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Educational Note

Guidance for the 2013 Valuation of Insurance Contract Liabilities of Life Insurers

Document 213094

Seeing Beyond Risk Canadian Institute of Actuaries Institut canadien des actuaires Voir au-delà du risque

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Guidance for the 2013 Valuation of Insurance Contract Liabilities of Life Insurers

Committee on Life Insurance Financial Reporting

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Ce document est disponible en français

Members should be familiar with educational notes. Educational notes describe but do not recommend practice in illustrative situations. They do not constitute standards of practice and are, therefore, not binding. They are, however, intended to illustrate the application (but not necessarily the only application) of the Standards of Practice, so there should be no conflict between them. They are intended to assist actuaries in applying standards of practice in respect of specific matters. Responsibility for the manner of application of standards of practice in specific circumstances remains that of the members.

Seeing Beyond Risk Canadian Institute of Actuaries Institut canadien des actuaires Voir au-delà du risque

Memorandum

To: Members in the life insurance practice area

From: Bruce Langstroth, Chair
Practice Council

Alexis Gerbeau, Chair
Committee on Life Insurance Financial Reporting

Date: October 30, 2013

Subject: **Educational Note: Guidance for the 2013 Valuation of Insurance Contract Liabilities of Life Insurers**

INTRODUCTION

The purpose of this educational note is to provide guidance to actuaries in several areas affecting the valuation of the 2013 year-end insurance contract liabilities of life insurers for Canadian Generally Accepted Accounting Principles (GAAP) purposes. In addition, the note provides an update on recently published experience studies and introductory information about potential changes in future financial reporting. The guidance in this educational note represents a majority view of the members of the Committee on Life Insurance Financial Reporting (CLIFR) of appropriate practice consistent with the Standards of Practice.

In accordance with the Canadian Institute of Actuaries' (CIA) Policy on Due Process for the Approval of Guidance Material Other than Standards of Practice, this educational note has been prepared by CLIFR, and has received final approval for distribution by the Practice Council on October 29, 2013. As outlined in subsection 1220 of the Standards of Practice, "*The actuary should be familiar with relevant educational notes and other designated educational material*." That subsection explains further that a "practice that the Educational Notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation." As well, "Educational Notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them."

GUIDANCE TO MEMBERS ON SPECIFIC SITUATIONS

From time to time, CIA members seek advice or guidance from CLIFR. Both the CIA and CLIFR strongly encourage such dialogue. CIA members would be assured that it is proper and appropriate for them to consult with the chair or vice-chair of CLIFR.

CIA members are reminded that responses provided by CLIFR are intended to assist them in interpreting CIA standards of practice, educational notes, and Rules of Professional Conduct, and in assessing the appropriateness of certain techniques or assumptions. A response from CLIFR does not constitute a formal opinion as to whether the work in question is in compliance with the CIA Standards of Practice. Guidance provided by CLIFR is not binding upon the member.

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RECENT GUIDANCE

The following revisions to the Standards of Practice have been approved in the last 12 months:

- Final Standards of Practice: Changes to the Standards of Practice – General Standards of Practice, Part 1000 (effective December 31, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – Insurance, Part 2000 (effective June 30, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – General Standards of Practice, Part 1000 (effective June 30, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – Insurance, Part 2000 (effective March 15, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – Insurance, Part 2000 (effective February 8, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – Insurance, Part 2000 (effective January 1, 2013).
- Final Standards of Practice: Changes to the Standards of Practice – General Standards of Practice, Part 1000 (effective January 1, 2013).

Recent CLIFR guidance includes the following material:

- Educational note: Future Income and Alternative Taxes (December 2012);
- Educational note: Valuation of Universal Life Insurance Contract Liabilities (February 2012);
- Research paper: Calibration of Equity Returns for Segregated Fund Liabilities (February 2012); and
- Educational note: Reflection of Hedging in Segregated Fund Valuation (May 2012).

A Notice of Intent to Revise Economic Reinvestment Assumptions within the Practice-Specific Standards on Insurance Contract Valuation: Life and Health (Accident and Sickness) Insurance (Section 2300) was released in December 21, 2012. The notice of intent (NOI) proposes changes affecting life insurance valuation that are expected to take effect on October 15, 2014. CLIFR has highlighted which assumptions will likely be impacted by these changes. References to the NOI in this educational note are provided for information only, and have no impact on 2013 year-end.

For your convenience all of these publications can be found on the CIA website under Publications. A list of all the current educational notes and research papers can be found in appendix B.

In addition, CLIFR expects to publish the following educational notes or research papers in the near future.

- Calibration of Stochastic Risk-free Interest Rate Models for CALM Valuation; and
- Calibration of Fixed-Income Returns for Segregated Fund Valuation.

Some guidance provided last year is still appropriate, and has been duplicated in this educational note. Other guidance has been modified, either to reflect recent developments or to improve clarity.

The topics covered herein are:

If you have any questions or comments regarding this educational note, please contact Alexis Gerbeau at alexis.gerbeau@standardlife.ca.

BL, AG

1. EXPERIENCE STUDIES *(modified)*

The Research Committee has published the following studies.

- Mortality study – Canadian Standard Ordinary Life Experience 2010–2011 Using 86–92 Tables (June 2013)
- Mortality study – Canadian Standard Ordinary Life Experience 2010–2011 Using 97–04 Tables (June 2013)

  These reports submitted by the Individual Life Experience Subcommittee of the Research Committee detail the inter-company mortality experience for Canadian standard ordinary life insurance policies. These studies reflect the mortality experience of Canadian standard individual ordinary insurance issues studied between the 2010 to 2011 anniversaries. The CIA 86–92 and CIA 97–04 mortality tables were used to calculate the expected death claims for males and females and for smoker/non-smoker distinctions separately.

- Morbidity study – Canadian Individual Critical Illness Insurance Morbidity Experience Between Policy Anniversaries in 2002 and 2007 Using Expected CIA Incidence Tables from July 2012 (February 2013)

  This is the first report submitted by the Individual Living Benefits Experience Subcommittee of the CIA Research Committee detailing the intercompany morbidity experience for Canadian individual critical illness (CI) insurance policies. The current study is not considered fully credible due to limited number of claims. An updated study has been initiated in 2013 using more recent data, which should lead to more credible results.

2. LIFE INSURANCE AND ANNUITY MORTALITY *(modified)*

There are no changes to the guidance for the 2013 year-end valuation.

In 2013, CLIFR has formed a new mortality improvement subcommittee, whose mandate is to review the ongoing appropriateness of the current prescribed mortality improvement rates (Final Communication of a Promulgation of Prescribed Mortality Improvement Rates Referenced in the Standards of Practice for the Valuation of Insurance Contract Liabilities: Life and Health (Accident and Sickness Insurance (Subsection 2350)). The goal is to complete the review by the end of 2014 and, if changes are warranted, to be effective for the 2015 year-end valuation.

The main items that the subcommittee will review and investigate are:

- Additional research and data published since the last research paper;
- The potential use of a two-dimensional array versus the current one-dimensional model, to have improvement rates that can be a function of both the attained age and calendar year rather than only the attained age;
- Possible differences between population mortality improvement and insured population mortality improvement;
- The appropriateness of continuing to use a single table for females and males; and
- Providing additional guidance on the definition of “appropriate level of aggregation”.

3. ACCIDENT AND SICKNESS INSURANCE MORTALITY AND MORBIDITY *(modified)*

The committee work to develop mortality improvement did not consider accident and sickness insurance mortality improvement or morbidity trends directly. The mortality improvement trends for accident and sickness insurance are expected to be the same for the active lives within accident and sickness insurance as for life insurance and annuity insurance. It is recommended that the actuary would consider mortality improvements using the current promulgated mortality improvement rates for the current year end valuation for accident and sickness active lives.

In order to determine the minimum valuation assumption, the actuary would perform two valuations of active lives using the following mortality improvement scenarios. The first scenario would be expected to apply in situations where the reflection of mortality improvement decreases insurance contract liabilities, and the second where the effect is to increase insurance contract liabilities.

1. Mortality improvement would be projected for 25 years only from the valuation date using 50% of the mortality improvement rates as described above. After 25 years, no further mortality improvement would be reflected.
2. Mortality improvements would be projected for all future years using 150% of the base mortality improvement rates as described above for 25 years and 100% of the base mortality improvement rates as described above thereafter.

The prescribed mortality improvement rates would be the rates from the mortality improvement scenario producing the higher liability determined at an appropriate level of aggregation.

The actuary may consider reflecting mortality improvement for non-active lives within accident and sickness insurance. However, given that mortality improvement promulgated rates were developed using general population data, the minimum valuation assumption for mortality improvement rates does not apply to the valuation of non-active lives. Non-active lives are lives that are currently receiving benefits and the portion of lives that are expected to be in receipt of future benefits as measured in an active life reserve.

In addition, the actuary may consider reflecting secular morbidity trends for accident and sickness insurance if the actuary has credible data or if the actuary has reliable benchmark data to use for purposes of projecting a morbidity trend. The data supporting longer-term trend assumptions would cover a relevant and sufficiently long period of experience to ascertain the secular trend and rule out shorter-term cyclical trends.

If a morbidity trend assumption is applied then the actuary would apply a margin on the best estimate assumption consistent with subsection 2350 of the Standards of Practice. The actuary would consider whether morbidity trend demonstrates unusually high uncertainty and would warrant selection of a margin above the high margin as noted in paragraph 2350.04 of the Standards of Practice.

4. SCENARIO ASSUMPTIONS—INTEREST RATES (*modified*)

Prescribed Scenarios

The actuary is reminded that, according to paragraph 2330.30 of the Standards of Practice,

> "In addition to the prescribed scenarios, which would be common to the calculation of insurance contract liabilities for all insurers, the actuary would also select other scenarios that

would be appropriate to the circumstances of the case. If current rates are near or outside the limits of the prescribed ranges defined, then some scenarios would include rates that, in the near term, would be outside the prescribed ranges. The reasonableness of degrees of change of interest rates would be largely dependent on the period of time being considered. Other plausible scenarios would include parallel shifts up and down as well as flattening and steepening of the yield curve. The scenarios would include those in which the premiums for default risk range from 50% to 200% of the actual premiums at the balance sheet date."

The actuary is reminded that for the base scenario, paragraph 2330.09.1 of the Standards of Practice states that ". . . the premiums for default risk at all durations, would be consistent with the current investment strategy and risk premiums available in the market at the balance sheet date." Similar wording applies for scenario 9 (see paragraph 2330.29 of the Standards of Practice). For the base scenario, and by extension scenarios 7 and 8, and for scenario 9, the premiums for default risk would remain at the balance sheet date level over the projection period. If the actuary would like to test the impact of alternate risk premium patterns, this can be done via the other scenarios. For example, the actuary could examine a cyclical approach to setting assumptions and margins.

In applying premiums for default risk (spreads) in prescribed scenarios 7 and 8, the actuary may choose to adjust only the underlying risk-free rates, while maintaining the premium for default risk unchanged across these scenarios, since the scenarios examine shock movements to the underlying risk-free rates, without also shocking the spreads.

Derivation of risk-free lower and upper bounds used in the prescribed scenarios is based on moving averages of Canadian risk-free bonds. In the current environment, this approach generates declining lower and upper bounds from one reporting period to the next. For example, based on rates through June 2013 a lower bound of 3.3% is produced.

Paragraph 2330.09.1 of the Standards of Practice states that in the base scenario the "risk-free interest rates effective after the balance sheet date would be equal to the forward interest rates implied by the equilibrium risk-free market curve at that date, for the first 20 years after the balance sheet date". In order to determine the 20-year forward rates out to year 20, a 40-year equilibrium risk-free curve is required. Risk-free interest rates are generally not observable in the market for very long terms (i.e., beyond 30 years) and are highly influenced by supply and demand toward the end of the observable horizon. It is, therefore, acceptable to retain the risk-free yield curve up to the point, in the long end (typically after 20 years), where the spot rate is at its peak ("the yield curve horizon"). Beyond the yield curve horizon, the actuary would assume a continuation of the last observed spot rate and calculate forward rates consistent with that assumption. An example of the process used to derive forward rates is presented in appendix A.

Stochastic Scenarios

In December 2009, CLIFR published the educational note Calibration of Stochastic Interest Rate Models Phase I, which covers long-term risk-free rates. CLIFR encourages actuaries to review this. Work on Phase II, calibration of short- and medium-term risk-free rates, calibration of the slope of the yield curve, and updates to the calibration of long-term risk-free rates, was presented at the 2013 CIA Annual Meeting, and a revised research paper is expected to be released in 2013. The new calibration criteria are expected to be promulgated by the ASB in 2014 and have no impact on 2013 year-end.

In the context of stochastic testing, the conditional tail expectation (CTE), CTE (60) to CTE (80), defines the range of the insurance contract liabilities (paragraph 2320.51 of the Standards of Practice). For products that are supported by investments in long-term risk-free assets, and therefore fit within the Phase I framework, it would be possible to utilize risk-free interest rate models in the valuation that satisfy the calibration criteria, and in that case, CTE (60) to CTE (80) of the stochastic results may be used as long as the resulting liability is greater than that obtained under the base scenario (see paragraph 2330.09.2 of the Standards of Practice).

In the absence of final short- and medium-term risk-free rates, and spread guidance, for a product with insurance contract liabilities that are sensitive to short- and medium-term interest rates, and any other situations that do not fit within the Phase I framework, and for interest rate models that do not satisfy the calibration criteria or that incorporate premiums for credit risk, the actuary would perform scenario testing using the nine prescribed scenarios in addition to the testing performed on a stochastic basis, and consider holding insurance contract liabilities at least equal to the result under the worst prescribed scenario. The decision to establish an insurance contract liability that is less than that required under the worst prescribed scenario would be supported by a clearly documented rationale (for example, by being able to demonstrate that the stochastic model satisfies the long-term calibration criteria). In this context, the actuary would ensure that:

- The stochastic interest rate model, including any parameters required, is appropriately selected for use in determining insurance contract liabilities for Canadian life insurance financial reporting purposes;
- The range of stochastic scenarios encompasses the nine prescribed scenarios;
- The model parameters are reviewed to confirm their appropriateness if the insurance contract liabilities required under the worst prescribed scenario are greater than the insurance contract liabilities at CTE (60); and
- The insurance contract liability is at least equal to the result under both the base scenario and prescribed scenario 9.

The changes that result from the notice of intent published by the ASB on December 21, 2012, will impact scenario assumptions for interest rates. The changes include:

- Revised deterministic scenarios;
- Promulgated calibration criteria for stochastic risk-free interest rate models used for CALM; and
- Guidance on premium for default risk.

This information is provided for information only, and has no impact on 2013 year-end.

5. OTHER ECONOMIC ASSUMPTIONS (*modified*)

Real Estate Returns

When developing the real estate returns assumption and considering the data in the Report on Canadian Economic Statistics, table 7, the actuary would note that the data between 1973 and 1985 come from Morguard Investments, 1985–1999 are based on the Russell Canadian Property Index (RCPI), and 2000 onwards are based on the REALpac/IPD Canada Property Index. The actuary would not consider the Morguard Investments data since they are approximately 1/15th the size of the more recent dataset and there is little information on the split between income/capital appreciation in this dataset.

Reinvestment in Non-Fixed-Income Assets

Paragraph 2330.12 of the Standards of Practices states in part:

> "For a prescribed scenario, if the net cash flow forecast for a period is positive, then the actuary would assume . . .
>
> the reinvestment of any remainder in debt investments except that . . . the actuary may assume reinvestment in non-debt investments
>
> not to exceed their proportion of investments at the balance sheet date if the insurer controls investment decisions and if such reinvestment is consistent with its investment policy . . ."

The purpose of this paragraph is to restrict investment in non-fixed-income investments based on the level of such investments in place at the balance sheet date. This paragraph can be interpreted in one of two ways. It can be seen to either restrict the proportion of future cash flow reinvested in non-fixed-income assets each future period or it can be seen to restrict the proportion of non-fixed-income assets on the balance sheet at each future date. In the former interpretation, future reinvestments are restricted to the level present at the balance sheet date but the total amount at any future date is not restricted. In the latter interpretation, the amount reinvested each period in non-fixed-income investments is not restricted but at any future date the projected amount on the balance sheet cannot exceed that present at the balance sheet date. The actuary would be clear as to which interpretation is being used and ensure that the conditions of this paragraph are met.

Paragraph 2330.06 of the Standards of Practice states:

> "When using non-debt instruments, the actuary would ensure that the proportion of non-debt instruments, at each duration, would be in accordance with the insurer's current investment policy (regardless of whether net cash flows for the period are positive or negative). This review would be performed without taking into consideration any business that could be issued after the valuation date (new sales) even for a valuation done on a going concern basis as stipulated in paragraph 2130.03. In the case where the investment policy limits are set on a going concern basis, the actuary would be satisfied that the projected proportion of non-debt assets is appropriate to support only the inforce business at the valuation date, and does not explicitly or implicitly assume any future new business. This may create a situation where the actuary would have to assume that non-debt instruments would be divested. This disinvestment is not limited to non-debt instruments acquired after the valuation date."

Since the future investment return assumption for non-fixed income investments is generally greater than that for debt instruments, and since non-fixed income investments do not mature, the proportion will tend to increase at later durations if not divested. This could result in the proportion of non-fixed-income investments increasing to a level beyond the limits specified in the company investment policy. The actuary would ensure that the level of non-fixed-income investments remains within company investment policy at all durations for all scenarios tested.

The changes that result from the notice of intent published by the ASB on December 21, 2012, will impact other economic assumptions. The change includes limits on the extent to which investment in non-fixed income assets is assumed. This information is provided for information only, and has no impact on 2013 year-end.

6. THE APPLICATION OF THE CALM TO PARTICIPATING BUSINESS (*unchanged*)

For participating policies, given the pass-through nature of the business, many actuaries calculate insurance contract liabilities using the policy premium method (PPM) along with interest rate testing as an appropriate approximation to the Canadian asset liability method (CALM). The interest rate assumption used in the valuation is often based on the interest rate assumption used in the policy dividend scale with some margins.

The rationale behind the approximation methodology is that most adverse experience is ultimately passed through to the policyholders except in very unusual circumstances.

According to paragraph 2320.49 of the Standards of Practice:

> "The insurance contract liabilities need not make provision for adverse deviations to the extent that the insurer can offset its effect by adjustments to policy dividends, premium rates, and benefits. The insurer's contractual right of such offset may be constrained by policy owner reasonable expectations, competition, regulation, administrative delays, and the fear of adverse publicity or anti-selection."

The actuary is reminded that an approximation would be validated periodically to ensure its continued appropriateness and the ability of the dividends to offset the adverse experience including the interest rate risk reflected in the CALM scenarios. The actuary would consider the level of materiality in determining the frequency of testing.

The actuary is also reminded that there is a risk that adverse experience might not be passed through to the policyholders on a timely basis and that a number of constraints may preclude a complete pass through as defined in paragraph 2320.51 of the Standards of Practice:

> "The selected policy dividend scales in a particular scenario would be consistent with the other elements of that scenario, but would take account of how insurer inertia, policy owner reasonable expectations, and market pressure may preclude the dividend scale from being responsive to changes assumed in the scenario. Those scales would also be consistent with the insurer's dividend policy except in a scenario which that policy does not contemplate and which would provoke a change in it."

The actuary would take into consideration these constraints in the testing.

7. FUTURE INCOME AND ALTERNATIVE TAXES AND HARMONIZATION OF SALES TAXES *(modified)*

A revised educational note on Future Income and Alternative Taxes was published in December 2012. The revised version reflects the CICA section 3855 and the related new legislation. The educational note has been expanded to provide additional guidance on, and examples of, calculation methods for the provision for future taxes in the context of the CALM framework and on recoverability that may impact alternative sources of taxable income allowable as sources of recovery in the valuation.

CLIFR reminds the actuary of the following recent changes in sales taxes:

a. The HST introduced in British Columbia on July 1, 2010, has been repealed. Effective date is April 1, 2013.

b. Québec has increased its provincial sales tax (QST) rate from 8.5% to 9.5% on January 1, 2012. Starting January 1, 2013, the QST rate was once again increased from 9.5% to 9.975%. Since then, the amount subject to QST is the same as the one subject to GST.

c. Starting January 1, 2013, financial services provided in Québec are exempted under the QST system, as is the case in the GST/HST system. As of this date, suppliers of financial services will no longer be entitled to a refund of QST paid on their purchases of goods and services.

d. Effective January 1, 2013, Québec announced the elimination of the base rate of compensatory tax on insurance premiums of 0.35%. The temporary increase of 0.2% announced in 2012 was increased by 0.1% to 0.3% and will remain in effect until March 31, 2019.

e. The Prince Edward Island PST has been harmonized with the federal goods and services tax to become the HST. Effective date is April 1, 2013.

f. The HST rate applicable in Nova Scotia will be reduced to 14% on July 1, 2014, and to 13% on July 1, 2015.

The actuary would consider the implications of these changes in valuing insurance contract liabilities. Examples include updating expense studies to reflect HST and the valuation of segregated funds where the cost of the guarantees may be increased as a result of lower fund values due to increased fees.

8. INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) (*modified*)

In June 2013 the International Accounting Standards Board (IASB) published the exposure draft Insurance Contracts for comments.

- IASB – Insurance Contracts, exposure draft, June 2013; and
- IASB – Insurance Contracts basis for conclusions exposure draft, June 2013.

9. SEGREGATED FUNDS (*modified*)

Calibration

New calibration criteria for equity returns were promulgated in July 2012. A research paper that provides the rationale for the new promulgated calibration criteria was published in February 2012.

A working group is developing calibration criteria for returns of fixed-income funds. There is currently no guidance for modelling such funds. The calibration criteria for fixed-income funds are expected to be promulgated in 2014. Criteria covering the left tail of fixed-income returns at the one-, five-, 10-, and 20-year horizons for three different initial bond yields are being developed. Criteria for the right tail at the one-year horizon will also be provided. Criteria will be provided for Canadian and U.S. broad-based fixed-income funds, and qualitative guidance will be provided for other types of fixed-income funds.

One aspect of the modelling of investment returns that will not be covered by the calibration working group is the treatment of foreign exchange risk. The calibration criteria are applicable to investment returns in local currency. Therefore, additional considerations are needed to allow for the impact of foreign exchange rates. According to the report of the CIA Task Force on Segregated Fund Investment Guarantees (March 2002), it may be appropriate to have separate parameters for the market index and for the foreign exchange rate, especially when a currency has

depreciated or appreciated significantly in the historical period. This trend may not continue in the future, so an explicit currency exchange model may be suitable.

Historically, the value of the U.S. currency relative to the Canadian currency has been negatively correlated with U.S. returns in local currency, which results in a volatility of the S&P 500 that is lower in the Canadian currency than in the local (U.S.) currency. This led some actuaries to consider that a safe approach for calibrating a model for returns of a U.S. fund in Canadian currency is to use historical U.S. returns in local currency without adjustment for foreign exchange risk. There is no theoretical consensus, however, on the existence of and the nature of the relationship between stock prices and exchange rates. The actuary is reminded that the negative correlation observed in the past will not necessarily persist in the future, and is encouraged to analyze the impact of the foreign exchange modelling on insurance contract liabilities.

Please see the educational note Currency Risk in the Valuation of Policy Liabilities for Life and Health Insurers for more information.

The promulgation document for the calibration criteria for equity returns provides a decision tree for the application of the criteria. Case 2 involves a model test, and applies to indices other than broad-based equity indices and small capitalization stock indices for which sufficient credible data are available. Broad-based real estate funds would fall under case 2, as the data available on real estate are deemed sufficient and credible.

Hedging

The hedging of segregated fund guarantees has become a common practice in the industry. The practice for recognizing hedging in insurance contract liabilities varies greatly across companies. Paragraph 2320.09 of the Standards of Practice states that, "The actuary would usually apply the Canadian asset liability method to policies in groups that reflect the insurer's asset-liability management practice for allocation of assets to liabilities and investment strategy." Paragraph 2330.05 of the Standards of Practice states that, "The investment strategy for each scenario would be consistent with the insurer's current investment policy."

An educational note that provides guidance on approximation methods to account for hedging in the insurance contract liabilities, consistent with the above references, and that also provides guidance with respect to reflecting potential hedging weaknesses in insurance contract liabilities, was published in May 2012. The actuary would recognize hedging in the calculation of insurance contract liabilities.

Where a hedging program is in place, the 2007 educational note Considerations in the Valuation of Segregated Fund Products stated that negative insurance contract liabilities after issue are allowed, but "subject to constraints on the amount of profit capitalized, consistent with an unhedged position". Some companies have interpreted this by allowing insurance contract liabilities to be negative only to the extent that the gain from negative insurance contract liabilities is offset by cumulative losses from the hedge assets. CLIFR's view is that the following approach, which does not depend on the past performance of hedge assets, is consistent with the aforementioned statement. For a new cohort, the fee income allocated to the guarantee at the time of issue would be adjusted such that the initial insurance contract liability for the guarantee is equal to or greater than zero. Once established at issue, the adjusted fee income would be kept constant throughout the remaining life of the cohort. In future periods, the fee income allocated to the guarantee would be that established at issue and the liability for the guarantee would be

allowed to move freely up or down, without regard to cumulative gains and losses from the hedge assets. A numerical example is provided in section 7.2 of the report of the Task Force on Segregated Fund Liability and Capital Methodologies.

In the case of a company implementing a hedging program for an in-force block of business, the same principle as for new business would apply, i.e., fee income allocated to the guarantee would be such that the liability for the guarantee post hedging is equal to or greater than zero. In future periods, the fee income allocated to the guarantee would be that established at the inception of the hedging program.

Volatility

The general practice for estimating the parameters of stochastic models for equity returns is to use a time series of monthly equity returns as data. The volatility of equity returns obtained using this approach is consistent with the historical monthly volatility of equity returns. It is important to note that the historical volatility of equity returns varies depending on the time step used to estimate the volatility. The observed volatility tends to decrease as the time step increases; e.g., the monthly volatility is historically lower than the daily volatility. This can be explained by negative correlations between daily returns: negative daily returns would tend to be counterbalanced by positive daily returns, which dampen the volatility observed over monthly periods. Using monthly data to estimate the parameters of an equity model is appropriate in the context where no hedging program is in place. However, the cost of hedging guarantees is a function of the volatility of the underlying assets over a time step corresponding to the frequency of rebalancing. The cost of hedging for a company rebalancing its hedge portfolio on a daily basis will depend on the daily volatility of equity returns. This company would therefore underestimate the cost of hedging by assuming a monthly volatility. The actuary would consider the frequency of rebalancing of a hedging program for determining the volatility of equity returns.

Bifurcated Approach

Paragraph 2320.08.2 of the Standards of Practice states that: "*If the bifurcated approach is used for valuation of the general account insurance contract liability associated with segregated fund guarantees, the allocation of future fee revenue between amortization of the allowance for acquisition expense and the guarantee should not change from period to period.*"

In the case of a change in contractual fees charged to the client, a portion of this change could be allocated to the guarantee, subject to the term of the liabilities provisions in the Standards of Practice (paragraphs 2320.16 through 2320.27).

A special consideration would be given to the situation where the insurance contract liabilities for the guarantee are allowed to be negative because a hedging program is in place. The spirit of the guidance related to hedging is to allow negative insurance contract liabilities only where there is an opposite movement in the hedge assets. Therefore, an increase in the fee allocated to the guarantee would not result in negative insurance contract liabilities, or would not render the insurance contract liabilities more negative, except where there is a corresponding adverse change in actuarial assumptions. The change in actuarial assumptions need not be perfectly synchronized with the change in the fee allocated to the guarantee. For example, a company could react to an increase in the cost of hedging by increasing the fee charged to the clients a few months after the increase in cost has been recognized in insurance contract liabilities. The increase in fees could be allocated to the guarantee in this example.

APPENDIX A: EXAMPLE OF SCENARIO ASSUMPTIONS—INTEREST RATES

Appendix A: Example of Scenario Assumptions – Interest Rates

Prescribed Interest Rate Scenarios

Scenario	Description
0	Base Interest Rate Scenario (forward rates based on the current yield curve grading to long term average)
1	Move to 90% of Current by Year 1; to Prescribed Minimums by Year 20
2	Move to 110% of Current by Year 1; to Prescribed Maximums by Year 20
3	Yield Curve Movements In Full Cycles (Up/Down/Up/Down/Up/Down)
4	Yield Curve Movements In Full Cycles (Down/Up/Down/Up/Down/Up)
5	Inversions and Yield Curve Movements In Full Cycles (Up/Down/Up/Down/Up/Down)
6	Inversions and Yield Curve Movements In Full Cycles (Down/Up/Down/Up/Down/Up)
7	Move to 90% of Scenario 0 by Year 1; 90% of Scenario 0 thereafter
8	Move to 110% of Scenario 0 by year 1; 110% of Scenario 0 thereafter
9	Current yield curve persists

Prescribed Ultimate and Minimum Long Rate - Sample Calculation

Calculation as of: June 28th, 2013

SELECTED GOVERNMENT OF CANADA BENCHMARK LONG-TERM (V122544) SEMI-ANNUAL BOND YIELDS - PERCENT

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003							5.40	5.44	5.23	5.38	5.29	5.20
2004	5.23	5.09	5.04	5.[illegible]1	5.32	5.33	5.29	5.15	5.04	5.00	4.90	4.92
2005	4.74	4.76	4.77	4.5[illegible]	4.4[illegible]	4.29	4.31	4.12	4.21	4.37	4.18	4.02
2006	4.20	4.15	4.[illegible]3	4.57	4.50	4.67	4.45	4.20	4.07	4.24	4.02	4.10
2007	4.22	4.09	4.[illegible]1	4.2[illegible]	4.39	4.56	4.49	4.44	4.50	4.38	4.23	4.18
2008	4.19	4.1[illegible]	3.96	4.08	4.12	4.05	4.16	4.01	4.13	4.27	3.94	3.45
2009	3.72	3.6[illegible]	3.74	3.82	4.19	3.91	4.05	3.90	3.84	3.96	3.85	4.07
2010	3.96	4.05	4.07	4.04	3.68	3.65	3.77	3.47	3.33	3.50	3.65	3.54
2011	3.75	3.75	3.72	3.74	3.50	3.53	3.35	3.10	2.83	3.02	2.69	2.50
2012	2.64	2.60	2.67	2.65	2.33	2.32	2.22	2.37	2.33	2.38	2.30	2.37
2013	2.57	2.53	2.49	2.38	2.65	2.96						

	s.a.	a.e.*	
120 Month Average - Effective Annual	3.95	3.99	* *Averages taken from annualized form of above rates.*
60 Month Average - Effective Annual	3.33	3.36	*e.g. Jun 2013 rate = (1+0.0296/2)^2 = 2.98%.*
Average of 2 Averages		3.67	
Rounded To Nearest 0.10		3.70	<= Base Scenario 40+ Rate
90% and Rounded To Nearest 0.10		3.30	<= Prescribed Scenario Long Term Minimum

Appendix A: Example of Scenario Assumptions – Interest Rates (cont'd)

Par Yields, Spot Rates, Forward Spots, and Forward Par Yields

Define a spot rate z_n as the yield on a zero-coupon bond maturing in n periods.
Given an observed par yield curve p_n, the spot curve z_n is derived recursively:

Formula 1:

$$z_n = \left[\frac{(1+p_n)}{(1-p_n \sum_{k=1}^{n-1} (1+z_k)^{-k})} \right]^{1/n} - 1$$

Define a forward spot F(n,m) as the z_n on a zero purchased m periods from now.
Given a spot curve z_n, the implied Forward spots F(n,m) are derived via the relation:

Formula 2:

$$F(n,m) = \left[\frac{(1+z_{m+n})^{m+n}}{(1+z_m)^m} \right]^{1/n} - 1$$

The corresponding forward par yields FP(n,m) are then derived via the formula

Formula 3:

$$FP(n,m) = \frac{1-(1+F(n,m))^{-n}}{\sum_{k=1}^{n} (1+F(k,m))^{-k}}$$

A sample process is outlined below; sample 1- and 20-year rates are illustrated at right.

Construction of Implied Forward Par Yield Curves - Steps

Step 1: Obtain current par yield curve from an appropriate source (e.g. Bloomb

Step 2: Interpolate the par yield curve where yields are not directly available.

Step 3: Derive the equivalent spot rate curve using Formula 1.

Step 4: Determine the year between 20 and 30 at which the spot curve reaches its maximum. Extend this rate out in

Step 5: Derive the implied forward spots using Formula 2.

Step 6: Determine the equivalent implied for par yields using Formula 3.

Notes

1. Maximum spot = 3.036% at term = 25. Extend from this point out.
2. For each term, the time-0 forward spot equals the observed spot for that term.
3. For each term, the ultimate forward spot equals the observed "horizon" spot.
4. For each term, only the first 20 forwards are used in the Base Scenario.

Illustration: 1- and 20-yr Terms

all rates annualized

	Observed Rates by Term			Implied Forwards by Year			
	June 28th, 2013 (Bloomberg)			Spots		Par Yields	
	Par	Spots	Adj Spot	1-yr	20-yr	1-yr	20-yr
0				1.133%	2.995% [2]	1.133%	2.875%
1	1.133%	1.133%	1.133%	1.314%	3.097%	1.314%	2.999%
2	1.223%	1.224%	1.224%	1.595%	3.190%	1.595%	3.118%
3	1.345%	1.347%	1.347%	2.279%	3.271%	2.279%	3.224%
4	1.572%	1.579%	1.579%	2.790%	3.319%	2.790%	3.289%
5	1.805%	1.820%	1.820%	2.880%	3.342%	2.880%	3.322%
6	1.974%	1.996%	1.996%	3.252%	3.350%	3.252%	3.342%
7	2.142%	2.175%	2.175%	3.050%	3.339%	3.050%	3.338%
8	2.245%	2.284%	2.284%	3.286%	3.338%	3.286%	3.347%
9	2.348%	2.395%	2.395%	3.529%	3.326%	3.529%	3.340%
10	2.451%	2.507%	2.507%	2.994%	3.301%	2.994%	3.316%
11	2.493%	2.552%	2.552%	3.096%	3.303%	3.096%	3.328%
12	2.536%	2.59[illegible]	2.597%	3.200%	3.300%	3.200%	3.333%
13	2.578%	2.643%	2.643%	3.307%	3.292%	3.307%	3.332%
14	2.621%	2.690%	2.[illegible]%	3.416%	3.278%	3.416%	3.323%
15	2.6[illegible]%	2.73[illegible]	2.739%	3.529%	3.259%	3.529%	3.306%
16	2.705%	2.788%	2.7[illegible]%	3.645%	3.235%	3.645%	3.280%
17	2.748%	2.838%	2.838%	3.766%	3.204%	3.766%	3.246%
18	2.7[illegible]%	2.[illegible]	2.889%	3.890%	3.168%	3.890%	3.202%
19	2.83[illegible]%	2.942%	2.942%	4.019%	3.125%	4.019%	3.149%
20	2.[illegible]%	2.995%	2.995%	3.144%	3.076%	3.144%	3.086%
21	2.884%	3.002%	3.002%	3.170%	3.071% [4]	3.170%	3.080% [4]
22	2.893%	3.010%	3.010%	3.197%	3.064%	3.197%	3.072%
23	2.902%	3.018%	3.018%	3.225%	3.056%	3.225%	3.062%
24	2.911%	3.027%	3.027%	3.254%	3.047%	3.254%	3.050%
25	2.920%	3.036%	3.036%	3.036%	3.036%	3.036%	3.036%
26	2.919%	3.030%	3.036%	3.036%	3.036%	3.036%	3.036%
27	2.918%	3.024%	3.036%	3.036%	3.036%	3.036%	3.036%
28	2.917%	3.019%	3.036%	3.036%	3.036%	3.036%	3.036%
29	2.916%	3.014%	3.036%	3.036%	3.036%	3.036%	3.036%
30	2.915%	3.009%	3.036% [1]	3.036%	3.036%	3.036%	3.036%
31	2.915%	3.006%	3.036%	3.036%	3.036% [3]	3.036%	3.036%
32	2.915%	3.003%	3.036%				
33	2.915%	3.000%	3.036%				
34	2.915%	2.998%	3.036%				
35	2.915%	2.995%	3.036%				
36	2.915%	2.993%	3.036%				
37	2.915%	2.991%	3.036%				
38	2.915%	2.989%	3.036%				
39	2.915%	2.987%	3.036%				
40	2.915%	2.985%	3.036%				
41	2.915%	2.984%	3.036%				
42	2.915%	2.982%	3.036%				
43	2.915%	2.980%	3.036%				
44	2.915%	2.979%	3.036%				
45	2.915%	2.978%	3.036%				

Appendix A: Example of Scenario Assumptions – Interest Rates (cont'd)

20-year Annual Effective Yields to Maturity
by Scenario and Projection Year

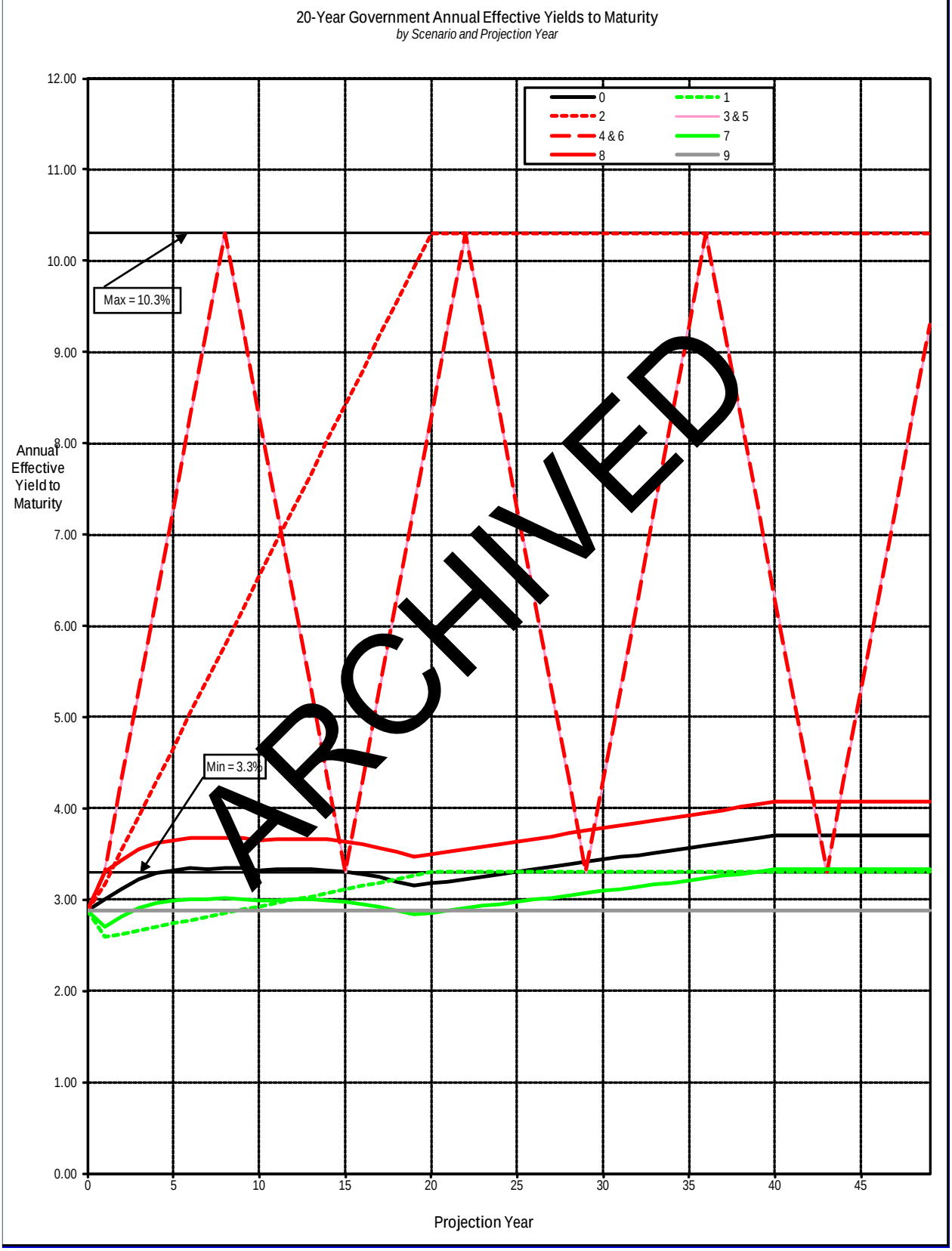
= Observed 20-yr rate @ valuation date
= Implied 20-yr forward par rates
= Smoothly interpolated rates
= Ultimate or nodal rate/spread

Assumptions	a.e.
Observed 20-yr rate @ valn date:	2.875
Ultimate 20 Year Yield Rate:	3.70
Initial Spread:	1.00

Projection	Government Par Yield Curves (annualized)								Gross Spread over Governments					Gross Portfolio Par Yields (annualized)						
Yr (eoy)	0	1	2	3	4 & 6[1]	7	8	9	0	1-6	7	8	9	0	1	2	3-6	7	8	9
0	2.875	2.875	2.875	2.875	2.875	2.875	2.875	2.875	1.00	1.00	0.90	1.10	1.00	3.88	3.88	3.88	3.88	3.78	3.98	3.88
1	2.999	2.59	3.16	3.30	3.30	2.70	3.30	2.88	1.00	0.95	0.90	1.10	1.00	4.00	3.54	4.11	4.25	3.60	4.40	3.88
2	3.118	2.63	3.54	4.30	4.30	2.81	3.43	2.88	1.00	0.90	0.90	1.10	1.00	4.12	3.53	4.44	5.20	3.71	4.53	3.88
3	3.224	2.66	3.91	5.30	5.30	2.90	3.55	2.88	1.00	0.85	0.90	1.10	1.00	4.22	3.51	4.76	6.15	3.80	4.65	3.88
4	3.289	2.70	4.29	6.30	6.30	2.96	3.62	2.88	1.00	0.80	0.90	1.10	1.00	4.29	3.50	5.09	7.10	3.86	4.72	3.88
5	3.322	2.74	4.67	7.30	7.30	2.99	3.65	2.88	1.00	0.75	0.90	1.10	1.00	4.32	3.49	5.42	8.05	3.89	4.75	3.88
6	3.342	2.78	5.04	8.30	8.30	3.01	3.68	2.88	1.00	0.70	0.90	1.10	1.00	4.34	3.48	5.74	9.00	3.91	4.78	3.88
7	3.338	2.81	5.42	9.30	9.30	3.00	3.67	2.88	1.00	0.65	0.90	1.10	1.00	4.34	3.46	6.07	9.95	3.90	4.77	3.88
8	3.347	2.85	5.79	10.30	10.30	3.01	3.68	2.88	1.00	0.60	0.90	1.10	1.00	4.35	3.45	6.39	10.90	3.91	4.78	3.88
9	3.340	2.89	6.17	9.30	9.30	3.01	3.67	2.88	1.00	0.55	0.90	1.10	1.00	[illegible]	3.44	6.72	9.85	3.91	4.77	3.88
10	3.316	2.93	6.54	8.30	8.30	2.98	3.65	2.88	1.00	0.50	0.90	1.10	1.00	4.32	[illegible]	7.04	8.80	3.88	4.75	3.88
11	3.328	2.96	6.92	7.30	7.30	2.99	3.66	2.88	1.00	0.45	0.90	1.10	[illegible]	4.33	[illegible]	7.37	7.75	3.89	4.76	3.88
12	3.333	3.00	7.29	6.30	6.30	3.00	3.67	2.88	1.00	0.40	0.90	1.10	[illegible]	4.33	[illegible]	7.69	6.70	3.90	4.77	3.88
13	3.332	3.04	7.67	5.30	5.30	3.00	3.66	2.88	1.00	0.35	0.90	[illegible]	1.00	[illegible]	[illegible]	8.02	5.65	3.90	4.76	3.88
14	3.323	3.08	8.05	4.30	4.30	2.99	3.65	2.88	1.00	0.30	0.90	[illegible]	[illegible]	[illegible]	3.38	8.35	4.60	3.89	4.75	3.88
15	3.306	3.11	8.42	3.30	3.30	2.98	3.64	2.88	1.00	0.25	[illegible]	[illegible]	1.00	[illegible]	3.36	8.67	3.55	3.88	4.74	3.88
16	3.280	3.15	8.80	4.30	4.30	2.95	3.61	2.88	1.00	0.20	0.90	1.10	1.00	4.28	3.35	9.00	4.50	3.85	4.71	3.88
17	3.246	3.19	9.17	5.30	5.30	2.92	3.57	2.88	1.00	0.15	0.90	1.10	[illegible]	4.25	3.34	9.32	5.45	3.82	4.67	3.88
18	3.202	3.23	9.55	6.30	6.30	2.88	3.52	2.88	1.00	[illegible]	0.90	[illegible]	1.00	4.20	3.33	9.65	6.40	3.78	4.62	3.88
19	3.149	3.26	9.92	7.30	7.30	2.83	3.46	2.88	1.00	0.05	[illegible]	[illegible]	1.00	4.15	3.31	9.97	7.35	3.73	4.56	3.88
20	3.18	3.30	10.30	8.30	8.30	2.86	3.49	2.88	[illegible]	[illegible]	0.90	1.10	1.00	4.18	3.30	10.30	8.30	3.76	4.59	3.88
21	3.20	3.30	10.30	9.30	9.30	2.88	3.52	2.88	[illegible]	0.00	0.90	1.10	1.00	4.20	3.30	10.30	9.30	3.78	4.62	3.88
22	3.23	3.30	10.30	10.30	10.30	2.90	3.55	2.88	[illegible]	[illegible]	0.90	1.10	1.00	4.23	3.30	10.30	10.30	3.80	4.65	3.88
23	3.25	3.30	10.30	9.30	9.30	2.93	3.58	2.88	1.00	[illegible]	0.90	1.10	1.00	4.25	3.30	10.30	9.30	3.83	4.68	3.88
24	3.28	3.30	10.30	8.30	8.30	2.95	[illegible]	2.88	1.00	0.00	0.90	1.10	1.00	4.28	3.30	10.30	8.30	3.85	4.71	3.88
25	3.31	3.30	10.30	7.30	7.30	2.98	[illegible]	2.88	[illegible]	0.00	0.90	1.10	1.00	4.31	3.30	10.30	7.30	3.88	4.74	3.88
26	3.33	3.30	10.30	6.30	6.30	3.00	[illegible]	2.88	1.00	0.00	0.90	1.10	1.00	4.33	3.30	10.30	6.30	3.90	4.77	3.88
27	3.36	3.30	10.30	5.30	5.30	[illegible]	[illegible]	2.88	1.00	0.00	0.90	1.10	1.00	4.36	3.30	10.30	5.30	3.92	4.79	3.88
28	3.39	3.30	10.30	4.30	[illegible]	[illegible]	[illegible]	[illegible]	1.00	0.00	0.90	1.10	1.00	4.39	3.30	10.30	4.30	3.95	4.82	3.88
29	3.41	3.30	10.30	3.30	[illegible]	[illegible]	3.75	2.88	1.00	0.00	0.90	1.10	1.00	4.41	3.30	10.30	3.30	3.97	4.85	3.88
30	3.44	3.30	10.30	4.30	[illegible]	[illegible]	[illegible]	2.88	1.00	0.00	0.90	1.10	1.00	4.44	3.30	10.30	4.30	3.99	4.88	3.88
31	3.46	3.30	10.30	5.30	5.30	[illegible]	3.81	2.88	1.00	0.00	0.90	1.10	1.00	4.46	3.30	10.30	5.30	4.02	4.91	3.88
32	3.49	3.30	10.30	[illegible]	6.30	[illegible]	3.84	2.88	1.00	0.00	0.90	1.10	1.00	4.49	3.30	10.30	6.30	4.04	4.94	3.88
33	3.52	3.30	10.30	[illegible]	[illegible]	[illegible]	3.87	2.88	1.00	0.00	0.90	1.10	1.00	4.52	3.30	10.30	7.30	4.06	4.97	3.88
34	3.54	3.30	10.30	[illegible]	8.30	[illegible]	3.90	2.88	1.00	0.00	0.90	1.10	1.00	4.54	3.30	10.30	8.30	4.09	5.00	3.88
35	3.57	3.30	10.30	[illegible]	9.30	[illegible]	3.93	2.88	1.00	0.00	0.90	1.10	1.00	4.57	3.30	10.30	9.30	4.11	5.03	3.88
36	3.60	3.30	10.30	[illegible]	[illegible]	[illegible]	3.95	2.88	1.00	0.00	0.90	1.10	1.00	4.60	3.30	10.30	10.30	4.14	5.05	3.88
37	3.62	3.30	10.30	9.30	9.30	[illegible]	3.98	2.88	1.00	0.00	0.90	1.10	1.00	4.62	3.30	10.30	9.30	4.16	5.08	3.88
38	3.65	3.30	10.30	8.30	8.30	[illegible]	4.01	2.88	1.00	0.00	0.90	1.10	1.00	4.65	3.30	10.30	8.30	4.18	5.11	3.88
39	3.67	3.30	10.30	7.30	7.30	[illegible]	4.04	2.88	1.00	0.00	0.90	1.10	1.00	4.67	3.30	10.30	7.30	4.21	5.14	3.88
40	3.70	3.30	10.30	6.30	6.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	6.30	4.23	5.17	3.88
41	3.70	3.30	10.30	5.30	5.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	5.30	4.23	5.17	3.88
42	3.70	3.30	10.30	4.30	4.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	4.30	4.23	5.17	3.88
43	3.70	3.30	10.30	3.30	3.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	3.30	4.23	5.17	3.88
44	3.70	3.30	10.30	4.30	4.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	4.30	4.23	5.17	3.88
45	3.70	3.30	10.30	5.30	5.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	5.30	4.23	5.17	3.88
46	3.70	3.30	10.30	6.30	6.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	6.30	4.23	5.17	3.88
47	3.70	3.30	10.30	7.30	7.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	7.30	4.23	5.17	3.88
48	3.70	3.30	10.30	8.30	8.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	8.30	4.23	5.17	3.88
49	3.70	3.30	10.30	9.30	9.30	3.33	4.07	2.88	1.00	0.00	0.90	1.10	1.00	4.70	3.30	10.30	9.30	4.23	5.17	3.88

1. Scenarios 3 & 5 are derived similarly - though the initial direction would be toward the maximum. In the above example, the year-1 rate would also be 3.30%.

Appendix A: Example of Scenario Assumptions – Interest Rates (cont'd)



APPENDIX B: CIA GUIDANCE

Document Number	Title	Publication Date
212096	Educational Note on Future Income and Alternative Taxes	December 17, 2012
212054	Memorandum: Final Communication of a Promulgation of Calibration Criteria for Investment Returns Referenced in the Standards of Practice for the Valuation of Insurance Contract Liabilities: Life and Health (Accident and Sickness) Insurance (Subsection 2360)	July 3, 2012
212027	Educational Note: Reflection of Hedging in Segregated Fund Valuation	May 10, 2012
212012	Educational Note: Valuation of Universal Life Insurance Contract Liabilities	February 28, 2012
212004	Research Paper: Calibration of Equity Returns for Segregated Fund Liabilities	February 3, 2012
211091	Final Standards of Practice: Standards of Practice for Recognizing Events in Work (clean version)	September 26, 2011
211084	Final Standards of Practice: Practice Specific Standards for Insurance, Incorporation of Standard Wording for Fairness Opinions (subsection 2460)	September 7, 2011
211072	Final Communication of a Promulgation of Prescribed Mortality Improvement Rates Referenced in the Standards of Practice for the Valuation of Insurance Contract Liabilities: Life and Health (Accident and Sickness) Insurance (Subsection 2350)	July 12, 2011
211070	Final Standards of Practice: Standards of Practice for the Valuation of Insurance Contract Liabilities: Life and Health (Accident and Sickness) Insurance (Subsection 2350) Relating to Mortality Improvement (clean version)	July 12, 2011
211062	Revised Exposure Draft: Revised Exposure Draft to Revise the Standards of Practice – Dynamic Capital Adequacy Testing – Section 2500	June 8, 2011
211027	Educational Note: Investment Return Assumptions for Non-Fixed Income Assets for Life Insurers	March 1, 2011
211003	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)	January 20, 2011
210088	Research Paper: IFRS Disclosure Requirements for Life Insurers	December 13, 2010

Document Number	Title	Publication Date
210086	Educational Note: Valuation of Gross Policy Liabilities and Reinsurance Recoverables	December 1, 2010
210065	Research Paper: Mortality Improvement Research Paper	September 23, 2010
210053	Report: Report from the Task Force on Segregated Fund Liability and Capital Methodologies	August 11, 2010
210034	Educational Note: Valuation of Group Life and Health Policy Liabilities	June 4, 2010
209122	Educational Note: Calibration of Stochastic Interest Rate Models	December 3, 2009
209121	Educational Note: Currency Risk in the Valuation of Policy Liabilities for Life and Health Insurers	December 2, 2009
208004	Educational Note: Implications of Proposed Revisions to Income Tax Legislation (Nov 7, 2007 Department of Finance Proposal)	January 23, 2008
207109	Educational Note: Considerations in the Valuation of Segregated Fund Products	November 22, 2007
207029	Educational Note: Implications of *CICA Handbook* Section 3855 – Financial Instruments on Future Income and Alternative Taxes: Update to Fall Letter	April 11, 2007
206147	Educational Note: Use of Actuarial Judgment in Setting Assumptions and Margins for Adverse Deviations	November 30, 2006
206134	Educational Note: Best Estimate Assumptions for Expenses	November 8, 2006
206133	Educational Note: Approximations to Canadian Asset Liability Method (CALM)	November 8, 2006
206132	Educational Note: Margins for Adverse Deviations	November 8, 2006
206077	Educational Note: CALM Implications of AcSB Section 3855 Financial Instruments – Recognition and Measurement	June 7, 2006
205111	Educational Note: Valuation of Segregated Fund Investment Guarantees (Revised)	October 26, 2005
203106	Educational Note: Selection of Interest Rate Models	December 2003
203083	Educational Note: Aggregation and Allocation of Policy Liabilities	September 15, 2003
202037	Educational Note: Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies	July 8, 2002