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PENSION PLAN DYNAMICS

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CHAIRMAN THOMAS D. LEVY: Bob Berin was supposed to be a panelist today. Unfortunately he is unable to be here. Betsy Erbe will be reading his remarks.

I plan on starting with Social Security integration. This doesn't directly apply in Canada, but certainly the whole question of non-discrimination, taking into account the Canada Pension Plan and the Quebec Pension Plan, is relevant to pension plan design in Canada even though it doesn't have the same compulsion of law that it has in the United States. The theories that one would go through in terms of developing what a non-discriminatory program is are the same. We've been living with similar integration regulations for a while now. Art Anderson's paper which came out last fall really raises some serious challenges to the integration regulations.

MRS. ELSBETH T. ERBE: Bob Berin is an advocate of radical surgery of the Integration Rules.* He found Mr. Anderson's paper most interesting and most stimulating. Taking nothing away from a fine effort, he wishes that Art had gone further and explored the "Cap."

The Cap is a maximum benefit applicable at retirement. The pension plan benefit is reduced if the pension plan benefit plus the primary Social Security benefit is too high in relation to final annual salary. Typically, the test compares the pension plan benefit plus primary Social Security benefit against 85% of final average salary. If the combination is higher than 85%, the pension plan benefit is reduced.

In theory, the test is sensible. In retirement, you draw two checks: the pension plan benefit and a primary Social Security benefit. More work should be done to assess the 85% as it relates to retirement needs. We do know that income needs generally decrease after retirement:

- Social Security is free from all income tax (Federal, State and City).
- Social Security benefits are indexed, permitting increases, but not decreases.
- Job-related expenses are eliminated.
- There are double personal income tax exemptions for persons over age 65.
- A lower overall tax bracket is effective in retirement.

Perhaps the percentage for the lowest paid employee should be higher than the percentage for the highest paid employee; some sort of grading from, say, 100%

*Proceedings of the Conference of Actuaries in Public Practice, Volume XXIV, 1974-1975, page 402.

for lower paid employees to 75% or lower for the highest paid employees. (The problem is that the Cap may principally affect the low-paid, long-service employees, in the absence of some grading.)

In 1974-75, in collective bargaining, the Cap was inserted in several major settlements in the aluminum, steel and copper industries. Since then a small number of salaried plans, as well as hourly plans, have adopted this form of maximum benefit or Cap.

Philosophically, it is interesting to find the Cap in both salaried and hourly pension plans. Over the years, hourly wage distributions have become less concentrated and show a greater range from low to high salary. With the Cap in both salaried and hourly pension plans, the salary and hourly plans are drawn closer together. This could be useful since it may become less feasible, in future years, to have one pension formula for salaried employees and a different pension formula for hourly employees.

However, there is a basic technical problem with the Cap. The concept does not satisfactorily meet the IRS tests for coordinating pension plan benefits with Social Security. Revenue Ruling 71-446 requires plans to coordinate with a percentage of the primary Social Security benefit up to a maximum of 83-1/3% of the primary Social Security benefit. The Cap blithely coordinates with 100% of the primary Social Security benefit.

However the Internal Revenue Service rules, some form of Cap appears viable and worth considering. Assuming that Social Security benefits will increase, the Cap could sensibly control pension costs in the future.

It does give the employer a bargaining chip that, until now, he did not have. However, to be effective, it must be acceptable to both sides. In collective bargaining, the employer can take the position that the Cap is both appropriate and necessary. Social Security benefits and contributions can only increase. The company does not have unlimited dollars to spend on employee benefit programs. This position is reinforced if the Cap should apply to the salaried pension plan as well. It should be apparent that it is not productive, socially desirable or necessary for a company to offer a combined retirement income (as defined in the Cap) which exceeds the employee's pre-retirement salary. Both company and union have a common interest in avoiding excessive pension spending, to the detriment of other areas of benefits or compensation.

A well-designed Cap presented as a careful part of collective bargaining strategy, should have little immediate effect on cost or benefits, but should become more widespread in the future.

The Cap, if accepted as a maximum benefit by both employers and unions, could avoid the Internal Revenue Service coordination problems in designing pension plans that reflect Social Security benefits. To many, Revenue Ruling 71-446 is an awesome document, very complex and therefore to be avoided by designing simplistic plans or by removing any connection with Social Security. If the Cap is generally accepted, the complex rules will no longer be so important. The employer who wants to use a straight 1-1/2% or 2% pension formula can avoid generating excessive benefits at retirement by installing the Cap.

It probably is of limited value in a well-designed, final-pay Social Security offset pension plan, since the Cap is literally a final-pay Social Security offset plan.

I do hope Mr. Anderson's paper is widely read, particularly since it could very well lead to simplification and a common sense approach to the difficult problem of coping with Revenue Ruling 71-446.

CHAIRMAN LEVY: Art's paper minimizes several areas by stating that they are not material, thus simplifying his analysis somewhat. The one that specifically concerns me is that he says that a post-retirement automatic nonreduced joint and survivor benefit should not call for adjustment of the integration limit. His conclusion is right, but he had a much easier way to get to it.

Given that the maximum \$75,000 adjusted benefit itself can ignore an automatic qualified joint and survivor provision, it would seem to me to be an expression of Congressional intent that this kind of a provision, an automatic spouses' pension, ought to be allowed without penalizing the plan. The IRS has already ruled that for the pre-retirement ERISA joint and survivor benefit you don't have to adjust the integration limits. It just seems the logical extension to me if an employer wants to provide automatic joint and survivor coverage to the spouse after retirement at employer expense that the precedent is there for the IRS to say you don't have to adjust your integration limit to reflect that.

MR. RODGER R. PATRICK: The major subject I want to talk about is the difficulties that may be encountered in projecting for a participant his expected future pension benefit under a retirement plan and the effects that a Social Security offset can have on these projections.

Before getting into that, I would like to make a few comments on Arthur Anderson's Social Security Integration paper. The mathematical analysis that he has presented is quite illuminating and I think quite useful. I would like to comment on the following areas:

1. He argues that the Social Security tax is just that; i.e., a tax. This argument fails to recognize that the employee also pays federal and state income taxes on the amount of Social Security tax he pays and fails to recognize that presumably because of these contributions' being taxable income to the employee, the benefits the employee or his beneficiary receives is not subject to taxation. This combination of circumstances may be sufficient justification for dealing with benefits only in determining the appropriate integration with Social Security. But it would seem that there should be more consideration of the income tax implication of the employee contributions to Social Security and the tax-free benefits that are paid.
2. Mr. Anderson does not consider at all the fact that Social Security taxes paid by the employer are tax deductible to the employer and generate payments to employees as a class which are tax-free. This places employer contributions to Social Security in the unique category of being an item of compensation which is tax deductible to the employer and produces tax-exempt income to the employee. Medical care benefits and certain life insurance benefits are about the only other types of compensation that have this advantage at this time.

3. Most low-paid employees will pay very little income tax on their Social Security contributions and will derive very little benefit from the benefits' being tax free. On the other hand, higher paid employees will pay a greater tax on their Social Security contribution but will derive significantly greater tax-free benefits than the lower paid employees, particularly when it is recognized that the employer benefits from Social Security are also tax free. Any analysis of modifying the concepts of integration with Social Security probably should recognize the tax treatment of contributions and benefits.
4. I question the need for three different sets of rules: one for offset plans, one for final-pay excess plans, and one for career pay excess plans. Although we do not ordinarily look at it this way, all three approaches do the same thing, that is, make an offset against some total formula. An offset plan does this directly. A final-pay excess plan has an indirect offset which is the excess formula multiplied by the compensation up to the breakpoint. For example, if the excess formula is 30% of final average compensation, the offset is 30% of final average compensation up to whatever the breakpoint is. A career average plan would work similarly to a final average plan except that the offset would be determined on a year-by-year basis instead of at the time of retirement. It would seem possible to have one set of rules that related to all of these different offset possibilities so that there could be consistent interpretations from plan to plan when it comes to the question of determining whether a plan properly integrates. My own current point of view is that the type of offset limitation that would be most appropriate is one that is some percentage of final average pay up to some amount, and based on today's conditions this might appropriately be 40% of final average compensation up to \$1,027 a month. The \$1,027 is the average wage base for the five years ending in 1976, and the 40% is the approximate percentage of primary Social Security to that average wage base as of January 1, 1977. Mr. Anderson's analysis suggests that this amount appropriately would be 30.6% of the wage base in effect at the time of retirement. Based on the 1976 wage base of \$15,300 this would produce a dollar amount of \$390 and if that amount were determined as a percentage of the wage base for the preceding five years, it would be approximately 38% (very close to our old friend 37.5%).

Why do I suggest averaging the wage bases instead of using the ending wage base? This is simply because the Social Security wage base has been and probably will continue to increase so very rapidly that use of the last wage base might cause unusual reduction in benefits payable under a pension plan from one year to the next. On the other hand, if the increases in the wage base are increasing at the same rate, averaging will have very little effect.

For career average plans, the sponsor could still have an offset based on the last five years' compensation and the last five-year wage bases.

5. I commented earlier about employee contributions. Mr. Anderson says that the presence or absence of employee contributions to a plan, whether voluntary or mandatory, can have no impact on discrimination and, consequently, on integration. I think he presumes that the employee contributions will be uniformly related to compensation in making this statement. Certainly, if employee contributions are not uniformly related to compensation they could be discriminatory and, even if they are

uniformly related, it could be possible that they could be so high that lower paid employees would be forced to stay out of the plan. Similarly, it would appear logical for there to be a higher permissible integrated benefit if employee contributions were required only with respect to the integrated benefits.

With that preamble, now I would like to get into the things that I am supposed to talk about. You may wonder why I have indicated that I believe all integrated plans should be set up in the form of an offset plan, but that the offset plan should take the form of a percentage of pay up to some function of the Social Security wage base during the period just before retirement as opposed to proposing that only an offset for Social Security be used.

My reason for believing that an offset approach should be used is that this is the only safe way to communicate with employees pertaining to their accrued or projected benefit under an integrated plan. If a plan is an excess plan, whether it is a final-pay plan or a career average plan, any projection of benefits into the future is extremely dangerous. If the compensation breakpoint is not a fixed breakpoint, or if the company is not willing to commit itself that there will never be any change made in such breakpoint if it is fixed, a projected benefit from such a plan may be less than the amount projected because the Social Security wage base goes up or because the company increases the breakpoint under the plan. With the significant increases in Social Security that are taking place and that are projected to take place in the future, few, if any, companies would be willing to freeze the breakpoint under their plan at a specific amount. The results are not totally satisfactory if an offset approach is used, but if an offset approach is used, the projection of a benefit can be the total benefit including the offset with an indication to the employee that some portion of this total projected benefit will be from an assumed amount of Social Security and with a further indication of the formula that will be used in determining that assumed amount of Social Security. If need be, an estimate could be made of the dollar amount of the offset, but to do so could be misleading.

There are indications from the regulatory bodies that an accrued benefit under ERISA can be defined in terms of the total benefit before any offset for Social Security. For example, if the formula benefit were 2% of final average compensation multiplied by years of service minus 1% of final average compensation up to the last five-year average Social Security wage base multiplied by years of service up to 30, the formula that could be used in communicating to the participant about his accrued benefit would be the 2% of compensation multiplied by years of service with a further indication that there would be an offset against this amount equal to the offset as indicated in the formula. If desired, this offset could be determined at any particular time based upon the preceding five-year average wage base and the final average compensation and the years of service to the date of determination. Contrast this with the problems of determining the appropriate offset at any particular time if the offset is directly related to Social Security and you get some idea as to why I propose that the offset that is used is one that is intended to simulate Social Security without being Social Security.

There are other reasons why the offset is better related to factors other than the Social Security benefit itself. Some of these are as follows:

1. Social Security is dependent upon factors that are not totally related to an employee's employment under a pension plan. He may work somewhere

else while he is employed under the pension plan and receive credits for Social Security because of that other employment. It would not appear reasonable to take this portion of the employee's Social Security into account under the sponsor's pension plan, and yet as Social Security is defined in many plans, this would occur.

2. The employee may have had significant periods of time when he was not covered by Social Security at all, either because of not working or working at a job that was not covered by Social Security. In this case, strict interpretation of an offset could result in providing unusually large benefits to the employee based upon his period of employment with the employer. This is clearly not desirable.
3. Determination of exact Social Security benefits is quite difficult. For this reason it has become a common practice to estimate Social Security based upon tables that assume certain past pay progression and generally assume that the employee has always been covered by the Social Security Act. These probably work reasonably well for retirements occurring after age 62 and if the plan makes provision for adjustment if the estimated amount of Social Security is greater than the actual amount so that the employee can have his benefit properly determined if it is to his benefit to do so. However, for employees who retire before age 62, the situation is quite different. In these instances, it is necessary to estimate a Social Security benefit that would be payable at some later time making assumptions about future compensation of the employee. These assumptions about future compensation probably will make little sense to the employee since if he is, in fact, retiring he will not have any future compensation. If he is not retiring, chances are he is changing to some better job so that his compensation will be greater than the compensation he had at the time he left. In any event, it will be difficult for the employee to understand why his benefit is being reduced because of a Social Security benefit that he has not yet received. I think it will be easier for the employee to understand if he is told that there is an offset that represents a portion of the Social Security benefit he will receive, and then the formula for determining the offset is described to him. In some instances, the company may not wish to actually apply this offset until the employee is eligible to receive primary Social Security (age 62 at this time) and to then offset all or part of the offset depending upon how the plan's early retirement reductions function.
4. My next reason is a pragmatic one. Put simply, an offset approach that is a percentage of the Social Security wage base is more equitable to the participants. This type of an offset will be the same percentage of compensation at all pay levels until the Social Security wage base is reached. An offset of a portion of Social Security, whether it be 50% or 100%, is a higher percentage of pay at the lower pay levels than it is at the Social Security wage base. It is quite common for offset formulas today to be on the order of 45% of final average pay minus 50% of primary Social Security. Referring to Mr. Anderson's very useful Table 1, an employee whose 1976 compensation is \$6,000 will receive approximately 50% of that compensation in Social Security benefits. As a percentage of five-year average pay, it is probably 53 or 54%. This means that this employee's benefit from a retirement plan could be 45% of pay minus about 27%, or 18% of pay. The total benefits as a percentage of pay would be 72% of final average compensation. For an employee

whose compensation is at the wage base, Social Security will be approximately 36% of final average pay. Such an employee will receive a plan benefit of 27% of pay and Social Security of 36% of pay, or a total of 63% of pay. The total benefits have dropped from an amount of 72% of pay for an employee whose pay is \$6,000 to about 63% of pay for an employee whose final average compensation is \$15,300. I do not believe this kind of a change represents the differing needs that these employees will have for retirement income. I do not believe that the Social Security integration rules should let those percentages be as close together as this. This is socially undesirable. However, if the Social Security integration rule permits this kind of a result, I am sure that it will happen in many instances. Therefore, for purely equity and social reasons, I believe it would be better for the offset to be expressed as a uniform percentage of pay up to some breakpoint.

To continue the example, if the offset were 18% of compensation up to the wage base instead of 50% of primary Social Security, the plan benefit for the \$6,000 employee would be 27% and his total benefit would be 81%. There would be no change for the employee whose compensation was \$15,300, so it would be 63%.

Now I would like to discuss some other matters that relate to projecting pension benefits. It has become a very common practice to project for employees the benefits they can expect to receive upon normal retirement and, in many instances, upon early retirement. Under ERISA, it is necessary to tell an employee who asks what his accrued benefit is on an annual basis. Most projections of this type that are made are done on the assumption that there will be no increases in future compensation of the employees and that there will be no future increases in Social Security because of the changes in the Social Security wage base or cost-of-living increases. Unless the plan is a final average pay type of plan, which offsets 100% of primary Social Security (which has not been possible up until now and may or may not be possible in the future), the usual procedures mislead the employee as to what his benefits will be in relation to his final average compensation. For example, an employee who is 45 years old at this time and whose current compensation is \$16,500, will be expected to receive a Social Security benefit of \$535.60 a month if he retires in 1997 based on the assumption of no changes in the wage base and no cost-of-living change. This is approximately 39% of the current compensation which would also be 39% of the final average compensation if no pay increases were assumed. According to Anderson's Table 1, the benefit that will be paid will be about 31% of the final average compensation and, hence, there is a significant overstatement of projected Social Security as a percentage of projected final average compensation.

Whether employees think in terms of replacement ratios is unclear, but it is likely that many do. This type of problem is even present in relation to a final average pension plan. Taking a very simple formula such as one that would produce 40% of final average pay as the pension benefit, if this is applied to the compensation of an employee who is a number of years from retirement, and if the determination is made without assuming any changes in compensation depending upon the period of time over which final average pay is determined, the indication will be that his pension benefit will be 40% of his last compensation. It is quite possible that the actual benefit as a percentage of the last compensation the employee receives will be as low as 32% of this last compensation. If you combine the Social Security overstatement of about

8% of final pay and a possible overstatement of the pension benefit another 8% of pay, there is an overstatement in total in expected replacement ratios to the employee of about 16% of his last compensation.

If the pension plan is a career average type of plan, the overstatement becomes even more significant. This is because the difference between the last pay and the career average pay will be even greater than it is under a final average pay plan. For example, if the career average formula were 2% of pay times years of service and an employee had 30 years of service remaining until normal retirement age, the projection would indicate that his pension benefit would be 60% of his final pay. Since the final pay could easily be four times the current pay with the average pay possibly being 60% of the final pay, the actual benefit would only be approximately 36% of final pay.

Problems of this type will obviously be of less magnitude with respect to employees who are close to retirement than they are with respect to employees who are a long way from retirement. In addition, projections each year for an employee will establish the proper trend so it can be argued that there is no major misleading of the employee with respect to his eventual pension.

What, if anything, can be done about these problems? An obvious solution would be to project both compensation and Social Security benefits so that the employee can have some concept of what his total retirement income is likely to be as a percentage of his final compensation. Most companies would be unwilling to do this on an employee-by-employee basis since projection of individual compensations would be subject to significant variation in terms of their accuracy and, in addition, the employee might consider such a projection as some type of indication of what his normal compensation progression should be, and if his compensation does not progress at that rate or more, he could become quite dissatisfied with his compensation. Another possible solution would be to avoid projecting individual benefits. This could be done by communication of the benefit formula and illustration of the various assumptions about future pay increases and Social Security increases. Still another possibility would be to present information to the employee in a manner that would permit him to project his own benefit on the basis of certain increases in compensation and Social Security assumptions. Some very creative things have been done in this area with individual employee benefit statements pertaining to the projection of account values under a defined contribution plan. This can be done with slide rules or wheels that permit the employee to dial the assumptions he wishes to use and to see what his resulting benefit would be as a percentage of his final pay.

Still another solution would be to utilize benefit formulas which offset approximately 100% of primary Social Security. Formulas of this type are being used with increasing frequency under retirement plans today, even under existing integration rules with Social Security. This is achieved by providing a breakpoint in the formula itself. For example, a formula might be 80% of final average compensation up to \$750 a month plus 50% of final average compensation in excess of \$750 a month minus 100% of primary Social Security. With this type of a formula, projection of the total benefit at normal retirement age without an indication of the portion that will come from primary Social Security and the portion that will come from the plan is relatively simple. Even this type of formula will present the distortion that relates to final average compensation being less than final compensation and the employee can misunderstand what percentage of his pay will in fact be his

benefit. Furthermore, since this type of a formula produces a lower benefit percentage accumulation with respect to compensation beyond a certain level than it does on compensation up to that level, the benefit to be provided will be a decreasing percentage of compensation as compensation increases and so there could be significant misleading of the employee as to what his benefit will be in total as a percentage of his final average compensation.

Formulas of this type are likely to be modified periodically in the future as inflation causes the Social Security wage base to increase and cause our interpretation of what is a low level of compensation to be modified upward and, if so, this is likely to alleviate this problem. A formula of this type would work very well in association with a method of permitting the employee to select his own future assumptions about pay increases because he would see the decreasing nature of the benefit to be provided as a percentage of pay.

Another alternative, and perhaps the best at this time, would be to put a warning on any benefit projection indicating that although the dollar amounts are realistic and may even increase, it is likely that the total benefit the employee will receive from the retirement plan and primary Social Security as a percentage of his final pay will be less than the relationship indicated by the projection in relation to the current compensation.

There is an emerging characteristic in pension plans that I believe will complicate this problem even further. More and more pension plans are incorporating a provision that provides that the total benefits from the pension plan and primary Social Security will not exceed some percentage of the final average pay. For example, it might be provided that the benefit paid to employees with 30 or more years of service will not exceed 80% of his final average compensation. A projection based upon today's conditions may indicate that this limitation will not be applicable and, therefore, that no adjustment in the plan benefit will be required. However, should Social Security continue to increase as rapidly as it has during recent years, such a projection may prove to be incorrect and the benefits the employee will receive from the plan may be less than those that were projected.

There are significant problems to be resolved with respect to projecting expected retirement benefits, and the best solution would be to not project individual employee benefits.

There are also significant problems in determining accrued benefits, particularly with respect to plans that offset a significant portion of primary Social Security. Let us assume for a moment that the formula under a pension plan is 40% of final average compensation minus 5/6 of primary Social Security and use an example of an employee who was age 50 in 1976 and who will have a total of 30 years of service at retirement. Let's assume that his average compensation in 1976 for purposes of determining benefits was \$1,310 a month. On this basis, his projected benefit at age 65 would be \$135 and his accrued benefit in 1976 would be half of that, or \$67.50 a month.

Now let's assume this employee's accrued benefit is being determined in 1977 at which time his average compensation has increased to \$1,375 a month. On this basis, his projected benefit at age 65 would be \$127 a month or \$8 a month less than the projected benefit in 1976, and this is an indication of the type of problems that I mentioned earlier pertaining to projected benefits. But what may be more significant is his accrued benefit would be \$67.73

or almost exactly the same as the accrued benefit one year earlier, and yet the employee's compensation has increased by 5% and he has one more year of service.

It is yet to be determined whether an arrangement of this kind will satisfactorily meet the requirements of ERISA. In any event, it will be most difficult for an employee to understand why his accrued benefit has not increased under these conditions. The obvious explanation is that 5/6 of Social Security, as projected, has increased from \$389 a month to \$423 a month so that his total expected benefit at age 65 from the plan and Social Security has increased. This would not likely change the feeling on the part of the employee that he did not earn any pension benefits for that year of service.

As actuaries, we may derive some comfort from situations of this type since the significant increases in Social Security may greatly alleviate the impact of compensation increases so that the net actuarial losses from the pay increases and Social Security may be minimized so that the employer is not faced with a substantial increase in his required contributions to the plan.

Should it occur that a pension plan could offset 100% of Social Security using a formula such as that just illustrated, the situation would be even worse. The accrued benefit in the example in 1976 would have been \$28.50 a year ago and would have been \$22.40 in 1977. The employee's accrued benefit would have, in fact, been reduced.

Contrast this with using an offset that is 30% of the wage base. If this were done, the accrued benefit in 1976 would be \$102.62 and the accrued benefit in 1977 would be \$110, or an increase of about 7%.

In summary, we need to pay more attention than we have been to the following items:

1. Designing pension plans in a manner that provides for an offset for Social Security, but does it in such a manner that the benefits can be communicated fairly simply and in such a manner that the accrued benefits are not subject to significant erosion because of increases in Social Security.
2. It may be appropriate for the integration rules to impose some of this design structure. Otherwise, companies may opt for plans that produce unfortunate results.
3. Projection of retirement benefits beyond a current date to a normal retirement date can be misleading and, if possible, such projection should be avoided or at least there should be a careful explanation of the actual benefits that are likely to be payable in relation to final average or final compensation.

I would like to comment on other areas that I think are significant. We get into projecting plan benefits for reasons other than individual employee calculations. We have such things as plan mergers. And the question there is which plan is the better plan. What do we have to do to plan A to make it comparable to plan B? This is not an easy matter to decide if the plans are radically different.

We commonly do not use assumptions in making projections that I think we would consider to be realistic. Normally we're unwilling to assume that pay will be going up 8 and 9% per year and Social Security will be going up in the way that it has been in the past. Yet a projection of this type pertaining to a plan merger may require utilizing assumptions of that type in order to be realistic about which plan really is better.

A second area would be upon termination of a plan or transfer of assets from one plan to another. The standard accrued benefit under these circumstances might be fairly easy to determine, but what about subsidized early retirement benefits or subsidized options? What is their priority? Maybe somebody from IRS or perhaps more appropriately the Pension Benefit Guaranty Corporation can answer those questions for us.

Perhaps the answer is different for early retirement benefits than it is for subsidized optional benefits. Another area is death benefits. What priority do they take in the event of a plan termination?

I haven't talked about service type pension plans. There are two major problems with them. One is inflation will either erode them to a point that benefits are likely to be completely inadequate. Secondly, as we are all aware, they have such a tremendous impact on vested liabilities that most employers today are raising significant questions with their actuaries about have you really been giving us the right information over the years? If so, why is it that our unfunded vested liability is of such great magnitude? And although you can explain to them that probably during the last twenty years they've increased the benefits to a level that's ten times what it was twenty years ago, somehow I think they attach a certain responsibility to the actuarial advice they have received in relation to what is perceived at this time to be a very large unfunded vested liability.

MR. ROBERT J. SCHNITZER: This morning I am going to discuss a relatively new family of actuarial cost methods, known by such names as Forecast Valuation Methods, Projection Valuation Methods, or - somewhat misleading - Open Group Cost Methods. The purpose of my discussion is, first, to make you aware - if you're not already - that such methods exist and, further, to encourage you to learn more about them so that you can start to apply them in your regular pension valuations.

My approach in this presentation will be as follows: first, I will describe very generally the cost methods under discussion and tell you how they work; second, I will discuss the advantages of these techniques; and lastly, I will mention some of the problems and concerns involved with the application of such funding methods. Because of our time limitations on these initial presentations, I won't be able to provide many details on the mechanics of the projection valuation methods, as I will refer to them, but I hope we will be able to get some of those details in the question-and-answer period which follows.

Description of Methods

What is a projection valuation method (PVM)? It is a pension actuarial cost method which permits the determination of annual cost levels based on a specific funding goal. The goal is expressed in terms of two quantities: a

present value amount toward which one is funding, and a time period in which to accomplish the present value objective. Once the goal has been established by the actuary and his or her client, a level cost rate can be determined as follows:

1. Project the plan's population for the requisite number of years, including benefit payments to retirees and beneficiaries, salary increases, terminations and other decrements, and new entrants. (I'll return to this feature in a moment.)
2. Discount with interest to the valuation date all benefit payments to be made in the objective period, and similarly discount to the valuation date the amount of the present value objective expected to exist as of the end of the period. The sum of these present values represents the single sum needed initially to accomplish the funding goal without further contributions.
3. Subtract from this amount the current assets on hand. The difference may be called the initial funding deficiency.
4. Divide this deficiency by the present value of payroll over the objective period to obtain the level cost rate which must be funded each year to achieve the original goal; alternatively, you can divide the deficiency by the present value of person-years if you want a level cost rate per capita instead of a level percent of covered pay.

Once you have determined the level cost rate, you can experiment with non-level funding patterns to see how they affect the accomplishment of your goal, or you can test how much surplus is produced by a higher constant funding rate than the one you first determined.

How you handle the second and subsequent cost calculations and how you handle actuarial gains and losses are two very important subjects that will have to be deferred to the latter part of this session. Let me simply state that I have prepared a paper on these subjects which should be published by the Society in galley-proof form this coming August.

Advantages of Projection Valuation Methods

The characteristic which differentiates PVM's from all conventional cost methods is their ability to take into account the anticipated effect of future new entrants into the plan. It is for this reason that PVM's are often called open-group methods. However, the actuary may want to assume that, in the case of a declining industry or company, there will be no future entrants; he can still use PVM's, but he may be working with a closed group. PVM's are particularly helpful in this situation, even though they would not technically be open-group methods.

Nevertheless, the more frequent application of PVM's will be in situations where new entrants may reasonably be expected to occur in all future years. To use a PVM, the actuary must make assumptions not only as to the expected number of future entrants but also as to their age, sex and salary characteristics.

A number of actuaries have expressed doubts that we can or should be making such assumptions, but I personally would rather make an assumption for which

I can gather meaningful historical data than ignore the whole area completely. Under ERISA we are required to use our best estimates for actuarial assumptions, and if we believe that a particular plan will either stay the same size or grow in numbers, I don't see how we can justify the use of a conventional closed-group cost method. A traditional cost method implies that there will be no future entrants in that plan. I believe that actuaries can provide better forecasting than what is available in our current bag of cost methods.

There are many other important advantages to the use of PVM's beyond the ability to incorporate future new entrants: First, the valuation process provides extremely useful information on a year-by-year basis, such as cash flow requirements, expected payroll, and expected population age and service characteristics. For a given funding level, the actuary can project the accumulation of assets and compare them to expected vested or accrued present values on a yearly basis. Second, the system is completely flexible as to the use of dynamic assumptions. You can change any assumption and any benefit formulas at any time, as often as you wish. You have the ability to test the sensitivity of the cost level to changes in any one or a combination of assumptions. And finally, one of the most important advantages of PVM's is that they are relatively easy to communicate and explain to laymen. You strip away all the commutation functions and actuarial jargon, and you can show a plan sponsor where his plan is headed and how long he can expect the trip to take. For those of you who have tried to explain the entry age normal method to an uninitiated client, a clean, straightforward actuarial cost method would probably be a blessing.

Disadvantages of PVM's

These methods are not without their problems, the first of which is that they are still time-consuming and costly to utilize. This leaves out a large number of plans for which PVM's are simply not a practical alternative, at least not yet. When master computer programs have been widely developed, I suspect this problem will greatly diminish.

The second difficulty is that the actuary must exercise great care in picking assumptions, particularly with respect to expected growth in the participant group. Several actuaries have expressed fears that the new entrant assumption would be abused to keep current costs artificially low. While this is certainly possible, the same fear could be expressed with respect to interest or salary assumptions.

The last and most important problem currently facing proponents of PVM's is that the methods have not yet been expressly approved by the IRS for use under ERISA in determining minimum and maximum pension contributions. Plan sponsors who have utilized a PVM to determine an appropriate cost level have had to perform a second valuation using a traditional cost method and whatever assumptions were necessary to produce the desired result. This double effort and cost have severely restrained the growth of PVM and will continue to do so until IRS approval has been obtained.

In summary, I believe that valuation methods that permit the use of dynamic group considerations are the techniques on which we actuaries should concentrate our attentions and efforts in the next few years. They bring us a step closer to the real world, they give us vastly more information than conventional methods, and they enhance the actuary's credibility with his various publics. I urge you all to learn what you can about such methods and to assist in the development of this new actuarial tool. We and the public at large can only gain from such an endeavor.

I will now go through the actual steps that are involved in producing a projection valuation operation.

The first part of this operation is to set your objectives. Let's assume we're going to use a 20-year period and the type of present value that we are funding toward is the present value of accrued benefits on a plan termination basis. That is, we are aiming to have that present value fully funded at the end of 20 years.

Once you've set your objective you can go about the manipulation that you need. The first thing we would do is to create and store our actuarial assumptions on the computer files. You would have tables for salary rates, mortality, turnover, retirement rates, disability, possibly disabled life mortality and then a couple of other tables that aren't conventionally used. One would be the growth rate for the group. This would be on a valuation year basis. You might assume 5% a year for the first five years and 3% thereafter or whatever you want and store this information.

You could also store a new entrant pattern. This would be a table of factors that represent the portion of the new entrant group that is going into each age and sex cell in each year. I'll get into the investment return factors a little later.

You will also need the interest and mortality factors for the present value calculations. So far we have done this using commutation functions that include mortality and interest only. These rates may be different from what you use in the rest of the valuation process because they are intended to be geared to what you expect to prevail if indeed the plan were to terminate at each point along the way in this objective period.

Now any of these assumptions could be selected ultimately. They could be based on either the valuation year, the duration from the initial valuation date, or they could be based on the service of the active participants.

Now we have all the assumptions set up and again you can set up different files that are applicable at different junctures along the way.

Then you have to create the data files for the participant group. We split them into five categories: retirees, vested terminees, disabled lives, actives, and beneficiaries with certain annuities.

For the retirees, we store their annual benefits and group them by age, sex and type of annuity. On the type of annuity if, for example, you had somebody who was in the third year of a ten-year certain, the type would be a seven-year certain and life annuity. You can follow that person from year to year and eventually you'll wind up with a life annuity (for some fraction of that person).

For the vested terminees, we keep the annual benefits, again grouped by age and sex; for the disabled lives, it depends on whether they are receiving immediate benefits or deferred - to be either like vested terminees or the retirees. For the beneficiaries with term certain, we just keep the amount of the benefit and the remainder of the term. For the actives, we would keep a group by age, sex and service, the salary information and, if this is an integrated plan, you would probably want to group it by excess salary and base salary under the breakpoint and, if applicable, the accrued benefits to date under the plan.

You've now got a beginning set of data files and you're ready for the processing that will go on for twenty iterations.

The valuation process applies all your assumptions to all these groups and sends fractions of people and fractions of benefits and salaries in different directions. Retirees can either die or survive. If they die and they are under a term certain and life, then you will create an entry in the "beneficiary with term certain" file. If they are under a joint and survivor, you will create an entry for some fraction of their benefit for possibly the opposite sex and with some predetermined age differential. If they are just under a life annuity, you send them off to that happy hunting ground. If they survive, they go into the retiree file the next year with hopefully the same sex and the next age.

Vested terminees can either die or retire or survive. Again, if they die and have a surviving spouse option in effect, then you create an entry in the retiree file.

If they retire, then you create an entry in the retiree file. Here you can use either the normal form of payment for everybody or you can assign probabilities for taking certain forms of annuity if you want to get that sophisticated. Of course, if they survive and don't do any of the others, then they are vested terminees the next year, of the same sex and the next age.

The beneficiaries with term certain stay in that file until their term is up.

The actives are the most complicated group, as you might expect. They can die, become disabled, terminate, either vested or non-vested, they can retire or they can survive as an active. So you create fractions of people in all these different categories.

When you are finished, you add up the number of actives who survived. You know how many you started with and you add up all the decrements; the remaining people are those who are left at the end of the year.

Then you go to your growth rate and apply that to the number of people who started. Say you started with 1,000 people and you assume the group was going to grow by 5%. At the end of the year you know you want 1,050 people, but you only have 900 left from your original group, so you have to add 150 new entrants.

After you've calculated the number of new entrants, you can apply this new entrant pattern to create records in your active file by age and sex but you also have to do something about the salaries for these new entrants.

One technique that we have used is to use the average salary for the people who are in the same age and sex category. Now that becomes a problem if there aren't any people in those categories and it might require other approaches to that. After you've created new entrants in the active file, you're ready to go on, essentially, except that before you go on you should compute everybody's accrued benefits, that is, all the actives. At that point, you can calculate the present value of accrued benefits on a plan termination basis. You can do this every year or you can wait until the end and do it only for one year at a time. It makes sense to get the intervening years information all at once so that you don't have to go back and redo it.

You repeat this process for twenty years and then sum all the important values for all the years and store them in another condensed file. Store the number in each category, the salaries for active lives, the benefits payable to retirees and beneficiaries during the year and the present value of accrued benefits as of the end of each year.

Now you introduce investment return on the fund. This probably will be a different set of assumptions than you would use for your plan termination calculation. You can store a set of factors that are constant, that are declining, that go up and down, that are plus and minus: anything you want and since you've gotten all the other factors stored away somewhere, you can test any number of varieties of investment return that you possibly desire.

With this table of investment return factors, you discount to the initial valuation date the benefits payable during the period, the covered payroll during the period, and the present value of accrued benefits as of the end of the year, that is, as of the end of each year and, specifically, as of the end of the objective period.

With this information, you then determine the level cost needed to reach your objective as of the end of any year, not just the end of your objective period. If you want to know what would it take if we wanted to change from twenty years to fifteen years, you have all that information.

In addition, the PVM shows all the outflow, the benefit payments. By the application of the investment return rate on each year's beginning assets, expected contributions and expected benefit payments, you have expected investment return. You have an absolutely detailed picture of what would be expected if all assumptions were realized from year to year. You can compare these assets each year to the present value of accrued benefits or the present value of vested benefits. You can be doing that calculation as you go along as well.

As an alternative to this process, the paper that Don Fleischer published in 1975 implied the storing of all these bits and pieces of information in the memory of the machine rather than setting up files year after year. All of the information is kept. An individual is extended throughout his entire lifetime and all the bits and pieces are added up in a matrix for each valuation year. The results should be identical, just a difference in technique.

This has been an abbreviated although lengthy explanation of how you go about doing a PVM. It still doesn't comment exactly on why or when to use it. Right now it is only useful in large cases, both because they are the only ones who can bear the expense of setting up the model and secondly because it is only in a fairly large case can you get meaningful enough data to set up the vast range of assumptions.

The size of the group to which it is pertinent will decline as we improve our computer methods. But there always will be the limiting factor of how much valuable information can you get from a group of 25 people regarding the termination patterns, mortality rates and so on.

Because these methods are considered open group methods, another area that is extremely important that tends to get overlooked is the declining group. Conventional methods have a normal cost that is supposed to be a constant percentage of pay, and an amount to fund an unfunded supplemental present value in constant dollar amounts will, for a declining group, produce cost levels that are increasing percentages of pay.

This projection valuation approach should help smooth the funding pattern for such a group so that when the company is in its weakest position, it doesn't have to shell out the largest dollar amounts and largest percentages of pay for their pension costs. The PWM is very useful for non-open groups, that is, for groups that are in fact declining or disappearing.

MRS. ERBE: Bob Berin has some comments on the Projected Cost Method. ERISA states that the actuary is to be engaged on behalf of all plan participants. It would therefore be inappropriate to base a funding objective upon the insured, vested unfunded liability as of 30 years from the present; an objective which covers somewhat restricted benefits, for vested participants only. (This is an objective that has been stated for these particular funding methods.)

In the event that the plan does terminate, participants are guaranteed benefits by the PBGC. To fund at this particular level, over a period of time, does not increase the employees' security, but rather serves to minimize employer liability and employer contributions. This is not an encouraging social goal.

Much of the literature on the so-called Projection Cost Method emphasizes the new entrant assumption. This is focusing undue attention on one aspect which any cost method can accommodate. The traditional methods could utilize so-called dynamic assumptions, in this specialized sense, meaning an assumption as to future new entrants.

The use of a new entrant assumption is not generally employed in the Immediate Gain funding methods because the new entrant loss is rarely a significant part of the overall actuarial gain or loss which, in any event, is amortized for the Funding Standard Account.

In the Spread Gain funding methods, the new entrant experience sometimes (but not always) produces a gain. There is little need for a separate new entrant assumption, considering the underlying smoothing implicit in these methods.

The uniqueness of the Projection Cost Method lies in its objective. The goal of the recognized funding methods, specified in ERISA (Section 1(31)), is to develop assets equal to the actuarial reserve for each participant's normal

retirement benefit at normal retirement age. On the other hand, the goal of the Projection Cost Method is an aggregate one aimed at some defined funding level at some future point in time. The recognized funding methods can adjust to special early retirement benefits but one is forced to wonder how well the Projection Cost Method could cope with this problem.

If the goal were assets to equal Unit Credit accrued liabilities 30 years from the present, for all participants, this might well be suitable and the method could stand a debate, on its merits and on its flaws, vis-a-vis the adoption of the "pure" Unit Credit funding method.

It may be helpful to compare this Projection Cost Method with the other recognized funding methods under ERISA. With the recognized methods, we can consider that the actuarial reserve for the present value of projected benefits is determined, and then equated to three component parts:

- (i) Assets, already funded;
- (ii) Unfunded Liability, to be funded over a fixed number or years;
- (iii) Future normal costs, to be funded over the remaining working careers of employees.

(See TSA IV, page 673, for a discussion of this approach by W. M. Rae.)

A similar analysis for the Projection Cost Method breaks down, revealing that the total present value of benefits may be deficient, if the goal is not properly defined for all plan participants.

The Projection Cost Method deserves to be tested, as an interesting adjunct to the regular pension valuation. But it should not be a recognized funding method for minimum funding or for tax deduction purposes, for the reasons stated above.

Bob requested me to refer to an article that appeared recently in the March 1977 issue of The Actuary. A letter to the editor from Keath Gibson comments on this point. He says in a portion of the letter, "Another common proposal to modify the traditional actuarial equation has been to include terms for both 'costs' to be paid for prospective new participants and the benefits to be paid to prospective new participants. As long as these proposals include these provisions on the basis that the present value of the 'costs' equals the present value of the 'benefits', no harm is done to the basic actuarial concepts."

I believe he means here that the cost generated purely for the new entrant should equate to the present value of benefits to be paid purely for new entrants. The problem occurs when you mix the new entrants with the other group and therefore cause a different funding pattern for the remainder of the group excluding the new entrants. Mr. Gibson continues, "Such proposals as have come to my attention, however, have proposed that the present value assigned to 'costs' for prospective new participants greatly exceeds the present value assigned to benefits for prospective new participants. Frequently this excess is so great that 'costs' assigned to current periods are less than the traditional concepts of minimum current costs, i.e., normal costs plus amortization on the unfunded liability . . ."

"Recently there have been articles written about so-called 'projection' methods for actuarial valuations. All of the traditional actuarial methods involve the projection of both benefit payments and 'costs' until the death of the last participant and the discounting of all these benefits and 'costs' to a common point in time, ordinarily . . . the date of the current valuation. If these values are 'projected' to [a time in the future], the only change will be in each discount factor. There will be no change in the computed values of the present value of future normal costs, the present value of benefits or the accrued liability. Any apparent change in any of these values can only result from a calculating error or an inadvertent or advertent modification to the traditional actuarial equation. In my opinion, any proposals for change in the emerging incidence of actuarial cost that are supported by so-called 'projection' methods need further analysis as to the causal agent of the changing incidence of 'cost' to determine whether or not it is consistent with the basic actuarial equation."

I gather from your comment that perhaps you might be using different assumptions with respect to the projection method than you might be using under a traditional method and this is what might cause some of these things to occur.

Taking off my Bob Berin hat for the moment and speaking as myself, we have used these types of methods purely for cash flow projections and have found them to be extremely useful in that regard. They give a lot of information to the plan sponsor on the incidence of cost under various circumstances, all kinds of circumstances related to the economy, new entrants, etc.

But I have found that as a funding method it seems to lack sufficient conservatism to protect the current participants because, at least among my clientele, things don't tend to remain the same for very long. We have mergers, separations of plans, transfers, spinoffs, terminations, not with respect to the entire plan necessarily, but with respect to a portion of the plan. And, if the assumptions have been changed to support a projection method which is intended to stay in effect for a period of 20 or 30 years, they may not be suitable to provide the desired level of funding on the current date, which may be two or three or four years later. That appears to be a drawback in this method.

MR. SCHNITZER: Let me comment on a few of Bob Berin's remarks. I happen to agree with him as far as the vested accrued benefit present value. I personally feel that it's not conservative enough and I think he's right in saying that that's not an appropriate objective with respect to all participants.

That's why I said in my example that we use the present value of accrued benefits on a plan termination basis; this is even more stringent than the present value of accrued benefits using the conventional unit credit type interpretation which would include some turnover discounts.

I still don't understand how conventional methods can accommodate new entrant assumptions beyond possibly one year.

The analysis that Bob made with respect to currently recognized methods is interesting. He said that the present value of benefits is then equated to three components, the current assets, the unfunded supplemental present values, and future normal costs. That's not completely true. In the aggregate cost method, you just have the first and the third components. That's really what

has happened in these projection methods. They have attributes of an aggregate method but both the aggregate method and this projection valuation approach could be viewed as consisting of those three parts. What is really happening, both in the aggregate and in the projection methods, is that the unfunded supplemental present value is being funded at the same pace as the normal costs. It's being spread, not in constant dollar amounts over a period, but as a constant percentage of covered pay or a constant amount per capita.

So it really has a number of similarities to some conventional methods. The letter that Keath Gibson wrote saying that the proposals he had heard assigned a greater present value to the cost element for new entrants than to the benefit element--if that's the case then I think that's wrong. I think the benefits for the new entrants should be included completely to the extent that their covered pay is included. And that really happens when you are funding toward a present value of benefits on a plan termination basis. I'm not sure but I don't think it would happen if you use the unit credit type accrued benefit present value.

The conservatism of these methods is probably the biggest issue that we proponents of the method face. Inherently, the PVM is neither conservative nor non-conservative. It depends strictly on the objective that you set.

I feel that the objective period, the so-called amortization period, should probably be less than the maximum that is permitted under ERISA for amortization of a conventional unfunded supplemental present value. I think that the present value objective, the type of present value you are funding towards, should possibly be more conservative than what you would otherwise choose as a conventional cost method.

Betsy mentioned that these methods may not be suitable in situations where you continually have mergers, spinoffs, acquisitions and such other transitions but conventional methods don't anticipate those things any better than these projection methods. Nothing can realistically be assumed to stay constant for 20 years. If you get it right for one, I think you're doing exceptionally well.

But there are methods of adjusting this cost level. I have not intended that the initial funding rate that you get the first time around was going to prevail for 20 years. That's why I went into the subject a little deeper and worked on this paper that's coming forth in August. So I don't know if they are going to be more or less suitable than the conventional ones, but I would say that neither really handled the situation very well.

MR. ROWLAND E. CROSS:* . . . I'd like to comment that the CAP plan apparently fails to integrate. I'm told that someone in the Hewitt firm has developed a technique by which he contends the 100% offset can be justified, but it may be by the technique which is variously called "reverse integration" or "negative integration." This method uses a decreasing percentage of salary, e.g., 20% of the first \$5,000 and 10% of the next \$10,000, minus 100% of Social Security. The use of a decreasing percentage instead of a rising percentage may allow you to use as much as a 100% offset. IRS has informally indicated that it has no serious objection to this general concept.

*Mr. Cross' comments are his own and do not necessarily reflect the views, official or unofficial, of the Internal Revenue Service or the Joint Board for the Enrollment of Actuaries.

At the Enrolled Actuaries Meeting in February of this year, there was a session devoted to the question of the revision of Social Security integration. At the time ERISA was enacted, there was an abortive effort to freeze the integration process. At the last moment, the proposed "freeze" was taken out of the law on the premise that the government would undertake a comprehensive study of the subject and come up with some new suggestions.

The Joint (Congressional) Committee on Internal Revenue Taxation is studying this question rather intensively. At that meeting in Washington, a staff member of this Committee invited people to send their suggestions to him and I'm sure that invitation continues to hold. If any of you have any thoughts that you would like to convey to them, you could send them to me in care of Internal Revenue in Washington and I'll certainly see that they get to the right place.

I might say one other thing about the CAP plan. The reason that it fails is interesting. Revenue Ruling 70-580 says that you can test integration by taking the benefits from the plan, adding in Social Security or maybe 83-1/3% of it, and then seeing how the resultant benefits compare with compensation. If they don't discriminate, the plan integrates regardless of whether it meets the formal integration tests.

If you apply that technique to the CAP plan, you find that the very highly paid generally end up not doing as well as the middle paid people; so far, so good. The problem, however, is that the middle range people do better than the lower paid. The IRS took the position in a Revenue Ruling some years ago that you cannot have non-discrimination in one salary range and discrimination in another salary range and still come out all right. Arthur Anderson refers to that in his paper and has to make some adjustments for it because, at some point in the line, there is not a monotonically decreasing ratio of benefits to compensation. Because with the CAP plan we have a rising and falling ratio, we tend to feel that the arrangement does not integrate.

As to the open group method of valuation, the difficulty that we have with it, aside from the fact that it's not specifically referred to in ERISA, (that's not a real impediment because ERISA merely says the acceptable methods shall include certain specified techniques), is that it seems to allow a person to obtain almost any result he wants simply by establishing his target at whatever level that he sees fit. I think that any actuarial cost method that permits that degree of arbitrariness in the selection of the funding target and hence for determining minimum funding and maximum deduction amounts is one which the Service would be reluctant to approve.

From an actuarial point of view, Betsy Erbe is correct that it's fine for pointing up cost or cash flow problems for management consideration. But as far as making material effective for the government regulation, at the moment we're skeptical. We have by no means reached a final conclusion and we will look and see what Bob Schnitzer has to say. I hope he shows how gain and loss analysis would be calculated under this technique and how the lump sum amount of gain and loss would be determined. The ERISA minimum funding requirement makes explicit reference to that and we have to know the precise technique for developing that.

MR. LEVY: Rowland, before you go, two questions. First, can we gather from what you said that the current integration rules are under pretty thorough

review at the moment and we can expect in the "undefined future" to get a new set of integration rules?

MR. CROSS: They certainly are under a lot of scrutiny. There is general consensus that the present method is not good. Many of us in the Actuarial Division feel that it's time to come up with something different and we are more than glad to have some suggestions. There were some very interesting ones proposed at the Enrolled Actuaries Meeting, some of them rather "far out." But that's what we want to hear. We're not going to turn them down just because they are unusual.

MR. LEVY: The other question deals with the aluminum and steel settlements. We've heard comments that they theoretically at least don't integrate. What's happening with them?

MR. CROSS: I don't know on what basis the plans were approved. I understand that the IRS District Office in Pittsburgh has given the aluminum and steel settlements one year approvals, contingent on there being no one affected by them. To my knowledge, no such approval has emanated from the National Office.

MR. CHARLES W. JACOBY: Consider the symptoms of the problem in projecting benefits under, say, a pure final salary offset plan. The symptoms are to avoid both Scylla (assumptions so conservative that the plan appears inadequate) and Charybdis (liberal assumptions which make the plan appear adequate, but may overestimate the actual ultimate benefits and thus lead to a form of "broken promise", employee resentment - and possibly tort suits based on reliance of the estimates in financial planning for early retirement).

The problem is that actual ultimate benefits will depend on future events which are simply unknowable at the time of calculating the projection. However, the usual approach is to play Queen of Hearts and say that the projections are real because I say that they are real.

A rather novel approach would be honesty with employees and to tell them: We are not projecting pensions because your actual retirement benefits will depend on several items which simply are not knowable. There is no way to estimate these items, so projected benefits would not be meaningful. And, since they wouldn't be meaningful, we feel that they would be misleading.

No one knows what your earnings will be from now until you retire - and these earnings will affect both your pension and your Social Security benefit. No one knows if the present pension plan formulas used to calculate benefits will be the same when you retire. While we have no plans to make any changes, pension plans have a habit of being changed from time to time to meet changing needs. And we can't estimate your Social Security benefit because the present benefit formula depends on the trends between now and when you retire of the Consumer Price Index and of the earnings of all workers in the country -- and, of course, Congress may change the formula as they have done in the past.

However, it may be helpful to refer to the attached illustrated results of pension and Social Security benefits which were typical of last year. These are shown for various combinations of earnings levels, and age and service at retirement.