Memorandum

To: All Fellows, Affiliates, Associates and Correspondents of the Canadian Institute of Actuaries and Other Interested Parties

From: A. David Pelletier, Chair
Actuarial Standards Board

Date: January 20, 2011

Subject: **Final Communication of a Promulgation of Calibration Criteria for Investment Returns Referenced in the Standards of Practice for the Valuation of Policy Liabilities: Life and Health (Accident and Sickness) Insurance (Subsection 2360)**

Effective Date: **April 30, 2011**

Document 211003

INTRODUCTION

According to subsection 2360 of the Standards of Practice:

Model calibration

.01 *It is prescribed that the actuary's calibration of stochastic models used in the valuation of segregated fund guarantees should meet the criteria for investment returns as promulgated from time to time by the Actuarial Standards Board.* [Effective January 1, 2011]

The Actuarial Standards Board (ASB) is promulgating the use of the calibration criteria for equity returns described below, effective April 30, 2011. The process being used to implement this is described in section D of the ASB's Policy on Due Process for the Adoption of Standards of Practice ("Due Process") and this promulgation has followed that Due Process.

RATIONALE

The Standards of Practice outline a minimum policy liability basis for segregated fund business and reference prescribed model calibration criteria for investment returns.

The calibration criteria for stochastic models are being proposed for the following reason:

> The changes to paragraph 2360.01 of the Standards of Practice, effective January 1, 2011, include a new reference to promulgated calibration criteria with respect to the valuation of segregated fund business, thus creating the need for promulgated criteria.

The following papers previously released by the Canadian Institute of Actuaries (CIA) Committee on Life Insurance Financial Reporting (CLIFR) provide a rationale for this proposed promulgation for calibration criteria:

> Research paper: Use of Stochastic Techniques to Value Actuarial Liabilities under Canadian GAAP, August 2001;
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> Report: Report of the CIA Task Force on Segregated Fund Investment Guarantees, March 2002.

This promulgation is based on current practice. A subcommittee of CLIFR is reviewing these criteria and the ASB expects to update this promulgation and expand it to cover more than equity returns based on that work in 2011. The ASB also intends to clarify the requirement to update models for changes in market conditions in this updated promulgation.

ISSUES RAISED

The ASB published on November 9, 2010 an initial communication regarding this promulgation of calibration criteria for investment returns, in accordance with the Policy on Due Process. Two comments were received.

One comment was regarding the calibration criteria being outdated and this was passed on to the subcommittee of CLIFR that is currently working on revised calibration criteria.

The other comment pointed out that the Standards of Practice subsection 2360 states that the economic parameters would be updated and the promulgation has been changed to clarify that the arithmetic mean and the standard deviation of the model would be updated to reflect recent changes in economic conditions. As it is not the intention of the ASB to change practice at this time, the manner in which models are updated for changes in economic conditions is not being promulgated at this time and the actuary's current practice for updating models in accordance with existing guidance would continue to be acceptable.

PROMULGATION

The calibration does not require use of a specific model, only that the model in use fits the calibration criteria.

All model calibration for equity return models should be done with a single data-set. The calibration criteria for equity return models are based on the TSE 300 total return from January 1956 to December 1999 inclusive (end-of-month values). The table below provides maximum accumulation factors for the 2.5th, 5th, and 10th percentiles for one-year, five-year and 10-year periods. As an example of how to interpret the table, for a five-year accumulation period, the total return must be -25% or lower for at least 2.5% of the scenarios used for the valuation. Each of the maximum return criteria are required to be met in order for the equity return model to be appropriately calibrated.

Accumulation period	2.5th percentile	5th percentile	10th percentile
One year	0.76	0.82	0.90
Five years	0.75	0.85	1.05
Ten years	0.85	1.05	1.35

In addition to the percentile criteria in this table, the equity return model must also meet the following criteria for each year of the projection in order for it to be appropriately calibrated:

> An appropriate arithmetic mean of the annual accumulation factor over all scenarios lies in the range 1.10 to 1.12 based on the TSE total return from January 1956 to December 1999. As specified in subsection 2360 of the Standards of Practice, this range would be updated to reflect recent changes in market conditions.
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> An appropriate standard deviation of the annual accumulation factor over all scenarios would be at least 0.175 based on the TSE total return from January 1956 to December 1999. As specified in subsection 2360 of the Standards of Practice, this minimum would be updated to reflect changes in market conditions.

CRITERIA FOR THE ADOPTION OF STANDARDS OF PRACTICE

The proposed equity return calibration criteria promulgation meets the criteria set out in section B of the ASB's Policy on Due Process for the Adoption of Standards of Practice.

1. It advances the public interest through the use of a consistent basis for establishing equity return models for segregated fund business.
2. It provides for the appropriate application of professional judgement within a reasonable range. The proposed calibration criteria allow the actuary to use any model that fits with the promulgated maximum equity return.
3. Use of the proposed table is practical for actuaries with relevant training. The calibration does not require use of a specific model, only that the model in use fits the calibration criteria.
4. The specified table is considered to be unambiguous.

EFFECTIVE DATE

These calibration criteria are to be used for valuations on or after April 30, 2011, and early implementation is permitted.

ADP