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**ACTUARIAL STANDARD ON THE
SELECTION OF ASSUMPTIONS**

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A report on the status of the Actuarial Standards Board (ASB) standard on selection of assumptions. The discussion covers what the effects would be on practitioners.

MR. SILVIO INGUI: The topic of this session is the Proposed Actuarial Standard on the Selection of Economic Assumptions for Measuring Pension Obligations, which is being drafted by the Pension Committee of the Actuarial Standards Board. Lall Bachan and I are both members of the Pension Committee and have been involved in helping to draft the proposed standard for the last two years. In fact, our committee met on May 19, 1992 to finalize the draft that is to go to the ASB in July. We are hopeful that the ASB will vote to expose the proposed standard so that the entire profession will have an opportunity to comment. We will give you a sneak preview of what the committee will present to the ASB in July.

Let me share with you some background with regard to this proposed standard. The directive from the ASB was for our committee to draft a standard for the selection of all assumptions for measuring pension obligations, including standards for asset valuation methods. It became evident very early that to accomplish this task all at once would result in a very delayed exposure. Therefore, the committee decided that the task should be divided into components, with economic assumptions as the first component. Eventually, when all the components are completed, consideration would then be given to a consolidation of all the components into one broad standard on selecting assumptions and asset valuation methods.

With that background, let's now ask, what is the purpose of this standard? Well, first of all, it is meant to provide guidance to actuaries. Please note the key word here is "guidance." The proposed standard is not meant to be a cookbook. It emphasizes the development of a thinking process to derive rational and defensible assumptions. It is not intended to force assumptions into a mold, and it does not provide any defined safe-harbor ranges. Another purpose is not just to help actuaries, but to assist the users of actuarial communications in understanding actuarial concerns. I don't need to tell you that what we do as actuaries and how we do it are somewhat mysterious to many of those outside our profession.

Why is a standard needed? One reason is that Actuarial Standards of Practice Number Four (ASOP #4), Recommendations for Measuring Pension Obligations, needs to be updated. Since that standard was issued, we have more sophisticated computer technology that is available (and financially feasible). This provides us with tools for more in-depth analyses on a cost-effective basis. Those who read our reports are becoming more sophisticated. As such, we may be more challenged in the future on the bases of our actuarial assumptions. Finally, regulatory requirements and other constraints were considered an important reason. Comments have been made that a weakness in our profession has been the lack of formalized professional standards in the area of selecting assumptions, especially the economic assumptions. There are

those that believe that if we had a standard before the FASB drafted Statement of Financial Accounting Standards No. 87 (SFAS 87) and before the IRS came out with its own standards, then it would have been our standard that would have become embodied in their requirements.

What is the scope of the proposed standard? First, it is directed to most everyday situations. However, it recognizes that there is an infinite combination of plan specifications and circumstances that no standard could cover, and thus allows for the actuary to be outside the standard when appropriate conditions warrant it. However, the actuary must be prepared to defend his or her position. The proposed standard is not a guide for Section 412 purposes. It approaches the subject from more generic actuarial principles. However, it does state that if there is a conflict between the standard and law (regulations, etc.), then the law prevails.

MR. LALL BACHAN: The material I'm going to present is what is going to show up in the standard itself. As Silvio indicated, this is a process that started about two years ago and we're far from finished with it. It's raised a lot of questions with the ASB and I'm sure when this gets exposed there will be a lot of questions and a lot of suggestions.

The selection of economic assumptions is a basic component of the process used to estimate the amount, timing, and value of obligations under a defined-benefit pension plan. The actuary is responsible for the selection of the economic assumptions which fall within the scope of the standard, unless the selection of one or more assumptions by another is disclosed in the applicable actuarial communication. The actuary should use best judgment in selecting economic assumptions that result in either point estimates or range estimates. The economic assumptions used to estimate the amount, timing, and value of obligations under a defined-benefit pension plan may include inflation, investment return, compensation scale (or salary scale), or other elements, such as administrative expense and changes in the Social Security wage base.

In selecting economic assumptions for a specific measurement, the actuary should consider the following factors:

1. the purpose and nature of the measurement,
2. the characteristics of the obligation to be measured (duration/maturity, open/closed group, etc.),
3. historical and current data,
4. economic and market expectations, and
5. tests of reasonableness.

Beginning with the inflation assumption, we note that inflation may enter into actuarial measurement independently or as a basic part of other actuarial assumptions. Generally, the index used as the basic reference in measuring inflation is the Consumer Price Index for All Urban Consumers (CPI-U). Other indexes that may be appropriate for use in certain circumstances are the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) or the Implicit Price Deflator (IPD).

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The selection of an inflation assumption may be made by reference to

1. the relationship between (a) the historical and the current rates, and (b) future expected rates;
2. surveys of inflation expectations of economists specializing in economic forecasting; and
3. information provided by private organizations.

For purposes of testing the reasonableness of an inflation assumption, the actuary may examine the current yields on U.S. Treasury securities. The excess of these yields over the risk-free rate of return may be a proxy for expected inflation over the durations of the securities.

Because inflation levels have differed significantly over various historical periods, and because current rates of inflation can be volatile, a range of acceptable rates of future inflation will emerge from any best-judgment process. This is a product of differing assessments which can be rendered by well-informed practitioners.

Now, let's consider the selection of the investment return. Generally, the investment return on the assets of a defined-benefit plan is influenced by the plan's investment policy, inflation expectations, and other factors. This assumption should generally reflect the return expected to be achieved on the plan's assets in future years.

The general process for selection of the investment return assumption is as follows:

1. Identify the components of the assumption and relevant data.
2. Develop an expected investment return or a range of expected investment returns for the plan's current and anticipated future assets.
3. Consider measurement specific issues (duration/maturity of obligations, open/closed groups, etc.).
4. Consistent with (2) and (3) above, select an investment return assumption that takes into account both economic and demographic deviation and their effect on the probability of the plan meeting its obligations.
5. Test the investment return assumption for reasonableness and consistency with other assumptions.

The investment return assumption for each class of investment can be viewed as the sum of three components: inflation, risk-free rate of return, and premium for investment risk.

The classes of investments generally are stocks, corporate bonds, U.S. government bonds and notes, cash or cash equivalents, and real estate, but may include other investment types. The investment risk premium is different for each investment class.

The actuary should review and understand the historical and current investment data. Historical data would include the risk-free rate of return, inflation-adjusted rate of return and risk premium for each asset class. The inflation adjusted rate equals the risk which equals the risk-free rate minus the risk premium. Historical data may include arithmetic and geometric rates of return. Generally, geometric rates should be used.

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The actuary may also consider statistical data showing standard deviations, cross-correlations, and other statistical measures related to historical returns and the volatility for each asset class.

Current data would include current yields to maturity on government securities and forecasts of inflation.

The estimated range of investment returns can be constructed using various methodologies such as the building block method, the government securities basis, the forecast method, and multiple and blended rates method.

BUILDING-BLOCK METHOD

In this approach: (1) derive a weighted, risk-adjusted, noninflationary return for each asset class applicable to the plan; (2) compute an average return for the asset classes in the plan; (3) combine (2) with the anticipated inflation.

Example: Assume the plan sponsor has a portfolio that is invested 55% in stocks, 35% in long-term U.S. government bonds, and 10% in cash equivalents. Assume the following inflation adjusted rates of return: 9%, 2% and 0.5%, respectively for stocks, bonds, and cash.

The expected risk-adjusted rate of return for the portfolio might then be computed at 5.7% (discounting the effect of diversification and rounding, etc.). If the inflation assumption is 4%, the investment return assumption, on an arithmetic basis, would be equal to 9.7%. (Note that most of the time the inflation-adjusted rates of return are determined as geometric rates. If the inflation adjusted geometric return is 5.7% and assumed inflation is 4%, the actuarial return expected would be 9.9%, (i.e., $1.057 \times 1.04 - 1$.) If rounding to the nearest 1% is used, on either basis the rate would be 10%. Assuming no change in either the portfolio mix, the expected inflation adjusted rates of return, and the 4% inflation assumption, the 10% assumption would remain unchanged from valuation to valuation.

In the so-called building-block derivation example just cited, the 10% is a simplification of many intermediate steps. The rates of return for each asset class are near the midpoint of a measurement range of values. For example, the inflation adjusted rate of return on equities used was 9%; a range of 5-13% might be justified. In one measurement the total rate of investment return of 10% might fall in the lower end of an acceptable range; in other measurements, toward the higher end.

In any measurement where it could not be supported, the 10% rate would have to be adjusted. The volatility of a particular asset class could also affect the return assumption.

GOVERNMENT SECURITIES BASIS

Assume the plan is invested solely in government securities. Based on the duration of the plan's expected obligations as well as the possible effects of economic and decremental deviations from the expected, yields for various security durations can be used as an estimate of the range of likely returns.

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FORECAST METHOD (PROBABILISTIC ASSET/LIABILITY METHOD)

Using a Monte Carlo process, this is a method for determining the risk-adjusted rate of return for assets currently invested. You must:

1. Determine the most likely single-point assumption for all asset classes and plan obligations (or a portion thereof), and the associated standard deviations, cross correlations, etc.
2. Project the probabilistic investment returns and plan obligations based upon the point assumption selected in (1).
3. Measure the obligation covered by the assets.
4. Solve for the rate of return needed to equate the discounting of the covered obligation with the assets.

MULTIPLE INVESTMENT RETURNS AND BLENDED RATE ASSUMPTIONS

The actuary may consider the use of multiple rates of returns in lieu of a single-investment return estimate.

Select and Ultimate

It may be appropriate to use returns that vary by period from date of measurement (e.g., inflation of 6% for the first 10 years following the date of measurement, and 4% thereafter).

Example: A plan sponsor invests only in fixed-income U.S. government securities. Based on an assumed inflation rate of 4%, which the actuary expects over the long-term, fixed-income investments of the plan sponsor could earn 6.5%. However, current fixed-income yields of U.S. government securities for all durations of five years or less are equal to 11.5%.

With respect to assets currently invested, a select investment return assumption of 10.5% (allowing for reinvestment) for five years and 6.5% thereafter would be appropriate. A select assumption of 11.5% for the coming year, 10.5% for the next year, 9.5% for the third year, and so forth to an ultimate rate of 6.5% after five years is probably not appropriate (i.e., the actuary would be assuming that over the next five years the portfolio will earn about 9%).

Obligations Covered by Current Assets

It may be appropriate to use one return rate for those obligations that are covered by the assets in the plan on the date of measurement and a different rate for the balance of the obligations. Generally, the greater the ratio of assets to the obligation being measured, the more emphasis that may be placed on current returns to measure the portion of the obligations covered by assets of the plan that are to be held to maturity. When benefits are expected to be paid at dates later than the maturity dates of the assets, the actuary should consider long-term factors and conditions that may be prevalent at the time assets will be reinvested or contributions are made.

Example: A pension plan is valued using the aggregate actuarial cost method. The excess of the present value of projected benefits over the actuarial value of assets is allocated on a level basis over the service period of the group between valuation date and assumed exit. Plan benefits do not depend directly on any future economic variable.

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Eventually, the actuary believes that an investment return of 8% would be sustainable. The 8% return assumption is premised on a long-term inflation environment where assets currently invested should yield 11.5% (Table 1). The simplest way to combine the results is to assume that the actuarial value of assets will earn 11.5% and future contributions will earn 8%. An infinite number of ways exist for apportioning the earnings expected on the actuarial value of assets (e.g., assets will be used to cover benefit payments as they come due until current assets are exhausted). For this illustration, assume that the actuarial value of assets will be used to pay for the following proportion of each benefit payment: actuarial value of assets divided by present value of projected benefits at 11.5%.

TABLE 1
Summary of Results at 8% and 11.5%

	8%	11.5%
Present value of projected benefits	\$135,300,000	\$96,200,000
Actuarial value of assets	80,000,000	80,000,000
Present value of future lives	14,200	11,600
Active lives	3,000	3,000

Results on this basis follow (note that the normal cost is always determined using the 8% investment return assumption to determine the present value of future lives) (Table 2):

TABLE 2
Calculation of Normal Cost

A. Determination of Present Value of Projected Benefits:	
1. Present value of projected benefits at 11.5%	\$96,200,000
2. Actuarial value of assets	80,000,000
3. Unfunded present value of projected benefits at 11.5%	16,200,000
4. Unfunded percentage (3/1)	16.8%
5. Present value of projected benefits at 8%	135,300,000
6. Unfunded present value of projected benefits at 8% (4 x 5)	22,800,000
7. Present value of projected benefits (2 + 6)	102,800,000
B. Actuarial Value of Assets	80,000,000
C. Present Value of Future Normal Costs (A - B)	22,800,000
D. Present Value of Future Lives	14,200
E. Normal Cost Accrual Rate (C/D)	1,605
F. Active Lives	3,000
G. Normal Cost (E x F)	4,817,000

Blended Rate

It may be appropriate to use a blended rate of return in lieu of the multiple return described earlier. The blended rate would be chosen to approximate the value of the obligation that would be produced by the use of either select-and-ultimate rates or multiple rates of return.

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Example: A more difficult solution can be found by melding the two investment return assumptions into one. The investment return assumption solution could be the one that, after discounting the future stream of benefit payments, equals the present value of future benefits determined in A.7 (alternatively, the weighting could prove equivalent on a contribution basis). In this example, the investment return (to the nearest 0.25%) is 10.75%. The normal cost using this method can be determined as follows (Table 3):

TABLE 3
Normal Cost Using Blended Rate Method

A. Present Value of Projected Benefits	\$102,800,000
B. Actuarial Value of Assets	80,000,000
C. Present Value of Future Normal Costs (A - B)	22,800,000
D. Present Value of Future Lives	12,100
E. Normal Cost Accrual Rate (C/D)	1,884
F. Active Lives	3,000
G. Normal Cost (E x F)	5,652,000

We note that under the blended rate method the present value of future lives is based on the 10.75% assumption as well, and the normal cost is higher than it was in the previous example. I couldn't tell you which one is right and which one is wrong. These two methods have many variations, and the committee was willing to concede that any of the variations would not be a problem for us.

MEASUREMENT SPECIFIC ISSUES

After you have gone through this thinking process and have come up with either a point assumption or a range for the assumption, there are issues specific to each plan that should be considered prior to selecting the investment return to be used for measuring the obligation of the plan. Actuaries can adopt different weightings for each consideration.

Specific Investment Policy

This includes (1) the current allocation of the plan's assets; (2) security risk tolerance; (3) a target allocation of the assets of the plan among different classes of securities, and permissible ranges for each asset class to permit the investment manager to make strategic asset allocation decisions; (4) types of securities eligible to be held (diversification, marketability, social investing philosophy, etc.)

Investment Manager Performance

Often investment managers are hired to outperform certain market indexes. For example, a common stock manager may agree to a performance factor of the Standard & Poor's 500 return plus 300 basis points. The actuary should recognize that very few investment managers can achieve consistent performance that is superior to general market performance over long time horizons. Accordingly, any weighting of the return assumption to reflect superior fund management may be unduly optimistic. Conversely, the performance of some investment managers may be consistently inferior to general market indices. However, any long-term weighting of the return assumption to reflect inferior fund management may be unduly

pessimistic since ERISA imposes fiduciary obligations to review and correct consistently poor investment performance.

Reinvestment Risks

There are two reinvestment risks associated with traditional fixed-income securities. First, statements of yield to maturity generally assume that interest payments are reinvested at the yield-to-maturity rate. However, actual reinvestment of interest or normal maturity values are dependent on the then-current rates. Second, many fixed-income securities are subject to call; that is, these securities may be redeemed by the issuers prior to the stated maturity date, necessitating reinvestment of the entire proceeds. Both of the above risks increase in a climate of declining market rates. The actuary should consider the reinvestment risks, and, if material, adjust the investment return assumption for the asset class to reflect such risk.

Purpose of the Measurement

The purpose of the measurement should be considered. For example, the measurement of the plan's current termination liability may use current settlement rates (e.g., annuity purchase rates) which include an investment return assumption that is different from the investment return assumption used to measure the same plan's ongoing accumulated benefit obligation.

Tax Status of the Funding Vehicle

If the plan's assets are not kept in a tax-exempted fund, income tax may reduce the plan's investment return. The actuary should be aware of the tax status of the obligation being measured and make appropriate recognition of it in selecting the investment return assumption.

Expenses

Transaction, custodian, and management fees are generally paid from plan assets. The actuary should make appropriate adjustments to reflect these expenses paid from plan assets, either by a reduction in the total investment return assumption, by separately identified assumption, or both.

Volatility

Small plans generally have more volatile and unpredictable benefit payment patterns than larger plans. Some plans, regardless of size, provide large benefits such as highly subsidized early-retirement benefits, lump-sum benefits, or supplemental benefits, which are often utilized in a corporation that is operating under stressful conditions such as corporate consolidations that trigger layoffs. In plans where there is high exposure to the volatility of the payment pattern, either because of plan size or special benefit provisions, the untimely liquidation of undervalued securities may be required to meet benefit obligations. Accordingly, it may be appropriate to use an investment return for the more volatile plan that is at a lower level within the measurements range than the rate that would be appropriate for a plan that has reasonably predictable, nonvolatile benefit payment patterns.

Benefit Structure

The amounts of some forms of benefits, such as lump sums and early retirement benefits, are based on interest rates which are defined by the plan and are unrelated to the assumed rate of investment. The benefit structures of a plan should be

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reflected in the amount of benefits to be paid rather than as an adjustment to the investment rate used to measure the obligation.

Asset Valuation Basis

Generally, when adjusted asset values are used and show consistent bias, this may affect the selection of the investment return assumption. If you have an asset valuation method that merely smooths out the fluctuations, it should have no effect on what you would choose for an investment return assumption.

MR. INGUI: The inflation and interest assumptions are two of the most key assumptions and will always be dealt with when trying to set economic assumptions. Certain types of defined-benefit plans base benefits on compensation, and another key assumption with these types of plans is the compensation scale or salary scale assumption. Compensation will change over the long-term in accordance with inflation, productivity, and the recognition given to the individual's performance.

The inflation component has already been covered, but I would like to add that, in general, the compensation scale and the interest rate should reflect the same level of inflation. For example, if you have a 3% inflation rate underlying your interest assumption, there should be a 3% inflation rate underlying your salary assumption.

The second component of the salary scale is productivity, which is defined as the change in compensation for a group that is attributable to the change in the production of goods and services by the group. Over time this component can be positive or negative. Measures of national averages of productivity are made by the Social Security Administration and historically have been between 0-1% per year.

The third component is merit, which reflects individual performance, promotion, seniority and other factors. This is generally analyzed by age, service, and position. We often find the use of select-and-ultimate rates in developing merit increases.

Another common economic assumption is needed when projecting Social Security benefits. For this we are trying to project national increases in wages (i.e., the wage index). Unlike the compensation rate, the wage index does not include the merit component. Instead, it reflects the change in inflation plus productivity. However, the inflation used for Social Security (i.e., CPI-W) can be different than general inflation (CPI-U). There are assumptions pertaining to other indexes such as the maximum benefit and compensation limits. These are tied to inflation, but due to regulations, we cannot always project them.

Some non-ERISA plans may provide for benefits to be adjusted for inflation automatically. The assumption that tries to factor in automatic cost-of-living increases is generally, but not always, tied to inflation. If it is tied to inflation, or a percentage of inflation, the same inflation assumption which is common to the other economic assumptions should be used.

Once you've selected all your assumptions, you should step back and give some final considerations. One of them is the reasonableness of each assumption. The proposed standard supports explicit assumptions versus implicit assumptions.

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The assumptions should be consistent with one another over the period of measurement. For example, if you were to use a select-and-ultimate inflation assumption, then the interest and the compensation scale should probably be select and ultimate.

The assumptions should be based on reliable economic data. The standard will include an appendix with some sources of good economic data. Another consideration is the advice of experts. When you're setting economic assumptions, you may want to consider what economists are predicting, what the plan sponsor indicates the compensation for the industry is going to be, and what the investment managers think the investments are going to earn.

The funding policy also is important. If you want to provide some conservatism to meet cash-flow requirements, valuation methodology rather than economic assumptions should be used to develop a higher funding ratio. For example, you should choose a funding method that will develop a higher buildup of reserves in the earlier years. The committee felt it was not appropriate to do that through modifying your assumptions.

Another factor to consider is what is the practicality of doing detailed analyses. We have to be realists. Especially for small plans, you cannot feasibly or practically sit there and do all kinds of in-depth analyses and Monte Carlo projections. It just may not be practical in trying to set some of these assumptions. When dealing with several small plans that have similar characteristics, the actuary may emphasize general research in setting assumptions and deemphasize case-specific research.

With regard to communications and disclosure, the standard is going to require that there be a description of the assumptions used. Also, any changes in assumptions from those used in the previous year, possibly with examples on the quantitative impact of those changes, should be disclosed.

Disclose any significant events after the measurement date that would have affected some of your actuarial assumptions in any way. For example, a company that is going through a process of restructuring its portfolio and changing its investment philosophy. That is an event that's going to have some impact. That information should be disclosed.

On occasion, an actuary may be asked to prepare calculations on a specified set of assumptions. The report should indicate the source of the assumptions. If the actuary feels an assumption is outside the range of reasonableness, or not consistent with other assumptions, this should be indicated.

Finally, the standard is not meant to be a cookbook. It's not meant to tell an actuary they can't use an assumption or a process. The standard is not defining assumptions, but rather a thought process on how you go about selecting your assumptions. It's not saying that the thought process in the standard is the only thought process or basis for selecting assumptions. However, the actuary must be prepared to defend any procedure used that differs from the standard and disclose this in the actuary's report along with the rationale for deviating from the standard.

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This is currently a proposed standard, probably one of the most important ones that has been written to date. Before the standard becomes a real standard, it gets exposed and there is a period of time when actuaries are asked to comment in writing. We encourage all of you and your associates to read the standard. This one is really fundamental and we want to hear from you and get your thoughts. If you object in any part or in total to the standard, we want to hear that. We also want to hear what you think are good points of the standard. We cannot emphasize enough that we want your comments. The committee then meets and we review every single comment very seriously. In a few other standards that we've written, the final product of the standard has been changed materially because of some very valid and good points made by respondents. We can only react to the feedback we get, and if we don't get feedback, our only assumption is that you love the standard and, therefore, it will get finalized as written.

MR. HOWARD YOUNG: Relating to the disclosure, if you feel you're deviating from the standard, is it your obligation to say so in the report and defend it, or simply to be prepared to defend it if someone asks you?

MR. INGUI: The standard says you should be prepared to defend it at minimum, but you should be stating in your report that you're deviating from the standard and why. Typically, an actuarial report contains some language indicating it has been prepared in accordance with Academy guidelines, etc. Well, if we now have the standard that says here's the way you should go through the thought process in selecting assumptions, but, in fact, you had good reasons to deviate from that standard, you just can't make that statement anymore. Or, you can't make that statement if you haven't at least documented why you've deviated from it.

MR. YOUNG: Also, if you're making select-and-ultimate assumptions that are related to calendar years rather than to ages or so forth, then if you had used a five-year select period, a year later you're now faced with four. If you use five again, is that a change? How do you describe it?

MR. INGUI: The standard doesn't address it directly, but if you were to say the interest rate was going to be 9% for 1992-97 and 6% thereafter, then you've established a five-year select period. If you want to extend the 9% assumption through 1998, then you want to establish a new five-year select period. In that case, you would have a change in assumption.

MR. RALPH M. WEINBERG: Are you thinking about having different standards for different types of plans like multiemployer plans, public employee plans, or corporate plans and, in particular, how might those standards differ in the use of implicit or explicit assumptions? Right now multiemployer plans, for example, may use assumptions based on the reasonableness of the entire package.

MR. BACHAN: We did not contemplate different assumptions for different plans, for instance, that multiemployer plans may use implicit assumptions. But I believe we covered that in the type of measurement you're talking about.

MR. INGUI: The standard is more generic. In essence, we came into the room and said there are no regulations, there is no FASB, no accountants. We're just actuaries.

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We're dealing with pure actuarial principles. How would we go about selecting assumptions to determine obligations of present value benefits for a pension plan? The standard allows for features in the plan. You go through this process and you look at inflation and you look at returns, but then you look at things like plan features, plan types, multiemployer versus corporate versus public employee. As far as implicit or explicit, the standard will emphasize explicit assumptions. Again, if you have a good reason to deviate from that standard just say why. The other thing to keep in mind is that where there is a law that says that you have to use a particular assumption, that law prevails. For example, you're not going to do something contrary to the standard because you're not projecting 415 limits.

MR. JOSÉ SALAS*: When you explained the selection of the compensation scale assumptions you did not mention the age. Would that be implicit in the productivity and merit issues?

MR. INGUI: The age would come into one of those components, typically more so in the merit, but it could also be in the productivity scale. For example, it's not uncommon to have a select-and-ultimate merit scale, and many times the select period could be at the age as well as years of service. Sometimes it's common in a company to have someone who comes right out of college get fairly decent merit increases. They're progressing rather rapidly, so age is a factor. You could call it a component, but I would classify it more as something you would look at in determining one of the three components.

MR. DONALD S. GRUBBS, JR.: On your discussion of select-and-ultimate interest rates, which were commonly used when interest rates were much higher and there was an expectation that the ultimate rate would be significantly different than the current rate, some of us who have used those have expected that we would gradually phase into an ultimate rate. We thought that if the ultimate rate was different from the current, it would be gradually moving toward it. I understood you to mean that would not be acceptable, that one would have to assume that you would go along with the present rate for the select period and suddenly have a drop.

MR. INGUI: What Lall had mentioned was that we didn't think it would be appropriate to just say my initial rate is ten and my ultimate is five and I'm going to go ten, nine, eight, seven, and just do that arbitrarily. That's what we didn't feel was really too appropriate unless you could justify the breaks.

MR. GRUBBS: How would you move between your initial rate and your old rate?

MR. INGUI: If my initial rate was ten for five years it would be ten for five years, which would mean the next year I'd have ten for four years. If I selected it and I felt interest rates were going to stay at 10% from now until let's say 1997 and then would be 6% thereafter that's exactly what I would do. I would be discounting. In 1992, I would be discounting by 10% from 1992-97 and 6% thereafter. In 1993, I

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would then discount for 10% from only 1993-97. And by 1997, assuming that I haven't changed my assumptions or my belief of where interest rates are going to be, I'd finally reach a 6% interest rate.

MR. GRUBBS: But most of us, or at least many of us, who have used those thought it more logical to assume that if ultimate rates were going to be lower than present rates, one would expect to move towards them in some gradual fashion rather than to go along and suddenly have an abrupt drop five or ten years from now.

MR. BACHAN: I believe that when we talked about that, we thought it was too arbitrary a way of doing it because you simply started at one rate, you ended up at another rate and you just interpolated for the years in between. The method I described was that typically you'd look at treasury bonds for five years or less and you would take that rate and come up with a rate that you'll use for five years. As I indicated, you'll take into account some reinvestment, so the rate used would be a slightly lower rate than the bond would actually pay. It's because what you're doing is arbitrary that the committee feels it is inappropriate.

MR. INGUI: The standard also is emphasizing that, especially when you're using select-and-ultimate rates, you should be really looking at this very carefully the next year. Is ten and six still valid a year later or two years later? In the standard we're saying to rationalize by some definitive process what your interest assumption in your best estimate is going to be. Typically you're going to come up with a range. Choosing the interest rate is where the judgment comes in as to where you're going to be within the range.

MS. JUDITH A. WHINFREY: I'm not as familiar as I should be with the ASOP #4.

MR. INGUI: ASOP #4 is a general standard on how to measure pension obligation. There is some discussion in there on assumptions, but it doesn't really get into how to select the assumptions. It's really how to do the mathematics once you've got your assumptions. ASOP #4 concentrates on how to determine your present values.

MS. WHINFREY: So this is the first time we've really had guidance that goes through almost every conceivable thought process you could have in selecting assumptions, which I think is great. This is not intended as a critical statement.

MR. INGUI: This is the first time we are actually trying to put down the process that an actuary should go through in determining the interest rate and the salary scale that they're using in their valuation. Prior to that, there have been some study notes on the subject, but there has not been anything formal from the Academy or the ASB on this subject. That's been one of the concerns. A lot of the comments were that if we, as actuaries, had the process documented as a standard of our profession, then when the accounting profession was drafting *FAS 87*, they wouldn't have been telling us how to do our job. Likewise, the IRS decided it was going to tell us how to pick assumptions because we hadn't told ourselves how to do it. Now that's hindsight. We don't know whether that would have come to pass if we had the standard five years ago. But clearly there would have been something there to argue at the time when FASB was exposing their exposure drafts on *FAS 87*. We could have, as actuaries, gone up there and said, "Hey, don't tell us how to set interest

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rates; we already have our own standard, we know how to set interest rates. Why are you telling us to deviate from our own professional standard?" I think that would have been a strong message, but we couldn't say that.

MS. WHINFREY: The mild worry I guess I have is that this is a thought process, or a laundry list, of all of the possible areas for an actuary to think about when setting an interest rate. If a statement is made that says the actuary should disclose when they are not "following a standard," and if he fails to think about some of these things in setting the standards, especially in the small plan arena, I'm concerned that actuaries would have to consider select-and-ultimate rates and a lot of more sophisticated ways of establishing a measurement of a range of pension contribution which is self-correcting year after year anyway.

MR. INGUI: We've got quite a number of people that called us or knew various committee members. I got a phone call from one actuary that works in the small plan area and, in fact, one of our committee members is an actuary whose practice is predominantly in the small plan area. We try to get input from all the different areas of practice when writing these standards. There are a number of places in the standard where we try to be sympathetic to the small plan actuary. You've got to be practical. There's a limit to what you can do for a three-life plan when doing this type of analysis. Maybe what you should be doing is looking at your type of plan more generically. What do these plans, in general, have in common? How do they invest? What are their problems? We tried to address this concern also in the volatility issue. It's in small plans where you could typically have one key person who is going to be 85% of the plan. At some point there's going to be a big payout. So the volatility issue is addressed too, but by all means, when you read it, if you don't think it's good enough, give a holler. We want to hear from you. We expect to hear from you.

Early on we had a lot of debate about whether we should put ranges in – safe harbors. The IRS has them. Should we say 5% is good? There were one or two committee members that argued for that, more so to play devil's advocate. We decided that would be dangerous, we just live in too volatile an economic environment to try to set ranges. We were afraid that we would have to look at the standard every year and reissue it, setting new ranges. We didn't want to do that.

MR. DALE LAMPS: The question of *FAS 87* assumptions came up several times in your discussion. The FASB took a lot of that control away from us, but I wonder if, in the future, you visualize that in practice the actuarial standards might have a direct usefulness in establishing *FAS 87* assumptions. As a practical matter we're heavily relied on right now to set *FAS 87* assumptions, particularly when we're talking about things like long-term rate of return and future compensation increases. The same considerations you're talking about certainly apply when we're doing the *FAS 87* work.

MR. INGUI: Well, *FAS 87* is one area where, in my own personal opinion, the actuary doesn't select the assumption. He's generally asked his opinion, but ultimately the client decides on which assumption. But I believe *FAS 87* also states that if the actuary feels that the assumptions chosen are not reasonable, he needs to disclose that as well and that gets to what the standard is saying. The standard is

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saying that, if an actuary is being asked his opinion as to what discount rate should be used for *FAS 87*, this is the process he or she should go through. If during that process the range for the discount rate, for example, is from 8-9%, but your client tells you to use 10%, then you could still do the calculations. However, you need to disclose that it wasn't your assumption, and perhaps that you feel the assumption may not be reasonable.

