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

Ontario

SECTION:	Actuarial Guidance Note
INDEX NO.:	AGN-002
TITLE:	Determination of the Solvency Liability Adjustment -Regulation 909 ss. 1.3, 3, 13, 14 and 16
APPROVED BY:	Superintendent of Financial Services
PUBLISHED:	FSCO Website (June 2012)
EFFECTIVE DATE:	May 1, 2012 [No longer applicable - replaced by AGN-005 – July 2016]

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 policy, including direct access to all linked references, is available on FSCO's website at www.fsco.gov.on.ca. All pension policies can be accessed from the Pensions section of the website through the Pension Policies link.

Purpose of Policy

The Regulation permits the use of a smoothing method in the solvency valuation in order 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 5 years.

A question has arisen as to how the average interest rates should be determined in situations where there is a change in the Canadian Institute of Actuaries' standards of practice (the "CIA standards") during the averaging period. The purpose of this policy is to provide guidance for determining the average interest rates in those situations.

This policy applies to actuarial valuation reports with a valuation date on or after February 1, 2011 that are filed with FSCO after the effective date of this policy.

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 PBA is required to use methods and assumptions that are consistent with accepted actuarial practice. Specifically, in calculating the solvency liability for a pension, deferred pension or ancillary benefit, the actuary is expected to:

- use the methods and assumptions described in section 3500 of the CIA standards, or
- to follow the guidance set out in the CIA Educational Notes on purchased annuities, depending on whether the benefit is assumed to be settled by a lump sum transfer or by a group annuity purchase.

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

Valuation Date	Interest Rate Assumption	Mortality Assumption
On or before January 31, 2011	Assumptions depend on the reported rates for the applicable CANSIM series for the second calendar month preceding the month in which the valuation date falls	UP94 Table projected forward to the year 2020 using mortality projection scale AA (UP-94@2020)
On or after February 1, 2011	Assumptions depend on the reported rates for the applicable CANSIM series for the calendar month preceding the month in which the valuation date falls	UP-94 Table with generational projection using mortality project scale AA (UP-94 generational)

For the purposes of estimating the purchase costs for group annuities, the CIA, through the Committee on Pension Plan Financial Reporting, issues guidance to actuaries by way of Educational Notes and periodic supplements.

Note that the CIA standards for calculating pension commuted values and the actuarial basis for calculating group annuity purchase costs have been changed from time to time. The Appendix to this policy provides a sample of the CIA assumptions over the five years ending on January 1, 2012.

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. This policy describes an acceptable methodology for determining the solvency liability adjustment, illustrated by way of the following hypothetical plan situation:

- The plan provides only non-indexed benefits;
- The plan is expected to have $15 million in annuity settlements upon wind up;
- The valuation date of the report for filing under the PBA is January 1, 2012; and

- A five-year 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, 2012 and the previous 4 anniversary dates.

Benefits to be settled by lump sum transfer

For the purpose of calculating the solvency liability adjustment in respect of benefits that are expected 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 become effective throughout the averaging period. On the basis of applying a one month lag from January 1, 2008 through to January 1, 2012, the average interest rates for the actuarial valuation as at January 1, 2012 would be determined as follows:

Valuation Date	Select Period Rate (i_{1-10})	Ultimate Period Rate(i_{10+})	Mortality Table
January 1, 2012	2.40%	3.90%	1994 Uninsured Pensioner Mortality Table with generational projection using mortality projection scale AA
January 1, 2011 [1]	3.60%	4.90%	
January 1, 2010 [1]	4.00%	5.50%	
January 1, 2009 [1]	3.00%	5.00%	
January 1, 2008 [1]	5.00%	5.20%	
5-year Average	**3.60%**	**4.90%**	

Benefits to be settled by group annuity purchase

For the purpose of calculating the solvency liability adjustment in respect of benefits that are expected to be settled by group annuity purchase, FSCO expects that the actuary will calculate the average interest rate using the interest rates for group annuity purchase published in the CIA Educational Notes that were applicable at the respective anniversary dates, with an adjustment to account for any change in the *base* mortality table. Suppose for the above hypothetical plan it has been determined that the appropriate adjustments for the change in mortality table from UP-94@2020 and UP-94@2015 to the UP-94 generational mortality table are 0.05% and 0.15%, respectively[2], the average interest rate for the actuarial valuation as at January 1, 2012 would be determined as follows:

Valuation Date	V39062 (1)	Interest Spread Adjustment (2)	Mortality Adjustment (3)	Annuity Proxy (1)+(2)+(3)	Mortality Table
January 1, 2012	2.41%	+ 0.90%	n/a	3.31%	1994 Uninsured Pensioner Mortality Table with generational projection using mortality projection scale AA
January 1, 2011	3.48%	+ 1.00%	+ 0.05%	4.53%	
January 1, 2010	4.09%	+ 0.40%	+ 0.05%	4.54%	
January 1, 2009	3.45%	+ 1.40%	+ 0.15%	5.00%	
January 1, 2008	4.10%	+ 0.40%	+ 0.15%	4.65%	
5-year Average				**4.41%**	

Based on the methodology described above, the average annual interest rates that would be used in conjunction with the UP-94 generational mortality tables to determine the solvency liability adjustment for the actuarial valuation performed as at January 1, 2012 are:

[1] FSCO will also accept a smoothing method which applies a 2-month lag to the pre-February 2011 interest rates

[2] As stated in the CIA Educational Notes, the adjustment for change in the mortality assumption will depend on the membership and characteristics of the plan.

Benefits assumed to be settled though a lump sum transfer: 3.60% for 10 years, 4.90% thereafter

Benefits assumed to be settled though an annuity purchase: 4.41%

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

Appendix – Sample Historical Actuarial Assumptions for Calculating Pension Commuted Values and Group Annuity Purchase Costs

	Commuted Value Basis			Annuity Proxy Basis	
Valuation Date	Select Period Interest Rate (i_{1-10})	Ultimate Period Interest Rate(i_{10+})	Mortality Table	Interest Rate (including interest spread adjustment)	Mortality Table
January 1, 2012(1)	2.40%	3.90%	UP94 Generational	3.31%	UP94 Generational
January 1, 2011(2)	3.70%	5.00%	UP94@2020	4.48%	UP94@2020
January 1, 2010(2)	3.70%	5.40%	UP94@2020	4.49%	UP94@2020
January 1, 2009(3)	3.50%	5.00%	UP94@2015	4.85%(4)	UP94@2015
January 1, 2008(3)	4.50%	5.00%	UP94@2015	4.50%(4)	UP94@2015

(1) CIA Commuted Value Basis revised on December 31, 2010
(2) CIA Commuted Value Basis effective April 1, 2009
(3) CIA Commuted Value Basis effective February 1, 2005
(4) Assuming a total premium greater than $15 million