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CURRENT TOPICS: U.S. PENSION

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1. The FASB discussion memorandum.
2. Suspension of benefits regulations.
3. Inflation protection for pensioners.
4. Converting final pay plans to dollar-per-month and career pay plans.
5. Social Security integration.
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7. Actuarial procedures for plans with immunized bond funds.

MR. ROBIN G. HOLLOWAY: Today we are going to discuss current U.S. pension topics. The topics in the program outline were put together several months ago. Many of them are no longer current topics and so we do not propose to discuss them. For example, the FASB Discussion Memorandum, which was a current topic a while back, has not been discussed by anyone recently, so we are not going to discuss it here either. Suspension of benefit regulations was a hot topic when we put the agenda together, but keeps being postponed on a monthly basis and probably will be postponed into perpetuity, so we are not going to talk about that either. Item number six, "Option Factors," will also not be discussed in the formal session, but if we have time left over after the three speakers have spoken, we may choose to talk about option factors, because there are some current topics of interest in this area.

The 1981 tax legislation has relatively little application for pension plans per se, but a lot of application for retirement benefits in general; therefore when the other speakers have finished, we will spend some time talking about this legislation. The program also suggested that if any of you want to prepare or present any materials using the viewgraph, you are welcome to do so.

The first topic which we do want to discuss today has been a current topic for several years now and this is: "Inflation Protection for Pensioners." The person who will discuss this topic is Mr. Henry Bright, who is from the Wyatt Company. Mr. Bright recently wrote an article for Dun's Review which, among other things, made the provocative suggestion that some employers may choose to use the excess earnings which they derive during periods of high inflation to pay for Cost of Living (COLA) benefits to retirees. He will talk for about 15 minutes, using both slides and viewgraph at the same time. Then we will give you all a chance to address questions to Mr. Bright, to anyone else on the panel, or to make statements from the floor.

MR. HENRY BRIGHT: When I wrote the article for Dun's, I did not really think that it was controversial to suggest that excess investment return could be used to finance cost of living increases. It did turn out to be controversial though, because I discovered that many employers really find that suggestion very reprehensible. They see the excess investment returns as being available to reduce costs, and that is really what they are

concerned about. So, we ask the question, why are cost of living increases or any adjustments in pensions needed? You can ask the question from two viewpoints, one of course from the viewpoint of the pensioner and the other from the viewpoint of the employer. From the pensioner's viewpoint, obviously inflation erodes benefits. Obviously, also, to the extent that living standards generally increase, the pensioner sees this increase as something that he should participate in, and retirees have a lot of political clout, as well as a lot of clout with their former employers in many cases.

How do you measure the need for cost of living increases? The Consumer Price Index (CPI) is the most common yardstick, although it has been greatly criticized as a measure of the appropriate increase for a number of reasons, which I am not going to discuss in detail, other than to comment that one of the major elements is the inclusion of housing in the Index. The comment is made that housing is not a valid expense to be included for pensioners. Also, the other elements for pensioners are in fact different from those for active people. Other measures for determining the need for cost of living increases have been used. There are various price deflators, etc. that have been studied. None of them really seems to have any particular promise as a substitute for the CPI, although hopefully at some point there will be a more valid CPI measure for retirees.

There is also a question as to whether different income levels should have different cost of living adjustments. You can make a case that the CPI measures essential consumer expeditures so that after a certain income level is reached, it does not really apply to the same extent. There is another point to be made, however, relating to the effect of Social Security, which I will now discuss.

I have to acknowledge here that this concept is one that a recent TPF&C Report makes most effectively, and some of what I will show is in fact borrowed from that report. The concept is that if the CPI really overstates the effect of true cost of living increases for pensioners, then do you really need benefit increases for the private pension plan benefit? Here are some mathematics to illustrate this concept. Of course, if the true cost of living increase is 6% and if the CPI is 10%, then the Social Security benefit will increase by 10%. And if, as is not too atypical, the Social Security benefit is $700 a month and the private plan benefit is $300 a month, then the result -- strictly from the Social Security increase -- is that the total benefit in this situation goes to $1,070. What is needed to maintain purchasing power in this situation is $1,060, which is a 6% increase of the $1,000 initial income. Without any increase in the private plan benefit, one has surpassed the required increase and there is now $1,070 — $10 more than needed. I personally think that the 4% gap is much too high, and the question is, what happens if the gap is less than 4%? In one situation there is a gap of 2%, which many people would consider entirely reasonable; that is, that the CPI does in fact overstate the true cost of living by 2 points. What happens here is that initially the pensioner loses, but Social Security increases faster than the true cost of living, so Social Security becomes a greater and greater percentage of the total. At some point the total starts to increase faster than the cost of living. I do not know if the mathematics of that are crystal clear to everybody here. They really were not to me until I saw this illustration. But, as you can see, at the end of five years one is a little behind in total; at the end of 15 one has pulled ahead, even without any increase in the private plan benefit.

Here is another graphic illustration of the same point. As you can see, what happens is simply that the Social Security benefit increases faster than the true cost of living. The straight line across the center is 100% of purchasing power -- that is 100% of the initial purchasing power at retirement. The Social Security benefit in this example starts off at 70% of the total, and as you can see it increases rapidly. This is not an exact chart and no particular relationship is assumed other than that Social Security is assumed to increase faster than the true cost of living. The private plan benefit, which is measured by the difference between the two lines, of course shrinks in real terms, but nevertheless the total ends up more than 100%.

In more general terms, there are many approaches to inflation protection. Here are a few of these approaches: One is to redesign plans in general; this is concerned with the long term future, not just with how to protect against inflation in the next couple of years. You can have a policy of adjusting pensions either automatically or by ad hoc increases. You could solve the problem, obviously, by an expansion of Social Security, in which case the private plan adjustment would not be necessary because private plans would not exist. And, of course, individuals can solve the problem by continuing to work.

What kind of plan redesign might be appropriate in an inflationary environment? Well, certainly later retirement is going to be one aspect that employers could cope with. It would also obviously allow employees to retain their working incomes that much longer.

An automatic increase is an approach that has been tried in many public plans, but the private sector has shied away from it almost totally up to this point. Incidentally, when one hears the term "automatic increases" I think most people tend to think that it means full indexing -- that is, increasing by the full amount of the CPI. And, of course, an automatic increase does not have to be that at all. An automatic increase can be automatically increasing at 1% a year, at one-tenth of the CPI, or by any automatic formula that triggers the increase without explicit action.

Paying lump sum benefits can also solve the inflation problem because the employee who receives the lump sum can invest it, presumably in an inflationary environment, to yield a high return.

I think one of the most promising approaches to solving the inflation problem is actually to provide lesser benefits because with lesser benefits you can then afford to provide some kind of inflation protection. I think many, many large corporate plans today in total probably provide more benefits initially than the employees need. That is, they provide more than 100% replacement of purchasing power.

Defined contribution plans have been promoted a good deal recently as a means of providing a lump sum at retirement, which can be used to provide an adjusting mechanism to the defined benefit.

One can also use an escalation option, which is one where the employee elects to take a lesser benefit in exchange for some kind of automatic indexing or scheduled increases.

And, finally, now that we have ERTA and deductible employee contributions, it is possible that many employers will see these contributions as a possible means of accumulating additional sums of money at retirement to help cushion the effect of inflation after retirement.

Now I will talk briefly about types of adjustments to pension benefits, where the money would come from, and some of the ground rules that would be involved.

The first method of increasing benefits that comes to mind is the automatic increase in the form that the Civil Service and many other public plans have. The most common method in the private sector up to date, however, has been the ad hoc approach where periodically benefits are increased. The recent Bankers Trust survey found that about 75% of the plans in that survey have increased benefits on an ad hoc basis at least once in the last five or six years. The increases typically run in the area of 2% - 3% for each year since retirement or since the last increase. Investment indexing is the controversial or revolutionary concept that Robin referred to earlier, and which I will discuss more fully a little later on. For many years we have also had scheduled increases; for example, an automatic 2% or 3% increase built into the pension formula. Many insurance company plans have that feature. Or a combination of all those methods can be used.

With respect to the areas from which funds to pay for pension increases will come, these increases can be funded in advance, which involves some kind of anticipation of future cost of living increases. Of course, you can only do that explicitly if in fact the plan provides for automatic increases. Many people advance fund increases implicitly by simply using more conservative assumptions in the anticipation that there will be increases granted periodically on an ad hoc basis. You can also fund the ad hoc increases on a pay-as-you-go basis; the method typically used is almost a pay-as-you-go method, because even when ad hoc increases are funded over 10 or 15 years, initially the payment to fund them is close to the amount of the current pay-out.

This chart shows the pattern of the cash flow for a typical retiree group that is generated by increases given on an ad hoc basis. This illustration is based upon an actual group that was projected. As you can see, the cash outflow starts off pretty high, tails off quite rapidly and has nearly diminished to zero after 25 years. If 30-year funding is used, intially one borrows from the fund to pay the benefits for the first 10 years and after the first 10 years one is paying back what was borrowed in the early years. Because of that borrowing feature, we have commonly suggested to clients that they should attempt to fund over a shorter period, such as 10 years. The logic is that if benefits will be increased periodically and increases are not funded fairly rapidly, one will build up successive increases. In fact this will happen even if increases are funded over 10 years. This slide shows how costs progress over a period of 15 years with 10-year funding, where each benefit increase adds 1% to the cost. As you can see, there is a series of steps and in approximately the 12th year the first benefit increase has been paid off and the cost drops down. From there on costs are stable.

The employee can help to pay for cost of living increases through savings plans; or, starting in 1982, through deductible employee contributions if a fund is established for them; or through a reduction in the initial amount

of pension; or the election of a variable annuity; or through some other kind of trade-off.

With respect to the idea of using excess investment returns, if there are excess returns over the assumed rate they can, in fact, be used to fund increases without increasing anticipated costs.

Here is a little background on this concept. We reviewed some plans under various sets of assumptions to see what happens when one moves from non-inflationary assumptions to inflationary assumptions. In the first example, a plan is valued at what used to be conventional assumptions of 4% and 2% -- 4% interest and 2% salary scale. Of course, no cost of living adjustment is anticipated. The cost in this case was about $156,000. Then the same plan is valued on the entry age normal method using what are nowadays more common assumptions such as 6% interest and 4% salary scale, still perhaps low by today's standards. You can see that for the same plan, even though there is the same gap between interest and salary scale, there is a substantial reduction in costs. The reason is simply that a higher interest rate is used for the retired segment with no corresponding offset from salary scale or inflation in that period. Now if the plan is valued using 7% interest and 6% salary scale, the cost is a little higher but still very much less than the original non-inflationary basis of 4% and 2%.

If a cost of living adjustment feature is now added or anticipated in the funding, at the level of 5% per annum, with an 8% interest rate and a 7% salary scale, the costs go back to a level somewhat higher than the original one. This phenomenon simply makes the point that excess investment returns, if in fact they can be realized, would pay for cost of living adjustments. This point is pretty well known to the actuarial profession in general and pretty well accepted by them. But it is not accepted or understood by the public at large.

I finally examined a 12% interest rate and 12% salary scale and 10% cost of living adjustment, just to dramatize the fact that even when high levels of inflation are used, if all assumptions increase, the cost stays pretty much in balance. To get these stable results, however, one does have to assume that past service liabilities are being funded as a level percent of payroll, not by level dollar amounts. If an inflationary economy is assumed, that seems to be a perfectly appropriate approach.

If there is a real return of zero, or put another way, if investment return equals inflation, real return is indicated by a straight line. Many people contend that as inflation increases, the real return decreases -- so that while there might be a 4% real return with no inflation, it would taper off as inflation increases. The shaded area represents the real return under those circumstances, and it tails off to zero at a certain point. However, if the plan is valued at 6%, for example, even with the declining real return -- and even with a zero return at the 12% inflation level -- there is still excess return with which cost of living increases could be financed.

It seems likely that inflation will continue and that some means needs to be found to finance cost of living increases. Certainly today when it is possible to invest funds long term at 13-14%, it seems possible to build in an almost certain gain over typical assumptions -- at least for existing funds.

I think that that pretty well covers my presentation and if there are any questions at this point, please ask them. Then I have a few brief comments to make on changes from final pay plans to career average plans.

MR. HOLLOWAY: Who has a question for Mr. Bright?

MURRAY L. BECKER: I just have a few observations rather than questions. I have dealt with a lot of our clients who would like to do something about post-retirement inflation but are not prepared to pre-fund it. So, therefore, any guaranteed increase seems to them to be unrealistic because of the expense. We like the idea of using a savings plan for the purpose of supplementing the pension. Savings plans are growing by leaps and bounds, and the amount of cash in them is increasing. One of the things that has not been suggested widely but may be very important, is the idea that the employer might introduce an option in the savings plan that says that the employee has the right to transfer the proceeds to the pension plan for purposes of a guaranteed annual increase, on a more than actuarially equivalent basis. That is, the employer says to the employee: "If you want to take 100% of your account balance (or write your own rules for this), we will add 20% to it or 25% to it and buy you something more than what that money is worth." If a lot of employees elect to do this there will be enough money in the savings plan to do quite a job. It seems to us that the idea of making the employee pay for it all is asking him to postpone too much, whereas the idea of having the employer enhance the amount almost makes it an offer the employee can't refuse.

EDWARD D. PAN: Can I ask Mr. Becker a question? Murray indicated that the employee can transfer money from the savings plan and the employer will subsidize the cost. I find that a very difficult question to pose to the employer. It seems as if you have several hard questions to answer. What rate of return would the employer be able to earn on his money? You must know that answer in order to determine how much this employer is subsidizing the costs. There is always an additional question: To what extent would employers subsidize and, if the employer does subsidize and only higher paid employees elect this option, do we have a discrimination issue at hand?

MR. BECKER: First some general observations, and then I will answer the question. There are a lot of questions that must be addressed if one wants to do something no one has ever done before. As far as what interest rate one should use to determine the actuarial equivalent, I would recommend to a client that since the money is transferred to the pension trust from the savings plan at a given moment, and that money can be locked up in long term, fixed income investments -- which is basically what it would be invested in for this purpose, because it is a long term obligation -- that the rate should be something very much related to prevailing interest rates at the time. It is my own feeling that most of us would be slightly conservative in that determination and for one reason or another back off that rate, which is another reason why it would be desirable for the employer to subsidize the option so that one can in good faith feel that the employee is getting his money's worth. If only the higher paid elected it, I don't know what the IRS's attitude would be. The employer is doing it to help everybody and some people will take the help. I assume the IRS would like to see inflation protection in private plans, and would respond favorably.

MR. BRIGHT: First of all, I see a problem with the long range aspects of this scheme. The point is that there must be justification for the program in and of itself, other than solely for the purpose of post-retirement inflation protection.

Secondly, the employers who are putting in these programs today cannot solve the problems of today's pensioners nor in fact of the pensioners retiring in the next 10 years with those programs. Those are not meant to be criticisms of the idea. It is an excellent idea and a very popular one -- but simply to point out that it does not completely solve the problem. There still remains this generation of retirees and near-retirees in this time of very high inflation whose problems must be addressed. However, I am not sure whether the TPF&C example of Social Security overcoming the deficit is really valid. I would certainly welcome an expression from anybody who has more definitive input on that question: Is Social Security more than compensating retirees to the point where they really do not need any increase in their pension benefit?

JOHN W. WOOD: I can think historically of situations where since 1970 I have been involved in post-retirement cost of living increases. Most people seem to end up with the ad hoc variety. It just occurred to me that what I would often do is take their benefit at the time they retired, adjust that by inflation, and compare it to what they have now, in total, from the plan and Social Security. Up until recent times the lower paid people, as in the case with the $700 Social Security and $200 pension, obviously were being more than compensated by the cost of living factor in Social Security. Actually, it was the higher paid people and people who had higher pensions which were in fact two or three times their Social Security benefit, who were affected most adversely by the cost of living increases since the time of retirement. I can think of one solution to this problem where the client recognized a certain basic pension right of $12,000 a year -- this was a high-paid plan and was unfunded (it was a CPA firm and they don't believe in prefunding their benefits for partners for a lot of good reasons, but they do believe in it for all of their clients). They understood what the objective was -- we discussed very carefully what the effect of these changes would be on costs in the future to the plan. I think this is the key item: for the client to make a commitment in his objectives and to the relationship he is willing to sustain for the retired employees as opposed to the active employees. A careful discussion of the objectives of the clients is needed. It calls for an interrelationship between the benefit patterns and the financing of those funds, because clearly a cost of living plan, if it were to experience a termination or partial termination, would involve a very large portion of the liabilities being devoted to the retired employees, and the active employees would therefore suffer.

One solution I have seen recently is to assume that the funds invested on behalf of retired lives receive the average return of the prime rate and take the difference between the actuarial assumption and the prime rate, which in this year might be the difference between 6% and 16%, and thereby assume that you can fund a 10% increase in the retired lives without any effect on the true benefit security of the active lives. I think it really comes down to a careful discussion of the objectives with the client in order to have him understand the financial and other implications. And if he understands that then one can continue. Otherwise, we are dealing with a realm of a hundred ways of approaching the problem, and as con-

sultants we have to relate it to the client's real intentions and objectives, and to give him the best information. Actually, Mr. Bob Kryvicky's article offers some interesting solutions to that problem, while talking about the funded ratios and the ratios of benefits to costs. I think that applying this sort of analysis to the other problem might offer some interesting solutions.

MR. PRESTON C. BASSETT: I wasn't clear during your discussion whether you were talking about having a variable annuity plan or you were having actual cost of living adjustments post-retirement. When you were talking about funding and the 12% inflation being offset with the excess interest earnings, were you talking about as a practical matter having a variable annuity plan?

MR. BRIGHT: No. It is really a very simple point. If one funds at a given interest rate -- say 7% -- and if in fact one expects in the long run to earn more than that in inflationary times, then one could contemplate using any excess investment return if, in fact, it is earned.

MR. BASSETT: I follow that in theory. Now in the plan that you discuss with a client, you say that the plan will provide that the benefits increase with the changes in the cost of living. Is that the plan you have in mind?

MR. BRIGHT: No, what I am saying really is that the client can decide to work out what kind of policy he has, which may be, for example, going through the exercise of comparing benefits, finding out to what extent Social Security has compensated, and coming up with the conclusion of what he needs. It may be that he concludes he needs 2% a year since retirement. That will then automatically be provided if the excess investment returns in fact are able to pay for it.

MR. BASSETT: What is put into the pension plan itself? Does the plan say that the benefits will increase each year? Will they change with the cost of living, or does the plan say that there will be no increases and then this is done ad hoc? Or are you discussing a plan that says, if interest rates increase we will give you the excess over 3%, which is a variable annuity style? I do not know which way you are telling the client to go.

MR. BRIGHT: You can call it a variable annuity, although I shrink from the term variable annuity. In fact it is a kind of variable annuity that is only variable upwards, not downwards.

MR. BASSETT: The theory is all great, and I follow you. But I do not see what you are telling the client he should do.

MR. BRIGHT: What you tell the client he should do is going to be a matter of determining the client's objectives.

MR. BASSETT: Assume that I want to give the employees money to solve their cost of living problems.

MR. BRIGHT: All right, if we go through the exercise, assume that we conclude that to do that you need to increase their pensions by 50% of the cost of living each year in excess of 2%. Then, we will write in the plan that such an increase will automatically be provided each year, if the investment return is there to fund it. It would be tied to the investment return.

MR. RICHARD G. SCHREITMUELLER: Just a number of minor follow-up comments and questions. First, concerning the TPF&C approach regarding what happens if there is a great overrun in the CPI as compared to the true cost of living. Then maybe everything comes out all right and you do not have to increase the pensions. We did see the brochure that explains how all the numbers work and it is very nicely done, but that looked like it was volume two and we are still waiting for volume one which explains what in fact has actually been happening and what likelihood there is that it will continue to happen.

Concerning the investment indexing, it seems similar to the Rockefeller plan that got some publicity a year or so ago. It is unclear to me whether this is done as a sort of terminal funding at retirement where the interest assumption is lowered from the 6% or 7% that has been used, to 3% or 2% post-retirement, or whether instead one funds toward the 2% or 3% all the way. This would imply that maybe something is done for the terminated vested people, too. I think that is an option, depending on how far one wants to go. I would welcome a response to this question.

The comment about the savings plan sounds like it has a lot going for it. Where there is a separate defined contribution type plan, however, it may be coincidence that there will be not too much or not too little an amount to do what one is trying to do. It may also depend on the tax consequences of taking money out of one plan and putting it into another. If that is done through an IRA rollover, for example, I think it is quite possible, provided it is done with 100% and not a lesser percentage. But I am unclear whether there has been a change in the law this year that makes such a practice unnecessary.

A final comment is that whatever is done, we at Social Security feel that you may find yourself in the position of fighting the last war.

MR. HOLLOWAY: I just want to make one comment about the TPF&C brochure. There are those at TPF&C who feel that the first volume was missing too. It really began with an assumption that is arguable, namely that the cost of living for retired employees is not as great as the cost of living for active people. And, you are correct that the rationale used in arriving at that conclusion was not presented in the brochure. However, if you do make that assumption, then everything follows from it.

MR. DAVID R. KASS: I have two comments. The first concerns the very attractive thought that the plan sponsor would agree to earmark the yield beyond a benchmark yield, such as 6%, to finance the desired upgrade in benefits. I think it is a lovely conceit. I am a bit troubled, however, because I find precious few times that I myself am able to determine what the yield is. You see, we have been at this 8% to 10% yield interval so long, yet because we are in a period of increasing prevailing yields, we find that when we get the 8% coupons in, the market value seems to have dropped 10% out the other side. And, I would be a bit reluctant to insist that the client take advantage of this 8% yield and kick things up 2% of something or other, when he is bleeding by 10% at the other end. I think we have to be terribly sure in that context that we are all speaking the same language when we speak about yield. I have in other contexts ranted and raved about market value and valuation of assets, but I will not drag that corpse through here right now, although it may be vaguely relevant.

In a second vein, I wonder at the possible utility of looking at the post-retirement dilemma in an inflationary environment as a kind of mirror image of what our society unfortunately seems to have addressed itself to in the recent past, namely the desirability of enhancing early retirement. With regard to the latter, to our chagrin we find that most employers feel it incumbent upon themselves to subsidize and to induce early retirement in various weird and wonderful ways, because they perceive somehow or other that it is desirable. Now apparently we face another problem, namely the desirability of enhancing post-retirement benefits. I wonder whether a settlement option approach perhaps subsidized along the lines Murray suggests, without necessarily introducing the complications of bringing money over from other sources, would work. It might allow the 2% or 3% pay increase to proceed from not quite as deep a hole if the employer subsidizes. I wonder, therefore, whether the subsidized settlement option approach to an increasing annuity might not warrant greater attention than I believe it has received thus far.

MR. HOLLOWAY: I am sure we could go on for a long time on this subject. However, we have two other very interesting topics to talk about and as a form of introducing one of them, Henry Bright is going to give us a few words about converting final pay plans to dollar per month and career pay plans, and then from that -- before we take any questions -- we will go right into the funding of negotiated pension plans because it has a very logical tie-in.

MR. BRIGHT: This to me sounds a little bit like the reverse of adjusting for inflation, when you change from a final pay plan to a career average plan at a time when inflation is running approximately 10%. A number of employers have in fact changed from final pay plans to career average plans in recent years. The most notable, of course, was AT&T, who made the change a couple of years ago. And one may ask what the motivation could be for such a change in a time of high inflation. It does appear to be contrary to the needs of employees, and you wonder how an employer can get away with it. Well, I do not really have the answer to that. How can you persuade employees to accept a change to a career average plan at a time like this? And, if you do make the change, will it be necessary to update periodically in the future? This means you end up providing a final pay benefit but with very considerable added administrative expense.

I think there are a few reasons why that kind of change might be valid in some circumstances. For one thing, it may be that benefits are too liberal right now. That is, if one has a very liberal final pay plan and a generous profit sharing or thrift plan, any of you who have looked at net spendable income ratios before and after retirement have probably found that many plans provide a replacement on a spendable income basis - that is a net after-tax and after-expense basis - of well over 100% for the lower paid people. So in those circumstances one might certainly be able to justify a cut-back in benefits . A change to a career average plan with perhaps the same percentage formula might be an acceptable way to do that.

However, I think the primary motivation for those companies that have changed formulas is simply one of reducing costs. Cutting their current costs, improving the income statement which in the case of a company that is on hard times, may very well be a valid reason to change. If a company has a flat dollar or a career average benefit for hourly employees, it might

make some sense to make that change for its salaried employees to avoid some kind of invidious comparisons or pressures to liberalize benefits for the hourly employees.

A company may want to do this at the same time it is putting in a liberal thrift plan or profit sharing plan with the idea that it is really trying to shift the emphasis away from the defined guaranteed benefit and utilize the defined contribution approach. This is more susceptible to preserving its value in a time of inflation. For example, one can invest the balance at retirement at current rates. Employees may accept the need or the rationale to do that if they perceive that they have a trade-off such as an additional benefit, or if they see it as essential to the company's survival.

I did work through one example relating to this subject as my final point. If inflation is growing at 10% a year and an employee's real earnings increase from age 25 to 65 fourfold -- which I think is modest, (that corresponds to an employee hired today at $20,000 and retiring at 65 with an income in today's dollars of $80,000, which does not seem too far from possibility), -- the final pay plan, if it is 1% per year, would produce a benefit of $32,000 a year. The career average plan -- if not adjusted -- would produce a final benefit of 7.2% of final pay, which is $5,760. So there is quite a trade-off involved from $32,000 to $5,760. Granted, these are somewhat extreme circumstances, but I want to make it clear that I am not a proponent of this type of change.

MR. HOLLOWAY: We will move on to the next topic which is the "Funding of Negotiated Pension Plans." Mr. Bob Kryvicky of TPF&C has written a paper entitled "The Funding of Negotiated Pension Plans" which goes into the problems which many of you have encountered in funding these plans. I think it is a good tie-in to the issue which Henry has addressed because those companies that have gone from final pay to dollar per month plans may be encountering a new problem which they had not anticipated.

MR. ROBERT C. KRYVICKY: As Robin explained, the subject of my paper was "The Funding of Negotiated Pension Plans." By a negotiated pension plan, I mean a plan that results from bargaining between an employer and a union. I have to admit that when I wrote this paper I was not specifically thinking of multi-employer plans. I think as I go through this presentation, if you think more in terms of the single employer plan that results from negotiations, it will be more in line.

I wrote the paper because I think that there is a very serious problem that exists with these plans; that is that many of them are very poorly funded. At the same time many of them have very high contribution rates. The paper I wrote did not attempt to address all the problems, but I hope that it will stimulate some discussions.

What I did is to construct a model. The model consisted of an initially mature active population with no retirees. I constructed a series of 50-year simulations -- that is, I assumed that over this 50-year period there would be negotiations in every year and that the result of the negotiations would be some plan change, most often resulting in increased benefit levels.

I looked at what I considered to be a very simple negotiated plan -- that is a plan that consisted only of lifetime benefits. There were no disability

benefits or death benefits and there were no survivor benefits attached. It was just a very simple pension plan that paid a simple pension at normal retirement. I looked at a very typical funding method -- the frozen initial funding method. I assumed that there were only two decrements -- withdrawal and mortality -- and that there was a 5% interest rate that applied in all the 50-year simulations.

And finally I assumed that the retirement age would vary, depending upon what I wanted to look at. In some of the simulations I assumed a constant retirement age of, for example, age 65. In others I assumed that the retirement age varies, and in most cases drops.

What is not shown on this slide is the funding principle which I consider to be a very common one in negotiated plans -- so-called 30-year funding, where every time a benefit increase is negotiated, the increase in liability is funded over a new 30-year period.

With these assumptions, I looked at several different scenarios. We will first look at the effect of retiree increases. As you know, in many plans the union bargains benefits not only for future retirees, but also for past retirees. So what is the effect of giving these retirees increases, both on plan funding and on the contribution rates?

I looked first at a scenario of 50-year bargaining histories where retirement age was assumed to remain at age 65.

Second, I looked at a scenario where the benefits at age 65 replace a fixed percentage of final pay. As you know, the union negotiates increases of a certain dollar per month per year service, but these benefit levels are not chosen arbitrarily. They are normally chosen to keep the pension payable at normal retirement in a fixed relationship to then-current wage rates. For purposes of these simulations, I am assuming that the union over the 50-year period manages to negotiate benefits that always remain in the same relationship to final pay.

Third, I assume that the rate of investment return, that is the 5% valuation rate, equals the long-term rate of pay increases.

And last, I look at two scenarios, one in which retiree increases are granted and one where they are not granted. In the case where they are granted, I assume that the union consistently negotiates benefits for retirees that maintain some fixed relationship to the benefit levels being granted to future retirees. For example, in these simulations I have assumed that the oldest retiree always received 80% of what the newest retiree would receive. And that actually is not too bad an assumption if one considers the types of increases that are typically negotiated in major industrial union plans.

So, what are the results? They are as shown on this transparency.

Notice that on this axis I have the contribution as a percentage of payroll. In most negotiated plans, the contribution is expressed in certain cents per hour terms. That is not really very meaningful, because cents per hour costs do not take into account the effect of inflation. What I do is factor out the effect of inflation by dividing by payroll. Across the bottom I have the 50-year period. The simulation I have graphed here labeled III-B shows what happens when there are no retiree increases granted, but

the union consistently negotiates benefits that keep up with pay. You can see that the contribution as a percentage of payroll stays pretty much constant for the first 30 years and then drops off when the initial past service liability is paid off at the end of 30 years. It then slowly reaches its equilibrium level as the retiree population stabilizes.

What happens when retiree increases are added to this? One gets the simulation labeled I-B. Here you can see that as the retiree increases are granted, in about the 7th year of the simulation the cost as a percentage of payroll starts to gradually increase.

And after the end of the 50-year period, costs actually stabilize, at a level about 15% higher than where they started.

The conclusion is that yes, there is a significant upward bias added to the plan contribution due to the granting of retiree increases. But, frankly, I think many employers would have lived with a contribution history like I-B in return for labor peace.

Although there are problems with plan costs caused by granting retiree increases, the problems do not appear to be significant. What happens, though, if the retirement age, instead of being age 65 throughout the period, at the same time starts to drop? For example, in many negotiated plans beginning about the mid-1960's, some very significant improvements to early retirement were negotiated and that brought the average retirement age down. So we will add that variable.

Once again, we will look at 50-year bargaining histories, again assuming that retirement benefits replace a fixed percentage of final pay. We will further assume that the investment return equals the rate of increase in pay and that retirees are consistently granted benefit increases that maintain this fixed relationship. But we will look at three different retirement age scenarios. First consider the one we have already looked at, where the retirement age stabilizes at 65. Then look at another one that is labeled IV where the retirement age starts at 65, but declines over the next 30 years to a level that ends up at about age 62. Last, we will look at one labeled V where the retirement age of 65 drops to age 58 over a 30-year period. In fact, this last scenario is not all that unrealistic. Many negotiated plans, particularly in the auto industry, have seen this type of change in their retirement age over the last 30 years.

What are the effects? Here is the case that we just looked at where there are retiree increases granted but the retirement age stays at age 65. But look what happens when retirement age starts to drop. For example, in case V, where the retirement age stabilizes at age 58, with each drop in the retirement age the contributions as a percentage of payroll go up, as might be expected. But costs stay up; they never come down. So in the case where we assume that the retirement age drops to age 58, although benefits have not been significantly increased -- in fact they have not been increased at all relative to pay -- the contribution goes up by about 90%.

While you might not think this scenario is very realistic, in fact, in many plans this understates what has really happened. Many plans in the auto industry, for example, have found that over the last 30 years their contributions have not only doubled, they have actually quadrupled, as a percentage of pay. And in many plans the contribution as a percentage of

pay has increased at the rate of 10% a year for the last 10 or 15 years. So, in fact, if anything, this sort of example understates the true effect. The point is that with respect to the contribution rate at least, this change in the retirement age impacts very significantly. Every one year drop in the average retirement age causes a permanent increase in the contribution rate as a percentage of payroll.

That is one-half of the story, the effect on contribution rates. What about the other half, the funded position of the plan? What happens to the funded position of the plan under these assumptions?

Look at the auto industry, for example. This slide compares the average rate of increase in pay over each decade since 1950 with the benefit paid to a new retiree at age 65 with 30 years of service to see how fast that increase is over each decade since 1950. As you can see, during the 1950's pay and benefits increased at approximately the same rate. But in the 1960's there was a tremendous expansion of the pension program. Benefits increased over each of those 10 years on the average about 5% faster than pay increased.

In the 1970's the same has been true to a lesser extent. Over the entire 30-year period since 1950 -- at least in the auto industry -- benefits have increased 3% per year faster than pay. Therefore my assumption of the benefit at normal retirement replacing the same percentage of final pay is a very conservative one. If I were to use the more realistic example, you would have found the charts to have had an even larger upward bias, and this occurrence explains why many plans have experienced a quadrupling of their contribution rate as a percentage of pay as opposed to a doubling over that period.

Another assumption I made was that the 5% investment return assumption, the valuation rate assumption, matched the pay assumption. In fact, that has not been the case. This information comes from a table that Fisher published about a year ago. He did a survey of what actuaries had actually used in these years. Back in the 1950's actuaries were using assumptions around 3%. In the 1960's they were using assumptions around 4% and in the 1970's the average assumption was somewhere around 6%. In fact, over the 30-year period if this is averaged and compared to the other averages, the investment assumption does not appear to be a very good assumption either. The valuation rate has trailed the rate of increase in pay and has, therefore, also trailed the increase in benefits.

What does all of this have to do with funding? In looking at funding progress, I examined the funded ratio, which is the ratio of assets to liabilities. Here liabilities has a broader definition: not accrued or vested liabilities, but the actuarial liabilities as generated by the frozen initial method.

Healthy plans, plans that are well funded, typically have funded ratios in the neighborhood of 70% to 80%. On the other hand, when a funded ratio is below 50%, it usually signals some fairly severe funding problems. And often what will occur is that the liabilities associated with retirees actually exceed assets. With this thought in mind, let us look at the funded ratios. We will again look at a scenario of 50-year bargaining histories where new retirement benefits replace a fixed percentage of final pay and where retirees are granted benefit increases that maintain a fixed relationship to new retirement benefits. We will look at the three average retirement age scenarios, the age 65, the age 62 and the age 58.

Finally, we will look at two scenarios regarding the long term relationship between the rate of investment return and the rate of pay increase. In the first case, labeled B, I assume that the investment rate equals the rate of pay increase. And in the second case, labeled A, I look at what happens if the investment rate actually exceeds the rate of pay increase, that is, if the investment rate equals the rate of pay increase plus 2%.

What happens to the funded ratio? This is a rather complicated diagram, but actually it is not quite as complicated as it looks. On one axis I look at the funded ratio, and the other axis measures time. The results are somewhat surprising. In the cases where investment rates equal pay increases, each time the retirement age drops, the funded ratio initially deteriorates and then returns to a more stable level. It then eventually grows to about a 45% funded ratio. All three retirement age scenarios end up at roughly the same point after 50 years.

In the cases where the investment return exceeds the rate of pay increase, the behavior is similar to the previous cases, but the ultimate funded ratio attained is higher. So what this tells you is that regardless of what happens to the retirement age, the only thing that is important with regard to the funded position of the plan is how fast the benefits increase in relation to how high a rate of return one has on assets. That key difference is really what determines the funded position of the plan. And the reason why many negotiated plans are so poorly funded now is that in fact benefits have increased faster than the assumed rate for valuation pruposes.

So, what are the conclusions? First of all we found that the contribution as a percentage of payroll is very sensitive to declines in the average retirement age. Second, there is a permanent upward bias for each one year drop in the average retirement age, even if the replacement rate remains fixed for new retirement benefits. Third, there is upward bias when retirees are granted increases in benefits that are systematically tied to benefits for new retirements and, fourth, there is further upward bias when benefits increase at a faster rate than either pay or the long term rate of investment return.

MR. WOOD: I read the entire paper. It is an extremely interesting piece of reading because it deals with a lot of things I have been experiencing. There is a great deal of emphasis in the paper, I think, that a 15-year funding or amortization is a very useful way to produce a stable picture. In talking with the clients about the implications of financial aspects of changes in benefits, Mr. Kryvicky, have you actually used funding ratios, that is, the ratio they are heading towards, the relationship of the security of the assets and the extent to which they are devoted to the retired employees? And do you think that this should enable them to make more enlightened policy decisions about how much should be devoted to retirement benefits?

MR. KRYVICKY: In my experience in explaining this to clients, I have found it easier to talk in terms of what their assets are in relationship to their retired liabilities. These plans are normally so poorly funded that the retired liabilities actually exceed the assets. And so I concentrate their attention on that aspect of it. Secondly, it is not atypical for plans like the ones I am thinking of to be so poorly funded that the contributions determined under a 30-year funding principle are actually exceeded by benefit payments. So I have the clients focus on the relationship of benefits

to contributions and try to get their attention turned to the fact that this sort of situation cannot continue indefinitely - that you cannot in fact have a negative cash flow and still have a well-funded plan.

MR. WOOD: So your theory is that since they are concerned now more with the effect of the stability of their industry on their benefits, they are probably more sensitive to arguments like this than they ever have been in the past? I just want to point out that this ought to affect the funding period for increases in benefits in negotiated plans, and ought to affect the PBGC's concern greatly since they are fully responsible for these benefits after 5 years. Maybe they should have insurance rates that depend upon the rate of amortization of the increased liabilities.

MR. WILLIAM STEPHAN: What was the maintenance of the stationary group you were using? How did you feed in new entrants?

MR. KRYVICKY: I assumed that the total population itself remained stable. Enough new entrants were added each year to keep the same total number of active employees as in the first year.

MR. SCHREITMUELLER: This is a paper I was hoping would be written because it is a subject that had only been mentioned very briefly earlier by some other people. It is a very important subject. I think I can infer from what was said earlier that what is really happening here is that you have a final pay type of benefit delivery without a salary scale. It is a deceptively simple thing, but generally speaking you would have to have somebody point it out to you. You would not think of it yourself without a computer run and so forth, and I think we now have a chance to educate a lot of people as to what is really happening.

MR. HOLLOWAY: I think it is very interesting that a lot of the companies with whom I have worked, including those in the automotive industry, have very well funded salaried plans and terribly funded hourly plans. The assets in the hourly plans often do not match the retired life liability as Bob mentioned, but yet the salaried plans, as shown by the footnote disclosure made in accordance with Financial Accounting Standards 36, actually have assets in excess of liabilities. Of course, it is all due to the difference in aiming toward the ultimate benefit in the funding of the salaried plan and not doing so in the hourly plan. I think it is a question that will become a lot more important as companies are preparing their footnote material and suddenly realize this strange dichotomy between the funded position of salaried and hourly plans; and begin to wonder, why are we 120% funded in our salaried plan and only 50% in our hourly plan? And when is this situation going to end? The answer is probably never if they continue the present funding policy, but they don't realize that because we probably have not told them.

MR. BRIGHT: I would ask the question of Bob as to whether he has any solutions. In other words, is there for example, a case to be made for changing the rules so that you can or should fund for future anticipated increases in benefits, or should you perhaps use a lower interest rate, a non-inflationary interest rate, in funding these plans? Are there any definite, specific kinds of recommendations that could be made?

MR. KRYVICKY: If you ignore the labor relations aspects of the problem, I think that what I demonstrate in the paper is that by simply moving to a

15-year funding period you could very significantly improve the funded position of the plan. Of course, that would entail a very significant increase in contribution rates as well. The fact is that you cannot ignore the labor relations aspects of the problem, so the question becomes, what will be labor's response to an attempt on the part of employers to significantly increase the contribution rates of their plans in order to cure the funding problems? That becomes a question of whether labor will be willing to accept a smaller piece of the economic pie today in return for a better funded pension plan. I happen to be very pessimistic as to what the answer to that question will be.

MR. HOLLOWAY: John Wood is suggesting that maybe we can at least do it prospectively, even if we do not go back and correct the current situation. In other words, we can continue to fund the current unfunded liability over its remaining period but provide that future increases will be funded over a 15-year period.

Let us now consider the next topic that we would like to talk about today. You can argue that it is not a current topic, but it may well become one in the very near future and you may as well be prepared to cope with it. This is the question of Social Security integration. The Society of Actuaries Committee on Pensions had a research project concerning integration of private pension plans with Social Security. Fred Rohlfs of G. B. Buck Consulting Actuaries is the vice-chairman of the Committee and he will report on what the Committee found in its deliberations on this topic.

MR. A. FREDERICK ROHLFS, JR.: In February of 1979 the Committee on Pensions of the Society of Actuaries started a research project on the subject of integration of private retirement plans with Social Security.

Due to the many social and political viewpoints on the subject, we knew that there was no consensus on what constitutes a proper set of rules for integration. However, notwithstanding the dangers of taking positions on social and political issues, we decided to select a set of viewpoints and follow it through to a conclusion.

I should mention at this point that, because of these social and political issues, we could not publish our paper as a work of the Committee on Pensions of the Society. Instead we decided to publish our paper as the work of several individuals and submit it to the Society with the hope that it would get into the Transactions. I received a letter just last Friday saying that it has been accepted for publication in the Transactions.

The paper also found its way to Washington and, from what we have heard, was well received by the various government committees and legislators who are studying retirement income problems. In fact, the new Ehrlenborn Bill HR 4330 and its counterpart in the Senate, S 1541, have a section titled "Amendment of Integration Requirements for Plan Qualification," and many of our findings have been included. I will mention these points as we review our conclusions.

Our approach was to develop integration criteria from a "benefits received" analysis rather than from the traditional "benefits cost" basis. Under the traditional approach, the employer takes credit in the private plan for what is deemed to be his contribution to the total cost of the Social Security benefits. Revenue Ruling 71-446 follows this approach. It develops the

integration limits by determining the average value of all Social Security benefits (retirement, disability, and death) as a percentage of the primary retirement benefit. Then half of the cost of all benefits is attributed to the individual employee and half to the employer. Under Revenue Ruling 71-446, the employer's portion of the total cost is equivalent to 83-1/3% of the employee's primary Social Security benefit for offset plans, and 37-1/2% of final earnings up to the employee's covered compensation level for excess plans or step-rate benefit plans.

Under our "benefits received" approach we started with two premises. First we decided that each type of benefit - retirement, death, and disability - should be separately and independently integrated. We felt that the complexities of adjusting integration limits because of the cost value of ancillary benefits were unnecessary and in fact, inappropriate under our "benefits received" approach. The Ehrlenborn Bill includes this separation.

The second premise was to develop integration rules from the results of an analysis of retirement income needs on an after-tax basis. Post-retirement income from pensions and Social Security benefits should not be thought of as replacement of an individual's gross income before retirement. The income to be replaced, in whole or in part, should be the employee's spendable income just prior to retirement. To define spendable income, we reduced gross final earnings by those items that no longer apply or that change significantly after retirement. Social Security taxes and federal, state and local income taxes are the most obvious items. Consideration could also be given to such items as contributions to the private pension plan itself or to expenses associated with employment, such as the cost of commuting, tools and uniforms, etc. Because we were seeking a broad, general solution to the integration problem, we felt it would be inappropriate to adjust for items that are not universally applicable. Therefore, a practical definition of post-retirement spendable income would be one that equalled gross income reduced by Social Security taxes and federal income taxes. To the extent that work-related expenses and state and local taxes are applicable, our definition would overstate the amount of spendable income needed for retirement.

We felt that social policies concerning retirement income should not create an increase in an individual's standard of living immediately after retirement. Therefore, spendable income as we defined it should be the upper limit for the combination of private plan benefits and Social Security benefits.

In developing the benefit formula to meet the spendable income replacement objective, the fact that benefits from private pension plans are subject to income tax, while benefits from Social Security are not, must also be recognized.

We developed these income objectives over a broad range of gross earnings using a replacement objective of 100% of spendable income. The assumptions that we used were for an individual retiring in 1985 at age 65. For the Social Security projection we used 6% for the wage base increase and 5% for the CPI increase. Social Security taxes were projected by the Administration, and a backward salary scale of 6% was assumed. Federal income taxes were projected using the 1979 law, a single exemption prior to retirement and a double exemption after retirement. Deductions were assumed to be standard, or 15% of earnings, if greater. Different assumptions for effective rates of federal income tax, year of retirement, or past rates of earnings would change the numerical results of the items but not their essential relationship.

REPLACEMENT OF 100% OF SPENDABLE INCOME

ASSUMPTIONS

- 1985 RETIREE
- SOCIAL SECURITY PROJECTION FOR:
  - o Wage Base -- 6%
  - o CPI -- 5%
- SOCIAL SECURITY TAX AS PROJECTED BY SOCIAL SECURITY ADMINISTRATION
- SALARY INCREASE -- 6%
- STATE AND LOCAL TAX -- NONE
- FEDERAL INCOME TAX:
  - o 1979 LAW, NO ADJUSTMENTS
  - o SINGLE EXEMPTION PRIOR TO RETIREMENT, DOUBLE EXEMPTION AFTER RETIREMENT
  - o DEDUCTION IS GREATER OF STANDARD DEDUCTION OR 15% OF FINAL EARNINGS

On the next viewgraph I have shown the spendable income calculations for individuals with final earnings of $20,000 and $50,000. Looking at the $20,000 individual, his spendable income is $15,061. His pre-retirement Social Security will provide $7,542, so he needs $7,519 from the plan on an after-tax basis, or $8,148 on a pre-tax basis. This is 78-1/2% of his final earnings. For the $50,000 individual, $39,902 is needed in total from Social Security and the plan, which is a 79.8% replacement ratio.

REPLACEMENT OF 100% SPENDABLE INCOME - SINGLE EMPLOYEE

1.	FINAL EARNINGS	$20,000	$50,000
2.	SOCIAL SECURITY TAX	1,340	2,372
3.	FEDERAL INCOME TAX	3,599	14,542
4.	SPENDABLE INCOME 1 - 2 - 3	$15,061	$33,068
5.	SOCIAL SECURITY PIA	$ 7,542	$ 8,236
6.	PLAN BENEFIT AFTER F.I.T. 4 - 5	$ 7,519	$24,850
7.	FEDERAL INCOME TAX	629	6,816
8.	PLAN BENEFIT BEFORE F.I.T. 6 + 7	$ 8,148	$31,666
9.	TOTAL PRE-TAX INCOME 5 + 8	$15,690	$39,902
10.	PRE-TAX INCOME AS A % OF FINAL EARNINGS 10 - 1	78.5%	79.8%

The next viewgraph shows the results of similar calculations for a broad range of salary levels from $7,000 to $100,000.

REPLACEMENT OF 100% OF SPENDABLE INCOME

FINAL EARNINGS	TOTAL REQUIRED PRE-TAX RETIREMENT INCOME	INCOME AS A % OF FINAL EARNINGS
$ 7,000	$ 5,929	84.7%
8,500	7,048	82.9
10,000	8,153	81.5
12,500	9,949	79.6
15,000	11,817	78.8
20,000	15,690	78.5
25,000	19,604	78.4
30,000	23,533	78.4
40,000	31,466	78.7
50,000	39,902	79.8
75,000	63,918	85.2
100,000	88,918	88.9

As you can see, the results are slightly U-shaped due to the combined effect of Social Security and federal income taxes. However, the percentages do not vary greatly and we selected 80% as the representative average. This means that, if an employer wanted to have his pension plan provide for 100% of spendable income, the formula would be 80% of final earnings less 100% of primary Social Security benefits. This result could be contrasted with the 1978 Treasury Department proposals under which a 100% offset would have been permitted only if the formula provided at least 100% of final earnings.

The Ehrlenborn Bill permits an offset of 100% of primary Social Security benefits and also includes a cap provision where the private plan benefit could be reduced if it, plus Social Security benefits, were greater than 80%.

Few private pension plans aim to replace 100% of spendable income. Therefore, suitable integration limits should be developed where a company's objective is to provide less than 100% replacement. Consider the case of an employer who wishes to have his pension plan provide a 75% replacement objective. This objective can be viewed as the benefit necessary, in combination with 100% of the Social Security benefit, to replace 75% of spendable income at all income levels. It provides the same replacement of spendable income on an after-tax basis to all pensioners regardless of income level. If taxes on a 75% objective were proportional to the taxes on a 100% objective, the approximate plan formula would be 75% of the 80% of final earnings or 60% final earnings less 100% Social Security.

The offset of 100% of primary Social Security benefits for final pay offset plans becomes the common thread for setting the integration limits for other types of retirement plans. But before I describe how we determined these other limits, I would like to briefly mention some general conclusions we reached regarding some plan features which have traditionally caused adjustments to integration limits. As mentioned before, we decided that the presence of ancillary benefits should not have an effect on the integration of retirement benefits. This would include post-retirement death benefits where they are subsidized or fully paid for. We also felt that employee contributions should not have an impact on integration since it could be

argued that they are a means of cost sharing and have no direct bearing on formula design. However, regarding early retirement, we recommended that reductions be made to the allowable offset similar to RR 71-446.

On the next viewgraph, I have listed the other types of retirement plans for which we set corresponding integration limits. All of these other plans are essentially offset plans where the amount of the offset is disguised by the plan formula. In each case we attempted to set the integration limit so that the disguised offset was equal to 100% of the primary Social Security benefit.

INTEGRATION EQUIVALENCIES BY PLAN TYPE

PLAN TYPE	
FINAL PAY - OFFSET	100% PRIMARY INSURANCE AMOUNT
FINAL PAY - STEP-RATE EXCESS	40% AIME (OR 1.0% PER YEAR OF SERVICE)
CAREER AVERAGE - STEP-RATE EXCESS	1.4% AIME FOR EACH YEAR OF SERVICE (ZERO INFLATION)
DEFINED CONTRIBUTION	9.9% AIME FOR EACH YEAR OF SERVICE

Let us start with the final pay step-rate excess plan. We first had to fix a salary breakpoint at which the higher benefit rate would become applicable, and we felt the most suitable breakpoint would be the employee's Maximum Average Indexed Monthly Earnings (AIME) projected to age 65, and determined at his date of termination or retirement. This is a logical definition of the integration level because it is the amount on which the employee's Social Security benefits are or would be based. A table of maximum AIME values can be developed each year for all years of birth, with the table being constructed assuming no future increases in the taxable wage base or in average covered wages beyond the year of termination or retirement.

The disguised offset in this case can be developed as follows: Take a step-rate excess formula of 20% of final earnings up to AIME plus 60% of final earnings over AIME. This formula can be recast as 60% of all final earnings less 40% of final earnings up to AIME. This is now in the form of an offset plan where the offset in this case is 40% of AIME. In order to set the integration limits equal to the offset plan's limit, we need to determine what percent of AIME equals the primary Social Security benefit.

We know that 45% of AIME will equal the maximum primary benefit in 1982 and that the ultimate replacement ratio will be 35%. For purposes of our paper we selected the midpoint, 40%. The formula that produces full spendable income for this type of plan is then 40% of final earnings up to AIME plus 80% of final earnings in excess of AIME. If an employer wished to replace 75% of spendable income, the formula would be 20% of final earnings up to AIME plus 60% of final earnings in excess of AIME.

To translate this to a plan which is service-related, the plan replacing full spendable income over a 40-year career would be 1% of final earnings up to AIME plus 2% of final earnings over AIME for each year of service. The 75% objective would be achieved with a formula of 1/2% of final earnings up to AIME plus 1-1/2% of final earnings over AIME.

The next type of plan we will cover is an integrated career average plan. Under career pay plans, benefits are related to an employee's compensation throughout his career, rather than reflecting only the compensation near retirement. In addition, since career pay plans do not work properly in an inflationary environment, many employers periodically update the accrued benefits to adjust for inflation erosion since the plan's inception or the last updating.

In setting the limits for step-rate final earnings plans, we used a replacement ratio of 40% of AIME which equaled 1% per year of service for a full career. To translate these percentages from a final pay basis to a career basis, inflation was ignored on the assumption that its impact would best be countered by periodic updatings. The salary breakpoint at which the higher rate applies is the maximum AIME for someone age 65 that year. The use of AIME as the breakpoint for career pay plans permits a better comparison to final pay plans and also reduces plan design problems created by the recent ad hoc increases in the taxable wage base.

The remaining economic assumption needed to develop the integration percentage for career pay plans in relation to final pay plans is the underlying growth rate of real wages. We used 2% as both the non-inflationary wage growth rate and the rate of increase in each year's maximum AIME, and then solved for the integration limit. An excess benefit rate of 1.4% based on a 40-year career was the result. In other words, 1.4% of the sum of the yearly AIME amounts over 40 years reproduced the full primary Social Security benefit assuming 2% real wage growth. If an inflationary rate was used, the resulting excess benefit would be greater than 1.4%.

We will now cover the last of the plan types we dealt with, defined contribution plans. When we developed integration limits for career pay plans, a percentage was derived that would, when applied to the sum of the yearly breakpoints, equal the maximum primary Social Security benefit at retirement in a non-inflationary economy. To develop comparable integration limits for defined contribution plans, two additional factors had to be considered:

1. The non-inflationary investment rate of return, which we assumed to be 3%.

2. The actuarial present value at retirement of the primary Social Security benefit, based on a single life annuity value, which we assumed to be approximately $12 per $1 annual income. This was based on the 1971 Group Annuity table and a non-inflationary investment rate of 3%.

To achieve comparability with the 100% upper limit replacement objective used with final pay plans, the maximum integration target for defined contribution plans should be the actuarial present value of the primary Social Security benefit. Following the approach used to develop the integration limits for career pay plans, a percentage was derived such that, when applied to each year's AIME over a full career, it produces a lump sum amount equivalent to the actuarial present value of the primary Social Security benefit.

Using 2% as the assumed non-inflationary rate of salary growth and 3% as the non-inflationary rate of investment return, we determined that a maximum integration level of 9.9% could be supported.

To the extent that inflation occurs, and salary and AIME increase at rates greater than 2%, the inflationary component of the investment return should be a compensating factor. As stated before, such automatic compensating factors are not present in career pay plans, and the plan sponsor would, if he wished, have to make periodic updatings to counter the effects of inflation.

In summary, our paper proposes a single theoretical basis for the integration of qualified pension benefits with Social Security retirement benefits and examines the implications of that proposal. The authors of this paper have adopted the hypothesis that qualified retirement benefits represent a nationally sanctioned deferral of earnings, which are intended to provide a continuance of "Standard of Living" at normal retirement, when combined with Social Security retirement benefits. By utilizing replacement of spendable income at retirement as the appropriate measure of standard of living, we have developed integration rules which we feel are simple, internally consistent, and logical for all major "styles" of integration.

MR. HOWARD YOUNG: I would like to ask about the very last figure you had up. You had 9.9% of AIME for the integration rule. Does that essentially say that a 9.9% of AIME contribution would buy a single life annuity comparable as a percentage of pay to the Social Security benefit?

MR. ROHLFS: Yes. Assuming that AIME went up each year at 2% and the net rate of return on a non-inflationary basis was 3%, that contribution would accumulate at age 65 to buy the whole Social Security benefit at that time.

MR. S. KRISHNAMURTHY: Were the replacement ratios examined for married participants, and what is the effect on final average earnings?

MR. ROHLFS: We did an analysis with a married couple with one wage earner, and the results weren't as smooth as what you saw with a single employee but it did appear that 80% was a good average there as well.

MR. BRIGHT: What do you think IRS's reaction is going to be to the ideas there?

MR. ROHLFS: I think we will find opposition from a lot of quarters.

MR. HOLLOWAY: Let me ask you a question which was hinted at by someone else. Are many of your clients making changes in Social Security integration in anticipation of problems with Social Security not delivering as much benefit as it does? Or anticipating Social Security changing the retirement age, or changing early retirement benefits?

MR. ROHLFS: We are moving directly into non-integrated plans. We are transforming Social Security offset plans into career average non-integrated plans.

MR. SCHREITMUELLER: On this general subject of integration, if you look back I think you will find that any employer can have an integrated plan, even those few employers who are not covered under Social Security. I would view this as a flaw in the rules that ought to be remedied. It is particularly note-worthy for hospitals in the current climate where they are being asked to get out of Social Security by some people who then say that they still can integrate their formulas. We think that is sort of a non-sequitur, but it does seem to be legal. In that same vein, if any of you do wish any help with the topic of hospitals, give me a call.

Finally, just to try to add a little usefulness to this subject, I want to give you a number. The number is $12,513.46, which is the new wage index number in case you did not have it. You can use it to compute the wage base of $32,400 and some other useful numbers.

MR. KASS: Two comments. One, in response, Robin, to your inquiry as to whether we see any motion by client sponsors to back off in their integration with Social Security, in effect to expect less, I would like to expand that a bit. No, I have not personally seen action by plan sponsors in that direction on existing plans. That does not mean it has not happened. But, to the extent that any given individual is the plan actuary and he himself has some important feeling that Social Security will deliver less benefits in the future proportional to some projection of pay levels, I think he has an important responsibility in his valuation assumptions to reflect this belief. Because I do not think that life is simplistically a monetonic extension of the past, I realize that we are getting far more into the judgment area in setting assumptions as to the proportion of pay benefit that the existing form of the Social Security offset will deliver. I, however, do think we have an important responsibility in that area.