether this has been debated much, but it has been an area of discussion occasionally. Maybe when we get into some general discussion about this issue, we can flesh it out.*

**MR. CRAMER:** We primarily look at the present value of ultimate surplus. I know some people have brought up the idea that maybe one should look at each year's book solvency or surplus as you go along; however, I do not agree with that. Instead, I see this testing rather as follows: if you were to take the assets and wall them off in an organization, would those assets be sufficient at the end of the day to pay off all the policyholders? The one thing we carefully look at besides the present value of ultimate surplus is the early year net cash flows. This would be the projected cash flows before allowing for any asset sales. The reason is that, if there is going to be any serious problem with a

block (other than our structured settlements), it is likely to be in the early year cash flow. The rest of the exercise is merely a long range forecast relying on a heroic set of assumptions.

I would like to add that we do extensive additional testing for asset/liability matching (ALM) purposes. For example, we might look at what extent are we relying on later duration profits versus upfront profits, i.e., the extent to which you can allow later year results to offset some earlier deficiencies.

**MR. HOHMANN:** As I mentioned earlier, we are only looking at the regulatory scenarios, unless we find ourselves needing to look at more. First of all, because I joined Zurich Kemper life in December 1995, I thought it would be unprofessional to be the appointed actuary that year, so I did not take the appointment last year. I am the appointed actuary now and will be signing this year. I do know from the work that we did last year that our focus did tend to be more towards the end of the projection period in terms of actually deciding whether or not scenarios were passing or failing. We did look at some interim results. I think conceptually and philosophically I am very much in line with what Errol just said. I tend to believe that the interim results can be overdone. We tend to look at them to see if there are any extremes; if there are any extremes, we want to explore why we see the extremes and then see if we feel that this ultimately indicates that we have some kind of a problem for which we need to establish additional reserves. In general, we would be looking at the end of period results.

**MR. PRESSLEY:** When I am involved in cash-flow testing, I probably give a little bit more weight to the results at the end of the projection period. The best situation is if you can also have good results during all the interim periods; that is not always the case. I would tend to give a little bit more weight to what happens at the end of the projection.

Assuming that, in our asset adequacy analysis, we have run an adequate number of scenarios and evaluated the results for each one of the scenarios, and have evaluated the projections using variations on the other critical assumptions, we are now at a point where we have to make a decision about the adequacy of the reserve. We have to review all the data that we have in forming that opinion. I

would like to talk a little bit about the factors that we look at and the thought processes that we go through in forming an opinion about reserve adequacy.

I would like to start with some discussion about the concept of just what is reserve adequacy and what does it mean to say that reserves are adequate. If we are comfortable saying that the reserve is adequate under the valuation law, what is an acceptable probability that reserves may ultimately prove to be inadequate? Is this supposed to be a 95% test or a 50% test, or just conceptually where do we think it is? I do not think most people actually quantify this but where do you think it should be? I would also like to hear some discussion about some of the factors that you look at in forming the opinion.

**MR. CRAMER:** The question about acceptable probability of reserve adequacy came up a few years back when the valuation actuary concept was first passed. I was a member of the ad hoc advisory group looking at an Actuarial Standard of Practice (ASOP) that eventually became the ASOP for section 8 opinions. In one of the early drafts, we tried to quantify this probability; we actually put in a number, realizing as we put the draft out that we knew it would not survive. However, we thought there was a need to at least objectively throw out a number, because there had been some confusion at that time (remember, this preceded RBC) and we wanted to distinguish between reserve adequacy as opposed to solvency. The number was either 70% or 80%, somewhere in that range. The message we wanted to indicate was the reserve adequacy is substantially better than an even chance, but less than a 95% or 99% chance, which is really the purpose of RBC.

**MR. SEDLAK:** In our company, on the stochastic scenarios, we use an 80% point as a benchmark. So there is a one-to-one chance that you are going to be all right. Obviously, no reserve is ever going to be perfectly adequate. If it was, you would not need surplus. You would also be going against the very fundamental philosophy enunciated by some genius when he said "stuff happens." The other part or portion of the process of determining adequacy is largely judgmental, and I think it probably will or should stay that way. I hope we do not find ourselves with another set of rules and, in effect, another set of formula reserves. Our experience is that, when we run the random scenarios, we usually find one that will put us in the tank. This gives us some insight as to what there is about our



portfolio that can cause problems and is a very big help in forming the opinion concerning reserve adequacy.

**MR. HOHMANN:** We have not run stochastic scenarios for this purpose at Zurich Kemper. When I was at Tillinghast-Towers Perrin, I was the appointed actuary for a couple of companies. I ran multiple scenarios to test reserve adequacy and, oddly enough, it was the 80% threshold that I personally was interested in as well. Philosophically, the reason I think something on this order of magnitude is about right stems from trying to balance things. I agree with what Steve says about the fact that we are not looking for 100%. I think we certainly are looking for a better than 50% chance that will be adequate. I think what we are trying to do here is balance the ability to provide proper customer values by not typing up more capital than we need to in the business, by making sure that what we are entrusted with is secure. Toward that end, I think moving north of 75% is certainly rational; 80% is totally judgmental, but it is a figure that I have personally been comfortable with.

**MR. PRESSLEY:** I am sure that at a minimum we are doing the best we can with what we have to work with in our cash-flow testing and our reserve adequacy opinions. At the same time we recognize that things are not perfect. We recognize that there are some limitations that should be placed on the conclusions that can be drawn from our work; limitations related to the limitations in the tools and the data that we have available to work with. I would like to spend some time talking about some of those limitations and tools and data, and what we might be able to do about removing some of those limitations.

**MR. SEDLAK:** I think some of the biggest limitations stem from the fact that some of our data are squishy. One limitation in particular that comes to mind is the policyholder behavior function. There are very little data. In our company we had a block of approximately \$100 million that we had written in flexible premium deferred annuities (FPDAs) and single premium deferred annuities (SPDAs) just before the rates spiked up in 1980. We had hideous lapse experience on that, and use it in determining this function. Is it right? Is it going to be predictive of the future? Beats me. At least it is sort of realistic. We are making some fairly meaningful statements based in part on this assumption, but we have to always be cognizant of the fact that it isn't as good as we like.

Another thing that is a potential problem (at least for our enterprise since we have a lot of variable annuity business) is relying on a lot of profit coming out of that variable business. Let's just say that the stock market goes down, that the famous one-third drop hits us. All of a sudden those margins that are supporting our opinion shrink by more than one-third, because expenses are not going to go down by a third. We do not address that very well currently because there has not been a model that addresses this kind of scenario. There are economic scenario generators being put together. We tried to do something last year that did not work out very well. In order to do that with the variable products, you have to do something stochastically. I do not know how you can do it deterministically. I suppose you could make some deterministic scenarios on a worst case basis to see how bad it is.

I think everybody would agree that, if you have variable business, you do not have zero risk. There is risk with this business. You have the risk associated with the guaranteed minimum death benefits in these products. These are put options. And if that mystical one-third drop occurs, they are in the money, and you are going to have to start paying claims that were not there before. Second, you have the shrinking margins that I mentioned. A third risk is the transfer risk. There is a gigantic amount of money that can pour from one end of these contracts to the other with some restrictions, but not that many. That can produce some unexpected results.

**MR. HOHMANN:** First of all, I think it is important to keep in perspective what we are doing. We are rendering an opinion, not supplying a guarantee. We are working with models; we are not necessarily working with the future. I think if we examine some of the discussions that we have among ourselves, we can see that there are certain weaknesses in the way we go about doing the projection. For example, I was in session six talking about the impacts of key deferred annuity assumptions. The leader of that particular session led off several portions of it with indictments of the current or traditional approaches for doing certain aspects of the modeling, and he was not met with a whole lot of resistance. That tells me that, collectively, we have questions in our minds about just how well we can do these things. That said, in response to the alternatives that were discussed, people were nodding their heads that they made some sense. I do not think people were willing to say that they would bet on all those alternatives forever as well; I don't think that the leader would

say that either. Instead, we do the best we can. Our tools get better. Our procedures get better. Our knowledge gets better as we capture more informative data.

I also think that it is important to examine some of the other things that we do. For example, when we deal with assets when we are doing reserve adequacy testing, I do think that there is a little more that goes on in the allocation of the assets to support the reserves than perhaps we would want to step right up and recognize. For example, I think there are times that the allocation of assets is not so much a function of business attribute or asset characteristic in terms of its support of a liability, but instead, is a function of our ability to model that particular asset to the degree that gives us comfort in rendering opinions.

I, too, recognize that there are weaknesses. I do not think that is an indictment of the process; I think it is the natural outcome of the process. I think it is appropriate. I also can state with confidence that I have seen through my consulting career vast improvements in the way that companies have gone about doing the cash-flow testing. Every year there seems to be one or two hot topics that come up where we have identified a weakness. We usually make some effort as a profession to deal with those weaknesses, and I think we tend to do a good job at that. The fact that we have weaknesses is no reason to throw away what we do, but it is important that those weaknesses should put into perspective what we are rendering, and what we are rendering is an opinion.

**MR. CRAMER:** I will add to what has been said that what we do is an emerging science. I do not think we should ascribe it too much accuracy. We have been doing it for many years now and certainly our state of modeling is far better than it was, but it is still in its infancy. We can make broad statements, however, and we can have a problem when people try to get too specific. For example, I do not think it is currently feasible to get sufficiently accurate loss distributions and set reserve levels based on this work.

We should keep in mind that this test is a very specific test of statutory reserve adequacy that is not to be confused with solvency, ALM modeling, or understanding of the business. The test deals only with in-force business, and that is not very realistic. It is fine for testing formula reserves to

determine if the reserve level seems about right and if there is any immediate reserve strengthening action needed. The real issue, however, comes down to solvency, which is likely impacted much more by new business decisions and future management decisions than it is by in-force business alone. To summarize, your in-force analysis for reserve adequacy is a limited test and is one way for us to make a start in cash-flow testing. But I do not think we should try and extrapolate and give it any more meaning than that.

**MR. PRESSLEY:** I will concur with what Errol was saying. I think everyone would agree that what we are providing is an opinion about the adequacy of the reserves, not a solvency opinion. But if we step back and look at the process, is that really the right question to be asking? I think as professionals with a vested interest in the insurance industry and a keen interest in the valuation process, we should always be alert and sensitive to and thinking about changes that could be made in the process to improve the overall results. I think it might be interesting to take a few steps back and look at the process now and think about a few changes that might be made and try to decide whether such changes would be an improvement or perhaps maybe a detriment to the overall result.

I know a lot of actuaries want to do a good job in the asset adequacy analysis and provide the right kind of opinion about whether or not the reserves are adequate. But they struggle with the question a little bit. They are able to exercise their professional judgment and arrive at an opinion that they believe in, but at the same time they are a little bit uncomfortable, given the environment and the litigious society that we live in. If they make the call feeling comfortable that there is an 80% chance that this reserve is adequate and then something happens a few years from now, something that is totally beyond their control, and their company runs into financial difficulty, is this going to come back to haunt them? Are they going to be sued? Are they going to lose?

Some have suggested that, rather than letting the actuary have the freedom to exercise the professional judgment in determining whether or not he or she believes that the reserves are adequate, it might be better for the actuary and perhaps for the industry if there was a more prescribed method for determining reserve adequacy. Would we be better off if there was less professional judgment and more rules specifically identifying the scenarios that must be run and passed, the criteria for

passing, and so on? We have had some interesting discussions among ourselves as to whether or not this would be good or bad, and I think it might be interesting at this point to hear some discussion about this issue.

**MR. CRAMER:** I would oppose any attempt at what I call a cookbook solution. A cookbook makes the job easier for the actuary by providing a prescribed test. However, as in the case of formula reserves, it is really a license to play the game. I am not saying that all actuaries would act unethically, but if the rules are do A, B, C, you just do A, B, C. For example, in prior years, there were a few companies that came up with derivatives that only work under the pop-up interest scenario. Once you prescribe something, someone is going to play the game. We already have formula reserves; we do not need formula cash-flow testing. As I said, I am very opposed to any more statutory prescription.

**MR. SEDLAK:** I couldn't agree more; plus I would go a little farther. I do not think you can do that. I think a cookbook will give you a cook. There is a difference between a cook and a chef. We have an incredibly complex set of products and assets, which is evolving into even more complexity. Even if you could come up with a cookbook that would address what there is now (and I do not think you can, at least not with any degree of adequacy), it would not address it next year or maybe even six months from now.

**MR. HOHMANN:** I agree with what has been said so far and have a couple of small additions. I do not think that we should have a cookbook for cash-flow testing; however, I do think we should have formula reserves. The reason for that is, even though I tend to believe in free markets and that the market will come to the right answer, free markets work well if they are efficient, and efficiency is dependent upon information. I do not feel that there is a proper flow of information but rather that there is perhaps too much uncertainty with respect to certain aspects of our business and too much at risk with respect to the stakeholders or those who buy our products to do away with formula reserves. I do believe that the actuaries should have wide latitude with respect to judgment when it comes to cash-flow testing.

**MR. PRESSLEY:** As a panel, we are unanimous in thinking that it would not be a good idea to come up with a cookbook for cash-flow testing. It might be instructive to look at the other side of the equation and consider whether or not we would be better off if we could exercise more professional responsibility and judgment in determining the appropriate reserve to be held and perhaps eliminate the floor of the formula reserve. I recognize that political and other barriers might prevent us from doing so even if we thought it was a good idea, but I would like to know what the panel thinks about the idea. We already know what Jim thinks. How about Errol and Steve?

**MR. CRAMER:** I agree with Jim. I do not think we have reached the state of the art where we can actually use cash-flow testing to come up with an appropriate level of reserves. If we went to generally accepted accounting principle (GAAP) reserves, we would involve actuarial judgment, and that is fine. I do not think it is realistic to think that we can define some magical theoretical testing to come up with the exact appropriate reserve. Additionally, for practical purposes, we are safer with a reserve floor for tax valuations. I do not think we want to do away with that. I think it actually makes our jobs a lot easier to at least have something to work with.

**MR. SEDLAK:** The current valuation actuarial requirements seems to give us a two-prong test. It is a greater kind of thing. The regulators are going to be happier with this. I personally think that we could eventually do away with formula reserves. In certain instances where they are not practical to create, this is the case. For example, there are certain P&C loss reserves that are largely judgmental items. In order to make this work, we have a credibility issue. If there is ever game playing, you will never be able to get rid of the formula reserves. If game playing exists, I would say we are probably better off with them.

**MR. PRESSLEY:** I agree with that. I would add that, in a perfect world, I would do away with the formula reserve floor (and I would also do away with required nonforfeiture values). Given that the world is not perfect, perhaps we are at least, for the time being, better off with the formula reserves.

Before we change the pace and get away from these questions and discussions about issues relative to regulatory cash-flow testing, does anyone have a question about anything we have said or want to interject a comment?

**MR. JAMES G. BRIDGEMAN:** In a lot of the discussion about whether there should be formula reserves or not or, with respect to cash-flow testing, whether there should be prescribed scenarios or not, the issue is judgment versus formula. I think the issue is not so much the cook versus the chef, but the cook versus the doctor. It was one of the ancient philosophers who said something to the effect that, if there is competition between a pastry chef and a doctor, to be judged by children, the pastry chef is going to win every time. The "children" we have to deal with are our top managements and our marketing departments. I wonder about the panel's opinion of what tools we need. As good professionals, we probably don't need formula reserves. We probably don't need prescribed scenarios to reach our own professional conclusions. Which of those tools do we need to force our professional judgment on our constituents, if you will?

**MR. CRAMER:** I do not know if it is just my company, but I presume this is somewhat universal. In one way we complain that we do not like regulatory prescription, but because it is a law that there be an appointed actuary, I feel I carry a bit more authority than if I were merely advising management. I am surprised at times how management people back off very quickly because there is a statutory law, and they are sensitive not to interfere or challenge the work of the appointed actuary. I think the current situation is maybe not ideal, but it is workable in that there is a certain level of prescriptions, a certain level of testing, and it is a regulatory requirement.

**MR. SEDLAK:** This comment underscores the entire issue of the tension that exists between the valuation actuary as an employee of the entity for which he or she is working, and the quasi-regulatory role. I think this was brought up in the dynamic solvency testing debate a few years back. I think we have tools to deal with the technical kinds of things. I think the current structure would have to be changed to put the valuation actuary in a role where he or she is not vulnerable on the one hand to being fired, and on the other hand to being sued or perhaps being defrocked and losing professional qualifications. There has to be some kind of a balance created with this in mind as

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opposed to what has evolved. I do not know if I am being clear on this or not, but it seems to me that we have evolved to where we are. As such, we are not necessarily in the position that we need to be in if we are going to be more influential in a world with no formula reserves.

**MR. HOHMANN:** To the comment about what seems to be largely a policing role with respect to senior management and marketing, my own personal experience is that, at least in the senior management team that I am with, our thinking seems to be pretty well aligned. We may not be excited about it, but if we feel we have to put more capital into something, we will do it. I do have sympathy for the fact that that may not universally be the case, and accordingly it is really nice to be able to have formula reserves to step back to. I think that there is maybe even another reason why formula reserves are somewhat useful.

I feel that formula reserves inject some form of stability into not only the process of valuation, but also into the whole financial aspect of the business. What I am getting at is, if you think about GAAP, there is no reason why GAAP has to have formula reserves, let alone statutory ones. Not too long ago we were all talking about fair valuation of liabilities. One of the things there that I think many people feared is that if fair valuation of liabilities comes on line, then *Financial Accounting Standard (FAS) 115* will be rewritten and fair value of all assets will come on line. Even though fair valuation of liabilities was originally being talked about to provide more stability to equity, it could perhaps lead to more volatility. I think we would be surprised about how volatile our business is if we had fair valuation of every aspect of the balance sheet. I think our business changes in its market value and in its values that are component parts of that every day. I think that formula reserves on a statutory basis and the formula approach that underlies much of what happens in GAAP actually puts an aspect of stability into the overall reserving process that, at least at this stage, is helpful because the industry is somewhat misunderstood.

**MR. PAUL F. WHARRAM:** I'm interested in some sort of comparison between 1,000 stochastic scenarios and the New York seven. In particular, my question is, when you run 1,000 scenarios, and you get a distribution, and you talk about how 80% of them passing is good, where do the New York



seven fit in this distribution? Relative to the distribution of results from testing 1,000 scenarios, are results from the New York seven equivalent to 80%, 95%, 50%?

**MR. CRAMER:** I guess it all depends on what assumptions you use in your 1,000 scenarios; but I find generally that the seven really frame the best and worst results. Very seldom does a stochastic scenario give us a result that falls outside of the New York seven. Again it may have to do with the kickoff level of interest rates. Maybe this might change if we went through a very extreme shift from where we are now, and I believe that is currently true.

**MR. SEDLAK:** Our experience is somewhat different than that. Usually the seven scenarios all look nice in the main company. Part of the reason is diversification. Asset diversification is a tenet of a good investment program, and on the liability side, it is not really that much different. Diversification is good. If you have a diverse portfolio of liabilities, things will offset other things that are both good and bad, but you are basically diversifying yourself against adversity. Having said all that, it accounts for the fact that, when we do the New York seven, we get good results. We have a subsidiary company that is essentially in SPDAs, in some FPDAs, and general-account-based products for the most part. It is concentrated. It shows no such good results. You have two different worlds there. When we run the stochastic scenarios on the main company, we get a lot of negatives in some of the lines of business, and some will fall outside of the results of the seven. In the other company that is not as true. I think it can go either way, and it depends on your actual situation.

**MR. CRAMER:** I must clarify and actually that is a good point that Steve brought out. When I said the New York seven frames the best and worst, it may be specific to our particular mix of business. If you have a scenario where rates drop and stay low for 30 years, that generally exceeds any stochastic generated scenario. But results may depend on your mix of business.

**MR. HOHMANN:** I have little to add here because I never actually tried to do a comparison of that kind. During my consulting career, I can recall seeing only a few occasions where we looked at multiple scenarios, and I do not recall actually doing 1,000 scenarios in comparison to seven. I think

that my impression would be that, in general, the seven would frame the best and worst. The reason I say that is my recollection of these types of analyses that I was involved in is that we found that the result would be highly dependent on what kinds of strategies we were employing in the models. If we were employing strategies that would take advantage of volatility in interest rates, we may bleed (from an earnings perspective) for some time, but then we would recover over time as interest rates move. Obviously the punishment for the bleeding is much more acute in a rigid scenario where interest rates move in a direction and stay there, than if they are allowed to recover over time. My recollection, and again I have not studied this in any detail, is that the seven tended to frame. So I would be more on point from my experience with what Errol had originally said, but I also would agree that it would be very dependent not only on the blocks of business, but also on the strategies that would be employed.

**MR. PRESSLEY:** One final thought, Whether we do it in order to satisfy a regulatory requirement or just for our own internal needs, I think most companies are not satisfied with just looking at what is going to happen with the in-force block. They want to know what is going to happen to the company as a whole as they go forward, and that means bringing new business into the picture. From a regulatory standpoint right now, we are answering the question about the adequacy of reserves. Would it be good from a regulatory standpoint to change the question into one focused on the solvency of the company and do dynamic solvency testing? Or is it perhaps better to leave that outside the regulatory arena and just do that on a voluntary basis? Does anybody have any thoughts about that?

**MR. SEDLAK:** I really would prefer that we do not want to get solvency testing into the regulatory arena if we can at all avoid it. I think we raise the issue of the valuation actuary's liability to a much higher degree, because then we are literally saying that you will not go insolvent. If, after that opinion is rendered, management decides that the wave of the future is noncancelable, own occupation, benefits to age 95, cash-value disability income, maybe you will go broke. And management might just decide that it is your fault, too. Aside from the liability issues, here again this debate took place previously. I think a lot of the reasons why we are going the way we are now are just as valid today as they were then. I do not believe that solvency testing necessarily has to be a regulatory issue. I

think the valuation actuary can, right now, with the tools that are there, provide management with the input needed to keep away from the edge of the cliff, as it were.

**MR. CRAMER:** One thing we do (and I am sure many other companies do as well), is much more than reserve adequacy testing, for example strategic planning and budgeting, projected RBC ratios, and so on. This is what management is going to see when evaluating solvency. My concern is making solvency testing a regulatory requirement because as a practical matter, I feel that is generally a direction we have to go. We still are trying to digest reserve adequacy testing, and it is too soon to add another layer of far more onerous requirements. If we are talking about malpractice potential, I think we are kicking up to a much higher level with opinions on company solvency. This is getting into the major leagues.

Another point I want to make is that I find that there is often a lack of agreement about what is meant by doing dynamic solvency testing. One way, the Canadian method, is to project or predict where your RBC ratios will be (they call it minimum contingency capital and surplus requirements, or MCSSR) over a five- or ten-year plan period under a variety of scenarios. Given management's plans and how it intends to sell business, and given the current surplus level and sources of future funding of additional surplus, a very practical approach is to say where do we expect these ratios to be, and how will they look to the company? We had a Canadian subsidiary, and I was surprised when the Office of the Superintendent of Financial Institution (OSFI) requested we curtail certain new sales based on these ratios. In this case, the regulatory authorities were willing to step in and influence a company's affairs. That is one type of testing that I think is doable.

The second type of testing is the more theoretical RBC-type testing. I think that it is a lot more difficult to do this testing, which is coming up with the tail of the distribution of projected surplus results based on multiple scenario testing.

**MR. HOHMANN:** I tend to believe that if a company is going through proper planning, in particular financial planning, there would be little value to be gained out of the dynamic solvency exercise, since you are already going through a presumably rousing financial planning process where

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you are looking at the impacts of new business and making decisions accounting for a lot of things, including your various objectives and the financial constraints that you see in the projections. So I am not in favor of expanding to that level.

**MR. LAURENCE R. WEISSBROT:** It kind of is a regulatory requirement in limited situations. My company is trying to license a New York company, and New York wants a ten-year projection of sales (bracketed by most probable, lowest possible, and highest possible), loss ratios, expenses, reinsurance, reinsurance expenses, development of reserves, development of surplus -- the entire financial statement. It is not as rigorous as doing the scenario testing, but an awful lot of that projection that normally is only shown to your own management is going to get shown to the New York regulator, and from what I'm told, the regulators are going to hold you to that. It's kind of being done on a limited basis in the regulatory community..

**MR. HOHMANN:** I also think that some states are requiring similar types of projections for variable authority as well.

**MR. PRESSLEY:** Now that we have expended a considerable amount of time and effort and money in constructing the tools that we need to do the regulatory cash-flow testing, what else can we do with these tools to have an impact on the company? How can we leverage what we have and turn it into value? There are a lot of things that we can do with the tools that we have developed. I would like to start with Jim talking about one of my favorites, and that is value-added performance measurement.

**MR. HOHMANN:** As I mentioned at the outset, Zurich Kemper is owned 80% by Zurich and 20% by Insurance Partners. When I joined the company about nine months ago, I think it is fair to say that the only model that was there to use was the one that was used for cash-flow testing. Since then, I think we have expanded -- not by proacting but by reacting -- into about five different models. One is economic value added, another one is our Purchase GAAP (PGAAP)/Historic GAAP (HGAAP) model. We have also done asset/liability management and then our financial plan, all of that on top of cash-flow testing.

One might ask, why didn't you just use the cash-flow-testing model for everything? The answer is, it was not designed for everything, but it was a good starting point. In particular, one of the things that we had to worry about (and it might not be the case for most companies) is we have a very substantial term insurance portfolio. I have found that term insurance is really a very difficult modeling challenge. If one goes through the process of trying to construct a robust model for term insurance, I think you get into an ever-expanding model. In order to do a financial plan that needs to be reconciled every quarter, in the case of our 20% owner, we have gotten to a much more detailed model than we would have used for cash-flow-testing purposes. We have taken our cash-flow-testing model and built it out on numerous occasions and then built some of those things out for other purposes.

As far as economic value added is concerned, it is somewhat paradoxical in our organization; the way that the Swiss view all of the entities that they have around the world is from an economic value-added perspective. That is fundamental to them. However, with our acquisition, what they report to their books now is our purchase accounting and subsequent historic GAAP accounting. There are a number of different items to balance. Beyond that, we found that the Swiss are risk-averse and somewhat averse to fixed-annuity business. We have done a lot of asset/liability management testing.

Not only are statutory issues and economic value added of importance to us, but we also have to deal with our purchase accounting issues. We had our portfolio to market on the 4th of January, which, the historians in the group will realize, was about the peak of the bond market. If you are not interested in taking capital losses on a GAAP basis (depending upon how you class your assets), that is a constraint when you go through and do some asset/liability management.

Economic value added for us is really fundamentally where it is at. Our chairman has stated that, regardless of all the accounting bases that we have floating around, he is fundamentally interested in the economics. From our perspective, we view embedded value as the closed thing to the true economics. We view all of the statutory reserves and the required capital as a true discounted cash-flow model with those as essentially dividend restrictions.

We have undertaken and we have produced our first economic value-added calculation since I have joined. We are not anywhere near where we want to be. We have only done it at a legal entity level right now. We run our business by strategic business units (SBUs). Therefore, we are seeking to break it down by SBUs. The Swiss say to us, and we wholeheartedly agree, that if we deliver an economic value-added number, it is nearly useless until we go through the process of actually breaking it down and looking at some of the variance analysis versus our financial plan. Our 20% owner will obviously support that because they are interested in understanding variances from the plan in all of the assumptions and what that actually means. In terms of leveraging the cash-flow-testing model, I have to say I'm glad it was there, because it was the only way that we were able to meet what little we have accomplished to date. I think leveraging is the key. But in terms of actually using it as the basis for these other conclusions, I am at the point now where I would rather turn it around and say, perhaps your most stringent modeling needs should be for the economics of your business, for your financial planning, for really going through proper management analysis of the business. You hope at some point you can compress that model to make it run-time feasible to do your cash-flow testing.

**MR. CRAMER:** We are in a very similar situation to what I just heard Jim describe. We actually arrived at shareholder value or economic value analysis through a different route, but we are at the same place in terms of whether it is more than just a numerical calculation; the business discussion and analysis that accompanies it is the more important part. We started out with economic value analysis when Sears, which owned Allstate, decided to spin off its operations: Discover, Dean Witter, Allstate, Coldwell Banker, and so on. Sears called in a consultant to help evaluate and make business decisions on this divestiture. What Sears consultants touted sounded very much like economic value analysis. While we arrived at it from a route completely apart from cash-flow testing, we soon came to realize that the left hand and the right hand were doing different things. There was a whole body of people in our company doing shareholder value analysis projections and planning and another body of actuaries doing cash-flow testing. We are now at a stage that we leverage off the same projecting systems and use common assumptions. We have two processes that need to get done, and they are very much the same: projecting in-force and new business.

**MR. SEDLAK:** We are in agreement with that. We are not to that level of utilization, however. We have done value added for some time. One of the very attractive features of value added or embedded value is they are appraisal based and they give you an ongoing value of the company, at least on an actuarial appraisal basis. Another thing is they are matched to the pricing algorithms that rely on capital use and return on capital. Essentially, it produces an investment return analog. It is very compatible, and it is very congenial to that kind of pricing, and that is what we use. We have not yet gotten to where we use it. It is however, being evaluated from the standpoint of performance measurements, and a lot of things that are so far just a gleam in our chief executive officer's eye. On another basis, you just change a few things around, in your cash-flow testing, to generate cash flows. That means you can do a gross premium valuation, by just shuffling some numbers and some worksheets.

I think the cash-flow testing also gives you a picture of sensitivities to your various investment alternatives or it can. Here again this is something we have not done on a broad basis, but on occasion we have had the opportunity to take a look at differing strategies and what they may do to us, on both the crediting side and the investment side.

**MR. PRESSLEY:** In my experience at Tillinghast-Towers Perrin, we have had the opportunity to work with a number of companies and use models to help them optimize their investment and crediting strategies for various kinds of products. That is an interesting exercise that can produce value as well. I firmly believe that those companies that embark on value-added performance measurement will, over a period of time, (if they will stay with it for a while and go through the process of looking at the value that is calculated and go through the variance analysis) really improve their assumptions and models and financial projection capabilities. It is a process where you have to understand what is going on. It is easy to build models and make assumptions and run projections, but if you go through the variance analysis process in a disciplined way, you are really forced to evaluate the validity of those models and assumptions, and it is hard to live with models and assumptions for very long if they are not accurate.

What are some of the other uses of the financial models that we use for cash-flow testing? Has anyone ever been able to adapt them very well to use for GAAP projections for the companies that are interested in that?

**MR. HOHMANN:** We had to go through GAAP purchase accounting, and we actually started with the cash-flow-testing model for certain blocks of business. For others, we were able to start with some appraisal models that had been prepared in conjunction with the company being on the block. We went to the appraisal model more for the term insurance and the cash-flow-testing model more for the annuity business in our case. We have actually done that.

Where our vision is right now with respect to models is we have two platforms. We use Tillinghast Actuarial Software (TAS) for our pricing and our asset/liability management and essentially any type of multiscenario corporate projection or capital needs analysis. We have recently acquired the Polysystems valuation software that has a projection capability, and our vision there (especially with the term insurance) is that we are going to need to get down to almost seriatim-type projections that are consistent with a valuation model, which can be extremely detailed as you all know. We feel if we can do that and get a very detailed model and produce our financial plan showing our statutory projections and our GAAP projections on that basis, that we will be able then to, first of all, do variance analysis to our financial plan on a quarterly basis and not have to worry about differences between the underlying modeling scheme of a projection model and the underlying model of a valuation model and explain those differences as experience deviates from assumption. Furthermore, if there are any differences, however small, between how systems compute reserves, we would not have to explain that. We would be down to looking at experience differences.

We feel we can use a static liability only model that is very detailed as one additional benchmark for the TAS asset/liability models that we would use to do the dynamic projections. We would be able to do a level scenario, liability only projection out of the very detailed model and see how that compares to a similar projection out of a more compressed TAS model, and then use that TAS model for all sorts of multiscenario testing. We think we have good vision with respect to that, and we think



that ultimately we can marry the two models properly and use certain ones for the cash-flow testing, economic value added, PGAAP, asset/liability modeling and financial planning accordingly.

**MR. CRAMER:** I would add that we have decided not to use cash-flow models for the planning process. We recently converted over to TAS, and the initial vision may have been that we could use this for our planning process, but there is no way that we see that one can get the level of detail one needs for month-to-month budgeting and forecasting income from what is primarily a broad brush asset/liability cash-flow model. There are few blocks of business where we use the cash-flow model to project gross profits for deferred acquisition cost (DAC) unlocking under *FAS 97*.

**MR. SEDLAK:** I neglected to mention one use that we actually put this to, and this was as part of reorganizing our enterprise. We were moving some companies from one ownership to another. Normally that may or may not be difficult. In our case it was somewhat difficult, because we had various ownerships within the enterprise, and it was necessary to do appraisals on the companies being moved. This was just a natural by-product. Instead of having a great big project, we were able to do it almost as a matter of course.

**MR. PRESSLEY:** Are there any comments from the floor, any questions?

**MR. MARK LEWIS GLICKMAN:** Given the number and variety of uses that you have spoken of in the cash-flow, asset/liability modeling arena, what's the size and composition of your staffs dedicated to these functions?

**MR. SEDLAK:** In our case, it is currently running (and there are other corporate functions as well, so I am going to have to use a little verbage on this) between 10 and 12 people. In all fairness, I also have to say that we have a home-grown system, and we maintain that system and enhance it. This is a little bit more demanding of staff than if you were to buy an outside system.

**MR. CRAMER:** I am going to guess at the numbers, but we have a staff of three whose full-time jobs are to support the actuarial model (systems, TAS, customizations, training, and so on)

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environment. It is more efficient for the other actuaries to do their work and not have to worry about getting models up and running. We also have an investment person whose job is to make sure that assets are ready and downloaded and usable, which is no small task. So there are four people whose primary functions are support. They are all actuaries, by the way. The people who use the system probably number anywhere from 20 to 40, many who use it an extensive amount of time.

**MR. HOHMANN:** It is difficult for us to put a number on our staff as well, primarily because of how we are organized. What we have done is put a few point people in place, certain ones that have relationships with our SBUs and several specific individuals that have cross-SBU functions. For example, we have one individual, a Fellow of the Society of Actuaries (FSA), whose responsibility is our financial reporting, our economic value added, and our financial plan projections. We have another individual whose responsibility is asset/liability modeling and cash-flow testing. Each of those individuals will draw staff from a larger pool that we have developed, so it is difficult to say how many we have at any point in time. One thing we do (and we see it as an advantage to having used vendor software) is that, if we ever need help, we can go outside to the vendors and we can get help then.

**MR. GERALD A. LOCKWOOD:** I hesitate to ask the question because mine is very similar to the one that was just asked, but companies vary in organizational structure all the way from one centralized actuarial department all the way down to many different actuarial departments in different SBUs. Organizationally, how do you manage doing all these functions within your companies, and how does the organizational structure affect that? Is it somewhat related to the number of people you have reporting to you?

**MR. HOHMANN:** We have an SBU structure. On top of that we have strategic service units (SSUs); mine is one of them, and the actuarial area is one of them. Also, our legal and compliance areas and all of what you normally call operations, including things like underwriting claims, systems, and policyowner service, are SSUs. Having an SSU, we have literally dedicated one individual to each of our SBUs. One individual is the relationship manager for that SBU, and that individual is expected to function literally as a full-time employee of the SBU. Our model is really quite simple.

We are very much like an in-house consulting firm. In the same way that consulting firms would have relationship managers to clients, we have relationship managers to the SBUs. Then we have a pool of staff that we draw upon for different projects.

Our organization is by design relatively flat. As the chief actuary, I have seven or eight direct reports, and then below that we have mentoring relationships within the pool. We have one individual responsible for the pool itself. We try to keep our reporting as simple as we can. We have tried to ensure, through the one individual running the pool, that we have job enrichment through a lot of different types of jobs. You do not want the same person always working on the same kind of job. Then we have literally tried to develop strategic relationships with the outsource consultants in case we need the individuals to come in at peak times, and we want them to be familiar with what we do and familiar with how we do it.

**MR. CRAMER:** We have decentralized into what we call profit centers, and we have a corporate organization. Much of the work is done down at the profit center level; they each have their own valuation staffs. As with any organization, there is constant flux of how much is utilized. We have found that it is very important to ensure consistency by setting strict standards. It does not really matter where the work is done. We have been almost religious about maintaining corporate-wide projection standards, as well as making sure everyone uses consistent models.

**MR. SEDLAK:** We are also similar in that we have SBUs and people who are dedicated to them. In the corporate area, we perform all the valuation functions, and that includes the data acquisition, which runs the gamut from picking up the data from the computer system, to obtaining worksheets from the various lines. That costs a little bit extra in manpower, as well, and I do not think you will ever get away from different systems from different lines of business. I do not even know if you would want to, but I think this is going to be more or less how this works over time in our case. I would like to evolve something a little bit more data relational than what we have.

**MS. MARSHA WALLACE:** I have a follow-up question to that one. When you look at value-added, what is the time frame, and is that consistent between the value added models and your cash-

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flow-testing models, if you are using the same models? Are you using the same projection period to evaluate them?

**MR. CRAMER:** For the value-added models, we project in-force business for ten years, and we look at new business issued over ten years. We run off the new business for an additional ten years, but we hold back on some of our assumptions, i.e., adding some conservatism. That is quite different from our cash-flow models, where the product will determine how long we project. It could be ten years for an annuity product and 20 years for a life product.

**MR. HOHMANN:** For economic value added and cash-flow testing, we project for the same terms. We look at results at different points in time, maybe ten years or 20 years. We actually deviate where we do our GAAP accounting. We have chosen to amortize DAC over some periods, but otherwise we have been pretty consistent across our models on the projection period.

**MR. SEDLAK:** By and large we are consistent between the two on our horizon.