

Revised Exposure Draft

Revised Exposure Draft for Capitalized Value of Pension Plan Benefits for a Marriage Breakdown (Section 4300)

Actuarial Standards Board

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Memorandum

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

From: Charles C. McLeod, Chairperson
Actuarial Standards Board

Date: December 15, 2009

Subject: **Revised Exposure Draft for Capitalized Value of Pension Plan Benefits for a Marriage Breakdown (Section 4300)**

Comment deadline: **February 28, 2010**

INTRODUCTION

This revised exposure draft was approved by the Actuarial Standards Board (ASB) on December 3, 2009. It replaces an earlier exposure draft (the “Original Exposure Draft”) on the same subject that was published in June 2008 (*Document 208043*: <http://www.actuaries.ca/members/publications/2008/208043e.pdf> and *document 208045*: <http://www.actuaries.ca/members/publications/2008/208045e.pdf>). The notice of intent was published in March 2008 (*Document 208020*: <http://www.actuaries.ca/members/publications/2008/208020e.pdf>).

A revised mortality table, the UP-94 table, projected to 2020 with Scale AA, was promulgated by the ASB on September 22, 2009. This memo considers all other aspects of section 4300.

BACKGROUND

In June 2008, two exposure drafts on related subjects were published by the ASB.

One was for Revised Standards of Practice for Pension Commuted Values (section 3800). Final Standards for section 3800 were approved and published by the ASB in December 2008.

The second was for revised Standards of Practice for the Capitalized Value of Pension Plan Benefits for a Marriage Breakdown (section 4300).

In September 2008, Michael Kavanagh, Chairperson of the Canadian Institute of Actuaries (CIA) Committee on Actuarial Evidence, requested that the ASB either; 1) defer action on the Marriage Breakdown Standard until the Committee on Actuarial Evidence had come up with a proposal of its own, which would be done by March 31, 2009; or 2) update only the mortality table in the current Marriage Breakdown Standard. The ASB decided on October 16, 2008 to accept the deferral proposal, i.e., to defer

consideration of any revisions to the current Marriage Breakdown Standard until it had received the proposal of the Committee on Actuarial Evidence.

The ASB provided the Committee on Actuarial Evidence and its Working Group with some guidance, in particular,

“In the case of the discount rate assumption, the ASB accepts that the “replacement theory” approach contained in the memo attached to the exposure draft distributed in June 2008 makes sense for the Marriage Breakdown Standard, and, therefore, a discount rate basis, reflecting a replacement theory approach, is appropriate. For other assumptions, there should be a valid justification if the recommended assumptions are different from those in the Pension Commuted Values Standard.”

In March 2009, the Marriage Breakdown Working Group (the MBWG) submitted its report. Since then, there have been a number of discussions between members of the ASB and representatives of the Committee on Actuarial Evidence and/or the MBWG. As is described in more detail below, the ASB agrees with some but not all of the recommendations of the MBWG.

A very large number of papers and reports have been produced on this subject. The major documents reviewed and considered by the ASB are as follows:

March 2008 Report by the Task Force on Pension Value Consistency (*Document 208019*: <http://www.actuaries.ca/members/publications/2008/208019e.pdf>).

June 2008 Exposure Draft (with accompanying memo) on Revised Standards for the Capitalized Value of Pension Plan Benefits for a Marriage Breakdown (Section 4300).

December 2008 Final Standard (with accompanying memo) for Pension Plan Commuted Values (section 3800) (*Document 208082*: <http://www.actuaries.ca/members/publications/2008/208082e.pdf> and *Document 208083*: <http://www.actuaries.ca/members/publications/2008/208083e.pdf>).

March 2009 report by the AE Working Group (The “MBWG report”) (http://www.actuaries.ca/ASB/AE_Working_Group_Report_e.pdf).

GENERAL RATIONALE

The ASB’s conclusions were influenced by the following two major considerations:

1. In the case of the discount rate assumption, a “replacement theory” approach makes sense for the Marriage Breakdown Standard (as opposed to the “economic value” approach that was a major consideration in setting the discount rate assumption for the Standards of Practice – Pension Plans, section 3800).

A replacement theory approach is considered to be an investment strategy that allows for the replacement, as far as possible, of the expected pension payments. (The expected pension payments, which are independent of the actual or assumed investment strategy, would be determined reflecting expected mortality and, for an indexed pension, expected inflation.)

An investment strategy that provides for the replacement of the expected pension payments is the purchase of strip bonds whose maturity dates and amounts match the

timing and amounts of the expected pension payments. Such a strategy protects an individual from market volatility, and from the risk of having to reinvest funds when interest rates are lower than today – except beyond the term where strip bonds are not widely available.

In practice, a very large number of investment strategies are possible and may be followed, but with less certainty of their replacing the expected pension payments. For example, an individual could decide to invest in equities. The expected returns would likely be higher, but there would be greater risk.

2. For other assumptions, the assumptions should be the same as in the Standards of Practice – Pension Plans, section 3800, unless there is a valid justification for a difference.

SUMMARY OF RECOMMENDATIONS

A summary comparison of the key provisions of the Current Standards, the Original (June 2008) Exposure Draft and the Revised Exposure Draft is contained in the appendix.

The Revised Exposure Draft reflects the following recommendations.

1. Discount Rate

General Approach

For the first 15 years, use the yield on long-term Government of Canada bonds plus 50 bp. The long-term Government of Canada bond yield is defined as the average yield on long-term (over 10 years) marketable Government of Canada bonds, as per CANSIM V122487.

After 15 years, use a weighted average of:

- the current yield (i.e., the rate to be used for the first 15 years), and
- a fixed rate of 5.5%.

Rationale

For (at least) 15 years, a reasonably well informed, competent and prudent person can invest in provincial strip bonds.

As mentioned above, investment in strip bonds protects the investor from any reinvestment risk during the term of the strip bonds.

Strip provincial bonds, yielding on average about 50 bp more than Government of Canada strip bonds after expenses, are available in sufficient quantities for individual investors. More specifically, during the period 1948 to 2006, in years when the CPI was between 0% and 4%, provincial bonds have yielded an average of 55 bp points more than Government of Canada bonds. With the investment in long strip bonds, there is also a small additional yield pick-up (assumed to be about 5 bp) since, under a normal yield curve, yields on stripped bonds or coupons at later durations are greater than the average yield over the whole term of the bond of the principal and all coupons.

Expenses of about 10 bp were assumed, resulting in an addition of about 50 bp (55bp plus 5bp less 10 bp) to the yield on long-term Government of Canada bonds.

The MBWG report assumed investment in an exchange traded bond fund. This results in higher expenses than the purchase of strip bonds, and it includes an exposure to reinvestment risk. It was not considered to represent as effective an investment strategy (under a replacement theory approach) as investing in strip bonds.

The ASB compared the proposed basis (i.e., long-term Government of Canada bond yield plus 50 bp) with some other reports and documents, and noted that both the current section 4300 and the 2008 recommendations of the Pension Consistency Task Force reflect yields based on Government of Canada bonds plus 50 bp.

The current Standards of Practice – Pension Plans, section 3800 uses yields based on Government of Canada bonds plus 90 bp. The ASB considered the 90 bp adjustment to the yield on Government of Canada bonds (compared to 50 bp for marriage breakdown) to be justifiable in light of the different approaches used, namely an economic value approach for Standards of Practice – Pension Plans, section 3800 and a replacement theory approach for marriage breakdown calculations.

A pure financial economics approach would use a long-term yield (based on current yields) indefinitely but, for the average individual, investment opportunities (in particular, strip bonds) for longer terms are limited. For this reason, and since a replacement theory approach is being followed, a different approach is recommended after 15 years. This approach reflects both current yields and a fixed long-term yield of 5.50% that is consistent with the expected long-term inflation assumption (see below).

The recommended basis for the discount rate after 15 years is as follows:

under age 40 (at calculation date), use 5.50% plus 20% of (rate for first 15 years less 5.50%); and

age 40 and over (at calculation date), use 5.50% plus 40% of (rate for first 15 years less 5.50%).

The fixed rate of 5.5% was derived as the sum of the following three components:

the long-term inflation assumption of 2% (see below), plus

an expected difference of 3.0% between the yield on long-term Government of Canada bonds and expected inflation, plus

50 bp, reflecting additional yields, net of expenses, through investing in provincial bonds.

Of these three components, the second was the most difficult to quantify. Looking backward, the differences have varied considerably depending on the time period studied. Consequently, the Designated Group recommends that the ASB review the rate of 5.5% from time to time and adjust it whenever there is a significant change in the economic conditions.

Different weightings (of the rate for the first 15 years and the fixed rate of 5.5%) are possible and were considered by the Designated Group, as was extension of the rate used for the first 15 years to longer periods (i.e., 20 years or even 25 years). The Designated Group recognized that the MBWG had spent considerable time investigating this and had recommended the weighting described above. Accordingly, the Designated Group recommends the same weighting.

2. Rounding of Discount Rates

Paragraph 4330.10 of the current Standards of Practice requires that the interest rates determined in accordance with subsection 4330 be rounded to the nearest multiple of 0.25%. The revised exposure draft proposes that rounding be done to the nearest multiple of 0.10%.

Rationale

This is more accurate than the current rounding to the nearest 0.25%. It is consistent with what was adopted in the final Standards of Practice – Pension Plans, section 3800. It was recommended in the MBWG report.

3. Inflation Rate (Prices)

It is proposed that the inflation assumption be described in the Standards of Practice as an explicit assumption (so that all projected pension payments, whether indexed or not, would be discounted at the same interest rate) as opposed to an implicit assumption (i.e., one discount rate for non-indexed pensions, and another discount rate for indexed pensions) as is the current practice for both the Marriage Breakdown and Pension Standards. This is a matter of presentation only and it should have no effect on the calculated value.

Expected pension payments (for an indexed pension plan) would be determined after allowing for expected inflation.

First 15 Years

Two options are presented, both based on the Break-Even Inflation Rate (BEIR), where BEIR is defined as the difference between yields on non-indexed (CANSIM V122544) and real-return (CANSIM V122553) long-term Government of Canada bonds. The first option is to use the BEIR without any adjustment. The second option is to use BEIR less 0.25%. We invite comments on these options.

Rationale

Basing the inflation assumption on the BEIR is consistent with what was adopted for the Standards of Practice – Pension Plans, section 3800. The BEIR represents the market's view of the value of inflation protection. Expected pension payments (reflecting expected mortality and expected inflation) are independent of the investment strategy adopted.

The MBWG proposed an approach that trended from current rates to 2.5% (Bank of Canada target rate plus 0.5%) over 5 years. The ASB did not consider there to be a valid justification for assuming one approach for the inflation assumption in the Pension Commuted Value Standard and another approach in section 4300, at least until reinvestment becomes a consideration.

As noted above, two options are presented. The first option is to use the BEIR without any adjustment. The second option is to use BEIR less 0.25%. This is because the BEIR includes a premium, assumed to be about 25 bp, paid to guarantee protection against inflation, i.e., the anticipated inflation reflected in the BEIR calculation is less than the BEIR. We invite comments on the two options presented.

After 15 Years

A weighted average of (a) the inflation rate (prices) assumed for the first 15 years and (b) 2% is proposed.

The weighting would be the same as for the discount rate after 15 years:

under age 40 at calculation date, use 2% plus 20% of (inflation assumption for first 15 years less 2%); and

age 40 and over at calculation date, use 2% plus 40% of (inflation assumption for first 15 years less 2%).

The fixed rate of 2% was selected since it is the mid-point of the current Bank of Canada target range of 1% to 3%. The Designated Group recommended that the ASB review the fixed rate of 2% from time to time, and adjust it whenever there is a significant change in the Bank of Canada target rate.

As with the discount rate, it is proposed that the inflation assumption be rounded to the nearest 0.10%.

4. Change in average wage index

Paragraph 4330.14 of the current Standards of Practice requires the assumption that the rate of change in a wage index be 1% higher than the rate determined for Consumer Price Index (CPI) indexing.

No change to this is proposed. A similar requirement is contained in the Standards of Practice – Pension Plans, section 3800.

5. Time Lag

Paragraph 4330.10 of the current Standards of Practice requires that the yields on Government of Canada bonds that are used to determine the discount rate be based on the CANSIM rates in the second calendar month preceding the month in which the calculation date falls.

It is proposed to reduce the time lag to one month for consistency with the Standards of Practice – Pension Plans, section 3800.

FEEDBACK

Comments on this revised exposure draft are invited by **February 28, 2010**. Please send your comments, preferably in an electronic format, to Chris Fievoli at his CIA Online Directory address, Chris.Fievoli@actuaries.ca with a copy to Charles McLeod at his CIA Online Directory address, charlesmcleod@sympatico.ca.

No specific forums for submitting comments are planned regarding this revised exposure draft, other than the receipt of written comments at the above addresses.

Comments are specifically invited on the following points:

- (a) Should the assumption for the inflation rate (prices) for the first 15 years be BEIR or BEIR less 0.25%?
- (b) Assuming the effective date of the final standard is late 2010 or early 2011, does this give enough time to practitioners to reflect a reduced time lag of one month

(compared to the current two months) in the calculation of the discount rate (see 5. Time lag above)?

PROPOSED TIMELINE AND EARLY IMPLEMENTATION

The ASB hopes to issue the final version of these Standards of Practice in the summer of 2010, with an effective date in late 2010 or early 2011. Early implementation is likely to be prohibited.

CCM

APPENDIX

Summary comparison of key provisions of the Current Standards, the Original (June 2008) Exposure Draft and the Revised Exposure Draft

Discount rate

Current Standards

For the first 15 years: the yield on long-term Government of Canada bonds plus 50 bp.

After 15 years: 6%.

Original Exposure Draft

For the first 20 or 25 years, the discount rate would be based on the yield on Government of Canada bonds plus 50 or 75 bp.

After 20 or 25 years, a fixed rate of 6.50% or 6.75%.

Revised Exposure Draft

For the first 15 years: the yield on long-term Government of Canada bonds plus 50 bp.

After 15 years: a weighted average of (a) the rate to be used for the first 15 years and (b) a fixed rate of 5.50%.

Rounding of discount rates and inflation assumptions

Current Standards

Round to the nearest multiple of 0.25%

Original Exposure Draft

Round to the nearest multiple of 0.10%

Revised Exposure Draft

Round to the nearest multiple of 0.10%

Inflation rate (prices)

Current Standards

(Note that the following assumptions are implicit and reflect the difference between the discount rates for non-indexed and indexed pensions)

For the first 15 years, the BEIR plus 0.25%.

After 15 years, a fixed rate of 2.75%

Original Exposure Draft

For the first 20 or 25 years, the BEIR less 0.25%.

After 20 or 25 years, a fixed rate of 3%.

Revised Exposure Draft

For the first 15 years, the BEIR or the BEIR less 0.25%

After 15 years, a weighted average of (a) the assumption for the first 15 years and (b) 2%.

Time lag

Current Standards

Yields on Government of Canada bonds to be based on the CANSIM rates in the second calendar month preceding the month in which the calculation date falls.

Original Exposure Draft

Same as Current Standards

Revised Exposure Draft

Yields on Government of Canada bonds to be based on the CANSIM rates in the calendar month preceding the month in which the calculation date falls.

4300 CAPITALIZED VALUE OF PENSION PLAN BENEFITS FOR A MARRIAGE BREAKDOWN

4310 SCOPE

- .01 The standards in this section 4300 apply to an actuary's advice when the capitalized value of a pension plan's benefits is needed for calculating the value of family property at the breakdown of the marriage of a plan member.
- .02 For the purposes of this section 4300, "plan" means "pension plan" and is broadly defined, including not only a plan that is registered under the federal Income Tax Act but also an unregistered plan, such as a retirement compensation arrangement and an unfunded pension plan.
- .03 The standards in this section 4300 do not apply when the purpose of the calculation is to calculate an amount, in respect of a pension benefit, to be paid:
- by the plan to the plan member or beneficiary as a result of the plan member's death or termination of membership, or
 - by a party other than the plan in connection with litigation other than in respect of a marriage breakdown.
- .04 The standards in this section 4300 may provide useful guidance for similar calculations for other deferred compensation arrangements, such as a partnership retirement buy-out agreement, a sick leave buy-out plan, and a retirement lump sum allowance, but they do not provide useful guidance for current compensation arrangements such as group life and disability insurance.

4320 METHOD

- .01 *The benefits to be valued are the plan's benefits in respect of the member (including survivor benefits vested in the member's spouse) at the calculation date or calculation dates.*
- .02 *The value of the member's benefits is the capitalized value of the benefits to be valued, but assuming that the member has no spouse. The value of the survivor benefits vested in the member's spouse is the excess, if any, of*
- the capitalized value of the benefits to be valued over*
 - the value of the member's benefits. [Effective January 1, 2004]*

Principle

- .03 The capitalized value would conform to the intent of applicable family law. The capitalized value may, thus, differ from the corresponding transfer value from a registered pension plan. Transfer values typically include only unconditional rights, whereas property under family law typically includes both vested and contingent rights. Thus, such contingent rights as early retirement rights, bridging benefits, and ad hoc inflation adjustments are property to be considered in a ~~valuation~~-calculation for marriage breakdown purposes.
- .04 The standards in this section will often produce more than one result, by taking account of alternative possibilities for
- pension commencement age,
 - future increases in accrued benefits before and after retirement,
 - allocation of value earned before marriage,
 - inclusion or exclusion of non-vested benefits, or
 - special circumstances, such as buy-back or transfer of benefits.
- .05 If the actuary has reason to believe that the plan's financial position is so weak that payment of the capitalized benefits is doubtful, then the actuary would so report, making clear that allowance for this factor could significantly reduce the present values calculated, given that such present values have been calculated assuming that the plan would meet its obligations. In making that assessment, the actuary would take into account any benefits payable under provincial pension guarantee legislation. The actuary would take into account further the extent to which plan benefits are provided through a retirement compensation arrangement and/or an unfunded pension plan.
- .06 The terms of the actuary's engagement may determine some or all of
- the relevant law or jurisdiction,
 - the calculation date or calculation dates,
 - retirement age, but only if established as a matter of fact pursuant to an agreement of the parties or a determination by the court, and
 - inclusion or exclusion of the effect of income taxes.

Benefits to be valued

- .07 The benefits to be valued would include all of the plan's contractual benefits, including pre- and post-retirement death benefits, and any contractual inflation protection and non-contractual inflation protection.

- .08 The benefits to be valued would exclude spousal survivorship benefits, except to the extent that these may have vested upon retirement prior to the calculation date.
- .09 The form of plan benefits that would be valued would be the most favourable of any optional form available to the member with no spouse. For example, a 15-year guaranteed pension option would have a greater value than a 5-year guaranteed pension option for a member with impaired mortality. However, if the applicable law disregards a particular optional form of plan benefit, then the actuary may omit that option in calculating the capitalized value.
- .10 The benefits may include or exclude any non-vested benefits. Non-vested benefits may be included in the values, or may be illustrated separately, and would be valued without discount for the possibility of future forfeiture. Separately from the illustrated values, the report may contain comments including suggestions for recognizing the contingent nature of non-vested benefits.

The references in this paragraph to inclusion of values of non-vested benefits apply in jurisdictions where the inclusion of such values depends on the plan provisions applicable to a deferred vested member. In other jurisdictions, the inclusion of such values depends on the extent to which continued employment is assumed.

- .11 The capitalized values would include ancillary benefits that are provided by the plan as of the calculation date and are expected to become available to the member after the calculation date if the plan member continues as an active member of the plan, but are not available to the member as of the calculation date, such as unreduced early retirement benefits.
- .12 The actuary would disclose whether or not the benefits valued include benefits that will be provided by the plan after the calculation date and that are expected to become available to the member after the calculation date if the plan member continues as an active member of the plan, but are not available to the member as of the calculation date, for example
- a future increase in benefits as a result of a collective bargaining agreement, or
 - a future increase in benefits as a result of an adopted plan amendment.

- .13 The benefits referred to in paragraph 4320.11 are those payable by the plan as a going concern, and not those payable on plan wind-up, if different, unless the plan has been fully or partially wound up.

- .14 Where various legal interpretations for a specific question appear possible, the actuary would obtain clarification of such unclear matters from the instructing lawyer or from another authoritative source. If that is not possible, the actuary would provide a description of any conflicting viewpoints, advise that various interpretations exist, and would report either the effects of these interpretations, values that represent both possible interpretations, or report values that, in the actuary's opinion, are most consistent with accepted actuarial practice.

Calculation date

- .15 The calculation date may be single or multiple, depending on the circumstances and applicable law. The possibilities include
- the date of separation,
 - the date of marriage or commencement of cohabitation,
 - the date of trial, and
 - the report date.
- .16 | If the ~~selection-use~~ of an alternative calculation date, close to the calculation date, would significantly affect the capitalized value, then the actuary would so report. Examples are
- the date at which the member becomes eligible for early retirement with unreduced benefits, and
 - the date at which the plan is amended to enhance its benefits.

Applicable standards

- .17 The applicable standards are those in effect at the calculation date. If there are two or more calculation dates, however, and if the standards applicable to one differ from the standards applicable to another, then the actuary would use the same standards for all calculation dates. The choice of standards would be governed by the latest of the calculation dates, except that the choice would be governed by the base calculation when the actuary selects an alternative calculation date, close to the calculation date, in accordance with the previous paragraph.

Future service

- .18 If the member's employment terminated before the calculation date and was not reinstated at the report date, then the actuary would include nothing in the capitalized value on account of assumed service after the calculation date, even if reinstatement is possible after the report date. The actuary may, however, report a useful alternative calculation that assumes reinstatement.
- .19 If the member's employment terminated between the calculation date and the report date and was not reinstated at the report date, then the actuary may, with disclosure, exclude from the capitalized value any non-vested benefits forfeited by the termination of employment.

Effect on capitalized value of minimum benefits

- .20 In calculating the capitalized value, the actuary would take account of any minimum benefit related to member contributions:, for example
- the so-called "50% minimum employer contribution rule", and
 - a minimum benefit equal to the member's contributions accumulated with interest.

- .21 The minimum benefit would not necessarily be limited only to the value determined on a termination of employment assumption. The capitalized value would incorporate the relevant minimum benefit rule according to the event.

Effect on capitalized value of salary increases after the calculation date

- .22 If the pension is an earnings-related benefit, then the possibilities are
- the capitalized value takes account of all the member's salary increases – general increases, promotional increases, and seniority increases – after the calculation date.
 - the capitalized value takes account of the member's salary increases which result from general (as opposed to promotional and seniority) salary increases after the calculation date. A rationale for this possibility is that the member's spouse has no entitlement to the effect of promotions or seniority increases, which the member earns after the calculation date.
 - the capitalized value does not take account of the member's salary increases after the calculation date. A rationale for this possibility is that the member's spouse has no entitlement to the effect of salary increases, which depend on the member's continued employment after the calculation date.

- .23 The assumed salary increases after the calculation date would be consistent with the prescribed economic assumptions, except that salary increases revealed by subsequent events would be substituted for the corresponding assumed increases.

Effect on capitalized value of non-contractual indexing of pensions and other benefit adjustments

- .24 In calculating the capitalized value, the actuary would assume continuance of the plan's established practice or current policy, if any, for non-contractual indexing for inflation of pensions after pension commencement age and of vested deferred pensions before pension commencement age, unless there is explicit reason not so to assume. The actuary would report
- the established practice or current policy, and
 - the indexation assumption.
- .25 If that assumption is doubtful, then the actuary would also report the numerical effect on the capitalized value of helpful alternative assumptions.
- .26 In the case of a final or best average earnings plan, there would be no allowance made for indexing of vested deferred pensions before pension commencement age in the period for which salary increases are projected after the calculation date.

Effect on capitalized value of income tax

- .27 Income tax may be taken into account in the calculation. If it is to be taken into account, then the actuary would do so by calculating the average income tax rate based upon the member's anticipated retirement income computed in "current" dollars, including accrued and projected future pension income, Canada Pension Plan, Old Age Security and other anticipated income, and continuance of the tax environment at the report date or the calculation date; i.e., assuming continuation of the existing tax rates, brackets, surtaxes and clawbacks, applied to the projected income on retirement expressed in "current" dollars. The actuary would disclose which date was used and if the tax environment is as at the report date, would disclose the use of any tax provisions that have not yet been enacted.
- .28 The actuary may report useful alternative calculations; that take income tax into account.

4330 ASSUMPTIONS

- .01 *The actuary should select all assumptions, except those depending upon interpretation of applicable law. [Effective January 1, 2004]*

Death-Mortality rates

- .02 *The actuary should assume ~~death-mortality~~ rates in accordance with a mortality table promulgated from time to time by the Actuarial Standards Board for the purpose of these calculations, modified, if appropriate, to reflect the member's or the member's spouse's impaired health, if medically determinable. [Effective ~~January 1, 2004~~ Month XX, 200X]*
- .03 Tobacco use (or lack of tobacco use) would not, in itself, be sufficient reason to modify the ~~death mortality~~ rates identified above.
- .04 Use of unisex ~~death-mortality~~ rates would not be appropriate except that it may be appropriate in situations where the plan member has terminated employment and has elected, or has the option to elect, a transfer value that was or would be calculated under a unisex basis.

Retirement age

- .05 If the retirement age is a matter of fact (i.e., one agreed by the parties or determined by the court), then the actuary would report the selection of the assumed retirement age as such.
- .06 The retirement of the member before the report date does not necessarily preclude assumption of a different retirement age.

- .07 Unless paragraph 4330.05 applies, the actuary would usually assume and report the results for a range of useful retirement ages, based on data at the calculation date, which would include
- the earliest age at which the member is entitled to a pension whose amount is not reduced on account of early retirement, assuming that the member's service ceases at the calculation date,
 - the earliest age at which the member is entitled to a pension whose amount is not reduced on account of early retirement, assuming that the member continues in service either to that age or to an earlier age after the calculation date,
 - if there is an upper limit to the number of years of credited service, the earliest age at which the member has attained, or will attain, that upper limit and becomes entitled to a pension whose amount is not reduced on account of early retirement, and
 - the normal retirement age.

Valuation interest ratesEconomic assumptions

.08 ~~The actuary should select economic assumptions that depend on the reported rates for the applicable CANSIM series for the calendar month immediately preceding the month in which the calculation date falls. The choice of valuation interest rate would vary depending on whether the pension is non-indexed, partially indexed, or fully indexed.~~

.09 ~~The actuary should determine from the CANSIM series the following four factors: index may be the Consumer Price Index (CPI), a wage index, an index based on an excess interest method, or a modification or a mixture of these indices.~~

| <u>CANSIM Series</u> | <u>Description</u> | <u>Factor</u> |
|---|---|-------------------------|
| <u>V122487</u> | <u>average long (>10 yrs) Government of Canada bond yields (final Wednesday of month)</u> | <u>G_L</u> |
| <u>V122544</u> | <u>long-term Government of Canada benchmark bond yield, annualized (final Wednesday of month)</u> | <u>b_L</u> |
| <u>V122553</u> | <u>long-term Government of Canada real return bond yield, annualized (final Wednesday of month)</u> | <u>r_L</u> |
| <u>$(1 + b_L) / (1 + r_L) - 1$</u> | <u>break-even inflation rate</u> | <u>BEIR</u> |

Note that the factors determined above do not reflect the reported CANSIM series, but the annualized value of the reported figure.

Inflation Pension that is non-indexed

.10 ~~The actuary should calculate the projected benefit obligation for a pension that is fully indexed to increases in the Consumer Price Index using an expected inflation rate of EI. For pensions that are partially indexed to increases in the Consumer Price Index, the actuary should derive inflation rates in a like manner by applying to the stipulated inflation rates the partial indexing formula of the plan valuation interest rate during the 15 years following the calculation date is the month-end value of the nominal interest rate (i.e., the rate compounded semi-annually) on long-term Government of Canada bonds (CANSIM series B14013) in the second calendar month preceding the month in which the calculation date falls, adjusted by.~~

~~adding 0.5%;~~

~~converting the resulting nominal interest rate to the equivalent effective annual interest rate, and~~

~~rounding to the nearest integral multiple of 0.25.~~

.11 ~~The actuary should determine the expected rate of inflation EI as follows valuation interest rate after those 15 years is 6%~~

~~First 15 years $EI_{0-15} = BEIR \text{ less } 0.00\% \text{ to } 0.25\% \text{ (NOTE)}$~~

~~After 15 years (for plan members under age 40 as at the calculation date)~~

$$~~EI_{15+} = 2.00\% + 0.20 * (EI_{0-15} \text{ less } 2.00\%)~~$$

~~After 15 years (for plan members over age 39 as at the calculation date)~~

$$~~EI_{15+} = 2.00\% + 0.40 * (EI_{0-15} \text{ less } 2.00\%).~~$$

~~NOTE The reduction has yet to be determined but is expected to be in the range indicated.~~

~~EI should be rounded to the nearest 0.1%.~~

Pension that is indexed to the CPI

.12 ~~The valuation interest rate during the 15 years following the calculation date is the month-end value of the real interest rate (i.e., the rate compounded semi-annually) on long-term Government of Canada real return bonds (CANSIM series B14081) in the second calendar month preceding the month in which the calculation date falls, adjusted by Where increases in pensions are related to increases in the average wage index, the actuary should assume that the average wage index will increase at rates that are one percentage point higher than EI. [Effective Month XX, 2009]~~

~~adding 0.25%;~~

~~converting the resulting nominal interest rate to the equivalent effective annual interest rate, and~~

~~rounding to the nearest integral multiple of 0.25%.~~

.13 ~~Where the plan so provides, the indexing in any of the above arrangements may be modified by valuation interest rate after those 15 years is 3.25%.~~

~~applying a maximum or minimum annual increase, with or without carry forward of excesses or deficiencies to later years, or~~

~~prohibiting a decrease in a year where the application of the formula would otherwise cause a decrease.~~

~~The actuary would then adjust the expected inflation rate for a year to reflect the probability and extent of modification for that year. In so doing, the actuary would take account of long-term historical averages and not give undue weight to recent experience.~~

Pension that is indexed to a wage index

.14 ~~If a the pension is indexed using an “excess investment return” approach, the expected indexation rate would be determined using the “floor rate” and the interest rates determined to the rate of change in a wage index, the valuation interest rate would be 1% less per annum than the rate determined for CPI indexing under in accordance with paragraphs 4330.182 to produce an expected indexation rate consistent with excess interest situations and 4330.13.~~

Pension that is indexed ad hoc

.15 ~~For a pension in a plan that has a policy or a history of indexing on an ad hoc basis, the actuary would determine an valuation indexation interest rate based on an assumed rate of indexing determined in accordance with paragraph 4330.18 consistent with the indexing policy or history.~~

[4330.18](#)

Other adjustments

.16 ~~The capitalized value of a fully- or partially-indexed pension *w*should be at least equal to the capitalized value applicable to a non-indexed pension in the same amount and having similar characteristics. [Effective Month XX, 2009]adjusted, if necessary, to be as large as the corresponding value of an otherwise similar non-indexed pension. That adjustment may be necessary if the indexing decreases the pension.~~

Interest rates

.17 ~~The actuary should calculate two interest rates, one applicable to the first fifteen years following the calculation date, and the second one applicable to all years thereafter. indexing in any of the above arrangements may be modified by~~

~~applying a maximum or minimum annual increase, with or without carry forward of excesses or deficiencies to later years, or~~

~~prohibiting a decrease in a year where the application of the formula would otherwise cause a decrease. The actuary would then adjust the interest rate for a year to reflect the probability and extent of modification for that year. In so doing, the actuary would take account of long-term historical averages and not give undue weight to recent experience.~~

- .18 ~~The actuary should determine the interest rates as follows. If the pension is indexed to the CPI on some basis other than the full CPI, the capitalized value would be reasonably related to the capitalized value for pensions that are non-indexed and that are indexed to the CPI.~~

~~First 15 years $i_{0-15} = G_L + 0.50\%$~~

~~After 15 years (for plan members under age 40 as at the calculation date)~~

$$\del i_{15+} = 5.50\% + 0.20 * (i_{0-15} - 5.50\%)$$

~~After 15 years (for plan members over age 39 as at the calculation date)~~

$$\del i_{15+} = 5.50\% + 0.40 * (i_{0-15} - 5.50\%)$$

~~Prior to calculating the capitalized value, the actuary should round the rates of interest determined in accordance with this paragraph to the nearest multiple of 0.1%. The actuary should round only the interest rates to be used in the calculation of the capitalized value.~~

- .19 ~~The actuary should calculate the capitalized value of a pension using a two-tier interest rate of i_{0-15} for the first fifteen years, and i_{15+} thereafter. [Effective Month XX, 2009] If the pension is indexed using an “excess investment return” approach, the valuation interest rate would usually be the lesser of the “floor rate” and the valuation interest rates determined under paragraphs 4330.10 and 4330.11.~~

~~i_{0-15} for the first fifteen years, and~~

~~i_{15+} thereafter. [Effective Month XX, 2009]~~

Assumptions selected by client

- .20 The actuary would obtain instructions from the client with respect to assumptions dependent upon the interpretation of applicable law.
- .21 The actuary would report his or her reliance on an assumption selected by the client.

4340 REPORTING: EXTERNAL USER REPORT

- .01 Here is model text if the actuary reports without reservation with regard to marriage breakdown:

I have determined the capitalized value of the pension benefits and prepared this report in accordance with accepted actuarial practice in Canada, for purposes of settlement of a division of pension benefits resulting from marriage breakdown under the [Family Law Act] of [province]. In my opinion, the capitalized values are appropriate for this purpose.

Respectfully submitted,

[actuary]

Fellow, Canadian Institute of Actuaries