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FUNDING ADEQUACY—A CANADIAN PERSPECTIVE

by Malcolm Hamilton

In recommending the funding level for a pension plan, Canadian actuaries are less constrained than their American counterparts, perhaps because the actuarial profession speaks with one voice in Canada and has been able to find a larger role for professional judgment in the funding process. Most Canadian jurisdictions require an actuary to certify that the actuarial methods and assumptions are appropriate for the purposes of the valuation and that the valuation report adheres to accepted actuarial practice. Some jurisdictions have their own guidelines for actuarial assumptions, but these guidelines can usually be breached if the actuary can persuade other actuaries, and through them the supervisory authorities, that there is a good reason for the breach.

By comparison, American actuaries seem preoccupied with the requirements of the Pension Benefit Guaranty Corporation (PBGC) and the Internal Revenue Service (IRS), and have less reason to address the fundamental issue—what, in our professional opinion, is adequate funding?

THE ACTUARY'S ROLE

A successful funding policy is one that balances the conflicting interests of several groups.

- *Plan members* want to receive the benefits they have been promised in exchange for their labor. They expect the actuary to set contributions that adequately secure benefits or, in instances in which the law or the plan provisions do not require adequate funding, that the actuary clearly discloses the extent to which members are exposed to loss and the long-term implications.

- *Plan sponsors,* in deciding how much to contribute to their pension plans, are subject to fiduciary, statutory, and/or regulatory constraints. Within these constraints, they may choose to fund either conservatively or aggressively, and they expect the actuary to guide them in this choice.

- *Pension supervisory authorities* want plan members to be protected in accordance with the relevant statutes and/or regulations and expect the actuary to faithfully carry out the tasks he or she has been assigned by legislation.

- *The tax authorities,* at least in Canada, accept the need for adequate funding and rely on the actuarial profession to establish reasonable upper bounds on "adequacy" to prevent plan sponsors from exploiting tax incentives that were designed to encourage adequate funding, but not to condone excessive funding.

If actuaries want to preserve a role for professional judgment in the funding process, we must responsibly balance the sometimes conflicting interests of these groups. Otherwise, they will lose confidence in us and seek alternatives that will, at a minimum, limit our professional freedom.

Canada's income tax legislation provides a recent example. In the 1980s, some Canadian companies established pension plans for individual executives (discrimination in favor of the highly paid is permitted in Canada). With the support and encouragement of some actuaries, many companies deliberately overfunded these plans so that the executives, to whom any surplus reverted at retirement, would get the greatest possible benefit from the tax shelter. Not surprisingly, the Canadian government lost confidence in the actuarial profession's ability to control the funding of executive pension plans and adopted regulations that overrode professional judgment by prescribing actuarial assumptions. These regulations make the adequate funding of executive pension plans impossible, especially now that interest rates have dropped to levels unforeseen at the time the regulations were adopted.

ADEQUATE VERSUS APPROPRIATE FUNDING

To conform with accepted actuarial practice, Canadian actuaries had to certify that the actuarial methods and assumptions adopted for a particular valuation are both adequate and appropriate. The most recent version of the Canadian Institute of Actuaries' *Standard of Practice for the Valuation of Pension Plans* dropped the certification of adequacy (leaving the certification of appropriateness), arguing that adequacy is usually redundant (inadequate methods and assumptions are seldom appropriate).

To say that a plan is adequately funded is to say that the pension fund's assets exceed some measure of the pension plan's liabilities or, if this is not the case, that the required contributions will cover the deficiency over a reasonable period of time. Appropriateness, in my opinion, goes further—typically requiring that the funding of the plan be adequate, but not excessive. That is, that neither the accumulated assets nor the required contributions are at levels that virtually guarantee the accumulation of large amounts of surplus.

Just as there is no clear dividing line between adequate and inadequate funding, there is none between adequate and excessive funding. Some funding levels are clearly inadequate while others are clearly excessive. Between the two is a range that can be called appropriate. At the request of the pension regulatory authorities and Revenue Canada, the Canadian Institute of Actuaries has been struggling to better define the upper and lower bounds on appropriate funding. The task is difficult and, so far, has met with little success.

THE MOTIVATION FOR FUNDING

An assessment of funding adequacy or appropriateness should proceed from an understanding of the motivation for funding. Within the constraints imposed by legislation and fiduciary duty, it is the plan sponsor, usually on the advice of the actuary, who determines the funding level for a plan. The plan sponsor's decision will usually be influenced by one of the following factors.

- *Benefit Security.* Some plan sponsors want to contribute the minimum required to adequately secure benefits and expect the plan's actuary to identify appropriate contributions subject to the requirements of applicable legislation.

- *Cost Effectiveness.* Some plan sponsors believe that they can lower the long-term cost of their pension plans by contributing more than the minimum needed to secure benefits. These plan sponsors will expect the actuary to identify an appropriate funding level, that is, one that is consistent with their focus on controlling long-term costs.

- *The Matching Principle.* Some plan sponsors want to match contributions to the estimated cost of benefits accruing under the plan. With the advent of *FAS 87* and its Canadian counterpart, Section 3460 of the *Canadian Institute of Chartered Accountants' Handbook,* pension contributions and expenses are no longer identical (except for a few public sector organizations who continue to account on a cash basis). The matching principle, the roots of which are more easily traced to accounting principles than to funding principles, should no longer influence funding policy as it has in the past.

If an actuary can identify a range of funding levels for a pension plan—a range bounded below by the minimum amount required to satisfactorily secure benefits on a wind-up basis and bounded above by a conservative estimate of the accrued cost of the benefits that will ultimately be paid if the plan continues as a going concern, the plan sponsor can choose an appropriate funding target within this range. Plan sponsors who are attempting to adequately secure benefits, but no more, can move to the low end of the range. Plan sponsors who believe higher levels of funding will reduce the plan's long-term cost can move to the high end of the range. Plan sponsors trying to match contributions to the cost of the benefits can find an appropriate point in the middle of the range.

FUNDING TO SECURE BENEFITS

If a plan sponsor wants to contribute the minimum amount required to secure benefits, what principles should guide the actuary?

Benefit security should be tested on a wind-up basis. Any funding method, including pay-as-you-go funding, will secure benefits as long as the plan sponsor continues the plan and makes the required contributions. It is the plan's ability to deliver the promised benefits at wind-up, when the plan sponsor's support is withdrawn, that should be the test of benefit security. A going concern funding valuation is, in my view, a contradiction in terms. If the plan and the plan sponsor continue indefinitely, there is no need to fund the benefit to provide security (although the plan sponsor might still want to fund to lower the cost of the plan, as discussed in the next section). If the purpose of funding is to secure benefits, then funding should be directed at the event that jeopardizes benefit security, the winding up of the plan by an insolvent plan sponsor.

The actuary should therefore seek a disciplined method of setting contributions that guarantee, or virtually guarantee, that the market value of the pension fund's assets will exceed the pension plan's wind-up liabilities at some unknown future wind-up date.

One approach would be to establish a funding target at or above the plan's wind-up liabilities, that is:

Funding Target = Wind-Up Liability + Contingency Margin.

For example, the contingency margin might be 20% of the plan's wind-up liabilities. The actuary would then set contributions that keep the pension fund moving towards this target. The actuary would estimate where the funding target would be at the end of the period covered by the valuation, and where the market value of the pension fund would be, absent future contributions. Contributions could then be set to close the gap between the market value of the pension fund and the funding target at an acceptable rate. Contributions would consist of:

- The normal cost, that is, the contribution that would be required to keep the pension fund at the target level if the fund was already at the target level

- An adjustment that addresses any difference between the funding target and the value of the pension fund's assets on the valuation date.

Many Canadian jurisdictions require actuarial valuations on a going concern basis but do not give actuaries any guidance on how to choose acceptable assumptions. An actuary can link going concern valuations to a "wind-up" funding target by a judicious choice of actuarial assumptions, that is, by choosing going concern assumptions so that

Going Concern Liabilities = Wind-Up Liabilities + Contingency Margin.

The assumptions then become a means to an end, that is, they are a device for establishing an appropriate funding target, not profound and largely insupportable assertions about the plan's future experience. Justifying actuarial assumptions becomes much easier. The debate focuses on the appropriateness of the margin between the going concern actuarial liability produced by the assumptions and the plan's wind-up liabilities. There is no need to advance unprovable theories about the relationship between inflation rates and investment returns.

To make this approach work, one must first decide how large the contingency margin should be. The margin will depend on:

- *Investment Policy.* The plan's wind-up liabilities are interest sensitive. If the investment policy immunizes the wind-up liabilities, a small contingency margin can be justified. However, if the plan sponsor chooses to invest heavily in equities, larger margins are required.

- *Period Over Which Experience Deficiencies Are To Be Amortized.* If the plan sponsor is prepared to amortize experience deficiencies quickly, margins can be kept to a minimum. However, if the plan sponsor wants stable contributions, that is, wants to amortize experience deficiencies over long periods, then larger margins are required.

  Deficiencies produced by plan amendments might be amortized over longer periods than experience deficiencies. The funding margin should not be influenced by these longer periods, because they address a separate issue, that is, how long plan sponsors should be given to fund retrospective plan improvements. This issue is not one to be decided by the actuarial profession. It should be decided by regulators, collective agreements, and/or plan sponsors.

- *Frequency of Valuations.* More frequent valuations permit lower margins, because the plan sponsor will then be forced to react more quickly to experience gains and losses.

- *Asset Valuation Method.* If assets are valued at market, smaller margins can be justified because the plan sponsor will need to react quickly to market changes. If the plan sponsor wants to use market related values, the margin should be larger.

At one extreme, a company may have a small plan providing supplementary pensions to a handful of executives whose pensions exceed the amounts that can be paid from a tax-qualified plan. From the plan sponsor's perspective, the contributions are incidental and are being made to secure benefits, not to derive a financial benefit. The plan sponsor may be prepared to do annual valuations and to immediately make up any difference between the market value of the pension fund and the plan's wind-up liabilities. The pension fund may be invested in bonds and Treasury bills and the actuary might be comfortable with a funding target that is only slightly higher than the plan's wind-up liabilities.

At the other extreme, a financially troubled employer might have a pension fund that exceeds the market capitalization of the employer's common stock. If the pension fund is invested primarily in equities, assets are valued at other than market values, valuations are performed infrequently, and the plan sponsor amortizes deficiencies over the longest period permitted by law, then the actuary will want a funding target that is well above the plan's wind-up liabilities. Otherwise, there is a high probability that members will lose some of their benefits upon plan wind-up.

Caveat

Wind-up liabilities can change unpredictably because of legislation or changes in legislation. For example, in Ontario early retirement options vest upon wind-up for members whose age plus service exceeds 55 years. As a group ages, the wind-up liabilities can increase significantly. In circumstances such as these the actuary must make sure that the plan sponsor understands the timing and extent of future contribution increases.

Exceptions

The members of a pension plan will normally assume that, as a minimum, an adequately funded plan will have assets in excess of its wind-up liabilities. Sometimes this is not the case when:

- There are circumstances in which the company and the plan members (through their collective bargaining agent) agree that certain plan benefits need not be fully funded (for example, plant closure benefits).

- There are circumstances in which legislation permits the plan sponsor to ignore certain benefits in the funding of the plan. For example, in Ontario plan sponsors are permitted to fund cost-of-living increases on a pay-as-you-go basis, even where the plan is committed to future increases.

- There are circumstances for which plan sponsors regularly negotiate improvements to a pension plan (for example, triennial increases to a flat-benefit plan) and fund these improvements, in accordance with applicable legislation, over relatively long periods. At any point in time, there will be a series of past improvements that are not fully funded and the pension fund may never cover the plan's wind-up liabilities.

- There are circumstances in which pension plans are exempt from legislation (in some Canadian jurisdictions, plans that provide benefits in excess of the limit for tax-qualified plans are exempt). The plan sponsor and plan members are then free to establish, by contract, an appropriate funding practice.

Should an actuary try to impose funding standards that the contracting parties do not want? Should actuaries try to override a public policy that tolerates unsound funding practices and attempt to apply a higher professional standard? These issues are now being debated in Canada. Our valuation standards allow actuaries to follow the dictates of plan provisions and/or applicable legislation, as long as the actuary discloses that the methods are not accepted actuarial practice, identifies the likely consequences, and discloses any wind-up funding deficiencies.

FUNDING TO REDUCE LONG-TERM COSTS

Not all plan sponsors want to fund a pension plan at the minimum level consistent with fiduciary duty. In an attempt to reduce the long-term cost of the plan, some want to contribute more.

If cost is measured as the present value of future contributions, then some employers believe that increasing the funding level will lower the cost of the plan as long as the rate of return on the pension fund exceeds the employer's *after-tax cost of borrowing* (this will almost always be the case for an employer who is currently taxable). Other employers believe that increasing the funding level will lower the cost of the plan only if the rate of return on the pension fund exceeds the *after-tax cost of capital* (a weighted average of the after-tax cost of equity and the after-tax cost of debt). Still others use both rates. Contributions up to the level required to fund the plan's wind-up obligations might be evaluated using the after-tax cost of debt because the pension plan's wind-up obligations are similar to the company's debt obligations. Contributions beyond this level might be evaluated using the after-tax return on capital, as these contributions support obligations that are less debt-like.

Some employers (including public sector employers who account on a cash basis) measure long-term costs as the ultimate ratio of contributions to payroll. For these employers, funding will reduce long-term costs as long as the after-tax return on the pension fund exceeds the rate of growth in payroll.

There are other circumstances in which a plan sponsor might want to increase funding levels beyond those strictly required to secure benefits. Some may have their disbursements reimbursed on a "cost plus" basis and prefer a conservative assessment of cost. Others (at least in Canada) might want to deliberately overfund executive pension plans to exploit the tax-sheltered nature of the fund for the benefit of participating executives.

When the plan sponsor is looking for ways to increase the funding level, the actuary can usually oblige by choosing conservative methods and assumptions. But how do actuaries know when they've gone too far? When do methods cross the boundary separating the creative from the misleading? How do we distinguish conservative assumptions from assumptions that are pessimistic to the point of paranoia?

If the plan sponsor wants to maximize the funding level, a conservative assessment of the going concern liabilities becomes the funding target. In Canada, these going concern liabilities can include the cost of future plan improvements in instances in which the employer has a history of making such improvements. That is, where there's a history of upgrading a career average pension plan, improving flat benefit amounts, or providing ad hoc cost-of-living increases to pensioners, the plan actuary can assume that these improvements will continue indefinitely. The going concern liabilities are usually greater than the plan's wind-up liabilities because, unlike wind-up liabilities, they provide for the cost of future salary growth (in final average pension plans), future vesting of subsidized early retirement options and, in some instances, future upgrades.

A plan's wind-up liabilities will sometimes exceed its going concern liabilities. This typically happens in instances in which there are generous plant closure benefits or when interest rates drop to uncharacteristically low levels. When this happens, the actuary should review the going concern actuarial assumptions to ensure that they remain appropriate. If they are, and the plan is really worth more dead than alive, the actuary should fully disclose the consequences of winding up the plan.

If we assume that the plan's going concern liabilities exceed its wind-up liabilities, then any funding method that adequately funds the going concern liabilities will also secure benefits on a wind-up basis. If the plan sponsor has decided that increasing the funding level is a good thing, how should the actuary establish a reasonable upper bound on the funding level? Often, the plan sponsor will guide the actuary in establishing this upper bound. The amount that the plan sponsor is prepared to contribute in any given year may be limited. The plan sponsor might also be worried about surplus ownership or concerned that large surpluses will inevitably lead to pressure for plan improvements. If the plan sponsor has any of these concerns, the actuary can, through modeling or less sophisticated analyses of the long-term implications of a particular funding policy, establish appropriate upper bounds on the funding level.

Sometimes the actuary is faced with a plan sponsor who puts no upper bound on the funding level, and the actuary must supply one. The issue is difficult because there is no concrete test of adequacy. A plan's wind-up liabilities are clearly defined and can be accurately estimated, but its going concern liabilities are arbitrary (that is, not uniquely defined) and the accuracy of the underlying assumptions cannot be assessed for decades.

The factors that determine the cost of a pension plan are difficult to predict. Inflation, interest rates, and pension fund rates of return do not behave predictably or cyclically. They are governed by no law of nature. Pension costs do not fluctuate randomly about some long-term "true" cost. They meander, changing from one generation to the next in unpredictable ways, driven by forces that we neither control nor understand.

So what establishes an upper bound on adequacy? There is a wide range of plausible assumptions that produces an equally wide range of plausible answers. It's not easy to say where adequacy starts and stops within this range. In the final analysis, most plan sponsors have their own reasons to avoid excessive funding and actuaries help them set appropriate caps.

The absolute upper limit on funding adequacy is of interest primarily to the tax authorities and is a concern (in Canada) primarily for plans covering executives and/or shareholders. Any limit will be arbitrary. As long as it allows us to fund most plans reasonably, it can be tolerated.

CONCLUSIONS

When I became a pension actuary in the early 1980s, a pension plan's liabilities were usually valued on a single going concern basis. Valuation results were used for both accounting and funding. One set of numbers had to simultaneously protect members, disclose the cost of the plan to shareholders, and establish reasonable tax deductions. Since a single valuation was trying to do three things, it was difficult, if not impossible, to define the concepts of adequacy or appropriateness.

Today, actuaries typically perform several valuations to describe the financial condition of a pension plan:

- A going concern valuation to determine the plan sponsor's expense

- A second going concern valuation to fairly present the financial position of the plan in its financial statements

- A third going concern valuation to establish the contributions that are required by statute and/or regulation

- A solvency valuation, similar to a wind-up valuation, to test the adequacy of contributions.

The funding valuations are more clearly focused on benefit security. Funding adequacy, while difficult to quantify, is easier to articulate.

Malcolm Hamilton, FSA, is Principal at William M. Mercer Ltd. In Toronto, Ontario.