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Draft Educational Note

Calculation of Incremental Cost on a Hypothetical Wind-Up or Solvency Basis

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Draft of Educational Note

Calculation of Incremental Cost on a Hypothetical Wind-Up or Solvency Basis

Committee on Pension Plan Financial Reporting

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Members should be familiar with educational notes. Educational notes describe but do not recommend practice in illustrative situations. They do not constitute Standards of Practice and are, therefore, not binding. They are, however, intended to illustrate the application (but not necessarily the only application) of the Standards of Practice, so there should be no conflict between them. They are intended to assist actuaries in applying Standards of Practice in respect of specific matters. Responsibility for the manner of application of Standards of Practice in specific circumstances remains that of the members in the pension practice area.

Memorandum

To: All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries

From: Michael Banks, Chairperson
Committee on Pension Plan Financial Reporting
Jacques Tremblay, Chairperson
Practice Council

Date: April 9, 2009

Subject: **Draft Educational Note – Calculation of Incremental Cost on a Hypothetical Wind-Up or Solvency Basis**

Document 209034

This draft educational note is intended to assist actuaries in the calculation of the incremental cost on a hypothetical wind-up or solvency basis of a pension plan.

In accordance with the Institute's Policy on Due Process for the Approval of Guidance Material Other than Standards of Practice, this draft educational note has been prepared by the Committee on Pension Plan Financial Reporting (PPFRC) and has received final approval for distribution by the Practice Council on April 8, 2009.

As outlined in subsection 1720 of the Standards of Practice, "*The actuary should be familiar with relevant educational notes and other designated educational material.*" That subsection explains further that a "practice which the notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation." As well, "educational notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them."

If you have any questions or comments regarding this draft educational note, please contact Michael Banks at his CIA Online Directory address, michael.banks@mercero.com.

MB, JT

CALCULATION OF INCREMENTAL COST ON A HYPOTHETICAL WIND-UP OR SOLVENCY BASIS

A requirement has been added to the Standards of Practice, effective Month XX, 2009, that an external user report on funding for a pension plan, which includes a hypothetical-wind-up or solvency valuation, will include an incremental cost calculated on a hypothetical wind-up or solvency basis. This educational note provides guidance for actuaries on the calculation of the incremental cost on a hypothetical wind-up or solvency basis.

The Practice-Specific Standards of Practice for Pension Plans (as effective Month XX, 2009) include the following reference to incremental cost on a hypothetical wind-up or solvency basis,

3260.04 *If an external user report includes one or more hypothetical wind-up valuations or solvency valuations, then for any one such hypothetical wind-up valuation or solvency valuation, the external user report should include the incremental cost between the calculation date and the next calculation date.*

Calculation Methodology

One methodology to calculate the incremental cost on a hypothetical wind-up or solvency basis, calculated at the calculation date (time 0) and covering the period to the next calculation date (time t), is

1. the present value at time 0, of
 - (a) expected benefit payments between time 0 and time t, discounted to time 0,
 - plus
 - (b) a projected hypothetical wind-up or solvency liability at time t, discounted to time 0, allowing for, if applicable to the pension plan being valued,
 - expected decrements and related changes in membership status between time 0 and time t,
 - accrual of service to time t,
 - expected changes in benefits to time t (e.g., increases in a flat dollar pension formula, or increases in the maximum pension limits of the Income Tax Act), and
 - a projection of pensionable earnings to time t,
- less
2. the hypothetical wind-up or solvency liability at time 0,
- less
3. the excess of
 - (a) the expected return on assets between time 0 and time t, based on the going concern discount rate, over,

- (b) the expected return on assets between time 0 and time t, based on the hypothetical wind-up or solvency discount rate,
discounted to time 0 based on the going concern discount rate.

Item 3 provides an offset to the value of the expected growth in the hypothetical wind-up or solvency liabilities for expected return on plan assets in excess of the hypothetical wind-up or solvency valuation discount rate. The actuary may or may not include this item. Where it is included, the actuary would report the amount as a separate component of the incremental cost.

Assumptions

The assumptions for the expected benefit payments in item 1(a) and decrement probabilities, service accruals, and projected changes in benefits and/or pensionable earnings in item 1(b) would be consistent with the assumptions used in the pension plan's going concern valuation between time 0 and time t, if such a valuation was conducted as of the same calculation date. Alternatively, if the actuary considers such experience may be different from the longer term expected experience assumed for the going concern valuation, they may reflect expected experience between time 0 and time t.

The assumptions used to calculate the projected liability at time t in item 1(b) would generally be consistent with the assumptions for the hypothetical wind-up or solvency liability at time 0 adjusted, as necessary, to account for time sensitive assumptions such as lowering the commuted value discount rate select period by t years, or using time t as the "current year" for generational mortality table purposes.

The interest rate to be used to discount from time t to time 0 for items 1(a) and 1(b) and the discount rate to be used in the calculation of item 3(b) would be the discount rate used to determine the hypothetical wind-up or solvency liability at time 0. However, if this rate is a real discount rate (net of inflation), use of a corresponding nominal discount rate would be appropriate. Where there is more than one discount rate used for the hypothetical wind-up or solvency liability of a member at time 0 (e.g., because there are probabilities assigned to the method of settlement), the projected liability would be split into these same components and discounted to time 0 using the discount rate inherent in each component.

The expected rate of return on assets to be used for item 3(a) would be the discount rate used in the pension plan's going concern valuation at time 0, if such a valuation was conducted as of the same calculation date.

If a going concern valuation was not conducted at time 0, assumptions would be selected for expected decrements and expected return on assets for the period from time 0 to time t consistent with assumptions appropriate for a going concern valuation of the plan at time 0.

Additional Considerations

Only active plan members as of time 0 and expected new entrants over the period between time 0 and time t need be considered in calculating the incremental cost. However, projected hypothetical wind-up benefits at time t would reflect the value of a deferred or immediate pension to which a member is expected to be entitled based on the assumed probabilities of termination or retirement between time 0 and time t.

The projected hypothetical wind-up liabilities at time t would be calculated using the same postulated scenario as to the circumstances of the hypothetical wind-up as is used for the hypothetical wind-up valuation at time 0.

The incremental cost may include the impact of a pending amendment to the pension plan, consistent with paragraph 3210.16 of the Standards of Practice.

The incremental cost would allow for the expected changes in benefits due to factors such as members becoming eligible for early retirement “grow-in” benefits, or members becoming eligible for unreduced or subsidized early retirement benefits, where such factors would result in a significant increase in wind-up liabilities between time 0 to time t .

Approximations

Where the discount rate(s) that would be used to value the projected hypothetical wind-up or solvency liability for a particular member at time t would be different from the discount rate(s) used at time 0 (e.g., because the probability of method of settlement is expected to be different at time t than it was at time 0), it would be appropriate to account for the change in discount rates. However, a reasonable approximation may be to value the projected hypothetical wind-up or solvency liability for the member based on the discount rate components at time 0, and to discount the liabilities using that same assumption.

Where the impact on the incremental cost is not significant, a reasonable approximation may be to assume no decrements and/or new entrants between time 0 and time t .

Where the impact on the incremental cost is not significant, a reasonable approximation for the projected hypothetical wind-up or solvency liability under 1(b) may be to calculate the liability at time 0, using the data and assumptions expected at time t .

Other Approaches

Other methods may be appropriate if they produce an incremental cost that reasonably reflects the expected change in the value of accrued benefits under the plan over the inter-calculation date period.