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FUNDING POLICY FOR PENSION PLANS FROM THE PLAN SPONSOR'S VIEWPOINT

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1. Alternative uses of cash.
2. Selection of actuarial cost method.
3. Selection of actuarial assumptions.
4. Use of projections and immunization theory.
5. Effect of investment strategy on funding policy.

MR. LEROY B. PARKS, JR.: Let us define a funding policy to be the plan sponsor's approach to meeting the financial obligations of a pension plan. Historically, there have been three basic approaches taken in funding a pension plan: current disbursement, terminal funding and advance funding. Of these, advance funding has become the prevailing method. There are several reasons for this. First, plan sponsors became aware that their obligations were increasing and wanted to relate the cost of pension programs to the employee's working lifetime. Second, accounting standards began requiring plan sponsors to expense and accrue plan costs. Finally, ERISA requires advance funding in most cases.

How does a plan sponsor undertake advance funding? The general rule is that current and future contributions, plus fund earnings, should be exactly sufficient to meet the ultimate cost of the plan. This requires the establishment of an appropriate and acceptable incidence of contributions, which requires estimates, assumptions and, perhaps, luck.

We can establish the importance of an appropriate funding policy by investigating hypothetical scenarios which demonstrate what can go wrong when a funding policy is inappropriate. Let us consider Company A, which acquired a large old plant in the Midwest in 1971 where the employees were covered by a steel-type plan. The plan was periodically amended and over the next ten years it provided generous benefit levels along with a thirty-and-out benefit, unreduced early retirement, supplements and shut-down benefits. As pension costs mounted, the actuary repeatedly liberalized assumptions, and by 1981 was using a unit credit actuarial cost method, a 7½% interest rate and high withdrawal rates. Furthermore, the ongoing plan valuations ignored the possibility of a plant shut-down and assumed very light utilization of the thirty-and-out benefit provisions.

After several years of discussion, the Company decided to close the antiquited facility in 1981 and build a new plant in the South. The actuary performed a shutdown valuation and determined that assets approximated 50% of the value of guaranteed benefits and that several million dollars were owed by the plan sponsor.

Looking at this scenario in the future, let us assume that this company began operations in the South in 1981 in a new highly automated plant. The work force was made up of non-union, low-skilled, low-paid employees with high turnover. The company established a defined benefit plan which provided ten dollars per month per year of service with actuarially reduced early retirement benefits and the required vesting and death benefits. There were no extra benefits, no thirty-and-out, no supplements, no shutdown benefits. The actuary used a 5% interest rate, moderate withdrawal rates and the entry age normal cost method.

During the next ten years, many of the employees complained that although several thousand employees had been covered under the plan, no one had received any benefits. As a result of employee discontent, in 1991 the plan sponsor decided to terminate the plan and convert to a defined contribution pension plan. The actuary performed the plan termination valuation using the standard unit credit cost method and PBGC assumptions. There were virtually no vested benefits and the fund assets were approximately five times the present value of all accrued benefits.

What went wrong with the funding policy under this scenario? In both past and future we have a situation where the funding policy was a failure, in one case not providing enough assets to meet the obligations and in the second case providing too much in the way of assets to meet the obligations.

Our panel today includes Bill Steiner with the San Francisco office of The Wyatt Company, Tom Dant with Peat Marwick Mitchell in Los Angeles, and John Murray with Pacific Mutual Life Insurance Company.

MR. WILLIAM K. STEINER: I'm going to start out with a discussion of the alternative uses of cash. Here are a couple of comments that all of you have heard. "I can earn more money on what I keep outside the plan than what I put into the plan." This may be true but a profitable company would need to make considerably more on the outside, because of the taxes it would have to pay, to make up for the tax free status of the trust. "I want to minimize my contribution now because the dollars that I contribute today are worth more than the ones that I'm going to contribute ten or fifteen years from now." There is a fundamental concept that if it is hard to put aside x dollars or x% of pay today (assumed to be somewhere near the real cost of the plan) what makes us think that at some future time the sponsor is going to be willing to contribute a higher amount to the plan? Also, at any point in time, if inflation continues forever, you are going to be able to say that we should postpone putting our money in because those dollars are not going to be worth as much in the future.

One interesting idea that has surfaced recently, in an article in Fortune, is the concept that is being advanced to take into account the tax aspects of retirement plans and also the regular tax aspects of a corporation. In this scenario, the corporation invests all of the assets in the retirement plan in long, medium and short term bonds. It issues long term bonds outside the plan and with the money that it receives, either buys back some of its stock or invests the money in various types of common stock. This is an arbitrage on the way taxes are assessed. The authors claim that this immediately increases the per share earnings of the corporation. They did not present an actuarial demonstration of how they obtained this result, but I believe that I can follow their reasoning and there is something to it. It is clear that, from the standpoint of the rating services like Moody's, this would definitely increase the long term debt of the corporation and might affect their borrowing power in the future and may also affect the way they look in the market place to those that are buying stock.

In terms of alternative uses of cash there is some flexibility between the contribution that is made to the plan and the charge against operations of the corporation so that there will be opportunities for a corporation to manage its cash in a different way than it manages its contribution to the retirement plan.

There certainly can be logical financial reasons for minimizing a contribution in a particular year. The company may have had a very bad year and the deduction may not be worth as much to it as it would at a later time. This is a good argument for building up a surplus in the minimum funding standard account. If the company is having a good year, it may wish to maximize its contributions that year, particularly if it is expecting rocky times ahead.

The idea of using the long term bonds has some possible problems. I recently heard a talk where one financial expert was making a case that long term bonds as we know them today are not going to be around ten or fifteen years from now because of the shaky economic environment for fixed income securities. However, a week later, I read that another expert thought that buying long term bonds this particular year was going to work out very well because he believes that interest rates are going to come down.

Let us now consider the selection of the actuarial cost method. The method can have an effect by reducing or increasing the contributions in the early years. The financial executive is often concerned about company earnings for a particular year. The selection of the method will affect not only the contribution for that year but also the cost for future years. I wonder how often it is pointed out to the financial executive that the slope of earnings may be of as much interest to him as the charge for that particular year. The sponsor appears, under ERISA, to have the power to select the actuarial method. If the sponsor selects an inappropriate method - for example a final salary pension plan with the average age of the group in the low twenties, and the sponsor selects the unit credit method - what should the actuary do at that point in time? I believe that, under

103(b) of the 1980 ERISA amendment, he will have to indicate that he expects an increasing pattern of costs. Clearly, Congress feels that a pattern of increasing costs is undesirable.

Selection of actuarial assumptions makes a difference and I will not bore you by suggesting that conservative ones produce higher contributions than less conservative ones. There is an implication in much of what is written in this field that the sponsor selects the actuarial assumptions. Certainly the actuary should listen to the sponsor's attitudes, but the obligation is on the actuary, acting on behalf of the participants, to select them. This may be an argument over semantics but if the sponsor asks for assumptions that are outside the comfort range of the actuary, the actuary is nonetheless the one who has to take the final responsibility. Some of you have seen or heard skits which explore in a courtroom setting the responsibility of the actuary and it would not be an adequate defense for the actuary to say that the sponsor asked him to produce low costs and low reserves, etc. Participant suits may be unlikely but are certainly not impossible.

I am interested in hearing from Tom on this subject. The Peat Marwick Mitchell and Company statement of position on employee benefit plan consulting services seems to imply that it is the sponsor who makes the decision on actuarial assumptions.

MR. THOMAS M. DANT: I wish to speak today about involving the plan sponsor in the selection of the actuarial assumptions. The plan sponsor needs to have a working knowledge of what the best estimate of assumptions are and therefore it is in his interest to involve him in their selection.

Mortality is a subject where the actuary is the sole expert. The actuary has the techniques to measure these various assumptions and for mortality he must take sole responsibility. For the turnover assumption, the data is provided by the plan sponsor and future personnel policy is something that only the sponsor can estimate. The actuary may be misled if he assumes that the past is indicative of the future and the plan sponsor knows otherwise. For the salary scale assumption, the analysis of impact of cost of living, merit increases, promotions, productivity, etc. are the things which the actuary brings to the table, but it is the sponsor who best knows what kind of salaries are going to be paid to his employees. The actuary will have as good an idea about the long term cost of living but as for rewarding merit and advancing people through his organization, this is something over which the sponsor has far more control than the actuary.

The interest rate, together with the salary scale on final average plans, is undoubtedly the most critical assumption. I am not convinced that actuaries as a group have a better idea of long term inflation rates than the plan sponsor. We have conducted a survey among 180 large pension plans, for which we are the auditors, and we examined what the average assumption on interest was in 1979 for this group. It was approximately 6%. At the same time we conducted our annual survey of the money managers and financial forecasters for 26 of the largest financial institutions in the United States. Over a 20

year period their average forecast was 7.6% for the rate of inflation, 10.8% with respect to return on corporate bonds, and 15.4% with respect to equities. There is clearly a divergence between the economists and the actuaries as to what relatively long term returns are going to be.

If there is a disagreement between the sponsor and the actuary with respect to any of the assumptions, it is very critical that the actuary discovers this. The issue should be resolved, if possible. If views cannot be resolved, there may be a professional obligation to resign from the case. However, if the client is putting pressure on for developing a set of assumptions to have costs other than what they ought to be, you cannot compromise on that particular area.

There has been an implication that we, as actuaries, are acting in the employees' interest by being conservative in our interest assumptions, thereby ensuring a well funded plan. Let us assume that long term inflation will be 6 or 7%. This implies a dramatic drop in the cost of pension plans because post retirement inflation will decrease the benefits being paid. Rather than stay with the same 6 or 7% interest rate that we are using for valuation purposes and conservative funding, we should consider indexing the benefits.

MR. STEINER: Throughout this discussion of the sponsor there is an assumption being made that the sponsor is a cohesive group of people, or at least one person, who speaks for the sponsor. In practice I often have difficulty finding anyone who really speaks for the sponsor.

MR. JAMES A. KENNEY: What are the implications for funding where the salary scale is in excess of the interest rate?

MR. DANT: Normally the plan sponsor will let the actuary decide what the long range salary assumption will be but he may know more about the immediate future of salaries in his organization. One solution to this problem would be to use a short-term salary assumption which grades down to the ultimate salary scale.

MR. DOUGLAS C. BORTON: There is a tendency when we talk about economic assumptions to think in terms of final pay plans. Probably the biggest funding problems that we see are related not to final pay plans but to flat benefit plans where there has been a history of escalation of benefits and where, because of tax considerations, it is impossible to prefund for future increases in benefits. The funding at any point in time reflects a lower level of benefit than most participants are likely to receive upon retirement. It may be appropriate to use a more conservative approach in the funding methods and assumptions on these types of plans than on the final pay plans.

MR. DANT: In the case that you cited we need some recognition of this by the IRS. It is unlikely that they will permit us to fund for future benefits that have not been talked about yet, but a case could be made where not only have the benefits been improved but the work force is decreasing.

MR. PARKS: With reliance on Revenue Ruling 77-82 we have many situations where our actuarial report generates, not a magic number, but a contribution range that starts at zero because of the ERISA credit balance and runs up to 10 million. After reviewing the report, the client frequently turns to the actuary for guidance in determining what amount represents a reasonable and appropriate contribution.

MR. JOHN D. MURRAY: One of the things that concerns me is the relationship or lack thereof between the actuary and the investment manager. In theory, the investment manager should know what techniques the actuary uses to handle gains and losses and to value assets so that he can set an investment strategy which is consistent with the needs of the plan.

As we progress through the 1980's, and current volatile economic conditions continue to be volatile, plan sponsors will become more conscious of their cash flow and the impact of plan contributions on their profit and loss statement. In this situation, pension actuaries should have many opportunities to educate both plan sponsors and investment managers.

A typical investment decision which affects the funding of a plan is the exchange of long-term bonds for common stock or short-term paper. The immediate price of the exchange program depends on the method the actuary used to value the bonds and whether the change causes him to modify his interest assumption. If the bonds were valued on an amortized basis, an actuarial loss would probably result, which will usually translate into higher contribution requirements or a lower surplus in the Funding Standard Account. The return for this price is a higher yield in the future and more liquidity currently. This is the type of trade-off that the plan sponsor may want to consider for himself and is a good example of the need for the investment manager and the actuary to communicate.

Another popular current decision is that of diverting plan assets into real estate. This is commonly done to increase the overall return to the plan, but before the investment manager acts he should be aware of the actuarial value of the real estate and what impact the valuation method will have on current contributions. The actuary should also be a position to tell the investment manager whether benefits that have to be paid over the next several years can be adequately covered by contributions, investment income or the sale of more liquid assets.

An investment approach that has received much attention in recent years by insurance companies is now starting to be recognized by professionals as a useful investment tool for pension plans. That approach is asset immunization. To put immunization in perspective, consider the evolution of investment strategies for pension plans. For many years the only direction the investment manager received was to "beat the market" or to beat the actuary's interest assumption. Most investment managers worked on a 1, 2 or 3 year time frame, not the 20 year plus time frame that we customarily work in. Recently, however, there has been an increasing amount of modeling work

done by investment managers to evaluate the risks in certain categories of assets and to communicate to plan sponsors what range of returns they are likely to experience.

The next step in this evolution is the matching of anticipated cash flows from assets to cash flow requirements for benefit payments and investment opportunities. There have also been efforts at what may be called exact matching, which is to use specific bond or long term income mortgage loan repayments to pay specific benefits such as benefits due to retired lives. Asset immunization is a generalized approach to this exact matching concept. Under this theory a block of assets, normally fixed income securities, can be related to a block of liabilities or benefit payment requirements with the assurance that the liabilities will be satisfied regardless of changes in interest rates. The immunization theory was developed a number of years ago in England and has been used for at least 20 years there. It has since migrated to Canada and in recent years has received increasing attention by American insurance companies. The theory attempts to insure that assets are invested so as to protect against a change in interest rates. There are two investment risks that immunization will protect against. One is the loss on reinvestment of investment income if the rates fall during the period of the investment or the period of the liabilities. The second is the risk of having to liquidate an asset at a time when rates have increased and hence the value of that asset is slightly less than the related liabilities. One necessary by-product of immunization is that in order to protect against losses due to liquidation or reinvestment the portfolio must be constructed in a way that also minimizes the opportunity for gains. It is possible through an extension of the theory to protect against losses but this extension can become quite complex in practice.

The theory is simple to develop and requires that the present value of the assets equals the present value of the liabilities at the start of the program and that a term called duration for each stream be equal. In this context the duration is a weighted average of the time to the payment date of each item in the benefit or income stream where the weights are present values of the payments. If the present values are equal and the durations are equal then a change in the underlying interest rates will have the same affect on both present values.

A good example of how immunization has been used is in the GIC products offered by insurance companies and similar immunization funds that have been developed by banks to compete with insurance companies. Under a typical GIC policy an insurance company guarantees a high current rate of return for a period such as five years. At the end of the five years the insurance company will pay back to the plan the principal plus interest compounded at that high rate of return. GIC contracts have received a lot of attention from thrift and profit sharing plans that involve employee contributions because it enables a plan sponsor to guarantee a fixed high rate of return for a number of years which should make the participants happy. Conversely the plan sponsor does not have to actively manage that part of the portoflio.

There are also opportunities to use GIC contracts or the immunization approach to fund fixed pension benefits. A classic example would be a terminal funding situation where it is desired to provide benefits to a block of currently retired lives. It is possible to project the benefit payment stream and invest in an immunized portfolio that will essentially guarantee that the funds will be made available through a combination of coupon payments and maturities as the block of lives receives its payments in the future.

An excellent example of this was reported in the last month. In this case the Chrysler Corporation committed $150 million of the assets of its salaried employee pension plan to an immunized bond portfolio to provide benefits to current retirees. The interest return on this portfolio is about 13% which is much higher than the interest assumption used to fund the plan. The present value of benefits for these retirees was reduced by about $60 million and it has been estimated that this actuarial gain will reduce the annual contributions by $7½ million a year. In this case Chrysler is protected against the volatile economic conditions that are expected throughout the 80's and has essentially reduced its risk to that of mortality.

Other situations where immunization theory can be used with pension plans include the obvious use for frozen plans and closed funds. It can also be used to provide a more predictable investment return for plan sponsors at the cost of reduced liquidity. Another area for use is with plans in which the work force is declining or contributions and invested income are less than benefit requirements. Although there are a number of potential uses of immunization theory in the pension area, certain limitations of the theory limit the degree to which it can be applied. Pension obligations extend many years into the future. Yet, at current interest rates, immunization can be effectively applied only through periods of up to about 10 years. Immunization can be applied to an existing block of assets and also can anticipate future contributions but future contributions can be quite unpredictable. In funding for future benefit payments for current active participants the same problem occurs because rates of turnover are highly unpredictable and because most plans today have benefits at retirement based on final salary or benefits to be negotiated in the future.

Another limitation of this theory is that it is constructed around fixed income securities where the annual coupon payments and maturities are fixed. Pension plans have historically been invested heavily in equities and the theory does not apply to equities well. Increasing the use of the immunization approach to pension plans will require more projections of the liability side of the equation. There has already been much work done on multiple valuations and forecast valuations. I expect there will be much more done in the future, both to support the plan's investment strategy and to satisfy a growing desire on the part of plan sponsors for more predictibility in pension funding. Within 10 years it will be common to perform valuations and projections based on different scenarios as to future interest rates, salary progressions, etc. A good introduction to immunization and its use by insurance companies is contained in an article in the

1972 Transactions by Irwin Vanderhoof. Although the article is written from the standpoint of insurance companies, the concepts are pertinent to the pension industry today. It contends that actuaries should be involved in the investment process of insurance companies, an argument that makes sense today to the pension actuary.