Measuring Terminable Postretirement Obligations

Jeffrey Petertil

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(note: The quotations appearing in this monograph are exact, except where capitalization and punctuation were changed in keeping with modern style and grammar guidelines.)

Abstract

New approaches are needed to value benefit plans subject to unilateral changes or termination. This paper focuses on postretirement health benefits, but the thesis might be relevant to any flow not guaranteed by law or accumulating funds. Retiree health benefits have usually been extended to participating active employees, only in concert with a reserved right by the plan sponsor to control the design and, by implication, the cash flow. Over the course of the last 15 years, this reserved extension of benefits has almost invariably led to reductions in benefits, when compared to the plan of benefits at an earlier period. In most cases, such reductions were anticipated under the circumstances that came to prevail (high health care cost increases), but were not taken into account by most of the projection and discounting methods of the time.

The paper discusses how actuaries might best approach measurement situations where further plan reductions, or outright terminations, are to be anticipated. It introduces refinements and briefly discusses how each would fit with the usual actuarial model. The paper will provide a basis for discussion of whether the use of relatively risk-free discount rates are appropriate under assumptions of substantial continuation of plan design and greatly increasing per capita payments, when the plan sponsor can dramatically change future cash flows.

1. Introduction

The actuarial model used to measure retiree health benefits has proven to be of limited usefulness in understanding the obligations associated with the benefits. A major failing has been to disregard the financial uncertainty that is implicit in a plan sponsor's unilateral ability to change, or even terminate, the obligation to pay for the benefits. Most sponsors continue paying for health benefits to retirees, despite the termination potential, and there are good organizational reasons to do so. In many cases in the last dozen years, however, the continuing steep increase in plan costs has led to benefit reductions, nullifying the implied promise to maintain benefits at the previous levels. In those cases, the previous actuarial measurement, which valued the changed plan many years into the future, is seen to have overstated the obligation.

If this happens very often (and it has), the measurement loses credibility. Measurement is an empty exercise if it regards as unchangeable certain contingencies that practical experience shows to be changeable in a significant way. No contingency is more significant than whether the plan sponsor will support the plan financially. When the retiree plan is terminable at the decision of the plan sponsor, measurement calls for an actuarial model that recognizes the risk of termination. Greater accuracy of measurement would reflect this risk and could improve decision making in retiree health situations.

The SOA's symposium on "Current Pension Actuarial Practice in Light of Financial Economics" provided an opportunity to consider the retiree health situation anew. The actuarial model used for measuring retiree health obligations derives almost entirely from the pension model that was in existence 20 and 25 years ago when retiree health benefits were first brought to the attention of actuaries. If pension actuarial science is being reinvented, let's not leave behind retiree health and its actuarial arts and sciences.

This paper examines a number of ways the actuarial model can be refined to take into account the plan sponsor's legal right to terminate the plan. After discussing the current model and its drawbacks, the paper introduces three of those refinements and briefly discusses how each would fit with the usual actuarial model. One modification leans more heavily on financial economics than the others, but, in the sense that each attempts to quantify a risk previously not quantified, each may be of interest here. The paper will then turn to how the measurement results of these refined models would compare with those of the current model, the likely effect on behavior of interested parties if the refined model were to be adopted and likely objections to adopting the refinements. Finally, the paper will comment on some aspects of "The Great Pension Controversy."

2. The Current Retiree Health Actuarial Model

The retiree health actuarial model generates relatively high values of future payments. When combined with discounted cash flow techniques and actuarial cost methods, the model attributes high costs to current periods. This attribution has influenced terminations and cutbacks of postretirement benefit plans. The model, however, has not reflected the risk of major reductions in its measurement, although such risk has been apparent.

A review of the elements of the traditional actuarial model for retiree health shows three foundation elements: the plan provisions, the claim payments (which generate the initial health rate assumption) and the population census. Once modeled, these factual parameters are subject to projection assumptions and actuarial cost methods, leading to the measurement results.

The projection assumptions for most retiree health valuations include the usual application of preretirement withdrawal rates, rates of retirement at various ages and mortality. In the common situation, health care is continued into retirement for an employee and the employee's spouse without a stated time of benefit termination. The implied extent of benefits is the retiree's life and, often, the life of a surviving spouse. In these circumstances, projection of payments in retirement for the current work force can be expected to extend at least 50 years.

Per capita health care payment levels are projected to increase significantly throughout those years, due to anticipated increases from price inflation and additional utilization of medical goods and services. Group payments usually increase not only when the retiree participant count increases, but also for many years after the count has begun decreasing, possibly beyond the 50-year mark. Even for organizations with mature work forces, payment amounts to the expected retiree group from the current work force (closed group) in the 50th year are likely to be greater than those in the 10th or the 20th year, not to mention the current year. This is due in part to the aging effect, but principally to the compounding effect of health care trend. In terms of present values, calculated using a discount rate that is relatively risk free, more than half the present value of expected obligations (EPBO) will often be beyond 20 years.

This extraordinarily long duration far exceeds that of most financial obligations. Retiree health obligations will, much more often than not, exceed the duration of pension obligations. Pensions rarely incorporate inflationary increases and never to the level of continual increases that health care has experienced. Retiree health obligations, when considered in this fashion, are seen to carry the weight they do because of the assumption that their substance will be maintained and sustained for a very long time. Yet, in almost every case, the plan's substance can be changed by the plan sponsor (or the sponsor's successor, be it a buyer or bankruptcy court). Significant changes can and will be made, with little relative effort in most cases, leaving the purported beneficiaries with ineffective recourse to future claim payments or reimbursements.

There is a major disconnect between the actuarial model, projecting increasing payments for decades and the reality of a plan sponsor contemplating major changes within a few years, if not months. Unfortunately, the actuarial model may lead to the plan termination that the actuarial model was unable to reflect.

3. Refinements to the Model

The actuarial model for retiree health will be improved by recognizing, in the model, that plans are subject to major changes in the time period covered by actuarial projections. Measurement results can address uncertainty by altering assumptions (e.g., no health care trend), projection periods (e.g., only the first 20 years) or actuarial cost methods (e.g., attributions incorporating payroll or other economic growth), any of which might aid in the understanding of the retiree health benefits. The refinements discussed in this paper, however, concentrate on a present value measurement using explicit assumptions and realistic discounted cash flow.

The model could incorporate the sponsor's estimate of what the risk of major reduction or termination might be through the use of one of the following three refinements:

- a higher, risk-adjusted discount rate;
- a plan termination decrement; or
- specific estimates of future reductions.

Each modification might lead, independently of the other, to much the same financial effect. They might be applied either in the initial year of a valuation or initiated at some more distant year when the risk of significant changes to the plan begins. They might be applied differently to population subgroups, for instance, retirees and actives. (Readers who envision consequences more clearly with a numeric example in mind might wish to read the next paragraphs thinking about a plan termination decrement of 5 percent per year or a discount factor that has been increased by 1/(1-.05).)

A risk-adjusted discount rate is the modification I prefer, because it acknowledges uncertainty more than the others. It also most easily fits into financial economics and, thus, is subject to more examination here. The two other refinements mentioned assume a probability of change at particular points in the future. Use of a *plan termination decrement* each year explicitly assumes a bimodal

distribution of either continuing unchanged or terminating. If the plan termination decrement is "*t*", then the plan survival probability for that period is "1-*t*", and it would have a cumulative effect over the years.

More complex future changes could be quantified as to probability, amount and timing and then modeled—this would be the refinement incorporating *specific estimates of future reductions.* Specific estimates would be used to establish the most likely path for plan payments (or benefit levels) in light of the major uncertainties involved. Such a technique presupposes knowledge by the plan sponsor of the projection results of the traditional actuarial model for a particular plan on a period-by-period basis. The plan sponsor would then specify the timing and proportion of future reductions. The actuary might act as a guide along the actuarial projection path, refine the model to reflect the future reductions, and then continue with the calculation. This is the most labor intensive of the refinements introduced here. Similar to the decrement approach in application, individual decrements might differ by time period and vary to encompass potential benefit changes as well as terminations.

4. Present Values with Risk-Adjusted Discount Rates

Financial economics suggests the most appropriate modification would be to discount the expected cash flows with a risk-related interest rate, assuming best estimate projections of payments under the current substantive plan without using any termination or other reduction decrements. (If the future payments under the current plan are guaranteed and have dedicated assets in trust, the discount rate might be a relatively risk-free rate.)

Determining an appropriate risk-adjusted discount rate is more wide open than determining an appropriate risk-free rate, but a few points are essential. First, the rate will be higher than the risk-free rate, so that the present value of an expected payment will be less than it would be using a risk-free rate. Second, the rate will not be found in the pages of the daily market report. The risk of plan change is not one to be immunized by matching with an easily available asset, so current market returns have limited relevance. Third, if the discount rate really reflects the risk associated with plan changes, then the aggregate present value should be the same as derived under the other two refined methods involving decrements.

These last two suggest the plan sponsor should select the risk-related discount rate. It should not be mandated as a market-related rate ("10-year

Treasury yield plus 475 basis points"), although many plan sponsors and actuaries may be comfortable with that for their work. Annual rates of 10-12 percent might be appropriate for 2003, but if a plan sponsor feels a case is to be made for the use of a 24-percent annual discount, such a high rate should not be automatically considered off-limits. Some will feel comfortable with an internal rate of return used to measure the effectiveness of other internal investments. Others may wish to use rates that are more reflective of outside markets' view of the creditworthiness of the organization, although that may be a more appropriate discounting tool for retirees and employees judging the value of the future benefits than for an organization's management.

This refinement fits easily into the realm of financial reporting such as FAS 106, with a need only to change the reference to high-quality long-term bonds. This change may be justified now that the passing of time has shown reluctance on the part of employers to engage in full funding of liabilities as measured by the current retiree health model. A financial reporting rule that allowed the plan sponsor to freely choose the discount rate to match its commitment to the substantive plan would probably also need an additional disclosure about the variability to be expected by that choice. This could be similar to the trend rate sensitivity advocated in FAS 106, although possibly with a wider corridor than the one percentage point corridor used for trend. Sensitivity testing at three or five percentage points from the chosen discount rate might be useful to those analyzing the financial reports, or the reports might disclose the value at a given discount rate (say, a long term U.S. Treasury rate) which would be the same for all reporters for a given period.

5. Practical Effects of a Model for Terminable Obligations

The important element in these three approaches is the recognition (either implicit or explicit) that disproportionate weighting of payments far in the future implies a higher likelihood of future decisions to reduce benefits. Each of these "terminable" models takes account of the potentiality of major future reductions in benefit levels and has the effect of reducing the present value of the later payments in relation to the more certain earlier payments. This reduction in "back loading" makes the measured value both more realistic and less volatile, since it is less susceptible to leveraged swings in discount rates and health care trend rates. An improved actuarial model would have positive practical effects. These would include more pragmatic funding decisions, more sensible plan design decisions and more realistic generational expense allocations than are

derived from the current use of a model without recognition of the termination contingency.

We can anticipate changes in the way these benefits and their financial implications are discussed. The obvious change is that the current actuarial cost of the benefits would appear to be less (in some cases, much less), because payments projected for the distant future would not be recognized as a cost as early as under the current model.

Do the delayed costs disappear entirely? Not if the substantive plan never changes. If future management does not exercise the right to change the plan, the future plan payments will be recognized in later allocations. And they will be recognized long before they are paid, allowing adequate time for prefunding or accrual. The cost of not making a change will be allocated to the management that does not make the change, not to the earlier management that reserved the future ability to make the change.

A terminable obligation model also would mitigate a major problem with financial reports from sponsors that have already accrued a significant liability under a standard such as FAS 106. There is now a temptation to implement certain plan change decreases that have a major impact on current financial reports, because these changes have little effect on the perceived value that the employees or retirees attribute to the benefits.

The most striking example is the "caps" with which sponsors of about half the corporate plans placed dollar limits on their obligations. These limits simply stated that annual benefits would not be paid if they exceeded specified levels. The benefit levels at which the cap limits were placed appeared so unrealistically high that few employees, or those negotiating on their behalf, felt moved to protest. The actuarial models, however, indicated the caps decreased the value of the benefits by 50 percent or more. The disconnect between the current actuarial model for postretirement benefits and the real world becomes apparent if one considers the protests that would have resulted from a 50 percent decrease in hourly wages or a 50 percent decrease in pension benefit values generated by the pension actuarial model. The lack of protest for postretirement benefit caps is a dramatic indication that the actuarial model was overestimating both the original value and the value of the change and was an inadequate model of the likely benefit payments.

6. Practical Hurdles

While many observers of the financial reporting of these benefits and the lack of funding will agree that the current model needs improvement, there will be objections to the refinements suggested here. How can a probability of termination be determined? Even if studies did make known such probabilities, can it be right for a financial system whose goal is financial security to anticipate an end to security? How could selection of a risk-adjusted discount rate navigate between the need for comparability among financial reporters and their need for flexibility?

The short answer to the above is that it has been done before in the selection of assumptions and it can be surely done again. Those are topics for a forum other than one focusing on financial economics. For this forum, a look at the link between liabilities and assets may provide an appropriate conclusion.

7. Bader/Gold's Principle 4

In their seminal paper, Bader and Gold (2003) stated five principles that are accepted in financial economics and violated in the pension actuarial model. The fourth principle is stated, footnoted, elucidated and footnoted again. Principle 4 is worth contemplating in the retiree health context, but the footnotes and explanatory text provide a foothold to some theoretical higher ground from which to view a larger landscape that includes both pension obligations and retiree health obligations. It states:

> *"A liability is valued at the price at which a reference security trades in a liquid and deep market. A reference security (or portfolio) has cash flows that match the liability in amount, timing, and probability of payment.* (Footnote 4: 'Probability of payment' refers to the entire probability distribution of payments, from zero to full payment.) This principle follows from the fact that a company's pension liabilities are similar to debt. Their fair value should be found by discounting at the rates applicable to debt with similar creditworthiness, after factoring in the collateral provided by the pension fund. (Footnote 5: The FAS 87 double-A rate may be reasonably close to the correct rate for the well-funded pension liabilities of strong sponsors, but is too low for unsecured retiree medical benefits or supplemental executive retirement plans of weak sponsors.)"(p. 4).

The latter footnote mentions "unsecured" retiree medical benefits and might be thought by the uninitiated to beg the question of whether the double-A rate is the appropriate rate to discount "secured" retiree medical benefits. Initiates might answer that they have never run across secured retiree medical benefits.

Sponsors make only limited sporadic efforts to prefund the benefits, and many sponsors never specify any assets for them. We can dispense with talk of settlement rates. What I pointed out more than 10 years ago in an article for *The Wall Street Journal* remains true:

> "For retiree health insurance … no settlement market has developed.
>
> "The absence of insurers who will back the retiree health liability has been attributed to the uncertainty and high cost attached to health care. But it is more likely a lack of employer demand. Why should an employer pay a lot to settle a liability it can reduce at will?
>
> "When there is little demand at a high price, the usual assumption is that the market price is lower. … It is ironic that on the day in 1990 when the FASB approved this rule [FAS 106], the Nobel Prize in Economics went to financial economists who made commonplace an asset-pricing model that the accounting rule ignored" (Petertil 1992).

I was suggesting then concepts relevant to this symposium. For one, the asset-pricing model of financial economists can be used to value the asset that the retirees hold, which can then be equated to the value of the liability the plan sponsors hold. For another, the reason that the liability is lower than measured by the traditional actuarial model is not because retiree health benefits are unsecured, as Bader and Gold (2003) may be inferring, but because they are less likely to be paid than the traditional model assumes. Given that most plan sponsors feel it is within their power to terminate the obligation, the reality of setting aside large amounts today, to pay even larger amounts 25 and 50 years from now, does not appeal to management. (The fact that dedicated assets are much less than the FAS 106 liabilities is not because tax advantages are limited, but because the FAS 106 accruals do not withstand scrutiny as reasonable funding targets.)

So the benefits are unsecured mainly because they are not regarded as liabilities to the extent that the actuarial model holds. Finding a "reference security [that] trades in a liquid and deep market" and "has cash flows that match the liability in amount, timing, and probability of payment" is commendable but no easy task. Nevertheless, it needs to be done. Retiree health benefits keep being paid and they also keep being reduced in scope. They seem, in other words, to be terminable obligations, which is something other than "debt." While Bader and Gold (2003) state that Principle 4 "follows from the fact that a company's pension liabilities are similar to debt," I think the principle is a more basic tenet of financial economics that extends beyond obligations that are debt.

Extending their Principle 4 to equities and asking the valuation question not as "What liability does the sponsor have?" but rather as "What asset does the retiree or employee participant have?" brings us to a solution set to the appropriate discount rate. The participant interest runs parallel to the equity interest; when times are good the benefits will be maintained, but in less prosperous times the benefits will be seen as an expense to be reduced. Whereas debt needs to be serviced regardless, equity interests understand they are shareholders. The pension payment is similar to the bond payment—fixed in amount and relatively certain in payment. The retiree health care payment is similar to the stock dividend payout. The amount is uncertain but likely to increase, and payment of the amount itself is at risk.

A basic pricing model for stock uses discounted cash flow to obtain a present value of likely future dividend flows. To distinguish the difference in risk of a stock dividend with the more certain cash flow of interest on bonds of the corporation, the pricing model adjusts, at the simplest level, by using a higher discount rate. The higher discount rate has a risk premium attached. A rate can be selected by adding a historical risk premium to a current market indicator of the long-term risk-free rate. It is such a risk-adjusted rate that should be used to discount the best estimate of future payments under a substantive retiree health plan.

8. Lagniappe

For public purposes, such as financial reporting and establishing funding targets, the retiree health liability should be determined without regard to its funded status. While this seems clearly to be true in the case of terminable plans, it would also seem to hold for guaranteed plans. Otherwise, a difference in

funded status would call for the use of a different discount rate depending on whether there were assets matched to the liabilities. But the liabilities cannot be measured as a present value until a discount rate is chosen, and, without the liabilities, the funded status (percentage of liabilities matched by the funded assets) cannot be known.

Determining the liability by discounting probable payments without regard to funded status also avoids the problem of deciding whether "unsecured" payments should be discounted at a rate higher or lower than those funded. Those who feel lack of funding indicates a weakness in the financial commitment or capability of the sponsor favor a higher rate. A lower rate is favored by those who feel the payment will be made eventually from financial assets that will be more liquid and lower-yielding than trust funds.

9. Conclusion

To regain credibility for the measurement of retiree health benefits, the actuarial model must be made relevant to the very many plans that are terminable. Plan sponsors beset by high health care cost increases have often significantly reduced benefits and can be expected to continue to do so in the future. When the plan sponsor can dramatically change future cash flows, assumptions such as relatively risk-free discount rates, substantial continuation of plan design and greatly increasing per capita payments may not accurately model the evolving retiree health benefit situation. If the plan sponsor or those sponsoring the measurement wish to value the benefit plan with provisions that will not be altered substantively, then the current measurement model will be appropriate. If, however, they wish to measure a plan likely to change in the future, the terminable models allow a more realistic look at the value of the plan.

References

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