Financial Services Commission of Ontario
Commission des services financiers de l'Ontario

SECTION:	Actuarial Guidance Note
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TITLE:	Determination of the Solvency Liability Adjustment - Regulation 909 ss. 1.3, 3, 13, 14 and 16
APPROVED BY:	Superintendent of Financial Services
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REPLACES:	AGN-002

This guidance note replaces AGN-002 (Determination of the Solvency Liability Adjustment) as of the effective date of this note.

Note: Where this guidance note conflicts with the Financial Services Commission of Ontario Act, 1997, S.O. 1997, c. 28 (FSCO Act), Pension Benefits Act, R.S.O. 1990, c. P.8 (PBA) or Regulation 909, R.R.O. 1990 (Regulation), the FSCO Act, PBA or Regulation govern.

Note: The electronic version of this guidance note, including direct access to all linked references, is available on FSCO's website at www.fsrao.ca. All pension policies and guidance notes can be accessed from the Pensions section of the website through the Pension Policies link.

Purpose of Guidance Note

The Regulation permits the use of a smoothing method in the solvency valuation to moderate short-term fluctuations in the market value of assets and the solvency liabilities. The 'solvency liability adjustment' as defined in section 1.3 of the Regulation is determined using an interest rate that is the average of the market interest rates over the same period of time as the one used to adjust the market value of assets. The averaging period cannot exceed five years.

A question has arisen about how to determine the average interest rates in situations where there are changes in the Canadian Institute of Actuaries' Standards of Practice (the 'CIA Standards') and changes to the Canadian Institute of Actuaries' ('CIA') Educational Notes during the averaging period. This note provides guidance on how to determine the average interest rates for solvency valuations on or after September 30, 2015[1].

[1] This is in accordance with the CIA Educational Note Supplement dated November 3, 2015.

Application of CIA Standards

A report filed under the PBA in respect of a pension plan must meet the requirements of the PBA and the Regulation. Pursuant to section 16 of the Regulation, an actuary preparing an actuarial valuation report for filing under section 3, 13 or 14 of the Regulation is required to use methods and assumptions consistent with accepted actuarial practice. Specifically, in selecting assumptions for calculating the solvency liability for a pension, deferred pension or ancillary benefit, the actuary is expected to follow the guidance set out in the CIA Educational Notes depending on whether the benefit is assumed to be settled by a lump sum transfer or by a group annuity purchase.

When calculating the lump sum commuted value paid from a pension plan, the actuary is required to select economic and demographic assumptions that are in accordance with section 3500 of the CIA Standards. The mortality assumptions are as follows:

Valuation Date	Mortality Assumption
Before December 10, 2015[2]	UP-94 Table with generational projection using mortality projection scale AA (UP-94 Generational)
On or after December 10, 2015	2014 Canadian Pensioners Mortality Table combined with CPM Improvement Scale B (CPM2014Proj)[3]

Likewise, for purposes of estimating purchase costs for group annuities, actuaries should adhere to guidance in the CIA Educational Notes and periodic Educational Note Supplements.

Note that the CIA Standards for calculating pension commuted values and the actuarial basis for calculating group annuity purchase costs have changed from time to time.

Acceptable Methodology

In reviewing an actuarial valuation report filed under the PBA in respect of a pension plan, FSCO staff will determine if the assumptions and methods used in the solvency valuation are appropriate for the plan. The following hypothetical plan situation describes an acceptable methodology for determining the solvency liability adjustment:

- the plan provides only non-indexed benefits;
- the plan is determined to have a medium duration (as defined in the applicable CIA Educational Note) with respect to the portion of the liabilities assumed to be settled through the purchase of annuities;

[2] The applicability of CPM2014Proj to valuation dates prior to December 10, 2015 is dependent on whether the plan terms allow the use of this basis. See FSCO FAQ.

[3] On June 9, 2015, the Actuarial Standards Board (ASB) promulgated the use of the following mortality table, effective October 1, 2015: Mortality rates equal to the 2014 Canadian Pensioners Mortality Table (CPM2014) combined with mortality improvement scale CPM Improvement Scale B (CPM-B) for purposes of subsection 3530 of the CIA Standards of Practice.

- the valuation date of the report for filing under the PBA is January 1, 2016; and,
- a five-point averaging period is adopted for calculating the solvency liability adjustment. In particular, the average interest rates are calculated as the average of the interest rates determined at January 1, 2016 and the four previous anniversary dates.

Pension benefits to be settled by lump sum transfer

For purposes of calculating the solvency liability adjustment for benefits assumed to be settled by lump sum transfer, FSCO accepts a method that applies the actuarial basis for pension commuted values described in section 3500 of the CIA Standards effective on the valuation date as if it had been effective throughout the solvency liability adjustment period.

For a January 1, 2016 valuation, average interest rates and mortality would be determined as follows:

Valuation Date	Select Period Interest Rate (i^{1-10})	Ultimate Period Interest Rate(i^{10+})	Mortality Table
January 1, 2016	1.9%	3.6%	CPM2014Proj[4]
January 1, 2015	2.4%	3.7%	
January 1, 2014	3.1%	4.6%	
January 1, 2013	2.5%	3.7%	
January 1, 2012	2.4%	3.9%	
5-point Average	**2.5%**	**3.9%**	

Pension benefits to be settled by group annuity purchase

For purposes of calculating the solvency liability adjustment for benefits assumed to be settled by group annuity purchase, FSCO expects that, to calculate the average interest rate, the actuary will:

- use the interest rates for group annuity purchase published in the CIA Educational Notes and periodic Educational Note Supplements that were applicable at the respective anniversary dates; and,
- adjust to account for any change in the *base* mortality table and scale for future improvements in mortality.

The adjustments at each anniversary date would also include the appropriate adjustment for duration (or any other criteria / measure as outlined in the CIA Educational Notes and periodic Educational Note Supplements).

[4] The mortality rates in effect under the CIA Standard on the valuation date apply throughout the smoothing period.

For this hypothetical plan, the appropriate adjustment for the change in mortality table from the UP-94 generational mortality table to the CPM2014Proj table with no adjustments for sub- or super-standard mortality is 0.63%[5] according to the Educational Note Supplement dated November 3, 2015.

For a January 1, 2016 valuation, the average annuity proxy interest rate would be determined as follows:

Valuation Date	V39062 (1)	Interest Spread Adjustment[6] (2)	CIA Annuity Guidance (1)+(2)	Mortality Table Adjustment (3)	Annuity Proxy (1)+(2)+(3)
January 1, 2016	2.03%	+ 1.00%	3.03%	n/a	3.03%
January 1, 2015	2.22%	+ 0.30%	2.52%	+ 0.63%	3.15%
January 1, 2014	3.13%	+ 0.70%	3.83%	+ 0.63%	4.46%
January 1, 2013	2.26%	+ 0.70%	2.96%	+ 0.63%	3.59%
January 1, 2012	2.41%	+ 0.90%	3.31%	+ 0.63%	3.94%
5-point Average					**3.63%**

Based on this methodology, the average annual interest rates that would be used in conjunction with CPM2014Proj to determine the solvency liability adjustment for the actuarial valuation performed as at January 1, 2016 are:

- Pension benefits assumed to be settled though a lump sum transfer
  - 2.5% for 10 years
  - 3.9% thereafter

- Pension benefits assumed to be settled though an annuity purchase
  - 3.63%

Please note that this guidance note does not preclude the use of alternative smoothing methods that are appropriate for a pension plan. FSCO will consider submissions from the actuary that provide support for using a smoothing method different from the one described in this guidance note on a case-by-case basis.

[5] As stated in the CIA Educational Notes, the adjustment for change in the mortality assumption will vary based on the plan's demographics and the characteristics of the plan.
[6] Interest spread adjustments on and after June 30, 2013 were based on a medium duration.