Actuarial Standards Board
Conseil des normes actuarielles

Final Standards

Final Standards – Revisions to Economic Reinvestment Assumptions within the Practice-Specific Standards on Insurance Contract Valuation: Life and Health (Accident and Sickness) Insurance (Section 2300 and Subsection 1110)

Actuarial Standards Board

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360 Albert Street, Suite 1740, Ottawa ON K1R 7X7 613.236.8196 613.233.4552 secretariat@asb-cna.ca **www.asb-cna.ca**

1110 DEFINITIONS

.01 Each term set over dotted underlining has the meaning given in this section and has its ordinary meaning otherwise (e.g., external user).

.02 Accepted actuarial practice is the manner of performing work in Canada in accordance with the Rules and these Standards of Practice. Standards of Practice are the responsibility of the Actuarial Standards Board and approval of standards and changes to standards is made through a process that involves consultation with the actuarial profession and other interested parties. Unless the context requires otherwise, references to accepted actuarial practice refer to accepted actuarial practice for work in Canada. [*pratique actuarielle reconnue*]

.03 Actuarial cost method is a method to allocate the present value of a plan's obligations to time periods, usually in the form of a service cost and an accrued liability. [*méthode d'évaluation actuarielle*]

.03.1 Actuarial evidence work is work where the actuary provides an expert opinion with respect to any area of actuarial practice in the context of an actual or anticipated dispute resolution proceeding, where such expert opinion is expected or required to be independent. A dispute resolution proceeding may be a court or court-related process, a tribunal, a mediation, an arbitration, or a similar proceeding. Actuarial evidence work may include the determination of capitalized values in respect of an individual, or the provision of an expert opinion with respect to a dispute involving an actuarial practice area, such as pensions or insurance, or questions of professional negligence. [*travail d'expertise devant les tribunaux*]

.04 Actuarial present value method is a method to calculate the lump sum equivalent at a specified date of amounts payable or receivable at other dates as the aggregate of the present values of each of those amounts at the specified date, and taking into account both the time value of money and contingent events. [*méthode de la valeur actuarielle*]

.04.1 Actuary, as it is used in these standards, means anyone bound by these standards for work in Canada. [*actuaire*]

.05 Anti-selection is the tendency of one party in a relationship to exercise options to the detriment of another party when it is to the first party's advantage to do so. [*antisélection*]

.06 Appointed actuary of an entity is an actuary formally appointed, pursuant to legislation, by the entity to monitor the financial condition of that entity. [*actuaire désigné*]

.07 Appropriate engagement is one that does not impair the actuary's ability to conform to the rules. [*mandat approprié*]

.08 Benefits liabilities are the liabilities of a plan in respect of claims incurred on or before a calculation date. [*obligations liées aux prestations*]

.09 Best estimate means without bias, neither conservative nor unconservative. [*meilleure estimation*]

.09.1 Bylaws means the bylaws of the Canadian Institute of Actuaries, as amended from time to time. [*Statuts administratifs*]

.10 Calculation date is the effective date of a calculation; e.g., the balance sheet date in the case of a valuation for financial statements. It usually differs from the report date. [*date de calcul*]

.11 Case estimate at a calculation date is the unpaid amount of one of, or a group of, an insurer's reported claims (perhaps including the amount of claim adjustment expenses), as estimated by a claims professional according to the information available at that date. [*évaluation du dossier*]

.12 Claim adjustment expenses are internal and external expenses in connection with settlement of claims. [*frais de règlement des sinistres*]

.13 Claim liabilities are the portion of insurance contract liabilities in respect of claims incurred on or before the balance sheet date. [*passif des sinistres*]

.14 Contingent event is an event which may or may not happen, or which may happen in more than one way or which may happen at different times. [*éventualité*]

.15 Contribution is a contribution by a participating employer or a plan member to fund a benefits plan. [*cotisation*]

.15.1 Credibility is a measure of the predictive value attached to an estimate based on a particular body of data. [*crédibilité*]

.15.2 Credit spread, for a fixed income asset, is the yield to maturity on that asset minus the yield to maturity on a risk-free fixed income asset with the same cash flow characteristics. [*écart de crédit*]

.16 Definitive means permanent and final. [*décision définitive*]

.17 Development of data with respect to a given coverage period is the change in the value of those data from one calculation date to a later date. [*matérialisation*]

.18 Domain of actuarial practice is the measurement of the current financial implications of future contingent events. [*domaine de la pratique actuarielle*]

.19 Early implementation means the implementation of new standards before their effective date. [*mise en œuvre anticipée*]

.20 Earnings-related benefit is a benefit whose amount depends on the recipient's earnings. [*régime salaire de carrière*]

.21 External user is a user who is not an internal user. [*utilisateur externe*]

.22 External user report is a report whose users include an external user. [*rapport destiné à un utilisateur externe*]

.23 Financial condition of an entity at a date is its prospective ability at that date to meet its future obligations, especially obligations to policy owners, members, and those to whom it owes benefits. Financial condition is sometimes called "future financial condition". [*santé financière*]

.24 Financial position of an entity at a date is its financial state as reflected by the amount, nature, and composition of its assets, liabilities, and equity at that date. [*situation financière*]

.25 To fund a plan is to dedicate assets to its future benefits and expenses. Similarly for "funded" and "funding". [*provisionner*]

.25.1 Funded status is the difference between the value of assets and the actuarial present value of benefits allocated to periods up to the calculation date by the actuarial cost method, based on a valuation of a pension plan or post-employment benefit plan. [*niveau de provisionnement*]

.26 Going concern valuation is a valuation which assumes that the entity to which the valuation applies continues indefinitely beyond the calculation date. [*évaluation en continuité*]

.27 Indexed benefit is a benefit whose amount depends on the movement of an index like the Consumer Price Index. [*prestation indexée*]

.27.01 Indicated rate is the best estimate of the premium required to provide for the corresponding expected claims costs, expenses, and provision for profit. [*taux indiqué*]

.27.1 Insurance contract is a contract under which one party (the insurer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder. Insurance contract includes group insurance, third party contracts where the owner of the contract and the person who is compensated (the policyholder) differ, and all like arrangements substantively in the nature of insurance.[1] [*contrat d'assurance*]

.27.2 Insurance contract liabilities in an insurer's statement of financial position are the liabilities at the date of the statement of financial position on account of the insurer's insurance contracts, including commitments, which are in force at that date or which were in force before that date. [*passif des contrats d'assurance*]

.28 Insurer is the party that has an obligation under an insurance contract to compensate a policyholder if an insured event occurs. Insurer includes a fraternal benefit society and the Canadian branch of a foreign insurer, but does not include a public personal injury compensation plan.[1] [*assureur*]

.29 Internal user is the actuary's client or employer. Internal user and external user are mutually exclusive. [*utilisateur interne*]

.30 Internal user report is a report all of whose users are internal users. [*rapport destiné à un utilisateur interne*]

.31 Margin for adverse deviations is the difference between the assumption for a calculation and the corresponding best estimate assumption. [*marge pour écarts défavorables*]

.32 New standards means new standards, or amendment or rescission of existing standards. [*nouvelles normes*]

.33 Periodic report is a report that is repeated at regular intervals. [*rapport périodique*]

[1] The wording of the first sentence of this definition is identical to the corresponding definition appearing in IFRS 4 Appendix A, as of November 2009. The second sentence is explanatory and not part of that definition.

.34 Plan Administrator is the person or entity with overall responsibility for the operation of a benefit plan. [*administrateur d'un régime*]

.35 Policy liabilities in an insurer's statement of financial position are the liabilities at the date of the statement of financial position on account of the insurer's policies, including commitments, which are in force at that date or which were in force before that date. Policy liabilities consist of insurance contract liabilities and liabilities for policy contracts other than insurance contracts. [*passif des polices*]

.35.1 Policyholder is a party that has a right to compensation under an insurance contract if an insured event occurs.[2] [*titulaire de police*]

.36 Practice committee means the committee or committees of the Canadian Institute of Actuaries, either standing or ad hoc, to which the Practice Council of the Canadian Institute of Actuaries has assigned responsibility for the practice area or areas to which particular Standards of Practice apply. [*commission de pratique*]

.37 Premium liabilities are the portions of insurance contract liabilities that are not claim liabilities. [*passif des primes*]

.38 Prescribed means prescribed by these standards. [*prescrit*]

.38.1 Property and casualty insurance is insurance that insures individuals or legal persons

having an interest in tangible or intangible property, for costs arising from loss of or damage to such property (e.g., fire, fidelity, marine hull, warranty, credit, legal expense and title insurance), or

for damages to others or costs arising from the actions of such persons (e.g., liability and surety bonds) and for costs arising from injury to such persons (e.g., automobile accident benefits insurance). [*assurances IARD*]

.39 Provision for adverse deviations is the difference between the actual result of a calculation and the corresponding result using best estimate assumptions. [*provision pour écarts défavorables*]

.40 Public personal injury compensation plan means a public plan

whose primary purpose is to provide benefits and compensation for personal injuries,

whose mandate may include health and safety objectives and other objectives ancillary to the provision of benefits and compensation for personal injuries, and

that has no other substantive commitments.

The benefits and compensation provided under such public plans are defined by statute. In addition, such public plans have monopoly powers, require compulsory coverage except for those groups excepted by legislation or regulation, and have the authority to set assessment rates or premiums. [*régime public d'assurance pour préjudices corporels*]

[2] The wording of this definition is identical to the corresponding definition appearing in IFRS 4 Appendix A, as of November 2009.

.41 Recommendation means an italicized recommendation in these standards. Similarly for "recommend". [*recommandation*]

.41.1 Related experience includes premiums, claims, exposures, expenses, and other relevant data for events analogous to the insurance categories under consideration other than the subject experience and may include established rate levels or rate differentials or external data. [*expérience connexe*]

.42 Report is an actuary's oral or written communication to users about his or her work. Similarly for "to report". [*rapport*]

.43 Report date is the date on which the actuary completes the report on his or her work. It usually differs from the calculation date. [*date du rapport*]

.43.1 Reinsurance recoverables in an insurer's balance sheet are the assets at the balance sheet date on account of reinsurance treaties, including commitments, which are in force at that date or which were in force before that date. [*sommes à recouvrer auprès des réassureurs*]

.44 Report pursuant to law is a report for which the law requires an actuary's opinion. [*rapport en vertu de la loi*]

.45 Rule means a rule in the Canadian Institute of Actuaries' Rules of Professional Conduct. [*règle*]

.46 Scenario is a set of consistent assumptions. [*scénario*]

.47 Service cost is that portion of the present value of a plan's obligations which an actuarial cost method allocates to a time period, excluding any amount for that period in respect of unfunded accrued liabilities. [*cotisation d'exercice*]

.48 Standard reporting language is standard language for an external user report. [*libellé du rapport type*]

.48.1 Subject experience includes premiums, claims, exposures, expenses, and other data for the insurance categories under consideration. [*expérience visée*]

.49 Subsequent event is an event of which an actuary first becomes aware after a calculation date but before the corresponding report date. [*événement subséquent*]

.49.1 Trend is the tendency of data values to change in a general direction from one coverage period to a later coverage period. [*tendance*]

.50 Use means use by the actuary, usually in the context of use of another person's work. [*utilisation*]

.51 User means an intended user of the actuary's work. [*utilisateur*]

.52 Virtually definitive means to become definitive upon completion of one or more actions which are seen as formalities. [*pratiquement définitive*]

.53 Work means the actuary's work within the domain of actuarial practice and usually includes

acquisition of knowledge of the circumstances of the case,
obtaining sufficient and reliable data,
selection of assumptions and methods,
calculations and examination of the reasonableness of their result,
use of other persons' work,
formulation of opinion and advice,
reporting, and
documentation. [*travail*]

2320 METHOD

.01 *The actuary should calculate insurance contract liabilities net of reinsurance recoverables by the Canadian asset liability method. For valuation of the general account insurance contract liability associated with segregated fund guarantees, the actuary should calculate the insurance contract liability for the guarantee elements by the Canadian asset liability method using stochastic modelling.* [Effective January 1, 2011]

.02 *The amount of insurance contract liabilities using the Canadian asset liability method for a particular scenario is equal to the amount of supporting assets, including reinsurance recoverables, at the balance sheet date that are forecasted to reduce to zero coincident with the last liability cash flow in that scenario.*

.03 *The term of the liabilities should take account of any renewal, or any adjustment equivalent to renewal, after the balance sheet date if*

the insurer's discretion at that renewal or adjustment is contractually constrained, and

insurance contract liabilities are larger as a result of taking account of that renewal or adjustment.

.04 *In forecasting the cash flow expected to be generated by the insurance contract liabilities, the actuary should*

take account of policy owner reasonable expectations, and

include policy dividends, other than the related transfers to the shareholders account and other than ownership dividends, in the comprised cash flow from benefits.

.05 *The actuary should calculate insurance contract liabilities for multiple scenarios and adopt a scenario whose insurance contract liabilities make sufficient but not excessive provision for the insurer's obligations in respect of the relevant policies.*

.06 *The assumptions for a particular scenario consist of*

scenario-tested assumptions, which should include no margin for adverse deviations, and

each other needed assumption, whose best estimate should be consistent with the scenario-tested assumptions and which should include margin for adverse deviations.

.07 *The scenario-tested assumptions should include at least the interest rate assumptions.*

.08 *The scenarios of interest rate assumptions should comprise*

a base scenario, as defined under paragraph 2330.09.1,

each of the prescribed scenarios in a deterministic application,

ranges that comprehend each of the prescribed scenarios in a stochastic application, and

other scenarios appropriate for the circumstances of the insurer. [Effective January 1, 2011]

.08.1 *For stochastic modelling, the development of scenarios of risk-free interest rates and investment returns should consider*

selection of market indices and proxies,

development of economic scenario generators and model parameters, and

calibration of risk-free interest rates and investment returns (i.e., equity returns, bond fund returns and money market returns). [Effective Month XX, 201X]

.08.2 *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.* [Effective January 1, 2011]

Liability grouping and asset segmentation

.09 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. That application is a convenience, however, that would not militate against calculation of insurance contract liabilities and reinsurance recoverables that, in the aggregate, reflect the risks to which the insurer is exposed.

Other methods

.10 For a particular scenario, another method may be equivalent to or approximate, the Canadian asset liability method. If the actuary uses that other method, then the calculation for multiple scenarios and the selection of one that makes sufficient but not excessive provision for the insurer's obligations would be the same as for the Canadian asset liability method.

.10.1 For valuation of the general account insurance contract liability associated with segregated fund guarantees, a factor-based approach, approved by a regulator, would be considered an appropriate approximation and the actuary would not need to undertake testing to determine the appropriateness of this approximation.

.10.2 Two approaches would be appropriate to value segregated fund policies where both additional benefits or guarantees are involved and the allowance for acquisition expense is being amortized.

> For the bifurcated approach, management expense cash flow is allocated between recoverability testing of the allowance for acquisition expense and the liability for the guarantee. The portion allocated to the guarantee would generally be based on the additional charge priced into the product for that guarantee with the remainder applied to amortize the remaining unamortized allowance for acquisition expense. The insurance contract liability for the guarantee is calculated separately using the net cash flows available for the guarantee while the recoverability of the allowance for acquisition expense is tested excluding those revenues allocated to guarantee.
>
> For the whole contract approach, all general account net cash flows associated with segregated funds are considered in calculating the total liability. This total liability will change over the reporting period as a result of market movements and other factors and, therefore, may need to be adjusted to remove any write-up to the balance of the allowance for acquisition expense.

Supporting assets

.11 In allocating assets to support liabilities, the actuary would preserve the connection between unamortized capital gains, both realized and unrealized, and the asset segments that generated them.

.12 The value of the assets that support insurance contract liabilities at the balance sheet date would be their value in the insurer's financial statements.

.13 The forecasted cash flow of the assets would take account of any related, off-balance sheet, financial instruments.

.13.1 For valuation of segregated fund guarantees, the value of the assets and forecasted cash flow would take account of the insurer's hedging instruments existing at the balance sheet date.

.14 The forecast of cash flow from taxes would take account of permanent and temporary differences between the amortization of capital gains in accordance with generally accepted accounting principles and in accordance with tax law.

.15 The assumed cash flow from policy dividends would avoid omission and double counting. For example, if the dividend scale includes distribution of a deferred realized capital gain (adjusted for any corresponding future tax asset or liability), then the assumed cash flow from policy dividends would exclude that distribution. In the opposite case, the assumed cash flow from policy dividends would provide for negative distribution of a deferred realized capital loss asset (net of any corresponding future tax liability). Such avoidance is appropriate only in the case of liabilities and would not be appropriate if the dividend scale included distribution of assets that support capital, or distribution of investment income on assets that support capital.

Term of the liabilities

.16 If an element of a policy operates independently of the other elements, then it would be treated as a separate policy with its own term of liabilities. Examples are

a flexible premium deferred annuity where the interest guarantee and cash value attached to each premium are independent of those for the other premiums, and

a certificate of voluntary non-contributory association or creditor group insurance.

.17 The term of a policy's liabilities is not necessarily the same as the contractual term of the policy.

.18 In this context,

"renewal" means the renewal of a policy at the end of its term, with the insurer having discretion to adjust premiums or coverage for the new term,

"adjustment" means an insurer's adjustment to a policy's coverage or premiums equivalent to that in a renewal, and

"constraint" means a constraint on the insurer's exercise of discretion in renewal or adjustment that results from contractual obligations, legally binding commitments and policy owner reasonable expectations. Examples of constraint are an obligation to renew a policy unless renewal is refused for all other policies in the same class, a guarantee of premiums, a guarantee of credited interest rate, a general account guarantee of segregated fund value, and a limitation on the amount of adjustment. "Constraint" would not include a price-competitive market expected at renewal or adjustment.

.19 The term of a policy's liabilities takes account of all renewals and adjustments before the balance sheet date. Depending on the circumstances, that term may also take account of one or more renewals or adjustments after the balance sheet date.

.20 If the term of the liabilities is not evident, and if selection of a longer term would reduce insurance contract liabilities, then the actuary would be cautious in making such a selection. On the other hand, if selection of a longer term would increase those liabilities, then the actuary would usually select the longer term. Substance would supersede form in the selection; for example, a universal life policy that is in form an annual premium life insurance policy may be in substance a single premium deferred annuity.

.21 The term of the liabilities of

an insurance contract that has been cancelled by the insurer ends at the effective date of cancellation,

an insurance contract that has not been cancelled, but that is cancellable by the insurer at or before the date to which its premiums have been paid, ends at that date,

an individual annual premium life or accident and sickness insurance contract ends at the last day to which the policy owner may prolong its coverage without the consent of the insurer, and

a certificate of group insurance if the group insurance contract is in effect a collection of individual insurance contracts is the same as if it were an individual insurance contract, unless contributions or experience rating of the group negate anti-selection by certificate holders.

.22 The term of the liabilities of any other insurance contract ends at the earlier of

the first renewal or adjustment date at or after the balance sheet date at which there is no constraint, and

the renewal or adjustment date after the balance sheet date that maximizes the insurance contract liabilities.

An exception to the above would exist for the liabilities for guarantees of the fund value for segregated fund annuities where the contracts contain material constraints. In this situation, the term of the liability ends at the date after the valuation date which maximizes the insurance contract liabilities, consistent with the treatment for contracts with no material constraints.

.23 The actuary would extend such term only

to permit recognition of cash flow to offset acquisition or similar expenses,

whose recovery from cash flow that would otherwise be beyond such term was contemplated by the insurer in pricing the insurance contract, and

where the value of the additional cash flow recognized by such extension of the term cannot exceed the value of the remaining balance of acquisition or similar expenses, or

to permit reflection of hedging arrangements related to segregated fund guarantees by considering both the value of the liability and its associated hedge,

where the resulting balance sheet presentation is consistent with market movements over the reporting period, and

where such extension would be subject to constraints on the amount of cash flow capitalized, consistent with an unhedged position.

.24 The balance of the allowance for acquisition expense would be written down to zero using an appropriate method. Such method would

have a term consistent with the extended term established at inception,

have a write-down pattern reasonably matched with the net cash flow available to offset these expenses at inception, and

be locked in, so that the amount of write-down in each period will not fluctuate from the expected amount established at inception provided such balance is recoverable from the additional cash flow recognized at the balance sheet date, and where not fully recoverable at the balance sheet date, is written down to the recoverable amount, with the expected amount of write-down in each future period proportionately reduced.

.25 That implies that the term ends at

the balance sheet date if the policy is continually renewable or adjustable without constraint,

the first renewal or adjustment after the balance sheet date if there is no constraint at that renewal or adjustment, and

a renewal or adjustment determined by testing for any other policy. The actuary would calculate the insurance contract liabilities assuming that the term of its liabilities ends at each renewal or adjustment at or after the balance sheet date up to and including the first renewal or adjustment at which there is no constraint, and would select the term corresponding to the largest insurance contract liabilities.

.26 A change in the outlook may provoke a change in the term of the insurance contract's liabilities. For example, the constraint of a cost of insurance guarantee that previously lengthened the term of the insurance contract liabilities may no longer do so if the outlook for mortality improves. On the other hand, the constraint of a guaranteed credited interest rate that previously was considered innocuous may become meaningful, and thereby lengthen the term of the insurance contract liabilities, if the outlook changes to one of lower interest rates.

.27 For example, the term of the liabilities ends at

the balance sheet date for the general account portion of a deferred annuity with segregated fund liabilities but without minimum guarantees (other than a guarantee of an annuity purchase rate); for example, with no guarantee of the segregated fund value,

the date after the balance sheet date that maximizes the insurance contract liabilities for guarantees of the fund value for segregated fund annuities whose contracts have no material constraints, and for consistency, for those contracts that contain material constraints,

the first renewal (usually one year after the previous renewal) of a group policy that insures employee benefits, unless there is a constraint at that renewal, and

the next renewal date or adjustment date even if there is a constraint at renewals and adjustments at and after that date, but the constraint is so weak that its operation does not increase insurance contract liabilities.

Policy owner reasonable expectations

.28 The insurer's policies define contractually its obligations to its policy owners. The contractual definition may leave certain matters to the insurer's discretion, such as

the determination of policy dividends, experience-rating refunds, and retrospective commission adjustments, and

the right to adjust premiums.

.29 Matters left to the insurer's discretion implicitly include

underwriting and claim practices, and

the right to waive contractual rights and to create extra-contractual obligations.

.30 Policy owner reasonable expectations are the expectations that

> may be imputed to policy owners as their reasonable expectations of the insurer's exercise of discretion in those matters, and
>
> arise from the insurer's communication in marketing and administration, from its past practice, from its current policy, and from general standards of market conduct. Past practice includes the non-exercise of discretion; for example, long non-exercise without affirmation of a right to adjust premiums may undermine it. The insurer's communication includes policy dividend and investment performance illustrations at sale of a policy and that of intermediaries reasonably perceived as acting in its behalf.

.31 In selecting assumptions for the insurer's exercise of discretion in those matters, the actuary would take policy owner reasonable expectations into account. Taking account of policy owner reasonable expectations may affect not only the amount of insurance contract liabilities but also disclosure in the financial statements.

.32 The determination of policy owner reasonable expectations is straightforward when the insurer's practice has been clear, unvarying, consistent with its communications, consistent with general standards of market conduct, and the insurer does not intend to change it. The actuary would discuss any other practice with the insurer, with a view to clarifying policy owner reasonable expectations.

.33 If the insurer makes a change that will eventually alter policy owner reasonable expectations, then the actuary would consider both the appropriate disclosure of the change in policy owner communication and the financial statements, and the time elapsed before the altered expectations crystallize.

.34 A dispute over policy owner reasonable expectations may lead to class action or other litigation by policy owners against the insurer, which may affect insurance contract liabilities or generate contingent liabilities.

Policy dividends

.35 The assumed cash flow from policy dividends would be that from both periodic (usually annual) dividends and terminal and other deferred dividends, but excluding that from the related transfers from the participating to the shareholders account in a stock insurer.

.36 The assumed cash flow from policy dividends would avoid omission and double counting with other elements of the insurance contract liabilities and with liabilities other than insurance contract liabilities. For example, if the actuary has valued the insurance contract liabilities for riders and supplementary benefits in participating policies as though they were non-participating — i.e., with provision for adverse deviations in excess of that appropriate for participating insurance – then the assumed cash flow from policy dividends would exclude the portion of that excess that is included in the dividend scale.

.37 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.

.38 If the current dividend scale anticipates a future deterioration in experience, then the actuary would assume continuance of that scale in response to that deterioration. If the current dividend scale does not respond to a recent deterioration in experience but the insurer's policy is to do so, and if the delay in doing so does not provoke a contrary policy owner reasonable expectation, then the actuary would assume such response.

.39 An assumption of cash dividends to all policy owners is appropriate only if the alternative options to cash have equivalent value, failing which, the actuary would

> either adjust the cash dividends to reflect the non-equivalence or make explicit assumption about policy owner exercise of the various dividend options, and
>
> provide for the anti-selection that will result from increasing exercise of the more valuable options.

Forecast of cash flow

.40 In calculating insurance contract liabilities, the actuary would allocate assets to the liabilities at the balance sheet date, forecast their cash flow after that date, and, by trial and error, adjust the allocated assets so that they reduce to zero at the last cash flow.

.41 Use of the work of another person may be appropriate for forecasting the cash flow of certain assets, such as real estate.

Income tax and alternative tax

.42 This item deals with cash flow from tax based on income (herein called "income tax") and other taxes not based on income but which interact with income tax; for example, certain capital taxes in Canada (herein called "alternative tax").

.43 The cash flow from such taxes would be limited to that in respect of the relevant insurance contracts and the assets that support their insurance contract liabilities, and thus, with the exception of the recoverability of future tax losses described below would ignore any interaction between that cash flow and cash flow in the rest of the insurer; e.g., it would ignore tax on investment income from assets that support the insurer's capital. For a particular scenario, forecasted income before tax is equal to zero in each accounting period after the balance sheet date. That is so because that scenario assumes occurrence of the adverse deviations for which it makes provision. If income according to tax rules were equal to income in accordance with generally accepted accounting principles, and if there were no alternative tax, then the corresponding forecasted tax cash flow would also be equal to zero. In reality, however, such tax cash flow may differ from zero because of

differences – both temporary and permanent – between income in accordance with generally accepted accounting principles and in income in accordance with tax rules,

the operation of carry-forward and carry-back in the tax rules, and

alternative tax and the interaction between it and income tax.

.44 An example of a temporary difference is a difference between insurance contract liabilities and the corresponding tax liabilities.

.45 An example of a permanent difference is a preferential tax rate on the investment income on a class of assets.

.46 The forecast of cash flow from such taxes would therefore take account of positive or negative tax as a result of permanent and temporary differences at, and arising after, the balance sheet date, and of alternative taxes incurred after the balance sheet date.

.47 The resulting insurance contract liabilities make appropriate provision for cash flow on account of such taxes. If the insurer's balance sheet records a future tax asset or liability in respect of such taxes, then, in order to avoid double counting, the actuary would adjust the insurance contract liabilities otherwise calculated upward to reflect the existence of the future tax asset and downward to reflect the existence of future tax liability.

.48 The realization of negative tax depends on the simultaneous availability of income that is otherwise taxable. In forecasting such income, the actuary would

make provision for adverse deviations,

take into account the projected tax position of the company overall, but

not take account of the expected release of provisions for adverse deviations in the insurance contract liabilities because, as noted above, their calculation implicitly assumes that those adverse deviations occur.

Adverse deviations borne by policy owners

.49 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.

.49.1 In some jurisdictions, regulatory approval may be required for the application of such contractual pass-through features and, in such cases, the actuary would consider the ability to recover past losses, the clarity of any regulatory rules for approval, time delays caused by the approval process, and whether interest losses during this period can be recouped in determining an appropriate total provision.

Adoption of a scenario

.50 If the selection of scenarios is deterministic, then the actuary would adopt a scenario whose insurance contract liabilities are within the upper part of the range of the insurance contract liabilities for the selected scenarios, provided, however, that the insurance contract liabilities would not be less than those in the prescribed scenario with the largest insurance contract liabilities.

.51 If the selection of scenarios is stochastic, then the actuary would adopt a scenario whose insurance contract liabilities are within the range defined by

the average of the insurance contract liabilities that are above the 60^{th} percentile of the range of insurance contract liabilities for the selected scenarios, and

the corresponding average for the 80^{th} percentile.

Scenario-tested assumptions

.52 The provision for adverse deviations in respect of scenario-tested assumptions results from calculating the insurance contract liabilities for multiple scenarios and adopting a scenario whose insurance contract liabilities are relatively high.

Other assumptions

.53 The provision for adverse deviations in respect of each assumption other than the scenario-tested assumptions results from a margin for adverse deviations included in that assumption.

.54 The assumptions unique to a particular scenario are the scenario-tested assumptions and each other assumption that is correlated with them. For example, policy dividends and the exercise of options by borrowers and issuers are strongly correlated with interest rates. Lapses may be correlated or not, depending on the circumstances. The assumption on a matter not so correlated would be common to all scenarios.

Margin for adverse deviations

.55 The margin for adverse deviations would be at least the average of the applicable high and low margin whenever at least one 'significant consideration' exists, or at least one other consideration is significant in the context of the valuation. Significant considerations vary by type of assumption and are described under subsections 2340 and 2350.

2330 SCENARIO ASSUMPTIONS: INTEREST RATES

General considerations

.01 An interest rate scenario comprises, for each forecast period between the balance sheet date and the last cash flow,

an investment strategy, and

an interest rate for each risk-free asset and the corresponding credit spread for each fixed income asset subject to depreciation.

.02 Each interest rate scenario would include an assumption with respect to the rate of inflation that is consistent with that scenario.

.03 The interest rate scenario would be consistent among the insurer's lines of business.

.04 The investment strategy defines reinvestment and disinvestment practice for each type, default risk classification, and term of the invested assets that support insurance contract liabilities. Assumption of an investment strategy implies investment decisions of reinvestment and disinvestment in accordance with that strategy and, hence, the risk inherent in that strategy.

.05 The investment strategy for each scenario would be consistent with the insurer's current investment policy and would be consistent with the insurer's expected practice. The insurance contract liabilities would make no provision for any increased risk that may result from a future change in the insurer's investment policy. The insurer's expected practice would be determined 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 described in paragraph 2130.02.

.06 The actuary would ensure that the proportion of non-fixed income assets in the portfolio, at each duration, would be in accordance with the insurer's current investment policy.

.07 The number of assumed terms of risk-free assets would be large enough to permit assumption of changes in the shape and steepness of the yield curve. That implies a minimum of a short, a medium, and a long term.

.07.01 In all scenarios other than the base scenario, credit spreads include margins for adverse deviations as described in paragraph 2340.10.3. The actuary would also include an additional provision for adverse deviations by modifying the assumptions, if needed, on each fixed income asset purchased or sold on or after the 5th anniversary from the balance sheet date, such that

for assets purchased or sold on or after the 30th anniversary from the balance sheet date, the difference between the asset's credit spread and its asset depreciation assumption is not larger than a maximum promulgated from time to time by the Actuarial Standards Board, and

for assets purchased or sold between the 5th and 30th anniversary from the balance sheet date, the difference between the asset's credit spread and its asset depreciation assumption is not larger than using a uniform transition between the corresponding difference if purchased on the 5th anniversary from the balance sheet date and the promulgated maximum if purchased on the 30th anniversary from the balance sheet date.

.08 A scenario for a foreign country's interest rates would be formulated independently of that for Canadian interest rates unless their positive historical correlation is expected to continue.

.09 The importance of the assumptions for a particular forecast period depends on the magnitude of the net forecasted cash flow for that period.

.09.01 The Actuarial Standards Board will promulgate from time to time the following ultimate risk-free reinvestment rates for use in the base scenario and the prescribed scenarios

short-term ultimate risk-free reinvestment rate-high,

long-term ultimate risk-free reinvestment rate-high,

short-term ultimate risk-free reinvestment rate-median,

long-term ultimate risk-free reinvestment rate-median,

short-term ultimate risk-free reinvestment rate-low, and

long-term ultimate risk-free reinvestment rate-low.

.09.02 Ultimate risk-free reinvestment rates at other terms would be determined in accordance with the historical relationship between rates at those terms and the short- and long-term rates. Ultimate risk-free reinvestment rate-low refers to low rates at all terms (including short-term ultimate risk-free reinvestment rate-low and long-term ultimate risk-free reinvestment rate-low), and similarly for ultimate risk-free reinvestment rate-median and ultimate risk-free reinvestment rate-high.

.09.03 The parameters in the base and prescribed scenarios, including maximum net credit spreads, apply to investments denominated in Canadian dollars. For the base and each prescribed scenario, the actuary would determine the corresponding parameters for investments denominated in a foreign currency from the historical relationship between investments denominated in that currency and investments denominated in the Canadian dollar if the expected continuance of that relationship so permits. Otherwise the actuary would devise independent scenarios for investments denominated in that currency.

Base scenario

.09.1 In the base scenario,

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,

at and after the 60th anniversary from the balance sheet date, risk-free interest rates would be equal to the ultimate risk-free reinvestment rate-median,

at the 40th anniversary from the balance sheet date, the risk-free interest rates would be equal to 30% of the rates at the 20th anniversary plus 70% of the rates at the 60th anniversary,

between the 20th and 40th and between the 40th and 60th anniversaries, the risk-free interest rates would be determined using a uniform transition, and

credit spreads at all durations would be the best estimate described in paragraph 2340.10.1.

.09.2 The provision for adverse deviations for interest rate risk for both deterministic and stochastic applications would be measured as the difference between the reported insurance contract liabilities and the insurance contract liabilities resulting from the application of the base scenario.

Prescribed scenarios

.10 Because future investment returns and inflation rates are so conjectural, it is desirable that the calculation of insurance contract liabilities for all insurers take account of certain common assumptions. There are, therefore, eight prescribed scenarios as presented below.

.11 The prescribed scenarios apply to fixed income assets purchased or sold after the balance sheet date.

.12 For a prescribed scenario, if the net cash flow forecast for a period is positive, then the actuary would assume its application to repay the outstanding balance, if any, of borrowing in accordance with paragraph 2330.14.

.13 Repealed

.14 For a prescribed scenario, if the net cash flow for a period is negative, then the actuary would assume an offsetting disinvestment or borrowing, or a mix of the two. For insurer-controlled investment decisions, any borrowing would be in accordance with the investment policy, would be short-term, and would be expected to be soon repayable by subsequent positive forecasted net cash flow.

.15 Repealed

.15.1 Repealed

.15.2 Repealed

.15.3 Repealed

.16 Repealed

.17 Repealed

Prescribed scenario 1

.18 The risk-free interest rates for investments purchased or sold

at the balance sheet date are those available in the market,

at the 40th anniversary from the balance sheet date and beyond, the risk-free interest rates are equal to ultimate risk-free reinvestment rate-low,

at the 1st anniversary from the balance sheet date, the risk-free interest rates are equal to 90% of the risk-free interest rates at the balance sheet date,

at the 20th anniversary of the balance sheet date, the risk-free interest rates are equal to 10% of the risk-free interest rates at the balance sheet date plus 90% of ultimate risk-free reinvestment rate-low, and

between each of the balance sheet date and the 1st, 20th, and 40th anniversaries, the risk-free interest rates are determined using a uniform transition.

Prescribed scenario 2

.19 This scenario is the same as prescribed scenario 1, with the ultimate risk-free reinvestment rate-low replaced by the ultimate risk-free reinvestment rate-high, and the 90% multiplier applicable on the 1st anniversary replaced by 110%.

Prescribed scenario 3

.19.1 The oscillation period for use in prescribed scenarios 3 to 6 is 20 years.

.20 The long-term risk-free interest rate moves cyclically between long-term ultimate risk-free reinvestment rate-low and long-term ultimate risk-free reinvestment rate-high as follows:

over the first quarter oscillation period, the long-term risk-free interest rate moves uniformly from the long-term interest rate at the balance sheet date to 75% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-low),

over the next quarter oscillation period, the long-term risk-free interest rate moves uniformly from 75% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-low) to long-term ultimate risk-free reinvestment rate-low,

over the next half oscillation period, the long-term risk-free interest rate moves uniformly from the long-term ultimate risk-free reinvestment rate-low to the long-term ultimate risk-free reinvestment rate high, and

this cycle is repeated for the remaining oscillation periods.

.21 The short-term risk-free interest rate moves as follows:

over the first quarter oscillation period, the short-term risk-free interest rate moves uniformly from the short-term interest rate at the balance sheet date to 50% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-low),

over the next quarter oscillation period, the short-term risk-free interest rate moves uniformly from 50% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-low) to 60% of the corresponding long-term interest rate, and

thereafter remains at 60% of the corresponding long-term interest rate.

.22 Other interest rates are determined using yield rates that are appropriate for the terms of those assets, in accordance with the historic relationship between the rates of those assets and the short- and long-term interest rates.

Prescribed scenario 4

.23 This scenario is similar to prescribed scenario 3, but with the peaks of prescribed scenario 3 coinciding with the troughs of prescribed scenario 4. Over the first quarter oscillation period, the long-term risk-free interest rate moves uniformly from the long-term risk-free interest rate at the balance sheet date to 125% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-high). Over the next quarter oscillation period, the long-term risk-free interest rate moves uniformly from 125% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-high) to long-term ultimate risk-free reinvestment rate-high. Over the next half oscillation period, the long-term risk-free interest rate moves uniformly from the long-term ultimate risk-free reinvestment rate-high to the long-term ultimate risk-free reinvestment rate low, and this cycle is repeated for the remaining oscillation periods.

.23.1 The short-term risk-free interest rate moves as follows:

over the first quarter oscillation period, the short-term risk-free interest rate moves uniformly from the short-term interest rate at the balance sheet date to 150% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-high),

over the next quarter oscillation period, the short-term risk-free interest rate moves uniformly from 150% of (80% of the risk-free interest rates at the balance sheet date plus 20% of ultimate risk-free reinvestment rate-high) to 60% of the corresponding long-term interest rate, and

thereafter remains at 60% of the corresponding long-term interest rate.

Prescribed scenario 5

.24 This scenario is the same as prescribed scenario 3, except that the short-term risk-free interest rate at an anniversary of the balance sheet date is a percentage of the corresponding long-term risk-free interest rate. That percentage moves cyclically in 20% annual steps from 40% to 120% and back. The first cycle is irregular; over the first quarter oscillation period, the short-term risk-free interest rate moves uniformly from the short-term interest rate at the balance sheet date to 40% of the corresponding long-term interest rate. Thereafter the short-term risk-free interest rate moves cyclically in 20% annual steps from 40% to 120% and back.

Prescribed scenario 6

.25 As respects long-term risk-free interest rate, this scenario is the same as prescribed scenario 4.

.26 As respects short-term risk-free interest rate, this scenario is the same as prescribed scenario 5, except that, over the first quarter oscillation period, the short-term risk-free interest rate moves uniformly from the short-term interest rate at the balance sheet date to 120% of the corresponding long-term interest rate. Thereafter the short-term risk-free interest rate moves cyclically in 20% annual steps from 120% to 40% and back.

Prescribed scenario 7

.27 The risk-free interest rates for investments purchased or sold

at the balance sheet date are those available in the market,

at the 60th anniversary from the balance sheet date and beyond, are equal to 80% of the ultimate risk-free reinvestment rate-median,

at the 1st anniversary from the balance sheet date, are equal to 80% of the risk-free interest rates at the balance sheet date,

at the 20th anniversary from the balance sheet date, are equal to 80% of (30% of the risk-free interest rates at the balance sheet date plus 70% of ultimate risk-free reinvestment rate-median),

at the 40th anniversary from the balance sheet date, are equal to 80% of (10% of the risk-free interest rates at the balance sheet date plus 90% of ultimate risk-free reinvestment rate-median), and

between each of the balance sheet date and the 1st, 20th, 40th, and 60th anniversaries, are determined using a uniform transition.

Prescribed scenario 8

.28 This scenario is the same as prescribed scenario 7, with the 80% replaced by 120%.

.29 Repealed

Other scenarios

.30 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 risk-free interest rates are near the limits or outside the range of ultimate risk-free reinvestment rate-low to ultimate risk-free reinvestment rate-high, then some scenarios would include rates that, in the near term, would be outside the range of ultimate risk-free reinvestment rate-low to ultimate risk-free reinvestment rate-high. 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.

.31 The number of other interest rate scenarios would be relatively large to the extent that

the pattern of forecasted net cash flow in the base scenario is such that the classification of scenarios between favourable and unfavourable is unclear,

forecasted net cash flow is sensitive to the selection of interest rate scenarios,

the range of present values of forecasted net cash flow is wide, suggesting exposure to mismatch risk,

investment policy does not control mismatch risk,

asset-liability management is loose, or

flexibility to manage assets or liabilities is limited.

Stochastic interest rate scenarios

.32 If the selection of interest rate scenarios is stochastic, the actuary's calibration of stochastic models would meet the criteria for risk-free interest rates as promulgated from time to time by the Actuarial Standards Board.

.33 The actuary would adopt a scenario whose insurance contract liabilities are higher than the mid-point of the range described in paragraph 2320.51 whenever current long-term risk-free interest rates are near the limits or outside the range of long-term ultimate risk-free reinvestment rate-low to long-term ultimate risk-free reinvestment rate-high or whenever any of the considerations in paragraph 2330.31 exist.

2340 OTHER ASSUMPTIONS: ECONOMIC

Margin for adverse deviations

.00.1 Significant considerations indicating difficulties in properly estimating the best estimate assumption would include

there is little relevant experience,

future experience is difficult to estimate,

operational risks adversely affect the likelihood of obtaining the best estimate assumption,

asset underwriting criteria are weak or poorly controlled,

there are liquidity concerns,

there is uncertainty regarding the credit enhancement techniques used,

the trust structure and legal responsibilities of the different parties for a securitized asset are not clearly understood in a practical and/or legal sense,

the asset held is from a non-passthrough structure with a repackaging of the credit risk that is difficult to understand,

the asset held is from a lower-quality tranche from a structure that is not a passthrough structure that repackages credit risks,

there is uncertainty about the counterparty credit, or

there is no netting of the aggregate exposure with a counterparty.

.00.2 Other significant considerations indicative of a potential deterioration of the best estimate assumption would include

there is significant concentration of risks and/or lack of diversification, or

operational risks are present such that the likelihood of continuing to obtain the best estimate assumption is adversely impacted.

Fixed income assets: investment return

.01 The forecast of cash flows from a fixed income asset would be the promised cash flows over the term of the asset, modified for asset depreciation and borrower and issuer options.

Fixed income assets: asset depreciation

.02 The actuary's best estimate of asset depreciation would depend on

asset type, credit rating, liquidity, term, and duration since issue,

subordination to other debt of borrower or issuer,

the insurer's credit underwriting standards, diversification within a particular type of investments, to the extent that it is indicative of the future, the insurer's own experience,

the insurance industry's experience,

guarantees that offset depreciation, such as that in an insured mortgage, and

potential for anti-selection by borrowers and issuers.

.03 Asset depreciation comprises that of both assets that are impaired at the balance sheet date and assets that become impaired after the balance sheet date, and includes loss of interest, loss of principal, and expense of managing default.

.04 Asset depreciation is likely to be relatively high after the forced renewal of a mortgage loan; i.e., one where the mortgagor can neither pay, nor find an alternative mortgagee for the balance outstanding at the end of its term but is able to continue its amortization. The explicit forecasting of subsequent cash flow is usually so conjectural that to commute the cost of that asset depreciation to the end of the term of the mortgage would be an acceptable approximation unless it undermines the interest rate assumption in the scenario.

.05 The actuary would not necessarily assume that the best estimate of asset depreciation is less than the asset's credit spread.

.06 The low and high margins for adverse deviations for a scenario would be respectively 25% and 100% of the best estimate for that scenario, except that

a higher range would be appropriate where those percentages of an unusually low best estimate are not meaningful, and

zero would usually be appropriate for an Organisation for Economic Cooperation and Development (OECD) government's debt denominated in its own currency.

.07 Repealed

Fixed income assets: exercise of borrower and issuer options

.08 Examples of borrower and issuer options are the option to prepay a mortgage loan, to extend the term of a loan, and to call a bond.

.09 The assumed exercise may depend on the interest rates in the scenario. Anti-selection by commercial borrowers and issuers would usually be intense.

.10 Forecasted cash flows would include any penalty generated by exercise of an option.

Fixed income assets: credit spreads

.10.1 The best estimate of credit spreads

would be the credit spreads available in the market at the balance sheet date,

at and after the 5th anniversary from the balance sheet date, would be based on long-term historical average credit spreads corresponding to assets by type, credit rating, and term, and

between the balance sheet date and the 5th anniversary, would be determined using a uniform transition.

.10.2 When choosing the best estimate of credit spreads based on long-term historical averages, the actuary would consider

using as long a period of history as practicable, and

adjusting the assumptions to reduce any inconsistencies that may arise from using different historical periods or sources of information for different asset types, credit ratings, or terms.

.10.3 The margin for adverse deviations in credit spreads would be

zero at the balance sheet date,

an addition or subtraction, as appropriate in aggregate, of 10% of the best estimate assumptions at and after the 5th anniversary from the balance sheet date, and

between the balance sheet date and the 5th anniversary, the margin for adverse deviations as percentage of the best estimate would be determined using a uniform transition.

Non-fixed income assets: Investment return

.11 Where reliable historical data are available the best estimate of investment return on a non-fixed income asset would not be more favourable than a benchmark based on historical performance of assets of its class and characteristics.

.12 Repealed

.13 Where the best estimate for a class of non-fixed income assets is based on reliable historical data, the margin for adverse deviations in the assumption of non-fixed income capital gains would be 20% of the best estimate plus an assumption that those assets change in value at the time when the change is most adverse. That time would be determined by testing, but usually would be the time when their book value is largest. The assumed change as a percentage of market value

of a diversified portfolio of North American common shares would be 30%, and

of any other portfolio would be in the range of 20% to 50% depending on the volatility relative to a diversified portfolio of North American common shares.

.13.01 Where the best estimate for a class of non-fixed income assets is based on reliable historical data, the low and high margins for adverse deviations in the assumptions of income on the class (for example; common share dividends and real estate rental income) would be respectively 5% and 20%. Furthermore, if the ratio of income (other than that fixed by agreement) to asset value increases following the assumed change in asset value described in paragraph 2340.13, the margin for adverse deviations in the assumption for income would be adjusted so the ratio five years after the assumed change in asset value is not higher than the ratio immediately before the assumed change in asset value.

.13.1 Where reliable historical information is not available for a non-fixed income class of assets, the actuary would select a best estimate investment return assumption and margins for adverse deviations such that the assumed return in excess of risk-free interest rates, net of margins, would not exceed the assumed return in excess of risk-free interest rates, net of margins, for a similar asset class for which reliable historical information is available in the same jurisdiction, or in Canada if there is no relevant reliable historical information in the same jurisdiction.

.14 Whether the assumed change is a gain or loss would depend on its effect on benefits to policy owners. A capital loss may reduce insurance contract liabilities as a result of that effect.

.14.1 If non-fixed income assets are used to support liability cash flows that are not substantially linked to returns on non-fixed income assets, the actuary would include an additional provision for adverse deviations by modifying the assumed investment strategy in the scenario adopted prior to considering this provision for adverse deviations, if needed, so that the amount of non-fixed income assets supporting such liability cash flows at the balance sheet date and at each duration in the projection does not exceed the amount required to support 20% of cash outflows for the first 20 years and 75% thereafter, where cash outflows are the greater of the annual liability cash flows and zero in each forecast period. This modification of the assumed investment strategy would be applied at each duration independently.

Non-fixed income assets: stochastic investment return scenarios

.14.2 If investment returns on non-fixed income assets are a scenario-tested assumption as described in paragraph 2320.52, the actuary would follow the guidance in subsection 2360 that is relevant to investment returns on non-fixed income assets.

Taxation

.15 The best estimate would be for continuation of the tax regime at the balance sheet date, except that the best estimate would anticipate a definitive or virtually definitive decision to change that regime. The margin for adverse deviations would be zero.

Foreign exchange

.16 The needed assumptions would include foreign exchange rates when insurance contract liabilities and their supporting assets are denominated in different currencies.

.17 The base scenario used to develop the assumption for foreign exchange rates would be based on currency forwards. If currency forwards are not available, the forward exchange rates would be derived based on risk-free interest rate differentials where available. If neither is available, the actuary would use his or her best judgment to develop an appropriate approach.

.18 A provision for adverse deviations would be developed from a scenario using adverse movements in the exchange rate. Such movements would reflect the historical volatility in the exchange rate over the applicable period. The provision for adverse deviations would be the excess of the insurance contract liabilities based on this adverse scenario over the insurance contract liabilities calculated using the base scenario.

.19 A minimum provision for adverse deviations would apply. This would be the excess of the insurance contract liabilities resulting from the application of an adverse five percent margin to the projected exchange rates underlying the base scenario over the insurance contract liabilities calculated using the base scenario.