RECORD OF SOCIETY OF ACTUARIES
1990 VOL. 16 NO. 4A

PENSION PLANS: CHOOSING CRITICAL ASSUMPTIONS

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MS. PATRICIA L. SCAHILL: I'm a Principal with Mercer in their Baltimore office. The way we're going to structure the session is I'm going to talk about the current activities of the Section Council and announce the newly elected officers. Then Joe Brownlee is going to do the presentation which is eligible for continuing education credit.

The Council is made up of nine people that all of you elect. You elect three per year. I'm on the Council and will be serving as Chairperson for the coming year. Susan Smith from Towers Perrin is the Vice Chairperson. Larry Zimpleman is with the Principal Financial Group and is Secretary. Pat Flannigan is with Eckler Partners in Toronto and is the Treasurer. Larry Bader from Salomon Brothers is a council member. Steve Diamond is with Buck. Ron Gebhardtsbauer is with the PPGC. Dale Grant is with Martin Segal. And Mike Gulotta with Actuarial Sciences Associates makes up the rest the Council. The Council elections just took place, but, in looking forward, if any of you are interested in serving on the Council or know someone you think would make a good Council member, contact me and I'll be happy to pass that name along when we do our nominations next summer.

Now getting into Council activities. What have we been doing? If you read the *Section News*, you keep pretty much up-to-date, because Dan Arnold does a good job of putting the minutes in it to let you know what we've been doing. We're planning a seminar to be held January 14 and 15, 1991, in Palm Springs. It will be an enrolled actuaries continuing education seminar. It will be two, half days and there will be more information coming. We are hoping to repeat the Palm Springs seminar in Vancouver in August. Obviously, we'll be doing some analysis of how it goes, and if it met the needs of people.

We're planning to do more seminars in 1992. We want to do one seminar where we have U.S. topics running concurrently with Canadian topics. We're also talking about doing a seminar that we're calling, and hopefully, this isn't an insult to anyone, "Core Topics for Noncore Actuaries." I think we all know actuaries who are enrolled actuaries but who are now more in corporate management positions. They want to keep their enrollment. It's not that they're people who don't know about pensions, but they may not be the most up-to-date on 401(a)(4), and 410(b), and integration, and the other stuff that's come down the pike fairly recently. So we plan a session where we can get into these fairly detailed regulations that have come out, but direct it to the actuary who doesn't want all the details, who just wants a good working understanding of what's going on.

Next, I want to update you on some things. The *Pension Section News*, which, hopefully, all of you read, is the newsletter for our section and is the Section's largest expenditure.

So the largest part of your dues goes to provide the *Section News*. The Council feels that one of the most important things we can do is to communicate with the section members, to give you articles that are interesting. We also look to the *News* to be a forum for lively debate. So if you see something in there that you don't quite agree with, please write us about it. And then people who don't quite agree with you will write, and we can get some dialogue going and, hopefully, we'll learn in the process.

The section is continuing its sponsorship of the economics statistics. Hopefully, you find that helpful. That's what you received fairly recently from the Society. We update those each year. It's a fairly thick book of economic statistics. Something that we're hoping will come about is that the Society is thinking about doing an electronic bulletin board. And the way this ties in with the economics statistics is the Pension Section could put our statistics on there. The purpose of them putting a bulletin board in is not only so the Pension Section can put their economic statistics at the fingertips of all actuaries. There's a wide variety of purposes that it can serve, and that's one where you can be served. And then instead of having to wait a year to get an update, once we get new statistics available, we could put them right on line, and you'll have statistics as up-to-date as we're able to get them for you.

I want to report to you that we decided not to raise the dues this year. We've talked about the amount of money that comes in and the activities that we're currently doing and there's no need to raise the dues. We've also talked about the fact that if we want to do more, we may need to raise dues. So over the next year we're going to be taking a look at different things we can do. Does it look like they're things that are going to be beneficial to our members?

I'm going to give you just a snapshot of some of the things we talked about. One is we've been planning this seminar in Palm Springs, and all of you who are very busy, will appreciate the fact that it's hard to find the time to do things like that. We've talked about paying someone to do seminar arranging for us and this would be in addition to what the Society staff does -- someone with contacts in the pension field who can recruit speakers and things like that for us. We've also talked about having paid speakers. That's something that we could do at a seminar. We could have a seminar where the entire program has paid speakers or we could do it at the spring Society meetings with the Pension Specialty meetings in 1991. That's going to be the Colorado Springs meeting in early June.

We've also talked about funding for research projects. We don't have a list of research projects right now that we want to fund but we'd welcome any ideas you have. I think probably the research committee of the Section Council will be soliciting ideas. Is there any research that will be helpful to you in performing your functions as an actuary, either an enrolled actuary or a pension actuary not enrolled in the U.S. or Canada? What kinds of things will be helpful to you?

We've also talked about having cash prizes for significant papers that are written. Obviously, the reason for us to do this would be to encourage people to write papers. And this can be a way to add to the actuarial literature that's available.

I've got a number of things where we need your input. One thing the Council is concerned about is the SOA meeting content. Does this meet your needs? And I want to just do a show of hands. I'm going to ask you where (meaning meetings) you normally go to get the technical information that you need. I'm not talking about what kinds of periodicals or things you look to. I'm going to run down the choices and then I'm going to ask you to raise your hand. The choices are the EA Meeting, Society Meetings (Annual Meetings and Spring Meetings), the Canadian Institute Meetings, Conference Meetings, or your own company-sponsored meetings. And what I'm looking for is where you regularly go. It looks like a lot of people go to the Enrolled Actuaries Meeting and a lot of people go to their company-sponsored meetings. Some of you come to Society meetings. Now, obviously, this is a biased sample because you're here. There are people out there who don't come to any. So we'll welcome ideas. If you have topics that you'd like to see, if you have speakers that you'd like to hear, we welcome any kind of input. We do have a Council representative on the program committee, and that person has a committee of pension actuaries who participate. I think they probably need us to help feed them ideas for speakers to help make the Society meeting a good alternative. We can't all go to the Enrolled Actuaries Meeting. It can't hold all of us and we don't always have that particular week available. So I think it's important for the profession to offer you good alternatives.

Just in general I'd like some feedback on Council activities. We can get into a dialogue if you'd like, but you can also write. Write the *Section News* if you'd like. Write me, call me, let us know what it is that we're doing that you like or, more importantly, what it is that we're not doing that you'd like to see us doing. Or if you think some of our activities are off base, we need that kind of feedback, too. We try to really be good representatives, good elected officials unlike the examples that we see up the road a few hundred miles in Congress. We really do want to address the needs and provide a useful service for you.

In the last *Section News* there was an article that the SOA has a subcommittee of the Continuing Education Committee that's developing actuarial specialty guides. They're calling them Roadmaps. These are guides that are designed to help someone who wants to change their area of specialization or someone new just getting into a particular area. They're interested in developing guides for the pension area. We have someone who has offered to head up the effort for the Canadian specialty guide. We have a couple of people who said that they'd be interested in hearing more about it from the U.S. side. But if any of you are interested in participating in this, let me know. I'm sure that once we get people who are willing to head up the effort, they're going to need others to help them.

Basically the guide is a list of articles where you can go to get information about basic pension plan design in the United States. There's a paragraph that describes what's in the article, tells you how many pages the article is for those of you who do or don't like to read, and gives you the basic level. Is it basic, is it intermediate, or is it advance? So that's, in a nutshell, what the specialty guides are like. This will not replace the actuarial reading list that the section and the Research Committee put out and will continue to update. Basically that is an index of the topics that were discussed at a lot of different meetings that impact pension actuaries that you can look up. You can see what was

talked about at that meeting. Then you can get the transcript of that meeting and read about it or find out if you can get a copy of the tape, or whatever. We will continue to publish that which I hope will be of great value to the actuaries who are not at the basic level, who are not at the "I want to change careers" point.

The Society has a Continuing Education Committee. We currently do not have a pension representative on that committee and we need one. The Council right now does not have any names of people that we want to propose, so I would be really happy if someone was interested in serving on that committee. We can get more information. Barbara Choyke is the SOA staff person who works with the Continuing Education Committee. So if you're interested in volunteering for that or if you know someone you think might do a good job and might be willing to do it, let us know. And along those same lines the Continuing Education Committee is always looking for seminar ideas. I'm sure you notice that it seems like there are seminars going on or in the planning stage all the time. They're not always pension topics, but the Society is doing a lot of seminars and they're happy to do pension seminars. They need ideas from us and they need leads on speakers from us. The Council is doing more seminars which are going to help feed into the Continuing Education Committee. So if you have ideas, contact me or Barbara Choyke.

If there's anyone who's not a member of the Pension Section and you'd like to join, we'd be happy to have you join and you can contact the Society also. The contact person there is Judy Yore.

Those are the things I wanted to update you on. Are there any questions you have for me before we get into Joe's presentation?

MR. ROBERT M. KATZ: This is something I've offered at every Pension Section meeting I've ever attended for the Pension Section to consider and, that is, believe it or not, not all of us are consultants. Some of us are clients or to use the more formal term, corporate in-house actuaries. May I ask the Pension Section to start focusing on the needs of those of us who work on the other side of the fence and, perhaps, start some dialogue between clients and consultants so that we can help improve the relationships among all of us in the same profession? Also, at the same time, perhaps, address the needs of those people who aren't working in consulting firms who do not have access to other actuaries in their day-to-day and month-to-month lives and must instead rely on meetings like this to have an opportunity to find out what's going on in the world.

MS. SCAHILL: Okay, hopefully, increased seminars would help there. And I think the actuarial bulletin board can help. I noticed that one of the things on the questionnaire is to exchange information, to ask questions, to answer questions, so that might help some. I appreciate your comment. Anyone else have any comments to make?

MS. ANNA M. RAPPAPORT: I've been involved in research for a long time and I guess some people would say it was actuarial research and some people would say that some of it is not actuarial research. But I'm particularly concerned that, as actuaries, we're part of a broader pension community and, in fact, a broader employee benefits community or maybe it's a financial security community. It's not clear how you define it.

There are a lot of academics that are doing work in some of these issues. The people in Washington sometimes are more influenced by some of the academics, but there are a lot of different groups involved in research from different perspectives.

What I'm concerned about is that we don't work together enough. It's almost as if the actuarial stuff that we do is done as if some of these other people don't exist and the same is true from the other direction. I happened to be a member of the Pension Research Council and that's the place where you get into a lot of contact with the academics. I have a plea that we find a way to be involved with the broader community and to try to be more interdisciplinary in what we do and see it from a broader perspective, understand what some of the economists, the labor economists, the others are doing on issues as well as trying to get them to understand. I think that increasingly the financial problems of the country and retirement security and aging are going to be hooked up together and we'd have broad perspectives. I'd like to see us looking outward and interacting a lot with others.

MS. SCAHILL: Any other comments? Okay. I'm going to go ahead then and introduce Joe Brownlee. Joe is a Fellow of the SOA and I'm sure he has lots of other initials after his name, too. Joe served for one year on the Pension Section Council, so he's aware of the kinds of things that the Council does. Joe served on the Board, as Vice President and President of the Academy and on the Board of the Conference. He was the editor of the *Enrolled Actuaries Report*, and also served on the Advisory Committee to the Joint Board. The name of Joe's paper is, "Pension Plans: Choosing Critical Assumptions."

MR. HAROLD J. BROWNLEE: Those of you who do not have copies of the paper can wait and read it. I think it's going to be published in the December issue of the *Pension Section News*. This is one that Dick Daskais and I wrote during the summer sometime as a result of some things. I'd like to make some other remarks.

If you go back 100 years or so you'll find that pension plans were really instituted on a pay-as-you-go basis. That is that business would decide it would pension off some of its employees and it was financed out of the ongoing revenues from the business. Now as long as the pension benefits were not really significant in relation to the revenues for the business, this didn't really matter. However, times did change, and there was always the risk to the beneficiary that the employer would go bankrupt. Now as pension benefits started to become more significant in North America, at any rate, a device was invented to help reduce the risk to the beneficiary, and this was a fund which was placed between the plan sponsor and the beneficiary. The plan sponsor would pay money into the fund. The fund would pay money to the beneficiary.

It's interesting to note that in health benefits we have been having somewhat the same sort of thing. If you go back 40 or 50 years, shortly after World War II when companies started instituting plans for health benefits, it was for the active employees only. Gradually, as time passed, they began extending it to the retired people and as long as that was not a significant part of the whole thing, nobody cared much. We are now seeing the results of the benefits to retired people becoming a significant item and later this year, if FASB stays on schedule, you will see some proposals on accounting for it. Up to now, generally because of tax reasons, there have been very few retiree health

plans where there's actually been a fund placed between the plan sponsor and the beneficiaries. Retired people are still at considerable risk of the employer going bankrupt, because then their health benefits would simply stop.

But in getting back to pensions, when you have this fund in between as a cushion, this means that pension payments can continue if the employer has a couple of bad profit years or, in some cases, if it's well enough funded, if the employer should go bankrupt. So the financial risk to the participant, to the beneficiary was secured by two things. One was the cash flow from the fund and the other is the cash flow from the plan sponsor into the fund. Now the sponsor, therefore, has to do two things. He has to manage his business in such a way that he can make the payments into the fund, and then he also has to manage the fund so that it produces the cash flow to pay the benefits to the beneficiaries.

In a way, a pension plan is somewhat similar to a bond issue, a serial bond issue with a sinking fund, and sometimes it's useful to think of it that way. Now the beneficiary, of course (and I am one, I'm drawing benefits from a couple of pension plans), would like the fund to be as high as possible. It makes you more secure, and even if the plan is overfunded, you might be successful in getting your benefits improved. We've seen attempts of that in some cases. Plan sponsors vary in how they view the fund. Some want it to be as low as possible. Others want it adequate but not to be an unreasonably high fund. There's also, as all of us know, a legitimate government interest in the size of the funds because, at least under U.S. tax law, the payments that are deductible to the employer at the time he puts the money into the fund, not at the time it's paid to the beneficiary, there's the time difference for the tax collectors. So the governments do set up certain boundaries for how this fund operates.

Now, in the U.S., actuaries have generally had very little to do with the management of the fund itself, but they've had a great deal to do with dealing with the plan sponsor as to the timing and the amount of payments into the fund. Now actuaries are very sensitive to the fact that beneficiaries like to feel financially secure. And so they've often tended to avoid criticism by using actuarial assumptions which increase the early cash flows into pension funds over and above what they might have been if you used other assumptions. Most often this has been done by using an interest rate for discounting liabilities which is somewhat below the actual expected rate of return on the invested funds. This is quite easy to do, but it does cause trouble. Among the problems is that it does not produce a reasonable approximation to the market value of the liabilities, nor does it, under most circumstances, produce a reasonable approximation to the market value of the surplus of the fund, whether it's positive or negative. This can result in serious misunderstanding.

An example of this was in yesterday's *New York Times* on the editorial page where the writer was talking about New York City's financial difficulties. Many of you have heard of New York City's financial difficulties which are not new. Let me quote just a few sentences: "Nearly half of the 5.5% raise for the Teacher's Union would come from a change in the union's pension fund. The city says it can save $104 million by investing in higher income securities, permitting an assumption of 9% in earnings instead of 8.25%. That would go for the salary increase." Now I hold that that is totally incomprehensible.

They are pretending to talk about both assets and liabilities, but they're not. They're doing something magical. For example, if in the 8.25% liability valuation they had determined the assets by discounting the asset cash flows of 8.25% and if, on the 9% valuation, they had determined the asset value by discounting the asset cash flows at 9%, you see it would be reasonable, but it wouldn't give you $104 million. And, certainly, it wouldn't give you a $104 million a year.

Now Dick Daskais and I wrote this paper. It's rather interesting because about 10 years ago, as he reminded me, he and I were on a panel at an actuarial meeting and we were discussing assumptions and interest rates. And Dick spoke then as he does now in favor of using market values of both assets and liabilities. And I spoke up very strongly in favor of what we called conservative interest rates, that is, using interest rates substantially below the expected rate of return. And it was a very good panel I guess because we disagreed so strongly on what you should do.

Now I came into the low interest rate thing quite honestly, because I spent all of my career working for a mutual life insurance company. And when I was a young actuary, all of the older actuaries had come out of the Depression in the 1930s, and periods of low interest rates and being conservative in mutual life insurance matters was simply normal. And, as a result of all this, when I was doing enrolled actuary certifications for a period of about 10 years starting in 1976, I used low interest rates.

Now what has caused me to change my mind? Well, about five or six years ago, during the period of very volatile interest rates, there was a sudden upsurge of interest on pension plans for buying single sum annuity contracts from insurance companies. Partly this was to get reversions. Partly it was to do plan terminations. Partly it was to realize the capital gains which were inherent in the conservatism of assumptions used by their actuaries. But as the request for quotes on this thing let out rapidly, we found that we really weren't staffed to have an increased work load. So I was given the assignment to try to bring some order into the chaos of this bidding process.

I found a couple of rather important things. One was that if I looked through the back issues of the *Transactions* or the *Record*, there was a great deal about what is called C-3 risk, that is, the risk of losing money when interest rates fluctuate. And I also found out that it was important for an insurance company to match the assets and liabilities in this business, otherwise, it took an unacceptable risk.

Companies which had not paid attention to this on their single sum annuity and on their GIC business had, in fact, to cough up a lot of money, because they had lost money when interest rates became volatile.

Now the process of doing a single sum annuity bid can be very briefly decided. First of all, you analyze the plan provisions and you select all your assumptions except the interest rate. Then you project benefit cash flows which you give to your investment department. Now the investment department goes out and takes those cash flows and looks out at all of the securities available, mostly bonds, in order to find those that it would purchase if you got the bid in order to get the best match. You want to match the cash flows as close as possible, but you do want to make sure that the duration of your

assets behind this block of business is the same as the duration of your liabilities. Once they've decided what they can get, they convert that to a single interest rate which they give back to the pricing actuaries. The actuary then discounts the benefit cash flows. You adjust for other risks, for profit, you add in loading for expenses, and you make your quote.

Now if you win the bid you immediately notify the investment department and they have already predetermined the kind of a hedge that they will put in place if this is done. In other words, they may not be able to buy the securities at that instant, but at least they can construct a hedge. So that if interest rates change by 10 or 20 basis points later in that same day, they're not subject to the risk of loss due to that. The insurance company simply cannot afford to mismatch their liabilities either by duration or by the quality of the investments. If you do mismatch by quality, of course, you have to charge for that extra risk. If you mismatch by duration, you have to charge for that extra risk.

Now I did that for a couple of years. Then after I retired from the Prudential in 1986, I went to work with Dick Daskais at Goldman Sachs and we were helping their professionals try to explain to their larger pension clients the effects of FAS 87. Dick had put together a model which we used to do 15-year projections -- all of the ERISA and the FAS 87 numbers, using all kinds of assumptions as to investment mixes, investment results, the new entrants into the plan and so on. We found out, not surprisingly, if the plan sponsor would invest in long bonds that he got a remarkable stability of the normal costs, of his contribution rates, and he found this very interesting. However, it turns out that those plan sponsors do not want to invest a 100% of the long bonds. They would prefer to go for a somewhat higher expected rate of investment return and they would take the risk that their contributions will fluctuate, which could happen.

This brings me to this paper which Dick and I have written, and it really says two things. One is that since it is possible to use treasury bonds to immunize the liabilities of the pension plan very closely that the yield, the interest rate that's implicit in that portfolio of treasury bonds, is the lowest rate and the most conservative rate that you should be using for valuing a pension fund. Or it's the lowest rate that you should be able to use without explaining why you're using a lower rate. As far as I'm concerned, you can use a zero rate if you want to but you have to explain why.

The other thing in the paper is that if you are not going to invest in treasuries, if you're going to go for a different mix of investments in the hope of getting a higher return, the discounting rate to be used for the pension plan liabilities should be higher than the rate implicit in treasuries. What this means in today's market is that the long treasuries are going at about 9% and most people are expecting to get somewhere between 10-11% on their assets. Therefore, the actuary should be using 10% or 11% to discount the liabilities, because that's exactly what the expected rate of return is.

The other thing which is implicit in this is that actuaries really have an obligation to explain to the plan sponsors the nature of this asset/liability matching, the nature of duration and the nature of these other things. The reason that the actuary has this responsibility is that their investment advisers are not going to tell about it. There's no other way for them to learn because investment managers are usually either stock

managers, or bond managers, or sometimes they'll do a little bit of both, but they are not interested in talking to their clients about asset and liability matching, to a large extent because it does not generate very many trades. You may have to rebalance once or twice a year but, by and large, the matching strategy is a buy and hold strategy of the long bonds. I think we have all seen pension plans that have had disastrous results in their investments and would have done much better simply to go the route of treasuries which are available, by the way, not just to large plans but even to the smallest plan you can find.

This paper has not been published and we've certainly gotten a lot of response. People are disagreeing with it for one reason or another, so I expect that those of you who read it may have some comments. What I'd like to do is to get this into more of a discussion, because I think we will learn more that way. Does anyone have a comment?

MR. DAVID M. LIPKIN: I enjoyed reading your paper and I had question on a sentence in it. You say, "It is not the responsibility of the actuary to anticipate poor investment results by using lower discounting rate." I know most of the people in this room probably deal with large plans. I typically deal with smaller plans and oftentimes you'll have someone investing the money who maybe doesn't know what he's doing or isn't as skillful as the efficient frontier concept that this paper anticipates. I was wondering if you could comment on that.

MR. BROWNLEE: Of course, the first comment is that I think ERISA requires that the plan sponsor or the fiduciary of the plan act as a prudent professional would and plan sponsors should be reminded of this. But let's take a look at it. Suppose you have 100 plans out there. They're all small plans and they're all investing. We know there's a certain amount of randomness in investment results so that you would expect roughly half of them to do worse than the market and half of them to do better. Now if you knew in advance who was going to do what this would be easy. You would then use a 5% interest rate on the ones that were going to do lousy. You'd use a 15% interest rate on those that were going to do well. But it doesn't seem proper to me to use 5% on all of them because some of them are going to do better.

Now one of the arguments that's been made is that these people often are not very astute as investors and, therefore, you should make a pessimistic assumption that all of them are going to do worse than the market. I just don't think that's correct. If they choose to take additional risk by doing something other than treasury bonds, then they are expecting a greater return and you should use that higher expected return in your calculations. The fact that they end up picking the wrong stocks, as I can do, really has nothing to do with it.

MR. CLYDE D. BEERS: I think that the paper in its position that we should use extremely high interest rates in all cases to value plans is basically an abdication of the responsibility of the actuary to be aware of the potential for future cash flow that is unanticipated out of the plans and for the ability to anticipate the future investment returns that would be available from the funds. I think we've been blinded in this paper by the high rates of return that have existed in the period 1975-1990. If we look at that period we have the largest intergenerational transfer of values from those who are

working to those who are retired through Social Security and Medicare and a third aspect of that transfer is unprecedented high real rates of return compared to inflation.

If we look, however, back at the periods from 1960-1975, we had not only negative real rates of return, we had almost a period of 15 years where we had no rates of return at all on any significant asset class. During that 15-year period, rates of return averaged zero to 3% annually. Going forward it is not clear at all whether or not the political structure that has allowed these high real rates of return will, in fact, continue. In fact, I would postulate that as the baby boomers start to get older and get closer to retirement, the strong likelihood is that the political process will take away those high real rates of return and, in fact, make people continue to work longer and longer and that we may well have a deflationary economy where low rates of return would be possible. So, to focus on high real rates of return today without looking at the possibility of future investment return on the reinvested money, which is the primary source of dollars to pay benefits, ignores the financial reality of the future.

The paper does not ground itself in the proper responsibility of the actuary. For example, there's a statement in there something to the effect that the actuary should not recommend plan designs that will not be able to be paid under the given funded methods. My argument would be that the client is responsible for plan design and that the actuary is in charge of alerting the client to the ramifications of actuarial methods and assumptions. If in fact a given set of actuarial methods and assumptions would produce a result in which plan benefits could not be paid on its face, that method and assumptions would be inappropriate, not the reverse.

In closing, I would say that the range of discount rate that should be the appropriate choice between the client and an actuary should range from a riskless rate of return expected in the long-term future at the low end, not the riskless rate of return expected today. And as evidence of where that might be, we have the PBGC setting of interest rates that grade down to as low as 4%. I would suggest that longer-term rates on a riskless basis could easily be deemed to be in the 6-7% range up to a high of an expected rate of return on given assets that fully protect benefits, and certainly, that could be up in the 10-11% range. This range would be much, much wider than the 200-basis point range as specified in the paper and I would suggest that the actuarial profession would do well to maintain as much flexibility in terms of the assumption setting process as possible.

MR. BROWNLEE: You've raised a couple of points. One is about reducing interest rates in the future. Clearly, if you expect interest rates to go down to 4% in the future, then the proper investment strategy is bound to be long bonds. And, in fact, if you run the projections, as Dick and I did, looking at various investment mixes and things happening to interest rates in the future, it gives you delightful protection if you immunize assets and liabilities. In a way it doesn't matter what happens to interest rates in the future. One of the things that you would have to do, under what we propose of course, is to change the valuation interest rate for your pension plan every year, then the current rate. If the plan sponsor chooses to use a different investment mix, of course, that's the risk that he takes and it should be a known risk.

The other point was this matter of plan design. I agree that the plan design is really the plan sponsor's responsibility, but it is the responsibility of the actuary to point out to him the risk that he is taking when he puts provisions in the plan which may cause a sudden cash flow drain on the assets of the plan. The employer is entitled to take all the risks that he wants, because they're his risks.

MS. RAPPAPORT: I'd like to raise a couple of issues that, in looking at this paper, present some different ideas about assumptions today and are things that I think we need to be thinking about as retirement actuaries. The first one relates to retiree health. An awful lot of the people that sponsor pension plans also sponsor retiree health and it looks like we're going to be doing actuarial valuations for both of these plans within a couple of years. One of the concerns that I have is we've gotten used to setting actuarial assumptions for pension plans. There's a whole set of different assumptions for retiree health. How are those two going to relate together? And as pension actuaries, are we going to start needing to look at our pension plan assumptions, saying in the back of our minds, "Now, if I use these same assumptions for my retiree health plan what would it do and is it going to produce a reasonable result?" One of the things I'd like to caution people about is, for example, turnover assumptions. If we have a pension plan with a vesting benefit, a turnover assumption may have one effect. You might find out that it's 10 times as important in the results in the retiree health. The same thing might be true but not quite to the same degree about the retirement age assumption. But I think we need to start thinking about and looking at our pension assumptions in a different light. And so Joe, in terms of a paper about choosing critical assumptions in pension plans, I wish you all had included retiree health. I also wish that you all had focused on another issue. When you looked at the issue of the assets and the possibility of immunizing the assets and the fact that that gave a way of setting a value, you didn't really tell me with regard to the economic assumptions relating to pay, how I am supposed to figure out what's likely to be happening in the world over the duration of these liabilities. I think there are a lot of variabilities, so I was uncomfortable that I had what looked like some different ideas on one piece of it and there were so many other pieces of this puzzle that needed to come together. So I'd like to see this work extended. I think actually there's some very interesting issues in terms of debate. I'd love to see some debate in the newsletter.

I would point out one other thing in connection with this debate as we move into more things. I think that the accounting profession is going to be taking, just from little things we've seen, a much more active role as the retiree health rules come along and maybe criticizing both sets of assumptions. We're going to need to be able to protect and defend what we're doing with our assumptions much more. We've had a couple of experiences already where people have come in and said, "Now, can you justify this turnover assumption? Where did you get this? How did you do it?" So I think that leaves us more vulnerable in this whole issue of assumptions.

MR. BROWNLEE: You brought up the question of the other assumptions and I agree. We've said this does need a great deal of thought, because a lot more has to be done on the assumptions other than interest rate. One of the reasons, of course, as I mentioned right at the beginning of the paper, that the interest assumption gets so much attention is that everyone is an expert on the interest rate. It's not just actuaries. I've always told

people there are three kinds of assumptions. You see there are those that are, clearly, the actuary's, the mortality rate, the disability rate, and things like that. There are those where you have to talk to your plan sponsor. What kind of turnover do you have? What's your salary policy? And when do you expect people to retire? When do you push them out the door?

But then the third category, which is the interest rate, is the one where everybody knows everything and, of course, that's where people get all the flack. And that is the one area where outsiders try to control the profession. Outsiders, such as, insurance commissioners, the FASB, accountants, the IRS, everybody else focuses on that rate. I think that if the actuarial profession, at least in pension plans, would use a market rate of discount for the discounting part and then focus on the other assumptions as to what they should really be and what kind of variation you should allow in those, we would be doing everyone a service.

MR. CHARLES BARRY H. WATSON: Joe, since I didn't get a chance to read your paper, I feel I have perfect carte blanche in criticizing it. Two points come to mind. You mentioned on the podium that it was important for the plan sponsor to recognize that, if he chose an investment strategy which focused on something other than long-term bonds, there were certain risks entailed; and you suggested that your approach was going to assist in some fashion to have the sponsor recognize this. It is probably somewhat unfair to point out that using a higher expected rate of return will not necessarily serve to concentrate the sponsor's mind wonderfully upon the dangers of the investment policy that he's followed. Now I've realized that you can say many things to them in the course of the discussion, but still the bottom line is that he's using a higher rate of return and, therefore, contributing less to support the pension plan.

The second and more crucial question is that we as enrolled actuaries for these plans are, after all, expected to be paying attention to the interests of the plan participants rather than solely paying attention to the interests of the plan sponsors. Therefore, adopting a means of selecting the discount rate which in effect chooses the expected rate of return that is hoped will be made on the plan investments and not paying attention to the dangers of disaster on the low side could perhaps not be entirely in the best interest of the plan participants. And I just think that we do need to keep that always in our minds in recommending the choice of assumptions.

MR. STANLEY H. TANNENBAUM: Joe, you've mentioned and talked about there being an actuarial valuation and suggesting that for this one actuarial valuation there is probably one best rate. I have a few thousand life clients. The rest of them are the small 10-life cases, including, law firms, which is a whole new category. And thinking about these valuations, I tend to do a PBGC valuation and they tell me what I have to quote. So I know my interest rate with PBGC. I have no variability. I do two OBRA valuations, minimum and maximum, at the range for the current month. I now have two other numbers. I then have to do one for FASB, and they tell me I have a discount rate and a rate of return on plan assets. A good discount rate is probably what your insurance company quotes, your prior insurance company quotes, and then there's a rate of return on plan asset. That's what the investment community tells me.

So now I have two more rates I could use, and having all these lovely rates, I now will choose the one rate and I will explain everything to my client. Now he definitely can't afford my fees. But I think about what is the right rate to use? I think that you have to do all of this for your client and then you explain why these rates exist. Regarding plan provisions, I think the answer is right. You have to look at the plan provision. Should an actuary consult on plan provisions or is that in the legal province? Joe, when you mentioned single premium immediate annuities you said, "And after I determine the flows of benefits, I go to my investment department and they tell me what assets are out there." Who is going to choose the interest rate, you or the investment department? Do they tell you what's out there and you use that rate, or do you tell them what the rate is because you know best? Suppose the investment department did not come out with a rate that was equal to the rate on long-term treasuries, then what do you do?

MR. BROWNLEE: Well, clearly, if they can't find investments that are better than treasuries then you immediately go out of the single sum business. You can't tell the investment department what's there because they look at what's really there and if they can't do a good job and find the best securities and the best mix, then you don't win any bids. That's quite simple but sometimes we felt that they were not doing the best job because we might go for two months and we wouldn't win one. So you beat them over the head and say are you guys really doing the best job? But the pricing has to be a team thing.

The other points that you make are quite good. Yes, there is a multiplicity of interest rates and there's not a heck of a lot that I can do about the PBGC. I think their approach is really incorrect but, of course, they have this funny thing that they invest in governments, but they don't appear to think about the asset and the liability thing. But their pricing, of course, is quite different from the way an insurance company does single sums. An insurance company puts together a bid for that day that may be open for anywhere from 10 minutes to three hours, but the PBGC quotes once a month what it will charge during the following calendar month. And, of course, interest rates can change by 200 basis points easily in that six-week period from when they make the decision to the end of the following month. But it's not because they want to be competitive. They have to let people know where they're going to be. They want to be sort of in the middle of the market. Now to get their rates, they secure from a group of insurance companies what the insurance companies are doing. Then they back into their interest rate because they already have their mortality, and I don't know if they put expenses in there or not. But then in order to get the right number, then they back into the rate. So they're using totally artificial rates because they have not looked at the market. They've looked at what rates they need to come up with to get the price that they want. So their situation is quite different.

MR. DANIEL M. ARNOLD: Just to follow up on your last comments on the PBGC interest rates. The tying together the PBGC has of their rates to the UP 1984 Mortality Table resulting in backing into these artificial rates clearly suggests that the UP 1984 Mortality Table is replaced by a modern table by the PBGC, which I think we can expect will happen. I don't know when, but it should happen in the not too distant future. Then, of course, these interest rates will all ratchet upward as a result of that. And so to peg anything to the PBGC interest rates without pegging the mortality table involved

isn't a complete explanation. Clearly, the IRS is driving us toward justifying the investment return assumptions that we are using.

Recent Private Letter Rulings suggest the IRS is working very hard on looking at our plans. The small plans, first, are getting the attention. Those are where the tax deductions are and they've been concentrating on plans where the deductions have been in excess of $100,000 per participant. As Joe has pointed out, the interest rate area is where they can be the expert most easily and that's where they've been focusing their attention. And as they move along and start focusing on plans other than these very small plans or plans that have these very high deductions, then we all will get into the act to the extent we're not in it at this point. So this debate and discussion about how do you build your investment return, how do you justify it to any reviewing agency, or plan sponsor, or accounting group I think is extremely important. And I invite all of you to comment and to write letters to the *Pension Section News* so that we can work our way through this.

MR. ANTHONY P. CUNNINGHAM: Before I ask this question I checked with somebody at the back that final salary plans have not disappeared from America, because listening to the debate I assume that they must have gone because everything we were talking about was fixed liabilities. The paper is headed, "Choosing Critical Assumptions," and it breaks it down into three sections. First, it leaves out salary assumptions. So from our perspective, salary assumption is absolutely critical. It also talks about immunization and the concept of immunization for security came from insurance companies, because their liabilities were capital liabilities. If you've got a final salary-related plan, unless you're only looking at termination, then your liabilities are real liabilities and immunization requires you to find investments that are giving you real returns against earnings. And it's because of the impossibility of that, that you move towards equity or stock-related investments with a view that they are going to provide a more constant real rate of return than bonds. So how can you have such a lengthy debate which seems exclusively towards fixed interest investments and even suggest that for final salary-related plans, lower risk comes from 100% investment in bonds unless you're intending to close your firm or your plant tomorrow.

MR. BROWNLEE: I consider that an excellent point. One of the reasons that Dick and I did not get into the salary assumption is partly because we were in a hurry and it's very difficult. I would encourage people to discuss this because I think it's important. What are we to do about salary-related plans? So there is no perfect hedge, but equities don't necessarily give you a better hedge because, as we find out, they can go in the wrong direction, too. Investment in equities depend on sort of an ever-expanding economy, growth, and that sort of thing.

MR. CUNNINGHAM: But so do salary increases. The whole point about equity is if you look at the long-term correlation between salaries and equities and between salaries and fixed interest rates, then there is a much higher level of correlation between salaries and equities. People can't carry on having high salary increases if the economy is in a major decline. It's an economic impossibility that those two are going to carry on, as long as you're actually looking at the long term. You're looking at final salary plans. You're looking at liabilities which are 20 years into the future and yet the whole of your

debate seems to be amazingly short term. The concept of risk management should be that you look that 20 years on, not just look at the next couple of years.

MR. BROWNLEE: I'm not sure that I entirely agree with some of these things, but I would have to think them through.

MR. CUNNINGHAM: I'd be worried if you did, by the way. I'd be worried if you did because I have no comment to this.

MR. BROWNLEE: Does anyone else have anything to contribute on the salaries thing?

FROM THE FLOOR: I practice mainly in Canada and my comments will be influenced by that fact. You were mentioning earlier that you have been working in the annuity quotation department. And if you had known that half of your competitors were using 12% and the other half were using 11%, I'm sure you wouldn't have used 11.5%. You would have lost the quotation.

MR. BROWNLEE: Right.

FROM THE FLOOR: Right. So when you look at the pension fund we know that half of them will be over the average and the other half under. But our sample is only one single plan and we don't care about what the others are going to do. So, therefore, I think we should be on the conservative side, because we have only one plan and if this plan goes wrong, we're in trouble. We, meaning the sponsor, the participants, and the actuary.

So I think if we have a long-term investment strategy, and if our portfolio is made of 40% stock, and if we know that on the short term, we can have the T-bills with a very good rate, we're not going to sell all of our investments to go to T-bills because we have long-term strategy. And we know that this year stocks may not be good, but we don't want to change. So, therefore, I think it's a wrong benchmark, because we are looking for maybe a 40-year time horizon. And I think keeping that in mind, knowing that the stock may not perform well, I think a conservative approach is the best one. And I'm saying that, of course, because I'm influenced by the people I'm working with and many of them agree, whether they are forced by the union or whether they have bargained in good faith, but they have agreed that one should put the dollar in the plan -- this dollar belongs to the members. Therefore, if we take a conservative approach we will develop surplus and this surplus will be used to improve the benefits. It's a conscious decision that, let's say 5% of the global compensation is earmarked for pension, and once this 5% goes in, it's there. Therefore, if it develops surplus, it has already been budgeted in the past years. And knowing that we are going for the long pull if the turnover is not too big, we're not doing major intergenerational transfers. We know that there is some transfer, because surplus may be left only in five years' time.

But as a global philosophy in the long term, the people I'm working with have come to that conclusion for a different reason. Being conservative in the interest is a protection because some of my clients are in cyclical industries, so they can't afford really to spend a lot of money when the times are bad. They prefer to have stable costs which they can

almost budget for several years in advance. And, therefore, this is a means of stabilizing their costs and it gives the same results at the end of the million term horizon. So unless there are some select and ultimate valuation interest assumptions, which I don't use because my clients, once again, are small or medium-sized, we try to be as simple as we can in order to have fees which are still manageable. Therefore, we are not entering into selecting ultimate interest in our view; therefore, we keep flat interest.

There is one last item. We had a new fiscal regulation in Canada. One of the earlier drafts was imposing a rate of interest for what they called designated plans, a plan with only a small number of people or a plan with highly compensated people. And this created a lot of dissatisfaction because, in Canada, we are relatively free to choose the assumptions we want. And that rate has been removed from the final draft because they prefer to go another way to control the amount of money you can put in. So, therefore, we are still free to choose the interest rate we want, and I think we should use that freedom to our best advantage.

MR. BROWNLEE: You bring up the point that because of legal differences and differences in laws and regulations, the Canadian situation is quite different from the U.S. But now you advanced for this plan, a very good reason for using assumptions which increase the early flow of funds of money into the fund. I have no objection to that, but I think that the rate that is used by the actuary where it's different from the expected rate of return on assets, has to be explained. Whereas, you can't just pick 2% or 6% and say I've picked it because I'm the magic kind of person. You have to say even though the expected rate of return on assets is 10%, I'm using 8% or 6% because, the actuary is supposed to be bright enough to be able to explain what he's doing. Of course, it is not a proper explanation to say I did this because the plan sponsor made me do it, or I did this so I could increase the maximum deductible contribution. That doesn't go either. You do have to be able to explain what you're doing I think.

MS. RAPPAPORT: I'd like to pick up on a couple of comments. Barry talked about the need to act in the best interest of the participant. We heard some about salary increases, and we heard some about conservatism, and protecting the participants in economic cycles. I am very persuaded that the salary increase issue is a difficult issue and that you do need to think about the two in tandem.

With regard to acting in the best interest of participants by being conservative, when I was young, I used to think that there couldn't be too much money in a pension fund. If there was a little bit more money than you needed there, that was surely in the best interest of participants. I don't think that's necessarily true today. We live in a very strange time. And so long as we have the possibility of terminating plans and having reversions and using the money to finance buyouts, in fact, if there's a little bit more money in the plan than is needed or if there's a lot more money in the plan than is needed on a settlement basis, what you may have done is put the entire company in jeopardy by having more money in the plan. And this is a horrifying thing. I've worked with an organization that, as part of a buyout, has terminated its plan and used the money. You say was that in the interest of the participants or not? It wasn't my decision at that stage to terminate the plan, but then you get into business cycles and some of those companies in the next few years are going to have problems. It's pretty

clear. So that, to the extent that plans were well funded, used to help finance buyouts that later don't work well in bad times, what's good and what's bad for the participants? It's a complicated question and it requires a lot of foresight. So we need to be very careful from that perspective in taking a business view of this pension fund being part of a larger entity -- this business that concerns me greatly.

Another issue in terms of traditional thinking which doesn't really fit into any of the paradigms for saying best estimate assumptions, but sure fits into the interest of participants, is the traditional way that a lot of businesses did things. We kept the assumptions a little bit conservative, because when we wanted to improve the benefits we could do so and it didn't create an appearance of such a large increase in costs.

You know, Joe cited the situation with New York City. Well, the reverse of that was I want to be able to do retiree increases, I want to be able to do some other improvements in benefits, and I need a way to do this without making the costs go from here to here. I need a way to make what appears on my books this year go a little bit less. Now that doesn't seem to fit into the modern way of thinking about assumptions, but yet it is an important issue for running the business and given that there's a range of acceptable actuarial practice, I feel like the actuary's job is to make sure we're in the range of what's acceptable, but there's not a single answer. And then the actuary needs to work with the plan sponsor so that the way the plan is run helps fit the way the business is run. I think it's important, just like we don't get too purist in other things, to not get too purist in some of these issues because the plans are connected to businesses.

MR. BROWNLEE: Anna raises a very interesting point and that is that when you use a low rate for discounting you overstate the liabilities. Someone might come along and say, "Gee, the liabilities have been overstated. I think I will do something and take the extra money out." Because what you've said is there was no surplus. Somebody can come along and take a look at it on a realistic business basis and say, "There's a huge surplus in that pension fund; I want it" So he grabs it. And that's one of the unfortunate facts of using unrealistic assumptions.

MR. DAVID C. HART: I'm from Toronto, so I'll talk about the Canadian perspective a bit. When you're dealing with the regulatory valuation, especially for smaller clients, you're really running a snapshot valuation with quite a few restraints. You don't have too much time or money available for a complete analysis, but what we're starting to see is that some of the larger plans are very interested in getting more analysis and wondering about what's going on. They want to be more than educated. They want to start understanding what's going on in their plan and with that they're interested in projection valuations for the fund itself. They're interested in cash flow analysis as it affects a plan and as it affects their operations. They're in that sort of a situation.

What is happening is that we're looking at a realistic valuation and to do the cash flow analysis they're also interested in management of surplus or, in a lot of cases, deficit. So by using realistic assumptions, realistic long-term assumptions which may, in fact, involve changing interest rates and other changing assumptions throughout the years, we can provide a good basis to tell them what will probably happen. But then, analyze from that point outward the effect of the interest rates being lower. This is the impact it will

have on both your cash flow and your static valuation right now. I think that we're going to be seeing a lot more of that in the future and, in fact, 10 years from now people might be amazed at listening to the tape of what's going on.

MR. BROWNLEE: If anybody is foolish enough 10 years from now to dig out a 10-year-old tape and listen to it, they're going to get what they deserve.

MR. WATSON: I'm not trying to engage in ongoing debate on this issue, but I just wanted to point out that I was certainly not trying to say that one should be seeking lower yields at all costs. What I was suggesting though was that, as enrolled actuaries, we do have responsibilities to the participants and that these needs to be kept in mind. It is not solely the plan sponsor's interest that needs to be considered and, certainly, how much money is in the fund, whether that makes the company a possibility for a takeover? Yes, those are issues that need to be thought about, but don't completely neglect the plan participants. It also indicates that the situation of the particular company and its likelihood of taking a future course of action is something that should have some influence upon the choice of the discount rate as well. There are a number of things that need to be kept in mind, and it's a complex issue. But I certainly would agree with Anna that the whole question of compensation increases and the interrelationship with the other assumption is an important one. But don't forget the responsibility that we do have to the plan participants or else someone else is going to start saying some rather rude and nasty things to us.

MR. BROWNLEE: Barry's quite right because ERISA says the plan sponsor shall engage, on behalf of all plan participants, an enrolled actuary.

MR. ARNOLD: On that point, fortunately, in the U.S. we have the PBGC who, for the rank and file participants, provides guarantees so that there is another agency which is protecting the participants and giving the enrolled actuary some freedom in thinking. Then, to a certain extent, your assumptions are really protecting the PBGC. The PBGC, of course, and the central government are watching your assumptions because they don't want the PBGC to have a lot of liabilities. And the IRS is looking at different full-funding limits and prescribing interest rates that you can use because they don't want you to put too much money. So, there is this bracketing that's going on. The use of asset allocation strategies has developed. So, on the asset side, the investment folks can look at the projections that the actuaries are doing and can help with emerging liabilities and the matching of the assets and liabilities.

As the Labor Department and others point out to plan sponsors, they have to have investment policies; they have to invest their money in accordance with emerging liabilities. One might argue that's what ERISA says. But then you get the investment people thinking about how it should be invested to meet those emerging liabilities. Now, the actuaries look at that investment policy. They look at how the money is invested and that brings us back to Joe's paper which then sort of puts the actuary in a position with that information. It's difficult to use interest rates that don't take that information into consideration.

MR. BROWNLEE: Dan mentioned the PBGC. It was very carefully and clearly pointed out to me by one of these people who read this paper early on, that the PBGC is not involved in the protection of one life defined benefit plan but there are a great many and, therefore, is a high risk for the plan beneficiary. Anybody else?

MR. TANNENBAUM: The comment from actuaries who are not practicing in the United States regarding the lack of salary increase assumptions probably is because our government has clearly limited the amount of benefits for which you can fund. I'm fortunate enough to work on nonqualified plans for which no fund is set up and on those plans I can assure you that the employer is very concerned with the real rate of return on plan assets, because he wants to see what his liability is going to be on a discounted basis and there is no offset for the actual investment rate of return. Anna, not to challenge, but obviously if you put too little money in the plan, the plan can have a shortfall, too. So if you raise the interest rate high enough then the plan is shortfall. If you put it too low, there's too much money. For every plus there's a minus, but that's obvious. Dan just said the PBGC is there in case you go on the other side. You have one safety net without the same ceiling. And I think that for the U.K. actuaries, we really do think about salary scale and then we have to limit it because we want a fund for benefits that are going to be there in the future, that we're not allowed to fund for currently.