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## SELECTION OF ECONOMIC ASSUMPTIONS FOR FUNDING AND ACCOUNTING VALUATIONS

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This session will discuss the SEC letter on *Financial Accounting Standard (FAS) 87* discount rates analyzing the current yield curve, matching bond portfolios to benefit payments, selection of salary scale, selection of return on assets (ROAs), update on Actuarial Standards Board (ASB) proposed standards, and the relationship, if any, of funding assumptions to accounting assumptions.

MS. TAMARA R. SHELTON: We will talk about the selection of economic assumptions for funding and accounting valuations. I'm going to spend some time speaking from a theoretical standpoint about the selection of assumptions, primarily with respect to the ASB draft, and then Peg McDaniel and Carolyn Abelanet will speak from a more practical standpoint and present different case studies.

The ASB issued its exposure draft in July 1992. I believe it is expecting to release something new this year, but to date it has not. In general, when selecting economic assumptions, there are several things that we should take into consideration. One of these is the purpose of the measurement, and that purpose could be for minimum funding purposes, for financial disclosure purposes, or potentially for plan-termination purposes. We also should consider the characteristics of the obligation. Is it primarily for retired employees, in which benefit payments are very heavy in the early years? Or is it primarily for a young, active workforce, in which benefit payments are made primarily in the later years? We should have some historical data to look at, which also should reflect current market expectations. What has happened in history is not necessarily what is going to happen in the future.

There are three primary economic assumptions that we're going to be talking about, and these are inflation, investment return, and salary scale. The inflation assumption may be a separate assumption in your calculations, or it may simply be a component of your other assumptions. You should look at historical data with respect to inflation increases. In addition, there should be information available from economists with respect to expectations for future inflation.

I should point out that with any of these economic assumptions, the ASB really stresses that there is a range of reasonable assumptions, and that you are, for your calculation purposes, trying to determine what number within that range you want to use.

The investment-return assumption is the most visible of the economic assumptions. There are three components for each class of investment. These components include the risk-free rate of return, the investment risk premium, and inflation. The risk-free rate of return represents the return that one could expect to receive on an investment in a secure, inflation-free environment with respect to principal and yield. The investment risk premium is the additional return that one could expect to achieve because of the risk of not receiving some of the principal and yield.

These assumptions may vary by your investment class. You may have different assumptions for the cash that's invested in a plan, stocks, bonds, and real estate. Finally, the inflation assumption component really should be consistent with the inflation component in any of your other assumptions.

With respect to data, you should look at historical data on rates of return. These would include averages, presumably for each class of investment, for some prior period of time. Current data that would be available would be current yields to maturity on government and corporate bonds.

There are some plan-specific issues that one would want to take into account. These would include the investment policy and the current allocation of assets in the plan. Expenses are also important. You may have a separate, explicit expense assumption, or you may simply choose to reduce your assumed rate of return to reflect the fact that expenses will be paid from these assets. Again, the duration of the obligation and the purpose of the measurement should be taken into account.

There is a questionable area in the performance of investment managers. We presume, in general, that investment managers cannot consistently achieve returns that are significantly greater than market return. So many would think that you were being unduly optimistic if you expected the returns of the investment manager for your particular group to continue above market. In addition, if you had a group of investment managers that had been performing below market, presumably you're being unduly pessimistic to assume that would continue because a plan sponsor has a fiduciary obligation to invest as a prudent person, and a prudent person would not continue to invest with investment managers that had market performance below the general market.

There are also three primary components of salary scale. Again, we have the inflation assumption, and this should be consistent with the inflation assumption that you have in your investment return. We also have productivity and merit. Productivity generally relates to your expected changes in compensation for an entire group because of changes in the production of goods and services for that group. This could vary by industry and region. There are some national studies, I believe, that are put out by the Department of Labor (DOL), which indicate that on a national basis changes in productivity are between zero and 1% a year. Merit increases, of course, reflect changes in compensation for individual performance and promotion. Generally, we tend to reflect that by using an age-related salary scale.

Some other points that you may want to take into consideration are the plan sponsor's compensation policy, the competition in the marketplace, and any collectively bargained salary increases that may exist.

There are some other miscellaneous economic assumptions. A couple of these assumptions are the Social Security assumptions and automatic cost-of-living adjustment. The Social Security assumptions would include increases in the wage base and cost-of-living increases. In most cases, the underlying inflation assumptions in these assumptions should be consistent with your other assumptions.

## SELECTION OF ECONOMIC ASSUMPTIONS

Overall, in general, the ASB indicates that our assumptions should be individually reasonable. This is a change from the standard of practice that had been previously issued, which really focused more on the overall impact of assumptions. But the proposed exposure draft specifies that the assumption should be individually reasonable. In addition, your assumptions should all be consistent. You may want to rely on some expert advice, but the exposure draft stresses that, unless specifically indicated otherwise, the actuarial assumptions are the responsibility of the actuary. It is your responsibility to select reasonable assumptions.

Just one other point to be made is that you should take into consideration the size of the plan. If you have a particularly small plan, you probably don't want to put a lot of emphasis on its specific experience, because you probably don't have credible data upon which to base your assumptions.

Now Peg McDaniel will speak about funding and accounting issues.

MS. MARGARET M. MCDANIEL: I will talk about the economic assumptions for funding and also the discount rate for *FAS 87* purposes. The first point on funding is that generally the economic assumptions are fairly stable, so you don't address them every year. However, you tend to look at assumptions for *FAS 87* every year and try to figure out where you should be. I'm also going to talk about selection of assumptions from a practical standpoint. My experience is with medium-to-large employers, so I generally do look at each individual assumption to try to figure out how it should be based on the client's experience.

The interest rate for funding purposes, the valuation interest rate, is equal to the discount rate that is used to measure the obligations, and the discount rate is equal to what you expect your assets to earn in the trust. It's a long-term assumption, which is partially why we don't change it every year. We try to be explicit when we come up with this assumption so that it's individually reasonable. All assumptions are supposed to be reasonable on an individual basis, especially those of large employers.

The current liability interest rate corridor is 90–110% of a four-year weighted average Treasury rate. The January range was 6.68–8.17%. As of May 1994, it's 6.55–8%. That gives you the range that you can use for a current liability interest rate. There is no range on the valuation interest rate. It's just whatever the actuary and the client deem to be reasonable. The current liability interest rate is used to develop the full-funding limit. It's a component of the full-funding limit, and it's also used to determine any additional funding requirements for underfunded plans. Anything within the range is considered reasonable. I know that many actuaries spend time on the current liability interest rate, trying to determine where they want it to be based on their clients' issues for funding.

From a practical standpoint, the selection criteria that we generally follow are fairly close to the proposed standards that the ASB set forth. We do work with our clients to develop these assumptions so that they meet their cash-flow requirements. But we look at the investment mix and we try to tie down the types of investments they have. For example, if they're moving into an international market, then we might be able to be more aggressive. We also look at historical experience and compare it with benchmarks.

I think that the one thing that we do, which has some conflict with what the ASB has said, is that if the plan has investment managers that have had very good performance, we tend to keep that in mind when we're developing the interest rate. We also look at the market for future economic expectations. With one of our larger clients, we recently recognized that the stock market will probably go through a correction, so we reduced that rate.

Another thing that's fairly important is whether you have plan design issues, such as if your plan pays lump sums. If it's a larger employer, you probably want to value that explicitly. In one client's plans, 90% of the participants choose a lump sum. The lump-sum rates are based on the PBGC annuity rates, so if we did not recognize that explicitly in our assumptions, we would tend to undervalue those obligations because the PBGC rate is less than the valuation rate that we would use. Another reason why you want to value lump sums explicitly in a plan that pays lump sums is because when you begin to look at cash flows you really want to be explicit in developing those cash flows. If you assume that you're paying annuities instead of lump sums, then your cash-flow streams aren't going to be accurate.

We also look at the funded position of the plan when we're trying to develop the interest rate. If a plan is poorly funded, then we're not going to be very aggressive in setting economic assumptions because we're trying to get the funded position up to where it should be. We live within the IRS/ERISA constraints, which are that the assumptions should be individually reasonable, based on expected future experience. I think most actuaries would think a reasonable range of rates for funding purposes would be maybe 7.75-8.75%. If you want to support something higher than that, then you really need to do some detailed analysis about the investment mix and philosophy of the trust. Would you agree with that, Carolyn?

MS. CAROLYN ABELANET: Sure. We were talking about one of the previous comments you made as far as using conservative assumptions with underfunded plans. Tammy and I found that the underfunded plans are the ones clients are the most likely to push for less conservative assumptions. It's because they want the funded position to look as good as possible. The logic that you would want to be conservative doesn't translate to the employer wanting to be conservative necessarily.

MS. MCDANIEL: Yes. I have a client and because the company is significantly underfunded, we have convinced its management to use a more conservative rate. But with larger employers that have underfunding, there may be other issues that come into play. Did you agree with the reasonable range of rates?

MS. ABELANET: Yes.

MS. MCDANIEL: I know of one larger employer that has decided to continue to use an 11% funding rate for 1994. So that gives you a high end.

For practical purposes, you also need to consider that the effect of the current liability rate will limit your flexibility in your funding rate because you have the permissible range. At the beginning of 1994 the high end was 8.17%. So if you have an underfunded plan, your additional funding requirements, based on the current liability, are going to drive up the contribution. So you have less room for flexibility because

## SELECTION OF ECONOMIC ASSUMPTIONS

of the current liability rate. On the opposite side, if you have an overfunded plan, again, that current liability rate is still going to minimize the range of contributions.

We did an internal survey as of October 1, 1993, and we asked our actuaries what the highest rate was with which they would feel comfortable. The average came out to be 8.75%. So you might consider, because rates have gone up by 50–75 basis points, that a reasonably high rate might be 9.25–9.5%.

MS. ABELANET: Peg, is that funding?

MS. MCDANIEL: Yes, still funding. All funding issues at this point.

With respect to the salary scale, at least with our medium-to-large employers, we generally follow what the ASB proposes. We build it up from an underlying inflation assumption, and we look at promotional increases, seniority, and merit. We usually have fairly explicit assumptions for salary.

We worked on one plan where we have a select-and-ultimate salary scale that is based on seniority, because we're trying to be as realistic as possible. When developing your salary scale, you usually look at the salary scale in relationship to the funding rate. The old school of thought was that the range would be 2–3%. Generally, that's not followed anymore. Most people, at least for medium-to-large clients, usually develop an explicit assumption and determine if it is reasonable. They don't use that old rule of thumb. We have seen that if you have fairly high salary scales and a high-paid group, what will happen is that the 401(a)(17) limits, the compensation limits, and the defined-benefit (DB) limits for 415 will affect how you can project your benefits. For example, if you have a person who's making \$60,000 at age 40 and he's going to retire at age 62, his salary on a projected basis is going to be more than \$150,000. But the maximum you can project is \$150,000. So your salary scale for funding purposes is lower because you cannot project your compensation and 415 limits. That's something to keep in mind when you're trying to determine your gains and losses for the year. If you have a high-paid group, what happens is that when the limit goes up, you have a loss because you can't project more than the current limits. We've had to explain to our clients why this inherent loss will develop every year.

MS. SHELTON: Peg, I think I've read something recently that indicated that the 401(a)(17) changes should be reflected as a plan amendment each year.

MS. MCDANIEL: Well, that's debatable. I thought you had the choice of doing it either way.

MS. SHELTON: I'm not sure about that.

MS. MCDANIEL: Was this a Holland opinion or something from the IRS?

MS. SHELTON: I think it was something that came out at one of the prior actuarial meetings.

## RECORD, VOLUME 20

MS. MCDANIEL: With Social Security and cost-of-living increases, generally you follow the ASB guidelines. We look at where we've set the CPI and then we look at what we've done with our salary scale to determine a Social Security wage base increase. Cost of living increases are usually dependent upon what the plan design is, what past experience has been, and what you expect in the future. So those are the economic assumptions for funding.

Now we move into accounting. The discount rate for accounting purposes is used to measure the obligations. These obligations are used to determine your annual expense as well as your disclosure information and your minimum liability. Therefore, they not only drive your expense, but they also determine if you have a charge to equity at the end of the year.

*FAS 87* defines the discount rate in paragraphs 44–199. It defines it as high-quality debt instruments that match future cash flows. Generally, when this statement came out, most actuaries interpreted that as a settlement-rate notion and you could determine the discount rate a couple of different ways. Many actuaries were using annuity purchase rates. Then as rates started going down, actuaries became more aggressive and started using high-quality bonds. Many clients were moving toward the lower-grade bonds, BAAs.

When *FAS 106*, the retiree medical and life insurance statement, came out, it defined the discount rate as the matching of future cash flows to the portfolio of long-term-debt instruments with yields to maturity incorporating expected reinvestment rates. Well, what does that mean? What that means is that they want you to do a portfolio matching on a zero-coupon-bond basis. That's what incorporating expected reinvestment rates means. And that really is the defeasance rate notion in which you're settling the obligation based on a yield curve.

Just because *FAS 106* said that's how you're supposed to determine the discount rate, that did not mean that actuaries changed for *FAS 87* in developing their discount rate. There was a broad range of interpretation, and the range for 1992 for the Fortune 500 was 6.7–9.2% (a 245-basis-point spread). So there was a lot of variance in the way people were selecting rates.

Then what happened was that a larger employer went to the SEC for some bond issues, and the SEC was unhappy with its discount rate because the SEC thought it was too high. It couldn't support it and it wanted the employer to restate its earnings midyear to reflect a lower discount rate. Now that led the SEC to issue its letter, which was sent to the FASB Emerging Issues Task Force in September 1993. The letter did two things. It first said that for pension purposes, the SEC believes that we should be using the *FAS 106* definition, and that definition is the defeasance rate notion. It also further defined the high-quality portfolio, which was AA or better bonds. Many employers had been using bonds that were lower grade than AA. Employers considered BAA bonds to be of high quality, but the SEC redefined it to be AA or better.

Below is text of September 22, 1993 letter from the SEC to the FASB Emerging Issues Task Force relating to discount rates under *FAS 87* and *FAS 106*:

## SELECTION OF ECONOMIC ASSUMPTIONS

The SEC staff recently questioned a registrant about that registrant's selection of discount rates for purposes of measuring its defined benefit pension obligation under *Statement of Financial Accounting Standards No. 87*, "Employers' Accounting for Pensions." The staff believes that the guidance that is provided in paragraph 186 of *Statement of Financial Accounting Standards No. 106*, "Employers' Accounting for Postretirement Benefits Other Than Pensions," for selecting discount rates to measure the postretirement benefit obligation also is appropriate guidance for measuring the pension benefit obligation. That paragraph states that, "The objective of selecting assumed discount rates is to measure the single amount that, if invested at the measurement date in a portfolio of high-quality debt instruments, would provide the necessary future cash flows to pay the benefit obligation when due. Notionally, that single amount, the accumulated postretirement benefit obligation, would equal the current market value of a portfolio of high-quality zero coupon bonds whose maturity dates and amounts would be the same as the timing and amount of the future benefit payments. Because cash inflows would equal cash outflows in timing and amount, there would be no reinvestment risk in the yields to maturity of the portfolio. However, in other than a zero coupon portfolio, such as a portfolio of long-term debt instruments that pay semiannual interest payments or whose maturities do not extend far enough into the future to meet expected benefit payments, the assumed discount rates (the yield to maturity) need to incorporate expected reinvestment rates available in the future. Those rates should be extrapolated from the exiting yield curve at the measurement date. Assumed discount rates should be reevaluated at each measurement date. If the general level of interest rates rises or declines, the assumed discount rates should change in a similar manner.

Interest rates have been declining and are at their lowest levels in more than a decade. The SEC staff expects registrants to use discount rates to measure obligations for pension benefits and postretirement benefits other than pensions that reflect the current level of interest rates at the next measurement date. The staff suggests that fixed-income debt securities that receive one of the two highest ratings given by a recognized ratings agency be considered high quality (for example, a fixed-income security that receives a rating of Aa or higher from Moody's would be considered high quality).

Another point made in this letter is that the employer should reevaluate the discount rate at each measurement date. If the general level of interest rates has increased or decreased, then the rate should be similarly changed. This got clients and consultants looking at what the current yield curve really meant. The definition of the current yield curve is spot rates of the selected bond portfolio. Spot rates are zero coupon bonds with no call features. There are not enough zero coupon bonds to create a portfolio so that you can do this matching.

Therefore, you have to take a portfolio of bonds with coupons, and perhaps calls, and strip out the coupon feature and the calls. The SEC gave a session in January 1994 and requested at this meeting that somebody prepare a standard index. One of the investment firms that has prepared a standard index is Salomon Brothers. We passed out a booklet on the pension discount curve. This provides a standard index that you

can use to develop your discount rate. This will be published annually, as far as I understand, and you'll be able to use this.

Other standard indexes include Bloomberg and Ryan Labs. They take bond portfolios and develop their spot rates. Many actuarial firms and others took bonds that would be AA or better and selected a portfolio that would produce discount rates that were as high as supportable. They developed a bond portfolio and eliminated those bonds with excessive call features. When you're trying to convert to a spot rate, it's very difficult to convert the call features. You have to use some option pricing techniques to eliminate the call feature because the call feature, has a premium in it that you need to eliminate.

Once you have your portfolio you group the bonds by maturity and you derive spot rates based on a bootstrap method that eliminates the call feature. One of the things that you need to consider when you're doing this is that there really aren't any bonds with a maturity beyond 30 years. So typically people have applied the year-30 rate to the tail of the portfolio.

Once you have your yield curve, you're going to fit it to your projected benefit obligation (PBO) cash flow. See Table 1. These rates were actually developed by Buck Consultants. Do you have the background on it, Tammy?

MS. SHELTON: Well, it's very similar to what Salomon Brothers did. Buck came out with an index in October 1993, which we call the AAA/AA index. Some of you may be familiar with the buck forward interest rate, which is published quarterly, I believe, in *Pensions and Investment Age*. We took some of that same methodology and developed a AAA/AA index based on the universe of bonds. Buck stripped out the call features and developed the spot rates.

Just to clarify spot rates—what you're doing is you're grouping bonds by maturity and developing a yield to maturity for each group of those bonds. Then you back into the spot rates. For the first group of bonds, the spot rate actually is the yield to maturity. Then in year two, you have your year-one spot rate, and you determine the year-two spot rate by what you need to get to the correct yield to maturity. So you're working on a progressive basis to develop 30 years of spot rates. And then, I believe, Buck in the tail, actually used an average of the last few years of spot rates. That's not necessarily what we have done on our cases. With the ones that I personally have looked at, I have assumed that the 30-year spot rate continues into the future. But Buck actually developed an index and used averaging of the later years.

MS. MCDANIEL: Table 1 shows the expected payouts for each year. But these are PBO payouts, meaning that for active employees, service to date is divided by service at exit, and this ratio is multiplied by the expected benefit payment. Thus, when you discount the benefit payments, the result is a discounted value that equals the PBO. If you look at Column E, we've applied the spot rate to the payouts to develop the present value of the annual payouts. The sum of this column is what you would expect your PBO to equal if you had this portfolio of bonds.

SELECTION OF ECONOMIC ASSUMPTIONS

TABLE 1  
DERIVATION OF FAS 87 DISCOUNT RATE FROM ZERO-COUPON RATES\*  
ABC COMPANY (MEASUREMENT DATE 12/31/93)

Year	As or Better Spot Rate 12/31/93	Annual Benefit Payout, Using Service to Valuation Date		Aa + Spot Rate Discount Rate	Present Value of Annual Payout	Equivalent Flat Rate	Recalculation at Equivalent Flat Rate	
		With int. for ½ year	Same divided by 1 + i/2				Discount Rate	Present Value
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1994	3.399	15,602,241	15,038,305	0.9834	14,789,065	7.35	0.9652	14,514,359
1995	4.060	18,254,384	17,594,587	0.9421	16,574,993	7.35	0.8991	15,818,890
1996	4.946	17,978,801	17,328,965	0.8863	15,358,821	7.35	0.8375	14,513,344
1997	5.250	18,695,219	18,019,488	0.8360	15,064,859	7.35	0.7802	14,058,380
1998	5.723	19,793,548	19,078,118	0.7785	14,851,588	7.35	0.7268	13,865,206
1999	5.909	20,190,857	19,461,067	0.7292	14,191,748	7.35	0.6770	13,175,144
2000	6.055	18,778,177	18,099,448	0.6824	12,351,305	7.35	0.6306	11,414,372
2001	6.323	17,571,009	16,935,912	0.6314	10,693,120	7.35	0.5875	9,949,316
2002	6.445	17,603,844	16,967,560	0.5881	9,978,256	7.35	0.5472	9,285,429
2003	6.565	18,154,168	17,497,994	0.5466	9,564,222	7.35	0.5098	8,920,081
2004	6.684	18,531,752	17,861,930	0.5069	9,054,945	7.35	0.4749	8,482,168
2005	6.816	19,669,243	18,958,306	0.4685	8,881,411	7.35	0.4424	8,386,408
2006	6.961	20,797,507	20,045,790	0.4312	8,643,806	7.35	0.4121	8,260,333
2007	7.110	22,525,512	21,711,337	0.3956	8,589,766	7.35	0.3839	8,334,104
2008	7.243	23,855,612	22,993,361	0.3628	8,341,663	7.35	0.3576	8,221,911
2009	7.358	26,969,944	25,995,127	0.3327	8,648,854	7.35	0.3331	8,658,849
2010	7.470	27,113,554	26,133,546	0.3046	7,960,837	7.35	0.3103	8,108,948
2011	7.596	26,383,112	25,429,505	0.2777	7,061,642	7.35	0.2890	7,350,249
2012	7.740	25,871,788	24,936,663	0.2518	6,278,623	7.35	0.2693	6,714,295
2013	7.885	26,272,694	25,323,079	0.2276	5,764,687	7.35	0.2508	6,351,504
2014	7.996	27,206,380	26,223,017	0.2066	5,417,831	7.35	0.2336	6,126,898
2015	8.042	28,063,867	27,049,510	0.1896	5,127,648	7.35	0.2176	5,887,289
2016	8.017	28,708,016	27,670,377	0.1764	4,880,256	7.35	0.2027	5,610,079
2017	7.940	28,547,392	27,515,559	0.1680	4,568,689	7.35	0.1889	5,196,730
2018	7.838	28,695,591	27,658,401	0.1574	4,354,290	7.35	0.1759	4,866,053
2019	7.730	28,365,733	27,340,465	0.1498	4,094,690	7.35	0.1639	4,480,780
2020	7.649	28,008,573	26,996,215	0.1418	3,828,581	7.35	0.1527	4,121,436
2021	7.591	27,660,240	26,660,472	0.1337	3,564,752	7.35	0.1422	3,791,504
2022	7.570	26,935,158	25,961,599	0.1250	3,244,391	7.35	0.1325	3,439,324
2023	7.589	26,334,730	25,382,873	0.1156	2,933,517	7.35	0.1234	3,132,422
2024	7.639	25,833,588	24,899,844	0.1059	2,637,073	7.35	0.1150	2,862,425
2025	7.710	25,364,728	24,447,930	0.0964	2,356,011	7.35	0.1071	2,618,048
2026	7.792	25,061,683	24,155,839	0.0873	2,108,434	7.35	0.0998	2,409,659
2027	7.881	24,716,676	23,823,303	0.0788	1,876,488	7.35	0.0929	2,213,774
2028	7.881	24,328,880	23,449,523	0.0730	1,712,114	7.35	0.0866	2,029,847
2029	7.881	23,872,219	23,009,367	0.0677	1,557,250	7.35	0.0806	1,855,376
2030	7.881	23,299,628	22,457,472	0.0627	1,408,866	7.35	0.0751	1,686,887
2031	7.881	22,610,161	21,792,926	0.0582	1,267,300	7.35	0.0700	1,524,891
2032	7.881	21,810,158	21,021,839	0.0539	1,133,156	7.35	0.0652	1,370,225
2033	7.881	20,903,434	20,147,888	0.0500	1,006,708	7.35	0.0607	1,223,344
2034	7.881	19,894,134	19,175,069	0.0463	888,108	7.35	0.0566	1,084,561
2035	7.881	18,810,750	18,130,843	0.0429	778,399	7.35	0.0527	955,285
2036	7.881	17,683,709	17,044,539	0.0398	678,304	7.35	0.0491	836,562
2037	7.881	16,539,518	15,941,704	0.0369	588,070	7.35	0.0457	728,863
2038	7.881	15,401,589	14,844,905	0.0342	507,606	7.35	0.0426	632,246
2039	7.881	14,282,659	13,766,418	0.0317	436,340	7.35	0.0397	546,170
2040	7.881	13,190,895	12,714,116	0.0294	373,547	7.35	0.0370	469,884
2041	7.881	12,131,710	11,693,215	0.0272	318,455	7.35	0.0344	402,566
2042	7.881	11,109,304	10,707,763	0.0252	270,314	7.35	0.0321	343,399
2043 +	7.881	23,255,275	22,414,724	0.0234	664,703	7.35	0.0299	493,088
Total		1,099,239,344	1,059,507,806		277,226,099	7.35		277,322,907

Average duration years: 13.82, equivalent flat rate: 7.35% = discount rate

Then we developed the equivalent flat rate that will determine the exact same value of this portfolio. If you look at column H, we have applied the equivalent flat rate to each of the payouts in column C to develop the present value based on the flat rate. You can see that the total PBO under column H, compared with column E, is fairly close. Therefore, you can justify a 7.35% discount rate for this cash-flow stream based on this portfolio.

One other thing to remember when you're developing your discount rate is that if your plan has more retirees, i.e. an older workforce, what's going to happen, at least currently, is that your discount rate will tend to be lower than an employer's with many active employees and very few retirees today. The reason for this is because short-term rates are lower than long-term rates today. Now if that reverses, where short-term rates are higher than long-term rates, then an older mature workforce with more retirees will create a higher discount rate than you would find with a younger workforce. Basically, that's what the pension duration is. It's how long the average expected payout of the portfolio is.

The average discount rate for 1992 for the Fortune 100 companies was 8.25%. The range is spread over 245 basis points. For 1993, the average discount rate is 7.29%. The range is 6.5-8.25, a 175-basis point spread. The spread for 1992, from 245 down to 175 basis points for 1993, did shrink because there is less room to develop the discount rate. The average decline in discount rates from 1992 to 1993 was 96 basis points.

At year end, when we were trying to come up with a discount rate, our clients wanted to be in the pack. They did not want to be over the boundary of what was reasonable, because if they had any filings with the SEC during the year, they did not want the SEC to tell them that they were going to have to restate their expense or their financials for the year.

At the end of 1993, people were trying to figure out where the pack was. The pack at the end of 1993, at least for large employers, was 7.25-7.5%. If you look at this survey, six companies were above 7.5%. So there weren't that many employers above 7.5%. Basically, clients thought that if everybody was at 7.5%, the SEC was not going to be able to question that rate.

One other thing that the SEC said in its comments in January 1994 is that in the management discussions and analysis filings with the SEC, you now must disclose the effect of a discount rate change if it's expected to change during the year, and if it's material. That was something new that we had to include this year in preparing disclosures for our clients. For *FAS 106* purposes, you have to show the sensitivity in your medical trends, but now they're also asking for the change in the discount rate. At least that's what the SEC did last year. It may not do that next year, because it may think it got the corrections that it needs.

The case study that I saw was a privately held company that was going to the SEC because it was considering going public. The SEC questioned its discount rate. What that meant was that we had to explicitly derive the discount rate so that we had proof that we could support the discount rate. This process resulted in the client lowering the discount rate from 8.5% to 7.5%. It also affected its charge to equity.

## SELECTION OF ECONOMIC ASSUMPTIONS

Its accumulated benefit obligation (ABO) was more than its assets, and it didn't have accrued pension costs so it had a charge to equity of about a million dollars. With some of our other clients within the firm, we were spending a lot of time trying to figure out what we could do to eliminate the minimum liability. I'm aware of one client that actually stepped up its contributions for the January 15 payment, as well as the September 15 payment for 1994. It made the contributions December 31. When you make the minimum liability calculation, if your assets exceed the ABO, then you don't have a minimum liability. That was one way to manage the charge-to-equity issue.

MS. SHELTON: I have one large client that stepped up almost a whole year's worth of contributions and contributed them in December to reduce the minimum liability impact because we were dropping the discount rate to 7%.

We had experience with the SEC with two clients. One had a 9% discount rate at the end of 1992; it had some filings with the SEC, and the SEC did require it to change the discount rate in the middle of 1993. I believe it reduced it to 8%. Another client had an 8.5% discount rate at the end of 1992. The SEC required it to justify that rate. The client did not have to make a change until the end of 1993; however, it did have to disclose some information in its stock offering with respect to the impact of a reduction in the discount rate.

MS. ABELANET: We had similar kinds of experiences from what Tammy described. I want to spend just a minute explaining one other methodology that Mercer used as far as selecting the discount rate. Instead of developing the spot rates, we actually went in and created an optimization program. We built a portfolio to match the benefit payouts.

In one case, the rate went from what we thought would be 7.25% to 8%. Interestingly, even though we produced a portfolio that would support an 8% discount rate, the client, being a publicly traded utility, decided that was too aggressive and it backed down and used, in fact, 7.5%. In some cases you can actually produce a result or create a set of assumptions that goes beyond the tolerance level of either the actuary or the client. The company ends up not using it because it thinks it's too aggressive.

I'm going to try to spend the rest of the time talking about something a little less technical, which is some of the influences that you need to consider when you're selecting your discount rates and all your other assumptions. We're going to start by talking a little bit about what it is that has created this issue with the SEC. Currently, the SEC's influence ought to have been limited to publicly traded companies. Clearly, that's its area of responsibility. But because of the letter that it issued, and the subsequent publicity that it got, it has had a very powerful influence, not only on publicly traded companies, but, I think as Peg indicated, privately held companies as well. All of them have simply been concerned about continuing to have higher discount rates than the pack.

In fact, even if the SEC has agreed that a selection of a particular discount rate has been OK, there has been some concern that if there's a subsequent filing, such as a 10(k) filing in the middle of the year, the company would have to adjust down the

discount rate. The SEC has been really powerful in creating a situation in which it has had probably more influence than it needs to. One of the places where this has happened is in affecting what the auditors have said. We talked earlier about whose assumptions these are, and the exposure draft says that the assumptions are really the actuary's. But I think you'll get some strong disagreement from employers, in some cases, and certainly disagreement from auditors and, in this case, disagreement from the SEC. Strictly speaking, these are not just your assumptions.

As the SEC issued its letter and exerted a lot of influence on the accounting firms, the auditors, in turn, being concerned about their professional liability, decided that they were going to take a very hard line with their clients, the employers, who, in turn, would turn back to the actuaries and say, "I'm not comfortable with your selection of assumptions. We need to do something different, because my auditors are saying this could create a problem for me."

One of the important issues, though, is the fact that a lot depends upon whether the difference is material. And you can't get auditors to give you a fixed dollar amount, or a percent, to indicate what materiality is. But nonetheless, to a great extent, the issue of whether the SEC is going to be a problem, the issue of whether the auditors are going to be concerned about the selection, are very much dependent on how material it is that you use a 9% discount rate instead of 8%, or 8% instead of 7%. If it's not material, then they won't spend as much time worrying about it.

Then you get back to the one other issue, which is also important, and that is how visible it is. If it's not material that you use 8.5% instead of 7.5%, then maybe you should just go ahead and use 7.5% because that's what gets disclosed. It's sort of like a cycle that you go through, where everybody wants to make it look as favorable as possible, *keeping in mind the other considerations.*

Now I'm going to spend a few minutes on some of the other assumptions that we use. First is the return on assets. The definition of the return on assets is that it's a long-term return and it's specific to the plan. It's very much tied to the same kind of considerations that you used for selecting your investment-return assumption for funding. But it is a very explicit assumption, and for accounting purposes, of course, it only relates to the asset side. It is not in any way directly related to the liabilities, although, as we talked before, you consider the funding level and you consider the cash flow. You consider many other issues in selecting the return-on-asset assumption.

Several years ago, there was a lot of discussion about how to manage your costs through the selection of your long-term return. Lately, there hasn't been a lot of discussion about that.

Peg referred to the comparison of the Fortune 100 companies' 1992 assumptions for disclosure and their 1993 assumptions for disclosure. You would think that if the bond market went down so much that you would see a corresponding reduction in at least a part of the return-on-asset assumption. I saw that there was very little difference in the return-on-asset assumption from 1992 to 1993, even though there was a significant drop in the discount rate. So what that's saying is that the selection of asset return is not reacting to any kind of external pressure in the same way

## SELECTION OF ECONOMIC ASSUMPTIONS

that the discount rate is. And the truth is it probably is reacting in the same kind of way, and that's why there isn't a reduction. If you lower that on top of lowering your discount rate, you would get some phenomenal increases in your expense.

There are a few other things, though, that I wanted to mention. One of the things that happens when you explain to a client the terms of selecting your assumptions is that you do get a chance to talk about the company's investment strategy. A technique that has been developed, which I think is probably going to get more and more attention, is this question of whether the portfolio that it has been constructed is the most efficient portfolio that could be constructed, given its tolerance for risk and its need for cash flow.

Strictly speaking, this is not an assumption issue, but it is an example of how the selection of assumptions and the interaction that the actuary has with a client really expands into probably many more areas and could expand into many more areas than you thought of in the past. If you go back to that question of whose assumptions they are, they really are the actuary's assumptions in the sense that we sign off on them as being appropriate. But they are the client's assumptions in the sense that it has the ultimate control for so many of the things that are influencing what the specific assumptions ought to be.

Another thing that's available to be used in the development of pension expense is the market-related asset value. Those of us who do ERISA valuations are all familiar with the five-year, or some other kind of rolling market average. One of the questions that I had, and I would like to see a show of hands, is how many of you actually use the averaging technique to develop the pension expense numbers? OK. That's pretty consistent with what we talked about. Those of us who have actually used it detest it very much for all purposes, except that it does succeed in giving some smoothing of cost.

However, on the other hand, it also makes it very complicated to develop your gains and losses and to figure out what part of a gain or a loss is amortizable in a year. So I don't use it. I don't like it, but it is another technique (it's not strictly speaking an assumption, but it's a technique), a methodology, that you can use to help manage the expense calculations.

What I think one of the bad news pieces of it is that regardless of what you use in terms of developing this return on assets, at the end of the year when you do a disclosure, you're still using the market value. So it doesn't really impact what makes an appearance on the company's balance sheet at the end of the year. It really affects the expense during the year.

There are a couple of other techniques that you can use. One is an explicit expense assumption that could be either a dollar amount or some percentage of liabilities. Again, how many use an explicit expense assumption in developing pension expense? With expense within the assets, how many? One. OK. So that's even less prominent.

RECORD, VOLUME 20

MS. SHELTON: I have one large client that recently decided, for *FAS 87* purposes, to load the normal cost by the prior year's expenses, which are paid from the trust. So we are building that into our service cost for *FAS 87* purposes.

MS. ABELANET: We actually have a whole series of plans where there are no current active participants, and they build their expense assumption in the same way. Their expense is the normal cost. Again, that's fairly unusual, but if the plan pays a significant amount of well-defined or fixed expenses that are beyond investment management expenses, it makes sense to consider adding that into your calculation.

What I have found, though, is that employers are frequently uncomfortable with me creating what they consider an additional liability. In their minds, it's just an additional piece of cost that we haven't reflected before. It's sort of a visible piece that they're not comfortable with us adding on.

Talking a little bit now about salary assumptions, Peg talked about where employers helped to control the impact of the reduction in the discount rate when they took those 100 basis points, or most of them, out of the salary assumption. The most direct relationship between the discount rate and the salary assumption is this reduction in assumed inflation, which drove down the salary assumption.

If discount rates go up for 1994, are the salary assumptions going to go back up? And my guess is, they probably won't go up to the extent that they came down in the past year.

Tammy, why don't you talk about the connection that you had made with salary assumptions?

MS. SHELTON: I have typically, for *FAS 87* purposes, connected my salary assumption with the long-term return on assets and not to the discount rate. And so I have historically not changed my salary assumption every time I have changed a discount rate. There was a lot of pressure from clients, and I'm sure there will be this year, that when discount rates dropped, the salary assumption should drop. I did change my salary scale for one client, but I am also changing it for minimum funding purposes. The client has convinced me that in its particular situation, its long-term expectations, with respect to salary increases, are quite a bit less than what I had been assuming.

I'm sure there are many situations in which individuals have different salary assumptions for funding and expense purposes. I have some problems with that from a theoretical basis. How can I assume one salary increase for expense purposes and another one for funding?

MS. MCDANIEL: A client of ours had proposed a couple of years ago to have a hedged portfolio, as Carolyn was talking about before, in which it would have a bond immunization duration matching. We had talked about doing a duration matching so that as the discount rate changes so do your PBO obligations. They move in tandem. We had talked about tying the salary scale to the discount rate, because we were doing something to control volatility on expense. And if we did that, then we were not going to change the salary scale for funding purposes, because we really thought

## SELECTION OF ECONOMIC ASSUMPTIONS

this was only an assumption tied for *FAS 87* purposes. We never did it, and the reason why we didn't do it is because the client didn't want to increase its salary scale when the discount rate went up.

MS. ABELANET: We had talked about whether we were comfortable with using different salary scales for funding and expense. One of the things that you might be able to use as an intellectual justification is that in the case of funding, because of the 401(a)(17) limits, and to a lesser extent, the 415 limits, but certainly 415 as it relates to early retirement, is that using a salary scale that's even, say, 5.5% or 6% would produce so many people who would hit one of those limits so quickly and drop the funding down so much that you might actually be able to argue that, for purposes of funding, you ought to use the lowest possible salary assumption that you could find tolerable, even though in the case of your expense calculations you might select an assumption that you think is more directly explicit and tied to what the client is going to be doing in the future. I personally don't do that and I see some heads being shaken on that. But I think it might be an argument that you could construct as far as using different salary assumptions for funding and for expense.

One of the things that's important on the funding side is that the way the code is written, you're required to produce results that are consistent with an explicit set of assumptions. You're not required to use each assumption as your best estimate individually, as long as the result produces a number that's consistent with individually realistic assumptions. So it does present a situation where you could make the argument that you have different sets of assumptions for different reasons.

Sometimes I'm horrified at the number of different sets of numbers that we have to produce for our clients. They'll say, "What is my liability? Or what is my funded position?" And you ask, "What is your purpose and what is your reason for asking? What is your time frame for asking?" These are just some of the different things that I thought of that we have to be sensitive to if we're going to try to use consistent assumptions. We have to consider whether a good assumption in one place might produce a different result in another place and whether that result in the other place is going to create some problems for us later on.

Someone within Mercer developed somewhat of a white paper on the proposed changes in the law that would affect the determination of the PBGC variable premium. If, in fact, that legislation is adopted, one of the worst things that will happen is that the cap on the variable premium will go away. But in addition, it will narrow the range of interest rates that could be used to determine whether a plan has an unfunded current liability. It would also require that you use a specific mortality assumption, the 83 group annuity mortality (GAM) table.

The discussion focused on consulting actuarial strategies that you can develop to prepare for, or to react to, such a change. It went back to the issue of the assumptions being required to produce a number that was consistent with individually reasonable assumptions, even though the actual assumptions that you used might be different. The example was if you used an 8.5% interest rate and assumed that people retired at age 62, and then used a 7.25% rate and assumed that people retired at age 65, you might get essentially the same kinds of liabilities and the same kinds of funding requirements. If your minimum contribution and your maximum

contribution would be about the same, would it be appropriate for you to select assumptions that had an age-65 retirement so that when you had to calculate current liability on those same retirement assumptions, you produced a current liability that was not as onerous as it would be, had you been assuming age-62 retirement? This is something that you'd have to be comfortable with, but it was a development of a possible response to some legislation that's going to, once again, narrow our options and really move toward creating higher and higher liabilities for the clients' plans.

Another point that was suggested in the paper was the possibility of adding assumptions. If you weren't able to match some assumptions directly, you might even consider adding an expense load to make sure that the overall funding requirements came out to be the same.

Returning to this question of how sensitive you have to be to the availability of information, there's a fair amount of public access to the liabilities that we calculate. Certainly, if it ends up on a Form 5500, it can end up in anybody's office. If your client is a utility or a regulated agency, to the extent that it does filings—if there are any kinds of public hearings or if there are people who are friends of the regulatory agency—they will have access. For instance, in Texas, with the Public Utilities Commission, you can attach yourself to a rate filing as an employer or as an independent oversight person and have access to the information that supports that rate filing. Thus, even though you think that the information is really between you and the client, there are ways that you might not anticipate that other people can gain access to that information.

Similarly, if your client is a defense contractor, the defense audit agency, which has access to the information, can request all sorts of support and justification for the selection of assumptions that you make. It is now able to look at the consistency in the assumptions for funding purposes and pension expense purposes.

Another thing that you probably don't think about is that there are many industry groups where the employers share this information. And so, once again, you have to be sensitive to the fact that people will know or can get access to what you've done.

A client called me last year and said it had received a letter from the PBGC. It wanted us to fix the problem because the PBGC told the client that it might be on the top-50 list of underfunded plans. I said, "No, you're not underfunded." And yet I looked at the letter and, of course, what the PBGC did was look at the annual report, extract information from that, and make a series of actuarial adjustments for mortality and for discount rate. The PBGC didn't take into account, in this particular plan's case, the portion of the benefits that would not be guaranteed by the PBGC. Also, the PBGC didn't take into account, because it had no way of knowing, the portion of those benefits that were nonqualified.

But nonetheless, it extracted the information from the company's annual report, and that is, in fact, one of the bases that it uses to develop the top-50 underfunded plan list. It wasn't too much of a risk. This company had no real chance of getting on the list, but it is a utility and is very sensitive to any kind of public criticism.

## SELECTION OF ECONOMIC ASSUMPTIONS

And finally, one of the other things that will probably come up more and more is the question of whether the assumptions that you use for *FAS 87* and the assumptions that you use for *FAS 106* are consistent, at least in the area of inflation and return on assets if the plan itself is being funded. We talked a little bit about *FAS 87* and ERISA funding for pension plans, where you try to make those assumptions (the ones that are common, such as the salary assumption) consistent. But then you also have *FAS 106*. If you are funding your retiree medical plan, are you then required, in terms of the funding of the retiree medical benefits through a voluntary employees' beneficiary association (VEBA) or in the 401(h) account, to have assumptions that are consistent with your pension ERISA assumptions? So you now get retiree medical expense compared with pension expense and possibly retiree medical funding compared with pension funding, and also retiree medical funding and expense, and pension funding and expense. So after a while, I think your head starts to spin around.

MR. SAMUEL D. HARRIS: Much as the discussion went this morning, at the end of last year with my clients I drew a line in the sand of 7.5%. I was looking at some surveys, up until this one, and I've been astounded to see how many companies reported above 7.5%. Notably, the Financial Executives Institute did a survey where it split out results by public versus nonpublic companies and by the size of sales. Anyway you look at it, substantial numbers of companies were above 7.5%. I'm just curious. Does somebody know what's going on? I felt like I looked kind of foolish drawing this line in the sand.

The second thing is that the horror stories that I've heard regarding the SEC seem to be focused on situations where there's a public offering involved. I haven't heard too much, if anything, about other involvement of the SEC. Does anybody else have any SEC horror stories that are not related to public offerings?

MS. ABELANET: Going to your first question, the materiality issue is just, I think, the most critical thing. If the company was concerned, it would discuss it with its auditor. Then the auditor would advise that if it were material, it then might be at risk with the SEC. Otherwise, it's likely that the SEC might only slap the company on the wrist. But ultimately, even if the SEC came back and said the company had to restate its financials, if the difference in restatement wouldn't be material, then the client would probably not have to worry about it. So I think that's the first, and probably the most important consideration, but it's not one that people generally discuss. The purpose of the SEC letter was to get the discount rates down, and it achieved what it wanted. We don't feel that same kind of pressure necessarily with the privately held companies.

MS. SHELTON: With respect to your second question, I similarly drew a 7.5% line in the sand. I think that the only way, in general, one can justify a higher discount rate is if you have a primarily young workforce and not many retirees. I am hard pressed to find justification for discount rates of 8% and above for any group that has a great number of retirees.

MS. MCDANIEL: Part of it is that if you knew that you were not going to go to the SEC during the year, then you could be more aggressive. That was one of the issues with one of my clients. They knew that they probably were going to go to the SEC

RECORD, VOLUME 20

for some business issues on acquisitions, and they did not want to be challenged on the discount rate.

MS. ABELANET: I think much had to do with who your auditor was and how sensitive the auditor was to the issue.

MR. JONATHAN M. NEMETH: Carolyn, can you elaborate a little bit further on the methodology that Mercer uses to calculate discount rates versus the traditional approach, which I believe was discussed earlier? And as a follow-up to that, what differences in discount rates have you seen between *FAS 87* and *FAS 106* valuations using your methodology?

MS. ABELANET: Let me answer the second one first. The differences are all over the place, but not nearly so great as you might think. We're getting almost the same kinds of results for retiree medical as for pension when we're doing the bond matching. And as far as the methodology, I can go in more detail later on. But essentially we have a universe of all the bonds that we consider acceptable and then we create a whole series of portfolios and select the one that produces the highest implicit rate.