Educational Note Supplement

Guidance for Assumptions for Hypothetical Wind-Up and Solvency Valuations Update – Effective December 31, 2014, and Applicable to Valuations with Effective Dates Between December 31, 2014, and December 30, 2015

Document 215001

Canadian Institute of Actuaries / Institut canadien des actuaires

MEMORANDUM

To: All Pension Actuaries

From: Bruce Langstroth, Chair
Practice Council

Manuel Monteiro, Chair
Committee on Pension Plan Financial Reporting

Date: January 23, 2015

Subject: **Educational Note Supplement: Guidance for Assumptions for Hypothetical Wind-Up and Solvency Valuations Update – Effective December 31, 2014, and Applicable to Valuations with Effective Dates Between December 31, 2014, and December 30, 2015**

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The most recent quarterly guidance from the Committee on Pension Plan Financial Reporting (PPFRC) regarding assumptions for hypothetical wind-up and solvency valuations, effective September 30, 2014, was provided in the educational note supplement dated October 27, 2014. The guidance provided in that educational note supplement modified the guidance contained in the educational note dated April 2[illegible], 2014, for valuations with effective dates on and after December 31, 2013 (but no later than December 30, 2014).

The PPFRC has conducted its quarterly review of group annuity pricing conditions as at December 31, 2014, and has determined that a revision to its guidance regarding assumptions for hypothetical wind-up and solvency valuations is appropriate for valuations with effective dates on or after December 31, 2014 (but no later than December 30, 2015).

Since this guidance may have an effect on valuations currently in preparation with an effective date of December 31, 2014, or later, this educational note supplement is being released on an expedited basis in advance of formal Practice Council approval of a planned educational note.

DUE PROCESS

The Policy on Due Process for the Approval of Guidance Material Other than Standards of Practice was followed in the development of these revisions.

CONTACT INFORMATION

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NON-INDEXED ANNUITY PROXY

Previous Guidance

The most recent guidance from the Committee on Pension Plan Financial Reporting (PPFRC) concluded that for valuations with effective dates on or after September 30, 2014 (but no later than December 30, 2014), an appropriate discount rate for estimating the cost of purchasing a non-indexed group annuity would be determined as the unadjusted average yield on Government of Canada (GoC) marketable bonds with maturities over 10 years (CANSIM series V39062) increased arithmetically by between 0 to 50 basis points (bps), in conjunction with the UP94 generational mortality tables (based on the AA scale). The spread above the CANSIM series V39062 would be determined based on the duration of the liabilities expected to be settled through the purchase of a group annuity.

This guidance was based on quotes provided by seven insurance companies on illustrative blocks of business using pricing conditions as at September 30, 2014, supplemented by data from certain actuarial consulting firms on actual group annuity purchases during the third quarter of 2014. Furthermore, this guidance applied to both immediate and deferred pensions, and also applied regardless of the overall size of the group annuity purchase.

Analysis

The PPFRC obtained hypothetical quotes from eight insurance companies as at December 31, 2014, on the same illustrative blocks of business used to develop the previous guidance. The characteristics of the three illustrative blocks are as follows:

Duration	**Low**	**Medium**	**High**
Duration at December 31, 2014	8.2	10.9	13.5
Approximate premium at December 31, 2014	$18 million	$23 million	$25 million
Average monthly pension	$897	$897	$897
Proportion of liability for deferred members	0%	4%	12%

For the purpose of this guidance, the durations of the illustrative blocks shown above were determined by calculating the impact of a 0.01% change in the discount rate, and using the following formula:

[(Estimated Purchase Price at 2.52% / Estimated Purchase Price at 2.53%) – 1] / 0.01%

where 2.52% is equal to the CANSIM V39062 yield of 2.22% plus 30 bps at December 31, 2014, being the guidance for the illustrative block with medium duration (as described below). Note that the durations of the three illustrative blocks will change over time as discount rates change.

The PPFRC also obtained data from certain actuarial consulting firms on actual group annuity purchases and bona fide quotations in cases where the transaction did not proceed during the fourth quarter of 2014.

The hypothetical quotations at September 30, 2014, and at December 31, 2014, may be summarized as follows:

AVERAGE OF THE THREE MOST COMPETITIVE QUOTES (USING UP94 GENERATIONAL MORTALITY TABLES)						
	September 30, 2014			**December 31, 2014**		
	Low duration	**Medium duration**	**High duration**	**Low duration**	**Medium duration**	**High duration**
Discount rate	2.39%	2.82%	3.06%	2.06%	2.55%	2.77%
Spread over CANSIM V39062	- 17 bps	+ 26 bps	+ 50 bps	- 16 bps	+ 33 bps	+ 55 bps

The spread over CANSIM V39062 based on the average of the three most competitive hypothetical quotes remained stable for each of the illustrative blocks. As of December 31, 2014, the variability between the most competitive hypothetical quotes for the medium-duration and high-duration group was fairly small. However, there remains significant variability in the hypothetical quotes for the low-duration group, with the most competitive quotes being somewhat more favourable than indicated above. In addition, actual purchases and bona fide quotations during the quarter on blocks with durations similar to the medium- and high-duration block tended to have spreads in line with the averages quoted above, whereas actual purchases and bona fide quotations during the quarter with durations similar to the low-duration block tended to be somewhat more favourable than the average quoted above.

Based on the above information, the PPFRC has concluded that a revision to the guidance is appropriate. In establishing the new guidance, the PPFRC has given some weight to the hypothetical quotes and the data collected on actual annuity purchases and bona fide quotations.

Guidance for Non-indexed Pensions

The PPFRC has concluded that effective December 31, 2014, the cost of purchasing non-indexed annuities would be estimated based on the following process:

1. Determine the duration *of the portion of the liabilities assumed to be settled through the purchase of annuities*, based on a discount rate of 2.52% (CANSIM V39062 plus 30 bps at December 31, 2014).

2. Using the duration obtained in step 1, interpolate using the following table to determine the appropriate spread above unadjusted CANSIM V39062:

Illustrative block	**Duration based on 2.52% discount rate**	**Spread above unadjusted CANSIM V39062**
Low duration	8.2	+ 0 bps
Medium duration	10.9	+ 30 bps
High duration	13.5	+ 60 bps

If the duration of the portion of the liabilities assumed to be settled through the purchase of annuities is lower than 8.2 or higher than 13.5, the actuary would make a reasonable assumption regarding the appropriate spread.

The PPFRC believes that groups with durations higher than 13.5 would likely include a large proportion of deferred vested members. While the higher duration, in isolation, would be expected to result in lower pricing, the PPFRC believes that this impact would be offset by added administrative costs and risks that insurers would incur in assuming these obligations. The PPFRC also believes that it is rare that a group would have a duration materially lower than 8.2. As of December 31, 2014, the PPFRC believes that one reasonable approach would be to assume that the spread for durations lower than 8.2 is 0 bps, and the spread for durations higher than 13.5 is 60 bps. Other approaches may also be reasonable.

3. The cost of purchasing annuities would be estimated using an interest rate determined as the unadjusted CANSIM V39062 increased arithmetically by the spread calculated in step 2, in conjunction with the UP94 generational mortality tables.

   Each actuary would use discretion in determining whether to round the interest rate to the nearest five or 10 basis points. Consistency in the application of such rounding would be followed.

The above guidance applies to both immediate and deferred pensions and also applies regardless of the overall size of the group annuity purchase. It applies to valuations with effective dates on and after December 31, 2014, pending any further guidance or other evidence of change in annuity pricing.

CPI-INDEXED ANNUITY PROXY

Previous Guidance

The most recent guidance from the PPFRC concluded that for valuations with effective dates on or after September 30, 2014 (but no later than December 30, 2014), an appropriate discount rate for estimating the cost of purchasing a group annuity where pensions are fully indexed to the rate of change in the Consumer Price Index (CPI) would be the unadjusted yield on Government of Canada real-return long-term bonds (CANSIM series V39057) reduced arithmetically by 120 bps, in conjunction with the UP94 generational mortality tables (based on the AA improvement scale).

This guidance applied to both immediate and deferred pensions, regardless of the overall size of the group annuity purchase, and regardless of duration.

Analysis

Most of the contributing insurers also provided hypothetical quotes for the illustrative blocks on a CPI-indexed basis as of December 31, 2014. The hypothetical quotations as at September 30, 2014, and December 31, 2014, for the medium-duration illustrative block may be summarized as follows:

AVERAGE OF THE THREE MOST COMPETITIVE HYPOTHETICAL QUOTES (USING UP94 GENERATIONAL MORTALITY TABLES)		
	September 30, 2014	**December 31, 2014**
Discount rate	-0.57%	-0.65%
Spread over CANSIM V39057	-128 bps	-127 bps

The spread below CANSIM V39057 based on the average of the three most competitive hypothetical quotes was relatively constant for the medium-duration illustrative block. There was significant variability in the hypothetical quotes at December 31, 2014, with the most competitive quote having a significantly less negative spread than indicated above.

While there is some indication that the pricing of CPI-indexed annuities may also vary by duration, the PPFRC has concluded that there are insufficient data at this stage to introduce this level of refinement. Consequently, the guidance contained herein is applicable to CPI-indexed annuities regardless of their duration.

There were no data obtained on actual fully indexed annuity purchases during 2014.

Guidance for Fully CPI-Indexed Pensions

Based on the pricing received, the PPFRC has determined that an appropriate proxy for estimating the cost of purchasing a group annuity where pensions are fully indexed to the rate of change in the CPI would be determined using an interest rate equal to the unadjusted yield on Government of Canada real-return long-term bonds (CANSIM series V39057) reduced arithmetically by 120 bps, in conjunction with the UP94 generational mortality tables (with the AA improvement scale).

Each actuary would use discretion in determining whether to round the interest rate to the nearest five or 10 basis points. Consistency in the application of such rounding would be followed.

The above guidance applies to both immediate and deferred pensions, regardless of the overall size of the group annuity purchase and regardless of duration. It applies to valuations with effective dates on and after December 31, 2014, pending any further guidance or other evidence of change in annuity pricing.

Example

As at December 31, 2014, the unadjusted yield on Government of Canada real-return long-term bonds (CANSIM series V39057) was 0.62%. Therefore, prior to rounding, an applicable underlying discount rate would be determined as 0.62% - 1.20% = -0.58%.

Partially-Indexed Annuities

In situations where pensions are partially indexed, indexed to a measure other than the CPI, or contain a deferred component, the actuary would make appropriate provisions for such situations consistent with the guidance provided in the annual educational note dated April 26, 2014, modified to reflect the revised guidance contained in this memo.

VALIDITY OF APRIL 26, 2014, EDUCATIONAL NOTE

Except as noted above, actuaries would continue to reference the April 26, 2014, educational note for guidance with respect to the selection of assumptions for hypothetical wind-up and solvency valuations with effective dates between December 31, 2014, and December 30, 2015.

ACTUAL ANNUITY PRICING

The purpose of this educational note supplement is to provide actuaries with guidance related to establishing assumptions for hypothetical wind-up and solvency valuations. The pricing for an actual group annuity purchase depends on many factors, with the result that the actual price may differ from the guidance provided herein. In addition to the duration of the purchase, some of the other factors that may affect pricing of a particular purchase include, but are not limited to:

- The overall size of the purchase;

- The proportion of deferred vested members included in the group being purchased;
- The average pension amount for the pensions being purchased;
- The mortality experience anticipated by the insurance companies bidding on the purchase;
- Broad capital market conditions at the time of the purchase; and
- Competitive pressures in the group annuity market at the time of the purchase.

RETROACTIVE APPLICATION

If an actuary has already prepared a funding valuation report with an effective date on or after December 31, 2014, before the publication of this guidance, the actuary would consider paragraphs 1820.30 through 1820.36 of the Standards of Practice to determine whether it is necessary to withdraw or amend the report.

ADDITIONAL COMMENTS

The PPFRC is preparing its annual educational note on this topic reflecting the above analysis.

The PPFRC intends to continue monitoring group annuity pricing on a quarterly basis. Actuaries may use the spreads indicated above for valuations with effective dates on and after December 31, 2014, up to December 30, 2015, pending any future guidance or other evidence of change in annuity pricing.

The PPFRC continues to review some other aspects of group annuity purchase pricing that may result in revisions to future guidance. In particular, the underlying basis used to express the annuity guidance is being reviewed. Currently, the non-indexed annuity guidance is expressed as a spread over yields on GoC long-term bonds in conjunction with the UP94 generational mortality tables, irrespective of the basis used by insurers when submitting hypothetical quotes. The Actuarial Standards Board has proposed to promulgate, for subsection 3530 of the Standards of Practice, the use of the mortality rates underlying the 2014 Canadian Pensioner Mortality Table (CPM2014) combined with the mortality improvement scale CPM Improvement Scale B (CPM-B) for pension commuted value calculations, effective August 1, 2015. The PPFRC expects to review the underlying mortality table for the group annuity purchase guidance if and/or when this proposal is confirmed.

It may be noted that the spreads versus GoC long-term bonds for group annuity pricing have been volatile during the past three to four years. Actuaries may wish to be mindful of this volatility when communicating advice related to future hypothetical wind-up and solvency valuations.