

Educational Note Supplement

Accounting Discount Rate Assumption – Calculating Spread Above Provincial Yields

**Task Force on Pension and Post-retirement Benefit
Accounting Discount Rates**

August 2013

Document 213063

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Memorandum

To: All Pension Actuaries

From: Bruce Langstroth, Chair
Practice Council

Gavin Benjamin, Chair
Task Force on Pension and Post-retirement Benefit Accounting Discount Rates

Date: August 6, 2013

Subject: **Educational Note Supplement: Accounting Discount Rate Assumption – Calculating Spread Above Provincial Yields**

In September 2011, the Task Force on Pension and Post-retirement Benefit Accounting Discount Rates published an educational note entitled [Accounting Discount Rate Assumption for Pension and Post-employment Benefit Plans](#). The purpose of the educational note was to offer advice to actuaries who are engaged to provide guidance to a pension or post-employment plan sponsor on the selection of the discount rate for a Canadian plan under Canadian, U.S., or international accounting standards.

The educational note includes a suggested approach for extrapolating the corporate Aa yield curve for maturities greater than 10 years. Under this approach, the curve is extrapolated using Canadian provincial bonds rated Aa, to which a spread adjustment is added to reflect the additional credit risk of Aa-rated corporate bonds. The educational note also includes a suggested approach for calculating the spread to be added to the provincial Aa bond yields.

The task force has received a number of questions regarding the rationale for the approach suggested in the educational note for calculating the spread to be added to the provincial Aa bond yields. The purpose of this educational note supplement is to expand on that rationale.

This educational note supplement has been prepared by the task force in accordance with the Institute's Policy on Due Process for the Approval of Guidance Material Other than Standards of Practice, and has received final approval for distribution by the Practice Council on July 31, 2013.

If you have any questions or comments regarding this educational note supplement, please contact Gavin Benjamin at gavin.benjamin@towerswatson.com.

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CALCULATING SPREAD ABOVE PROVINCIAL YIELDS

When preparing pension-related information for their financial statements, pension plan sponsors are responsible for the selection of the assumptions used to value the plan liabilities. In September 2011, the Task Force on Pension and Post-retirement Benefit Accounting Discount Rates published an educational note entitled [Accounting Discount Rate Assumption for Pension and Post-employment Benefit Plans](#). The purpose of the educational note was to offer advice to actuaries who are engaged to provide guidance to a pension or post-employment plan sponsor on the selection of the discount rate for a Canadian plan under Canadian, U.S., or international accounting standards.

For ease of reference, the term “pension” will be used to refer to both a pension and post-employment plan in the rest of this note.

The educational note includes a suggested approach for extrapolating the corporate Aa yield curve for maturities greater than 10 years, which are the maturities at which the Canadian corporate Aa curve is not deep. Under this approach, the curve is extrapolated using Canadian provincial bonds rated Aa, to which a spread adjustment is added to reflect the additional credit risk of Aa-rated corporate bonds. The educational note also includes a suggested approach for calculating the spread to be added to the provincial Aa bond yields. The approach is described in detail on pages 9–12 of the educational note.

The task force has received a number of questions regarding the rationale for the approach suggested in the educational note for calculating the spread to be added to the provincial Aa bond yields. The purpose of this educational note supplement is to expand upon that rationale.

The overriding objective for all the approaches examined by the task force for extrapolating the corporate Aa yield curve beyond 10 years is to increase the number of relevant data points used for the extrapolation, and thus avoid generating discount rates reliant on too few data points.

Since the market for Aa-rated Canadian provincial bonds is deep across the entire maturity spectrum, the task force concluded that provincial Aa bonds could form an appropriate underlying basis for extrapolating the Canadian corporate Aa yield curve beyond 10 years.

When assessing a reasonable approach for calculating the spread to be added to the provincial Aa bond yields, the task force considered the merits of basing this spread solely on the difference between the yields on available corporate Aa bonds with maturities beyond 10 years and provincial Aa bond yields with similar maturities (this spread is referred to as “*Spread^{long}*” in the educational note). The rationale for this approach is that the spread for extrapolating the long end of the yield curve would be based on the yields on long-term corporate bonds. However, since there are few corporate Aa bonds with maturities beyond 10 years, this approach would result in a spread, and resulting yields, that represent the particular circumstances of only a few corporate bond issuers. This would leave the long end of the yield curve exposed to significant fluctuations following a change in the circumstances of one or two bond issuers. As noted in the educational note, given the long-term nature of pension plan obligations, the yields that matter most for purposes of selecting the discount rate for a pension plan are often

the yields on debt instruments with long terms to maturity (e.g., maturities of 15 years and above). Any approach under which the level of all or a portion of the long end of the yield curve is dependent on a small number of corporate Aa bonds will result in a discount rate that is heavily dependent on the yields on these few bonds. This result would be inconsistent with the educational note's overriding objective.

An actuary who is providing guidance on the selection of the discount rate in accordance with section 19 of the International Accounting Standards (IAS 19) would also consider paragraph 86 of IAS 19 (Revised June 2011), which provides that: "In some cases, there may be no deep market in bonds with a sufficiently long maturity to match the estimated maturity of all the benefit payments. In such cases, an entity uses current market rates of the appropriate term to discount shorter-term payments, and estimates the discount rate for longer maturities by extrapolating current market rates along the yield curve".

One interpretation of paragraph 86 is that it is implying that the long end of the yield curve is extrapolated by reflecting "market rates" on high-quality corporate bonds at maturities where the market is deep (i.e., the extrapolation approach would not depend solely on corporate high-quality bond yields at maturities where the market is not deep).

The task force also considered the merits of basing this spread solely on the difference between the yields on available corporate Aa bonds with maturities of 10 years and less (e.g., maturities between five and 10 years) and provincial Aa bond yields with similar maturities (this spread is referred to as " $Spread^{base}$ " in the educational note). The rationale for this approach is that, since there is a deep market of corporate Aa bonds with maturities of less than 10 years, the resulting spread would be based on a credible number of data points. However, basing the spread used to extrapolate the long end of the yield curve solely on the spreads of shorter-term bonds would exclude available information on long-term corporate Aa bonds' yields, even if these data points are scarce.

Due to the concerns about using either $Spread^{long}$ or $Spread^{base}$ to extrapolate the corporate Aa yield curve beyond 10 years, the task force concluded that a weighted average of $Spread^{long}$ and $Spread^{base}$ would be appropriate (e.g., the spread could be calculated as $50\% \cdot Spread^{long} + 50\% \cdot Spread^{base}$). The actuary would use judgment in determining the appropriate weight to assign to $Spread^{long}$ based on factors such as the number of long bonds, the particular circumstances of the issuers, the volatility of the spreads, and the financial market environment.

Finally, the task force considered whether the spread to be added to the provincial Aa bond yields at maturities beyond 10 years would be adjusted so that it increases with maturity in order to reflect anticipated increases in credit risk premium as the maturity increases. The task force concluded that, in its view, such an adjustment was not warranted because:

- Professionals with expertise in the Canadian bond market who provided their views to the task force were of the opinion that the provincial Aa bonds used to extrapolate the curve likely capture the majority of increases in credit risk premium (relative to the Government of Canada bond yields) as the maturity increases; and
- Any adjustment made would be highly speculative and/or volatile, given the scarcity of corporate Aa bonds with maturities beyond 10 years.

The task force also observes that $Spread^{base}$ has been greater than $Spread^{long}$ at a number of month-ends. Although the relative values of $Spread^{base}$ and $Spread^{long}$ change over time, this may be supportive of the conclusion that an adjustment to the spread to increase with maturity is not warranted.

Finally, in the educational note, the task force acknowledges that the suggested approach includes a number of simplifications and a judgmental estimate of the weightings to be assigned to $Spread^{long}$ and $Spread^{base}$. But overall, considering the limitations on the data available to construct a corporate Aa yield curve, it is believed that the approach suggested in the educational note provides a reasonable representation of a corporate Aa yield curve.