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Other Assumptions in the Pension Funding Debate

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Abstract

This paper is a follow-up to the papers in the January and April 2005 editions of the *Pension Forum*, which focused on the interest assumptions to be used in pension funding. This paper focuses on the other assumptions used to calculate pension liabilities—mortality, early retirement and expense. The early retirement assumptions, in particular, have been a significant contributor to the deficits in some recent distress terminations.

Background

The symposium on the “Great Controversy” in 2003 and the papers published in 2005 in the *Pension Forum* focused on the interest assumptions used to discount pension benefits. The financial economics model uses bond interest rates to discount accrued benefits, while the traditional

actuarial model uses a higher interest rate that factors in historical equity returns to discount projected benefits, where applicable.

Both models have validity for different purposes. The financial model is best used for regulatory purposes—funding and GAAP earnings, while the traditional model can be used for management purposes—such as *pro forma* earnings and allocation of expenses to operating units.

The purpose of funding is to ensure payment of benefits, which requires that the plan have sufficient funds to effect a standard termination. The purpose of GAAP is to provide investors, creditors and other interested parties information that is comparable across companies and reflective of costs incurred during the period. The financial model works well for these purposes.

Management might want to see what pension costs would be as a level percent of payroll if current investment earnings, mortality, salary increases and turnover continued into the future. This could be used as part of the benefit expenses, which are typically allocated to operating units as a percent of payroll. The traditional model works for this purpose and could also be used in *pro forma* earnings, in which GAAP earnings are adjusted for nonrecurring items to give investors a better view of the ongoing business.

The Burrows paper¹ contains a complete discussion of interest and mortality assumptions. Two ideas are repeated here. For GAAP, changes in pension surplus from changes in accrued benefits would flow through operating income while other changes in surplus (from asset-liability mismatch, mortality or early retirement experience) would flow through comprehensive income.

Another is the use of over collateral to allow for equity investments and level contributions if desired by the plan sponsor. As an example, a typical participating group annuity might allow 75 percent in equities with 25

¹ Burrows, “Fixing the Pension Plan Funding Rules”, *The Pension Forum*, April 2005, pp. 19 ff.

percent in a dedicated bond portfolio if the plan has 30 percent over collateral. As the over collateral falls to 0, the percent in the bond portfolio increases to 100 percent. The over collateral could also absorb changes in pension surplus thereby allowing level annual contributions. Tax law changes would be needed to allow funding and withdrawal of over collateral without punitive taxes.

Interest Assumptions

What is the correct interest assumption for discounting pension benefits? It is the one that combined with the other assumptions produces a value equal to where a safe annuity provider would price these benefits. This is the amount needed to effect a standard termination. It is also the fair value of these liabilities—the price at which a willing buyer and seller would exchange them.

To be a safe annuity provider requires minimum ratings of AA-/Aa3. Thus, annuities should be priced inside of a double A financial yield curve, since liabilities in the form of funding agreement notes, which do not have mortality or early retirement risk, could be issued at these rates.

PBGC rates are derived from a survey of insurers in the annuity buyout market. Until recently, an obsolete mortality table was used to extract the interest rate from the insurers' annuity rates making the interest rate appear to be low.² Due to publication requirements, PBGC rates lag the market by two months. However, when adjusted to a current mortality table and a two-month lag, the PBGC rates are close to government bond rates. A study by the American Academy of Actuaries of the pricing of actual annuity purchases compared to PBGC pricing shows that PBGC pricing is close to insurance company pricing.³

Other key points are that assets and liabilities should be marked to market on the same date (i.e., no time averaging) with liabilities valued on a yield curve.

Mortality and Expense Assumptions

A survey of group annuity pricing completed in 2001 showed most providers using the same mortality assumptions for all cases.⁴ While some providers were using older mortality tables, they were projecting them to account for mortality improvement. Continuing mortality improvement, which renders tables obsolete soon after they are adopted, was handled in annuity reserves by building projections into the 1994 GAR. This reserve basis is adjusted for mortality improvement using a static projection from 1994 to the current year with a generational projection thereafter using scale AA.⁵

The RP2000 could be projected in the same fashion to account for mortality improvement, keeping it accurate for many years into the future. This table was designed to replace 1983 GAM in the calculation of the current liability⁶ and is reflective of the mortality of large, private sector plans.⁷

The RP2000 study measured two factors, in addition to age and gender that affect mortality of non-disabled lives—collar and amount of annuity. This study concluded that there was no way to combine collar and amount and that either one (but not both) could be used to adjust mortality.⁸ Plan administrative expenses—keeping records and paying benefits—are per life expenses. By including the expenses in the net interest assumption, plans with large annuities are overcharged while those with small annuities are undercharged, par-

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² This changed in 2006 from the 1983 GAM to a projection of the 1994 GAM in 2006.

³ American Academy of Actuaries, "PBGC Plan Termination Cost Study," Cover letter.

⁴ Modugno, "30-Year Treasury Rates And Defined Benefit Pension Plans," *Risks and Rewards*, 2/02, p.14.

⁵ Society of Actuaries Group Annuity Valuation Table Task Force, "1994 Group Annuity Mortality Table and 1994 Group Annuity Reserving Table," p. 909.

⁶ As defined in 26USC412 and 29USC1082.

⁷ Retirement Plans Experience Committee, Society of Actuaries, "RP2000 Tables," Executive Summary.

⁸ Ibid.



tially offsetting the mortality differences from amount of annuity.

Early Retirement

In many cases the early retirement assumptions are as important as the interest rate in pricing annuity benefits. For example, the cost of a 50-year-old collecting 70 percent of his benefit at age 55 is 46 percent higher than collecting his full benefit at age 65 (based on 1994 GAR at 5 percent). This is equivalent to about a 3 percent lower interest assumption. Yet the plan can make any assumption, including no early retirements, in valuing this benefit.

For funding, early retirement assumptions should presume financial distress, which is when plan assets are needed to assure benefit payments. A solvent employer is required to continue funding and paying benefits. A dis-

stress termination, which is usually part of bankruptcy reorganization, is the only time benefits are cut or paid under the PBGC insurance program. In this situation, early retirements (in many cases involuntary) are very high, regardless of what the experience or expectations of early retirement were prior to financial distress. PBGC's expected retirement age method is used to value plans it takes over in distress terminations.⁹ This method was validated in a study of actual compared to the expected retirement ages in 1994 that was updated in 2002.¹⁰ It shows a high rate of early retirements in distress terminations.

For GAAP accounting for companies where bankruptcy does not appear imminent, it could be argued that early retirement expectations based upon recent experience would give a more accurate picture of the ongoing business. However, the insurer pricing a standard termination would not use the plan's early retirement assumptions in cases with low rates of retirement and heavily subsidized benefits even where the employer's business was sound. The insurer would have to take into account the possibility of deterioration of experience in the future. Thus the fair value of the early retirement benefit would reflect more conservative assumptions than recent experience would suggest in cases with low early retirement rates.

Lump Sums

Lump sum options have become increasing by popular in defined benefit plans, particularly after GATT lowered the cost of paying them.¹¹ When offered lump sums, 95 percent¹² of low income participants take the cash, with less than 20 percent of that money rolled into an IRA.¹³ The social benefits of defined benefit plans in reducing reliance on public assistance programs are lost when retirement funds paid in lump sums are dissipated.

Minimum lump sum calculations are based upon long-term treasury rates. For cases with early retirement

⁹ 29CFR4044.55.

¹⁰ Weiss, et al., A memo dated 4/26/02 re Status of Assumed Retirement Age Assumption (XRA) for the PVFB.

¹¹ Committee on Retirement Systems Research of the Society of Actuaries, "Safest Annuity Rule" p.47.

¹² Watson Wyatt, "Choose Employees Choose Lump Sums!"

¹³ Working Group On Retirement Plan Leakage, "Are We Cashing Out Our Future?"

benefits, lump sums are usually less expensive than annuities, since only the normal retirement benefit is discounted. The PBGC does not have lump sum options for plans it takes over. However, lump sums can drain a plan of assets prior to takeover. So, for funding, the greater of the annuity cost or the lump sum cost should be used.

For GAAP accounting, assuming a rate of lump sum elections can offset some of the cost of early retirement. The smart money (i.e., large annuities) is likely to choose the most favorable options for their circumstances, and this could affect the experience of the remaining annuities. In the event the safety of the annuity is in question, everyone will run for the exits. In pricing lump sum options, insurers will be conservative because of possible anti-selection.

Conclusions

The use of standardized, conservative demographic assumptions and government bond interest rates should lead to adequate reserves in most cases. It will lead to higher reserves than needed in some cases. The higher contribution levels do not increase the cost of pension plans, which depend on future experience. The employers and their advocates who are lobbying for actuarial assumptions that minimize required contributions are really trying to transfer costs to others—future shareholders, taxpayers and retirees.

One concern is that higher required contributions and recognition of costs under GAAP accounting will accelerate the decline of defined-benefit plans. Why have defined-benefit plans lasted this long? They favor long-service, older employees and so in groups where these employees have power, such as in the public sector and unions, they are likely to continue. However, in the competitive private sector, where employers are trying to recruit younger employees who change jobs frequently, newer companies offer 401(k) plans instead of defined benefit plans. Defined benefit plans continued at older companies, in part, because they allowed management to manipulate operating income by using pension income to meet earnings targets. The stock market boom of the 1990s left plans over-funded, so no cash contributions were required. Cash balance plan conversions became popular because they allowed employers to keep the accounting and funding advantages of defined benefit plans while giving employees the account balances of 401(k) plans. The excise tax on reversions also played a role in cash balance conversions for over

funded plans by giving these plans a way to use up the surplus without paying this tax.

The stock market decline in 2000 and falling interest rates combined to make plans that had been over-funded and had not made contributions in many years suddenly under-funded. Some of the companies sponsoring these plans went into bankruptcy and shed their pension plans in distress terminations, resulting in losses to the PBGC and employees who were above the insurance limits. A regulatory system that produces these results is defective and needs revision. ♦

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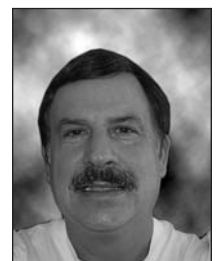
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