

**1998 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 26PD

REGULATORY TOPICS

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Mark Greene

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MR. LARRY M. GORSKI: Our speakers are Mark Greene and Kerry Krantz. Mark is an actuary with the New York Insurance Department, and Kerry is an actuary with the Florida Insurance Department. I work for the Illinois Department of Insurance.

MR. MARK GREENE: In our reviews of asset adequacy analyses, we've become increasingly concerned as to what it means to test under moderately adverse conditions and how appointed actuaries have satisfied themselves that this requirement has been met. We've seen a lot of diversity in the interpretation of this phrase by different actuaries. I suspect no one will ever fully know what that means. To us it means that the actuary has done enough to convince himself or herself that the reserves can accommodate best-estimate type situations with some sort of a margin for adverse deviation. How you get there is up to you. There is a wide variety of approaches. You can put margins in your baseline assumptions; you can do sensitivity testing; and you can expand the scenarios. But whatever you do, I think the most important thing is to describe not only what you did, but also the reasons underlying why you did what you did. In fact, I would consider the reasons to be at least as important as what you did, maybe even more important.

With respect to model assumptions, we've begun to question companies with respect to their expense assumptions, particularly allocation of overhead expenses. One comment that I brought with me to the department was why we weren't asking actuaries why some of their presentations were consistent, or were not consistent with other applications. A good example has to do with the work acquired now to support life insurance sales illustrations. I don't expect assumptions to be identical, but I would expect them to be reasonably consistent, and that the actuary be prepared to justify any differences. That's particularly true for recurring type expenses. Obviously, new business expenses are outside of the scope of asset adequacy analysis.

Another area that we've had some concerns with we put under the heading of black boxes. That's particularly true on the asset side, for example, modeling collateralized mortgage obligations (CMOs)

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and other such investments. We've aggressively questioned companies that don't seem to give us a good explanation as to how they validated some of the model output. The basic answer seems to be, "We have this block box, and we put information in, and we get information out, and that's what we use." I think our comfort level needs to be such that we have to be sure that you can reasonably reproduce the numbers that you send us, even though we don't have to be able to reproduce exactly every number that you send us.

There's another area of concern I'd put under the broad category of game playing, for lack of a better word. Sometimes you'll see rather dramatic inconsistencies in assumptions from one year to the next. You may see actuaries playing with yield spread assumptions and their projections. I really don't know of any investment people on the street who can reliably predict how yield spreads are going to widen and flatten over time. I really see no basis for actuaries tweaking their yield spread assumptions from one year to the next, especially in projections. Regulation 126, and I believe the model NAIC Actuarial Opinion and Memorandum Regulation (AOMR) requires that you identify any material changes in your assumptions or methods from one year to the next, and we also ask that you quantify the impact of any of those changes.

Some other questions I probably won't have time to discuss revolve around mainstream type approaches, and the extent to which people are consistent with the life practice notes. One such issue is normalization of the yield curve. I've noticed some companies will take the New York Seven and normalize it. The interesting thing is that I've seen some very credible companies normalize the yield curve in quite a different fashion. So one company's idea of a normal yield curve is dramatically different than another. I think maybe some work needs to be done not only in getting a better idea as to what a consensus normalization is, if we decided to go that route, but also in expanding the universe of scenarios and giving everybody a common frame of reference. I think the actuaries out there are well served by having at least some common standards to hang their hat on. If you free it up totally, then you're out there alone as far as defending your work if some questions come up.

Another issue has to do with common stocks and other nonfixed-income type investments for which you can't reliably predict the behavior. I think the department feels that it's unacceptable to simply assume for common stock that the market value of the common stock does not change or assume the underlying principal does not change. You essentially just get the dividend, particularly if there's a material amount of common stock in your asset adequacy analysis. As far as we're concerned, that's totally unrealistic to assume that common stock could be liquidated along a scenario with no change in the price.

Bill Carmello, one of our chief actuaries, is very adamant that common stocks and other nonfixed-income investments should be tested somehow as far as the price sensitivity of the changes. It's almost a random event. I've heard of approaches, or seen approaches in which there's not a material amount in which you may be able to demonstrate that you can set aside the common stock along the scenario, and not have to dip into it to cover negative cash-flows. At the end of your scenario, you demonstrate you still have enough cushion in your results to be able to accommodate a dramatic decrease in your common stock. I'd be inclined to accept an analysis like that, but I think there would have to be quite a bit of demonstration.

Another thing that we look at that I wasn't really aware of when I went to the department was the relationship between the general account and the separate account, particularly regarding your asset allocations. Now that essentially all of the company's book-of-business is being tested, a company that has written a very large amount of separate account business will typically have a very large, negative so-called Commissioners Annuity Reserve Valuation Method (CARVM) allowance on the balance sheet. As that CARVM allowance approaches the company surplus, by definition, you've got some very questionable assets for your general account business. More than one company has run into some trouble trying to explain their asset allocation. Theoretically, if your CARVM allowance is larger than your surplus, then that means part of that CARVM allowance is backing some other liability. I think the appointed actuary is very hard-pressed to explain why that would be a suitable asset for the company's general account.

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Finally, I think I would like to touch on moderately adverse, and encourage any questions from the floor as to what some of the appointed actuaries might think we are looking for in terms of making that demonstration. Unfortunately, the Actuarial Standards of Practice (ASOPs) skirt the issue. I've had more than one actuary question me when we made probabilistic statements that we think you should be able to cover 80–90% of the scenarios, they ask me, "What does that mean?" What do you mean by scenarios and how do I do that?" Unfortunately, I find myself at a loss for words when I have to give them a lot of guidance. So I think that's one of the things we may have to feel our way through. A personal note on that matter is that most of the models that I see tend to be on a profit-retained basis, and I see the standard argument that the opinion has to do with reserve adequacy, and is not an opinion on surplus. I generally agree with that point that's made.

On the other hand, whenever I do see a submission in which the actuary has used some type of profits-released approach, such as releasing profits only in excess of margins to keep target surplus or risk-based capital requirements in line for the projected in-force business, then that gives me a much greater comfort level. It also gives me a much greater comfort level in terms of wanting to look at interim results. I think interim results are much more important when you're using a profits-retained model than if you're using a profits-released model. If you're using a profits-released model, it all comes out in the wash. I think the case can be made for moderately adverse, or at least, sensitivity testing some type of a profits-released model. Even if you don't agree that that approach is appropriate, I think it would make for a good sensitivity test. On that note, I think it would be appropriate to do a sensitivity test in the aggregate, and then use some type of profits-released approach in the aggregate. In that fashion, I think you could avoid having to show a lot of interim results line by line.

MR. GORSKI: We are going to have time at the end of our prepared comments for questions, but Mark did put a lot of interesting thoughts on the table. I have one observation I can make. I think Mark alluded to analysis of common stock and other nonfixed-income securities within the scope of asset adequacy analysis. I think that's a pretty important issue for a couple of reasons. One, there has been quite a bit of pressure on insurance departments to increase the limits on common stock investments, so that would tend to make common stocks a more important investment vehicle for

life insurance companies. Two, there's another project taking place with risk-based capital that will reduce the effective risk-based capital charge for common stock. It's not being done through the charge, but through the covariance adjustment. So both of these factors will probably make common stock a more attractive investment for life companies. However, from an asset adequacy analysis standpoint, I think the profession hasn't really progressed very far in terms of adequately modeling this type of investment.

I think one of the disappointments I've had with this symposium is really the lack of sessions devoted to asset modeling. We have a lot of sessions on Guidelines 33, 34, ZZZ, XXX. These Actuarial Guidelines deal with formula reserve issues. My view of the profession was that it was going to be moving towards more analytical type valuation work as opposed to compliance type work. It seems to me that this symposium probably should have devoted a bit more resources to asset modeling issues.

MR. KERRY KRANTZ: I'm going to start with a quote from the Talmud, if it's all right: "In a place where there are no men, strive to be a man." One reason for bringing up this quote is because the role of the appointed actuary requires being an employee or a consultant to a company. On one hand, he is doing work on behalf of the company; on the other hand, he is performing it with some sense of independence. There was a session at this symposium where three highly respected actuaries talked on professionalism, and I asked a question along these lines. The question dealt with the fact that in Canada, the culture permits an actuary to be independent, but in our culture that may not necessarily be the case. My question was, why not allow the actuary to simply be the employee, or the consultant of the company with professional standards, and take into account that perhaps we need an independent actuary who is not tied to the company simply to review the work of that actuary to see that the work was done professionally and properly? Now, the expense of that might be high if that actuary has to test to see whether or not the company is doing something illegal. However, if we're simply looking at this as a well-documented work product by the appointed actuary, which is simply being analyzed and tested by the independent actuary, the independent actuary doesn't have to redo all of the work. The expense probably could be kept down. I believe that's what the Wilcox Committee is tending with the Unified Valuation Law. There would be a

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system requiring an appointed actuary and an independent actuary who would either be chosen by the company from a list provided by a Commissioner of Insurance, or the Department of Insurance, or, an actuary that the commissioner or the department simply tells the company they're going to use. I believe that that system probably would work in this country. I think that it's not here yet, and it would have to be developed in the future.

I will provide a disclaimer: Each of us is speaking as an individual and not necessarily representing the official policy of our departments. I definitely am speaking that way right now. These are my philosophical ramblings.

One of the things that Mark mentioned dealt with the meaning of phrases such as "the actuary shall consider," *moderately adverse* or *sound value*. Those words are sometimes put into statutes by the legislatures without providing definitions. Mark touched on the fact that we really need to have definitions. On one hand, we have a situation where the company needs to know for a safe harbor, if we do this, will we be all right? On the other hand, if you put too much into the law, then companies feel that's the only thing they can do. So we somehow have to find a balance between those two positions where we say what is okay, and we say what isn't okay, and then the actuaries can judge for themselves. It's in this area where I think standards of practice are a benefit to the profession. If we can rely on the *smell test* working for the actuaries, then they know what is moderately adverse. Unfortunately, you can't put the words *smell test* into a statute.

Recently, I was visiting a consulting actuary while I was at an examination in St. Petersburg. And during a break from the review of his work, I called back and checked my voice messages, and there was a message from an actuary who consults for HMOs. He said, "There's a new statute, and it says, 'the actuary shall annually certify that the HMO is actuarially sound.' Could you please tell me what was meant by *actuarially sound*?" I told him what I thought it meant, and I also told him that that's my opinion. An official determination would have to come, in writing, from an attorney from the Department of Insurance. I don't make policy. I review things according to the statutes and the rules. I make recommendations as to what I think may be good ideas towards future policies. When I make my suggestions, they're internal and they're reviewed, and they're sometimes accepted and

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sometimes they're not. I was told *actuarially sound* was in the regulation dealing with rates and forms and I believed (because I don't work in rates and forms, I could tell you I wasn't positive), there was something that perhaps dealt with the issue. I since found out that there isn't yet, but there are going to be words in the proposed change to the regulation that will define what *actuarially sound* means for rate filings. I'm not familiar with that. Frank Dino, who is the actuary for that bureau of our department, would be the person to contact in that area.

As far as solvency I told him I thought *actuarially sound* meant that, if an actuary calculates reserves and liabilities according to commonly accepted actuarial practices that are written in the Actuarial Standards of Practice, everyone in the profession who can sign that opinion has to abide by it. That would, to me, be a start as to explaining the meaning of *actuarially sound*. We probably need to have the rule. In Florida, you just can't pass rules arbitrarily. You have to be told to adopt a rule by the legislature. When I get back to Tallahassee, one of the things I'll look at is the statute to see if it, in fact, directs any rules to be drawn to give specificity to what is *actuarially sound*. If not, then the department will discuss the issue of whether or not we should recommend to the legislature that it amend the law to direct us to define the term. That's something for the future. The phrase, "the actuary shall consider" has given me a great deal of pause.

One of the situations I've dealt with recently is a company we examined that entered a reinsurance treaty near the end of last year. The appointed actuary had to calculate reserves on the block of business that was assumed, and it was a significant new block of business. He had worked with the direct company, and to his knowledge, the state of domicile of the direct company had had no problems with the reserves for that block of business. When I looked at it, I looked at it from the point of view of a Florida statute, and a Florida rule 4-164 for universal life. Since the reserves were now on the books of a Florida company, they had to meet the statutes and the rules of Florida. The other company isn't licensed here, so I have never even been involved with it. The first thing I looked at was the mortality table and the interest rate, 1980 CSO, age last birthday, smoker, nonsmoker. This is permitted under statute. Then I looked at the interest rate for 1997 issues, which was 5.5%. I looked at the dynamic valuation law, which was 4.5%. I called the actuary, and asked him if he had looked at that, and he said he hadn't. He hadn't realized that the interest rate had gone

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down. That got me started into a further review, and after about two months of review, we eventually got the reserves calculated for that block of business, and they went up by about 10.5% or 11%. The change wasn't a material thing, as far as the solvency of the company, but it was a significant increase in the reserves.

The next thing I want to talk about is that in the actuarial opinion, in order to qualify as Section 7 company, the actuary must state to his knowledge, that the company has not been designated as a category one or category two company by the NAIC examination team. Let's say the company for which the actuary filed an opinion said that it is not a category one or two, and it turns out that the company was a category one or two company. The actuary did not know that. It seems to me that that language is not very strong, or to my knowledge, has not been designated. If the company doesn't give the actuary that information, it seems the actuary should pursue that and seek the knowledge. He should be required to say, "I have gone to the company, and the report they received on the category from the NAIC was not a category one or two." If we want a Canadian-type system where the appointed actuary is to be trusted, then actuarial practice should require the actuary to seek all relevant information. A deliberate avoidance of knowledge in order to issue a Section 7 opinion should be grounds for actuarial discipline.

The next point I want to talk about is the unified valuation law. The unified valuation law is moving from solvency to viability, which I think is a good thing. A company that's solvent on December 31 might go bankrupt on January 1, so we shouldn't just be looking at points in time. We should be looking at the health of the company to see that the company will be there to pay the claims when the time comes. One of the things that is being looked at is a business plan to the board presented by the appointed actuary. The current thinking on this by the Wilcox Committee is that this would be a confidential report. I think this would be a good idea, and it would leave to the actuary a lot of discretion subject to actuarial standards of practice as to what to put in there. The approach that is to be taken is a holistic approach, which means what is the overall health of the company? If we sell a policy to a person who has a life insurance benefit and an annuity benefit, and the person dies, then they may lose on the insurance, but they would gain on the annuity. The holistic approach would take that into account.

The last point I want to talk about is the degree of detail that probably should be shown in the actuary's report that would be under a unified valuation law. What amount of detail should be shown? In a session at this symposium, David Becker used the expression *liability portfolios*. Regarding the level of detail, if you have term business, whole life, universal life, annuities, and credit insurance, you probably want to know the health of each major liability portfolio. Again, I believe that would be not in the actuarial report to the board of directors, but not in the report to the Department of Insurance. For example, if a company is considering selling a block of business, and that block of business, under the holistic approach, has been subsidizing other blocks of business, after the sale, it will no longer be viable. If you have a business plan that is submitted to the board, this would be a company document for internal purposes. The company is able to take those things into account. When the actuary does the actuarial opinion that's required for the state, he or she would know that the holistic approach is a reasonable one to take. If plans are made to sell a block of business, then after that sale, the business would still be viable.

MR. GORSKI: I think some of the common themes that ran through both Mark and Kerry's comments were actuarial judgment, actuarial responsibility, and actuarial accountability. Those things are clearly evident in both of their prepared comments. Kerry ended up by talking briefly about the unified valuation system. I wonder whether everyone in the audience is in agreement with the profession moving in that direction. I believe we eventually will be working under a unified valuation system concept for statutory work. That may be a long way down the road, but eventually we'll get there. However, there are certain small steps for moving in that direction right now. That's what I'd like to spend a few minutes talking about.

The first item is Actuarial Guideline ZZZ. I'm sure anyone who is active in the equity-indexed annuity market realizes that this guideline almost undoubtedly will be adopted by the NAIC at the December 1998 meeting. At this time of the year I'm usually preparing my October Halloween letter, and I will talk about Guideline ZZZ in that letter. I'll probably do something that Kerry doesn't seem to have the ability to do, and that's use the phrase "smell test." I thought it was kind of interesting that you said you couldn't put that in your laws or regulations. I think I can put that into my October letter. The reason that Guideline ZZZ is a stepping stone to the unified valuation

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system (UVS) is because while it's primarily formulaic in nature, it does introduce actuarial judgment relative to certain assumptions that are necessary to price options. The key point that I'd like to make is that Guideline ZZZ requires the filing of certain actuarial certifications. So as states start adopting or using Guideline ZZZ, I hope every valuation actuary pays close attention to the certification requirements. In fact, the requirements are done quarterly, and not annually, like the typical actuarial opinion. A different type of certification is applicable to each of the different methods that are sanctioned by the guidelines. So please pay very careful attention to the certification requirements.

On the topic of assumptions, the NAIC did a survey of companies active in the equity-indexed annuity market and asked them questions concerning the pricing assumptions for options. There were questions on the dividend yield, risk-free rate of return, and implied volatility. The results from that survey were a bit disappointing as to the consistency in assumptions, especially in the applied volatility area. For those who are interested in looking at the results of that survey, I believe they were published in the May 1998 proceedings of the NAIC. That may give you some insight as to what other actuaries are using for implied volatility assumptions.

The other regulation I'd like to talk about is Regulation XXX. It's primarily formulaic in nature, but there is considerable actuarial judgment introduced into the new version of Regulation XXX. For those who are not familiar with this regulation, because maybe your company is not active in the term market, the latest version of Regulation XXX introduces the concept of the X factor. The X factor is a way of allowing the valuation actuary to modify the select factors that are used to then modify the mortality assumption for deficiency reserve purposes. It's a way of trying to recognize that different companies may have different underwriting standards for select or superselect term business. The impact of that underwriting is not reflected in statutory valuation mortality tables. So the X factor is a way of allowing the valuation actuary to bring judgment into the statutory valuation process. The key here is that the actuary is going to be held accountable for the choice of the X factor. Besides having some rules built into the regulation as to the minimum for the X factor and things of that sort, the actuary will be asked to opine on the reasonableness and appropriateness of that X factor, assuming that it's less than 100%.

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As a regulatory actuary, relative to the actuarial support of that X factor, what I like to see is that the actuary does an “actual-to-expected analysis,” wherein one would use as the expected results valuation mortality rates as adjusted by the X factor, and then from that build a distribution of expected claims. The next step would be to determine where actual death claims fall in that distribution. If they’re at a reasonable competence level, it might make sense to use that X factor. But if it’s far off in one tail, then that X factor is unreasonable. What I don’t want to see is a lot of hand-waving arguments, which can sometimes be the case when we’re dealing with asset adequacy analysis and all the issues associated with that. It’s quite likely that this new version of Regulation XXX will be adopted by the NAIC either late in 1998 or early in 1999. I think somewhere along the line there’s a need for further guidance for the actuary in dealing with the issue of justifying the X factor for valuation purposes.

I think Kerry said a few words concerning the unified valuation system. Clearly, we’re moving in that direction, but in very small steps, which I think is the right thing to do. One of the issues is documenting or supporting the conclusion that reserves can meet moderately adverse deviations from expected. I think one of the small steps that the standard of practice group could do is try to address that issue more explicitly in the standard of practice. That’s an issue that has been going on for some time now. In order to gain more regulatory support for the use of actuarial judgment, I think some of these difficult areas need to be tackled. We just can’t keep on sweeping them under the table hoping the next generation of actuaries will address these issues. It’s about time that we roll up our sleeves and tackle some of these difficult questions. With that, I guess I’d like to take questions from the audience.

MS. DONNA R. CLAIRE: Do you have a further update on New York in terms of their self-support and nonsupport test that would be required under illustrations. Also is there an update to 4228?

MR. GREENE: I’d have to defer to Don Pearsall or Bill Carmella. I’m pretty much focused on the reserve side of things.

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MR. JAMES A. GEYER: I'm interested in more discussion from Mr. Krantz. Someone asked you for your thoughts on actuarial soundness. I guess I'd be interested in your thoughts on actuarial soundness with regard to a requirement that an HMO be actuarially sound.

MR. KRANTZ: I believe that the HMO should charge rates that it can justify. In other words, the premiums are adequate to cover expenses and claims. That's what I mean by actuarially sound. If a company gives great guarantees beyond the valuation date, then perhaps they need to do dynamic solvency testing. If they say that the rates won't go up by more than 40% or 20%, or something like that, what happens if claims actually go up beyond that? Then they test those kinds of things and determine that the likelihood is that they have enough surplus if the premiums do turn out to be inadequate.

MR. GEYER: If one finds himself working with an HMO that has been charging premiums that are not adequate, but has taken steps to increase premiums to achieve adequacy, I assume it's still certified actuarial soundness going forward. I assume you have seen situations like that?

MR. KRANTZ: There are situations, especially in these days where there are problem HMOs. You have to hope that there are deep pockets somewhere, and that the parent company will want this HMO to survive. The parent will put in adequate amounts of money to keep the HMO going. This is an issue where I'm tangentially involved—I go to meetings and I listen to other people speak. I'm not involved with HMOs. It's not my area of expertise. But when I listen in, I hear that they don't want to simply have enough to pay next month's claims. If an additional amount needs to be pumped into the HMO, it should help them go for quite a bit of time to get over what their current problems are. That would be something along the lines of actuarially sound. In other words, they should be a viable company into the future.

MR. GEYER: I think that answered my next question which was if there is a parent that has issued some sort of solvency guarantee, or if there's reinsurance arrangements in place, would it still be actuarially sound?

MR. KRANTZ: Is it viable? That's the smell test I would give it. Is it a viable concern? Is there going to be money to pay the claims? Can they keep their promises? If my family is covered by this HMO, will they be treated? Will the claims be covered?

MR. GORSKI: I think a follow-up on this discussion is appropriate. It seems to me that one of the problems actuaries have is that for many years we all threw around phrases like actuarially sound, actuarial soundness, or things of that sort, in an attempt to get things accomplished. It's quite likely that in the development of the law that Kerry was talking about, there may have been some views as to whether some action should be taken or not. Someone said, let's throw in the concept of actuarial soundness, and that will take care of any kind of financial concerns. It seems to me that the American Academy of Actuaries probably should have a better process for monitoring developments, not only in federal law, but in state law. Perhaps it should get involved in discussions like that to avoid situations where the regulator has to try to implement a statute or a regulation that says that is ambiguous, at best, and probably leads to divergent views. It seems to me that the Academy needs to take a more diligent view in looking at a emerging federal and state laws where it could have an impact on the actuarial profession.

One of the issues that has come up in Illinois periodically, and it may surface again, is whether regulators should be auditing the computer models that are used in asset adequacy analysis or cash-flow testing. I think you sort of alluded to the black box problem. As insurance products get more complex, as assets become more complex, and as standard off-the-shelf software has to be modified to deal with modeling those instruments, there may come a point in time where regulators start actually auditing the software. The other point is does the valuation actuary have any responsibilities in terms of auditing the software that is used in cash-flow testing? I'd like to ask Kerry or Mark if they have any opinions from their state's perspective as to auditing the black box. I'd throw it open to the audience to comment on the other half of that question.

MR. KRANTZ: There are two ways to calculate the amortization for the interest maintenance reserve (IMR). One of them is to use factors that are published in the annual statement instructions. The other way is to do a seriatim method. There is a company in Colorado that has software for the

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seriatim method, and two Florida companies have used that software for IMR amortization. The first year was negative, and the second year was positive. I looked at it and it looked funny to me, so I asked the company if they understood their software, and they didn't. So I asked if I could call the vendor and ask them if they could provide me with some documentation. The vendor was unwilling to do that. They said it was proprietary, and that they weren't regulated by me. Since our department does regulate the company, the examination report directed the company to provide the IMR documentation during the next examination. By directing the company to provide this documentation, I will be able to verify that IMR amortization is calculated correctly in the future. My past experience as a programmer and employee of a software vendor has taught me to have a great distrust of black boxes.

MR. GREENE: In New York, we've also run into cases where we've questioned appointed actuaries about black box approaches. They've gone to their vendor, their vendor has come back with the proprietary argument, and we never did accept that argument. We have seen other cases where actuaries have actually convinced us that they had been able to validate the model results. Unfortunately, because almost all of these submissions are confidential, it's hard to know how much material from one memorandum you can really share with another company or another actuary. So, we had seen concrete examples in which other actuaries had been able to get themselves comfortable, and we pretty much held the actuary's feet to the fire until we got the explanation that we expected. The way it turned out is that we finally did get a good enough explanation from the actuary, but it seemed to have taken a lot more time than it should have.

MR. GORSKI: From a professional standpoint, what do you believe is the actuary's responsibility relative to auditing the black box computer model? I'm not talking about the assumptions and the black box itself.

MS. CLAIRE: From the professional standpoint, you have a definite responsibility to audit the programs used. This includes the commercial software packages that all of you are using. You cannot blame the producers of cash-flow testing software if something goes wrong. It is totally your responsibility. In fact, there is currently an exposure draft out for nonactuarial models, which is

probably more of a black box, and if you look at that, you still have a decent amount of responsibility to review it so that you feel comfortable. With actuarial models you have even more than that. Yes, you are exposed to liability if the black box happens to be wrong because it's not supposed to be a black box on the actuarial side.

MR. KRANTZ: I received documentation of the role of actuaries in a specific company. It went through in great detail things like how you hire the actuary, how you train the actuary, the appointed actuary's role in the company, the peer review that's required, how the company monitors the statutory developments when new laws are passed, how the rules of the department are monitored to make sure that the company is, at all times, prepared to accurately report. This again, is what their paper says they do. We'll see whether they do it or not. But this document is very thick, and I think it's a very important document that every company should have. I don't know that it's something that should be required by law or regulation, but if a company had one and implemented it, I would have a high opinion of the company.

MR. GREENE: I think the basic presumption is that the appointed actuary is very much involved and in the loop in the management of the company. That's one criticism I've heard in terms of using consulting actuaries to do appointed actuary work: they're really not tapped into the workings of the company. It's up to the actuary to figure out a way how to invite himself or herself into that process, because his or her name is ultimately on the opinion, and he or she is ultimately going to be accountable for the opinion. If any of you appointed actuaries think that you're finding out things after the fact, or simply being informed of how things went in to, say, the pricing process, or the investment process, then it's a lot easier to proactively participate with the other areas in the company than to try to figure out some clever way to put the best spin on some pricing assumptions, or some investment assumptions that really don't work well for a particular product as it relates to reserve adequacy.

MS. CLAIRE: Actually, I'm probably going to wind up disagreeing with Mark. In terms of the normalization of the yield curve, I want to hear from both Larry and Mark on exactly what you think is right, and why you think it should be a formula.

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MR. GREENE: I'm not sure there's necessarily a right or wrong way to normalize the yield curve. The comment I made earlier has to do with some eyebrows that were raised, mainly mine, when I saw two very large and very highly regarded companies send me a memorandum, when they normalized just the basic New York Seven. My difficulty was in terms of how they normalized the yield curve, and just what that normal yield curve looked like. It was so dramatically different between one company and the next. I had a problem with the fact that they were only normalizing seven scenarios, they did not supplement that with a lot of the stochastic scenarios. It just made me think in terms of inconsistency, and how I have to set some sort of a baseline for myself whenever I review these memoranda to see what's mainstream and appropriate. I couldn't help but think that maybe there was an implied interest rate forecast in that normalization process, and that maybe each company's investment area had made its own determination as to what it thought. Maybe that drove the investment decisions in the company. Maybe the products and investments that they had supporting those products were synchronized with that implied interest rate forecast in terms of how the interest yield curve might shift over time. To me that seemed like the asset adequacy analysis may have been somewhat biased toward a predetermined conclusion. The bottom line was they can't both be right.

MR. GORSKI: It reminds me of a story that goes back probably 15 or 20 years ago. One of my responsibilities back then was to review HMO applications, HMO rate filings, and things of that sort. Back in those days, HMOs were still a very small portion of the health insurance market. In order to make an HMO successful you had to have a substantial enrollment past your break-even point. One year, as sort of a little joke, I added up the forecast for HMO enrollment for HMOs operating in the Chicago area, and their total projected enrollment was three times the population of the state of Illinois. I don't think everyone was right in that one. Several years ago, I had suggested several changes to the Actuarial Opinion Memorandum Regulation. One of them was relative to the issue of yield curve normalization. Those changes have gotten bogged down in a series of discussions of one sort or another, but the point I was trying to make was not so much what that normalized yield curve should look like, but the fact that yield curve normalization should take place when yield

curves are either normally tilted or abnormally flat. I did give some parameters as to when those two events exist. I'm not that concerned as to what the final normalized yield curve should look like. What I am concerned with is using either a very sloped yield curve or a very flat yield curve when clearly that's an abnormal situation.

One of the reasons why I'm not too concerned about the final shape of the yield curve is that I always believed that simply using the New York Seven or some other deterministic set of scenarios was inappropriate for valuation actuary work. I've always been a firm believer of randomly generated interest rate scenarios, even to the extent that the randomly generated scenarios may be published by the NAIC each year late in the year. We, the regulators, would actually be producing the randomly generated scenarios. For various reasons those ideas haven't yet been enacted in the NAIC model or its regulatory framework. I just can't conceive of a company, or an actuary, being satisfied with a valuation actuary work by just using the New York Seven. My basic reason is that there's too many embedded options in liabilities and in the assets to simply say you can come to a conclusion by looking at seven or eight scenarios.

MR. GREENE: I have one comment on that as far as stochastic scenarios. I've only been with the department for a year, but I've yet to see a case where a company passed all of the New York Seven, and then the actuary said, "But I have all these other scenarios that I generated stochastically, and because of that, I decided to put up additional reserves because it didn't pass the stochastic scenario." Conversely, the stochastic scenarios are in there to demonstrate just how utterly conservative the New York Seven scenarios are in the minds of a lot of the appointed actuaries.

I support the idea of stochastic scenarios, but what I don't support is the individual selection of stochastic scenarios. If some unbiased, independent third party could produce a consensus set of scenarios each year, and then everyone could use that as the back drop, I think that would give a much fairer test as far as the adequacy of assets and liabilities. But to do anything other than that, like to go to your own investment people and ask them to help customize your random scenarios, is an implied interest rate forecast. That's all fine and good for pricing, but if you turn right around and use that same set of scenarios for asset adequacy analysis, I just think you're being biased.

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MR. GORSKI: I agree and that's why I suggested having the NAIC produce the scenarios. In fact, at least with respect to a couple of Illinois companies, we have produced our own scenarios, and supplied them to the company and asked them to evaluate cash-flows, keeping all other assumptions the same. I didn't want to see any game playing where you change your excess last formula, or something like that. So, we give you the interest rate scenarios, and use all the other assumptions that you used in your New York Seven analysis. Speaking of scenarios, what are people doing with equity scenarios for equity-indexed annuity analysis?

I was at a session at this symposium, and it seemed like the professional was looking for guidance from the regulators. I think the regulators are looking for guidance from the professions. Where are we on that?

MS. CLAIRE: Larry, as you probably know, the profession is all over the place on this. The point is when you get something that's very variable, you really should stress test it under stochastic scenarios. There are a number of papers on stochastic interest rate scenario testing. As Larry mentioned, the actuaries really have to be familiar with things like the volatility factors when they're pricing the options. I will admit this is one concern of mine that the actuaries don't realize how many things have to go into the pricing of such things as an equity-indexed option. I worked with an investment bank who was getting into the customized options, and when I explained to them what they were getting into, they actually got out of the market. It does take some sophistication. Actually the practice note on equity-indexed options goes into all the things that you should consider in terms of the types of testing you should do, and everything that should be tested (not just the scenario, but the counterparty risk, and so on). I strongly recommend reading that practice note before you do your valuation this year.

MR. GORSKI: Do you believe that the off-the-shelf software programs can handle the modeling of equities?

MS. CLAIRE: Actually, the two major ones are both attempting to price equity-indexed products. It really depends on your own product. This is an area where it really can't be a black box. There's probably enough background in the major software programs that maybe with some minor changes you can handle your product, but you can't just blindly say it's doing it right.

MR. GORSKI: One of the areas I've been intimately involved in at the NAIC for several years is derivative instruments. Anyone who is involved with investment decision making for insurance companies knows that the NAIC model investment law explicitly recognizes the use of derivatives for hedging purposes and income generation, i.e., writing of a covered clause. It also explicitly prohibits the use of derivatives for what's called a replication transaction. A replication transaction consists of a derivative instrument and a cash market instrument combined to replicate the performance of some other instrument. For example, by taking a highly rated corporate bond and swapping out the coupons for maybe a total rate of return on a junk bond, you make something else out of it. And as I said, the NAIC investment law strictly prohibits that. Most states probably prohibit it also. The prohibition is a temporary one. The idea is that once the NAIC develops a complete regulatory framework for derivative instruments for replication transactions, that prohibition would go by the wayside. There has been a lot of progress made in developing that framework.

One element of the framework is to make sure that actuaries can handle the modeling of derivative instruments within asset adequacy analysis. When you're only using derivatives for hedging purposes, some companies make the argument that derivatives are only being used to reduce risk, so incorporating them into asset adequacy analysis really isn't necessary. By excluding them, you're even being more conservative. I don't buy that argument, but that's the argument we hear sometimes. But once you start using derivatives for purposes other than hedging, you can't use that argument anymore. So the question is, where is the profession relative to modeling derivative instruments, both from a technique model standpoint and from an assumption standpoint? Where is everyone on this issue?

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MS. CLAIRE: Again, I think companies are all over the lot, and legitimately some are not into derivatives. I have a counter-question for Kerry. Certain companies really do understand what they're in. I think they do a very good job in modeling them, but Florida, for example, will not allow them to be used to back its liabilities. It's a nonadmitted asset in a number of cases. Are you guys going to change the law on that?

MR. KRANTZ: The legislature passes the laws of this state. I don't change the laws. As far as the admitting of them, I'm not the expert. The phone number of the expert, Robert Norris is 850-413-5054. David Hippen is the actuary in rates and forms who deals with equity-indexed annuities. Send an e-mail to Bob, and ask: what is the admitted value the department places on hedge instruments? Whenever that question comes up, Bob opens up his statute book and quotes the specific statute for people. I think that one of the requirements is that the hedging instrument and the derivative instrument has to be used with the asset actually held by the company. The other thing, as far as the admitted value, is there's a basket of assets provision in the statute. I believe that people refer to that because they can see where they can include those assets and put an admitted value on them.

MS. CLAIRE: In answer to where the profession is, yes, I think it's all over the place. I will admit I also reviewed one thing where they had swap contracts, and it wound up that they had swapped more contracts than there were underlying assets. The actuary didn't pick it up. The actuary has to look at the derivatives because they're becoming a much more important part of virtually every company at this point.

MR. GORSKI: There's definitely an element of due diligence that is required. To pick up on your last point, up until maybe two or three years ago, we probably had three Illinois domicile companies that were using derivative instruments. With the advent of equity-indexed annuities, and several Illinois companies being players in that market, we're up to about nine or ten companies now that are using derivatives. As they get their feet wet and use equity options to hedge the liability risk, they're starting to use futures, and swaps, and so on. So it's definitely becoming more and more prevalent today.

FROM THE FLOOR: I'd like to back up a couple of topics. Donna painted an awful black picture about the black box issue for a smaller company appointed actuary. To comply with her definition, I think, the profession would virtually be driving a smaller company out of business, or right into the hands of consultants. There are very few one-man shops where the actuary is that qualified to opine on the black box. It seems to me that the appointed actuary for an insurance company with a small actuarial staff can meet the professional requirements for signing an actuarial opinion on reserve adequacy by dealing with reputable software companies and discussing the principles behind the black box with the software dealers.

MR. GORSKI: It would seem to me that your response dovetails into some comments Kerry made in his prepared comments that have to do with the consideration issue. I think the bottom line is the extent to which the due diligence was performed needs to be documented. I don't think it's simply enough to say I talked to the company's actuary, or I talked to the software vendor. I think you have to be able to document what you did in terms of maybe doing some test populations and seeing how the test populations perform in the model. I think documentation of your due diligence review is important.

MR. GREENE: I think I'd like to add that after actuaries do these type of tests, they tend to get to a point where they expect the result. If they don't get the result they expected, then they go back in and question the model. That tends to be the first place you look. If you don't really understand the relationships between the assets and the liabilities, a black box is merely a tool. So, if you put things in the black box, and you get something that's counterintuitive, you have an obligation to go in and dig out what is going on. That doesn't necessarily mean you have to reproduce every market value that comes out of a black box. For example, a collateralized mortgage obligation (CMO) values to 10 decimal places. But you definitely have to make sure you understand the relationships in terms of what's going on, and be able to convince the regulator in your write-up that you've gotten yourself to a point where you reviewed the results for reasonableness, and you're comfortable with that. To do anything less than that probably means that you shouldn't be signing the opinion because the opinion specifically states that you've reviewed the results for reasonableness. If you have too much trust in a black box, you can't make that statement.

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MR. KRANTZ: As another example of an issue of due diligence, when I examine companies, I sample the factors, and if the deposit term factor is in my sample, I will look at the year of the policy to determine whether or not the deposit term amendment applies. In one case, I got the write-up from a consulting firm on how the factor was developed, and it said, in the opening statement, that it was done according to the deposit term amendment. I then calculated the reserve, and it was not done according to the deposit term amendment. I asked the company actuary whether he did any checking of the factors that the consulting firm had given them? He said that the reputation of the consulting firm was that they didn't make errors. And I said, they do make errors, and I found one. I convinced the actuary that the next time they have some work done by a consulting firm, they should not just take it on faith that it was done correctly; they should do some spot checking. The black box, or the work done by somebody else could be wrong. You can't take these kinds of things on faith. As an appointed actuary, you can't sign your name on the dotted line and say that you've checked things if you haven't.

MS. CLAIRE: Actually, what somebody suggested is the regulator should tell us which black boxes we're allowed to use. The regulators would determine that the company had a national reputation and did spot checks and determined the black box was okay. Unfortunately, the regulators also don't want the liabilities. In answer to Bob's question, there's a number of firms out there that always had an error list. The other one has just started putting up the errors on their bulletin board. *If nothing else, before year-end, check the bulletin board of the system that you're using, and if there's an error that happens to affect your line of business, you want to make sure you get that correction in.* The error list, by the way, is pretty impressive.

MR. GORSKI: Good point. I wasn't aware of that. That's an interesting point.

MR. BRUCE D. SARTAIN: I also am involved in the review of memoranda, and I just wanted to highlight one of Mark's comments on expenses. It has recently become a focus of the memoranda I review to look at the expenses being assigned to the in-force business. I guess I've been surprised both by the magnitude of those expenses and the amount of overhead expenses that are included. I'm talking about overhead expenses; new business expenses are not included. In addition, it's

always the case that the techniques for expenses are all over the map. I'd like to make a request that this issue could be addressed in either a standard of practice or at least a practice note. I know there is a practice note on expenses, but it doesn't go into much detail. It can make a huge difference depending on the company if very little overhead expenses are covered by the in-force business.

MR. GREENE: I think I'd like to add to that. When you're talking about allocating expenses, I think the only fair way to demonstrate that you've done a reasonable allocation is to show how the overall expenses are allocated across everything. That includes surplus. I could envision a situation where a company has a huge expense problem and a huge expense overrun. They take the overrun and they allocate all of the overrun to surplus. As far as I'm concerned, that's game playing. The only way I can find that out is to look at the validation of the expenses in the aggregate across the entire company and know exactly how those allocations fall out.

The same kind of allocation is already being done with respect to IMR and asset valuation reserve (AVR), where they show how much of the IMR/AVR asset is and is not allocated to the business being tested or how much is being allocated to surplus. In general, the actuaries do a pretty good job on that front, and I don't really see any reason why they couldn't do a similar type of thing with respect to overall company expenses. Of course, certain expenses can and should be excluded. Obviously acquisition expenses are the first thing. However, I have seen at least one case where an actuary, for whatever reason, labeled a future expense as an acquisition expense because it was in connection with reinsurance and acquiring a book-of-business. Even though it was contractually required and associated with the book of business, he labeled it an acquisition expense and did not take that into consideration in the cash-flow testing. It involved big money, and our view of it was very material. The opinion refers to benefits and related expenses. As far as we're concerned, if it's contractually required, and legally enforceable to be paid in the future, and associated with the book-of-business, then that's a related expense, and it should be in the asset adequacy analysis.

MR. GORSKI: One of the frustrating things that I experience is that some of the issues we're talking about today were discussed about five years ago and ten years ago, and we probably even talked about or at least thought about them 15 years ago. For example, the allocation of overhead

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expenses is one such issue. That issue has been discussed ad nauseam, and it's not going to go away. Consider the modeling of equity instruments. One of the typical ways an actuary deals with that is to allocate equities to surplus and forget about it. In another case, there is allocation of more complex fixed-income securities to surplus and just forgetting about it. I support the concept of the UVS because it's going to require that all these issues be addressed. You simply can't take some of the difficult issues and brush them aside. You're going to have to look at everything, and think about and consider everything. I think the UVS is an idea that has to come at some point in time.

Number one when Mr. Greene talked about the normalization of the yield curve, he said he had two completely different answers from two big companies. I'm a little surprised to think that you'd have the same answer. I mean, you can't get two economists to agree on anything, and so, to think that you would have the same thing coming from two companies, doesn't make sense. It's an opinion. The correct answer is that neither one of them is right. None of us know what's right. It's an opinion. I don't know how you fix that unless you put it to a formula. We're trying to get away from formulas. We're trying to get to opinions and not formulas. You're not going to get the same answers, and you're just going to have to figure out how to regulate it the best you can.

Number two, we've been spending a lot of time on Actuarial Guideline XXX. A version was adopted by the NAIC a couple of years ago which was not adopted by many states and now it seems like it may be amended but no one is quite sure. Wouldn't we be better served to update the 1980 Commissioners Standard Ordinary (CSO) table, and take the pressure off of Guideline XXX? We can do that in less than a year if we had a little friendly persuasion from the regulators. The information is there. All we have to do is collect it and update it. Using the 1980 CSO table is like using the old NorthHampton table. It's out of date. There's no other way to say it.

Number three, I had a question about Actuarial Guideline 33. It seems like it was well intended, but it's a project that has gotten completely out of hand. It has become more mathematical nonsense than practical. We use modeling for actuarial opinions, memorandums, and cash-flow testing.

REGULATORY TOPICS

Would the regulators accept modeling for Actuarial Guideline 33 around a basic CARVM reserve based on the product with simple additions for elective and nonelective benefits as opposed to a seriatim valuation?

MR. GORSKI: You made some interesting comments. I guess I'll tackle updating the mortality tables. In the past, the NAIC has requested updated mortality tables, and there's a request outstanding now to the Society to produce the new mortality tables. I don't think that's a panacea for all issues for all concerned, because while we can update a mortality table to the present, we still need to deal with the different types of underwriting and the effect that has on mortality. I don't believe anyone is going to be able to produce a sufficient amount of data to support statutory valuation tables for all the different levels and types of underwriting. That's the reason why we've introduced the X factor into the Regulation XXX. To bring together all three of your comments, I for one, would support more reliance on the professional work of the valuation actuary but we have to tie that to accountability. We can't just tie it to hand waving arguments, and that's why I made the comment I did concerning XXX and the justification of the X factor.

MR. KRANTZ: The first point is the mortality table. I put a comment on the SOA website, www.soa.org, asking for people to comment about its adopting the 2000 CSO Mortality. The response has not been too good. If people feel strongly that we need a 2000 CSO, but the staff of the Society doesn't feel that there's any real need for a 2000 CSO, somehow the communication has to improve. Just out of curiosity, how many people in the audience believe we should have a 2000 CSO? Quite a few people, quite a few didn't. I'm surprised.

The other point was on the CARVM with Guideline 33. I believe that if we're going to change the reserve for deferred annuities from the greatest present value, we'd need to have a change in the statute, not just the Actuarial Guideline. If we want to use modeling, then we'd have to do that. It seems to me that the greatest present value is overly conservative. If you do asset adequacy testing, you can show the amount you held, even if less than the greatest present value is adequate. When

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examining a company, if I were to have them demonstrate CARVM to me, and I came up with a greater present value, then I would have to tell them they have to increase their reserves, even though I was happy that their asset adequacy testing showed that their supposedly understated reserve was adequate.

MR. GREENE: I wanted to briefly touch on all three comments. With respect to the mortality table, during the last widespread conference call regarding XXX and the proposed changes there seemed to be a general consensus that what is needed most of all is a year 2000 mortality table. That would solve a lot of the mortality questions that people have with respect to the current XXX.

On the subject of normalizing the yield curve, I'm not saying that one type of normalization is better than another. I am just suggesting that whatever we do, we should be consistent, and that we don't beg the question by synchronizing investment strategies with asset adequacy testing.

On the third point regarding Guideline 33, I think the expanding and clarification of CARVM, got out of hand. When I saw actuaries using simplex algorithms to solve for the precise amount of partial surrenders to totally maximize the reserve, I said that this thing as gone overboard, and I think we need to step back from that a little bit and approach it from a more common sense type perspective. I sense there's a movement in that direction right now to maybe back away from the full blown theoretical precision that apparently some actuaries interpreted was required whenever it first came out. I would support a step back to reality, and backstopping a Guideline 33 type of calculation with some type of cash-flow testing or asset adequacy analysis, should be encouraged. In fact, technically, it's already required.