Memorandum

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To: Our Clients

From: Actuarial Department

Date: January 11, 2013

Re: The Impact of Increasing Life Expectancy on the Mortality Assumption

Introduction

As many of you already know, the past decade has been challenging for the sponsors of pension and post-retirement benefit plans. With volatile equity markets and declining interest rates, the funded status of most pension plans has steadily declined over the past decade. With interest rates at all-time lows and the so called "conventional wisdom" indicating that interest rates must go up sooner or later, it may be expected that the worst for plan sponsors is behind us. However, there is another cause of concern looming for plan sponsors – increasing life expectancy.

Increasing Life Expectancy

The Mortality Assumption Explained

The mortality assumption is comprised of two components: a best estimate of the current rates of mortality for a plan (i.e. the base mortality table), and an appropriate adjustment for future improvements in mortality (i.e. the projection scale).

While extremely large pension plans (i.e. plans with greater than 10,000 retirees) are able to perform credible mortality experience studies, most other pension plans must rely upon published mortality tables. Specifically, for plans with less than 1,000 retirees, there are an insufficient number of retirees to conduct a credible mortality experience study[1].

Currently, the most commonly used mortality table and projection scale are the Uninsured Pensioner 1994 (UP 1994) mortality table and the AA projection scale. The UP 1994 mortality table was developed based on mortality experience from 1985 to 1989 for 29 (mostly U.S.) retirement plans; whereas projection scale AA was derived from the U.S. Civil Service Retirement System and U.S. Social Security mortality trend improvements from 1977 to 1993. Needless to say, the majority of the data used to develop this mortality table and projection scale is not Canadian, plus both the mortality table and the projection scale are becoming outdated.

Recent Developments

A recent report from the Society of Actuaries ("SOA") has noted that actual rates of mortality improvement in the U.S. over the recent past have been greater than those predicted by the AA projection scale.

[1] plans with more than 1,000 retirees may be able to develop broad adjustments to published mortality tables.

In light of this experience, the SOA has recently published a projection scale BB which is based on more recent data, and which can be used immediately with the UP 1994 mortality table. It should be noted that the SOA anticipates publishing a complete new set of retirement plan mortality tables and improvement rates in late 2013 or early 2014.

In addition, the Canadian Institute of Actuaries ("CIA") has established a Pension Experience Subcommittee whose mission is to develop and maintain a mortality table and projection scale based upon Canadian pensioner mortality experience. While it is not entirely clear when the Pension Experience Subcommittee will publish a new mortality table and projection scale, it is hoped that they will publish new tables within the next year or two.

Impact of New Mortality Assumptions

In their recent report, the SOA noted that switching from projection scale AA to projection scale BB increased liabilities in the 2% to 4% range.

Also, while the Pension Experience Subcommittee of the CIA has not published the results of their analysis, they recently discussed their preliminary results at an industry seminar. Their preliminary results indicate that a potential change in the base mortality table may increase liabilities in the 2% to 4% range, and that a potential change in both the base mortality table and projection scale may increase liabilities in the 5% to 8% range. However, they noted that their work has not yet been finalized.

Implications for Plan Sponsors

As you are likely aware, there are different measures of the liabilities of a pension plan: the benefit obligations used for financial reporting purposes, as well as the going-concern liabilities and hypothetical wind-up liabilities reported in an actuarial valuation prepared for funding purposes.

The following describes the financial implications of changing the mortality assumption to each of these measures:

- **Benefit Obligations for Financial Reporting Purposes**: Any change in management's best-estimate mortality assumption will impact the fiscal expense and balance sheet liability.

- **Going-Concern Liabilities in the Funding Valuation**: Any change in the actuary's mortality assumption will impact the going-concern liabilities and the current service cost.

- **Hypothetical Wind-up Liabilities in the Funding Valuation**: The hypothetical wind-up liabilities (and solvency liabilities) are comprised of the following:

  - **Commuted Value Liability**: The hypothetical wind-up liability for members assumed to elect a commuted value transfer (i.e. generally active members under age 55) is based upon the commuted value standard. It is noted that the CIA would need to update the mortality assumption referenced in commuted value standards prior to having an impact on liabilities. Such a change is likely to occur after the Pension Experience Subcommittee of the CIA publishes its new tables.

- **Annuity Purchase Liability**: The hypothetical wind-up liability for members assumed to elect an annuity (i.e. generally retirees and active member over age 55) is based upon an estimate of the cost to purchase an annuity at the valuation date. It is our understanding that insurers are already pricing annuities using their own proprietary mortality tables and projection scales, and that any guidance issues by the CIA or SOA will likely not impact annuity costs.

Actuarial Valuations for Funding Purposes

Given that the funding of many pension plans is largely driven by the hypothetical wind-up position on the pension plan, it is our expectation that the impact of the recent studies by the SOA and CIA will not be fully effective until the CIA amends the mortality assumption referenced in the commuted value standard. As noted above, this may not occur for another year or two.

Actuarial Valuations for Financial Reporting Purposes

With respect to the financial reporting of a pension or post-retirement benefit plan on the financial statements of a plan sponsor, management may wish to consider whether to adopt projection scale BB as soon as practical, and when to adopt a new mortality table released by the SOA or CIA.

Next Steps

Please be assured that we will keep you informed of the future developments in mortality tables and projection scales suitable for use for your pension and post-retirement benefit plans.

We would be pleased to discuss the potential impact of a change in the mortality assumption on your pension and/or post-retirement benefit plan(s) with you at your convenience. With the recent release of projection scale BB and the expected release of new mortality tables and projection scales from the SOA and CIA in the coming months, this begs the question as to when if and when plan sponsors and actuaries should reflect the improvements to life expectancy in their mortality assumptions. As noted above, this issue is somewhat muted for pension plans whose hypothetical wind-up position is currently driving the cash funding requirements. Nevertheless, this issue may be of greater importance for plan sponsors (and their auditors) when reflecting their pension and post-retirement benefit plans in their financial statements.

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Please feel free to contact your consultant (Jason, Dean or Joe) if you would like to discuss any of the above.