Revised Exposure Draft

Incorporate changes required by the adoption in Canada of IFRS 17 Insurance Contracts, including Principles of International Standard of Actuarial Practice 4 – Actuarial Practice in Relation to IFRS 17 Insurance Contracts, into the Canadian Standards of Practice (red-lined)

Actuarial Standards Board

March 2020

Document 220036

Ce document est disponible en français

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Memorandum

To: All Fellows, Affiliates, Associates, and Correspondents of the Canadian Institute of Actuaries, and other interested parties

From: Josephine Marks, Chair
Actuarial Standards Board

Simon Curtis, Chair
Designated Group on IFRS 17

Date: March 13, 2020

Subject: **Revised Exposure Draft to Incorporate changes required by the adoption in Canada of IFRS 17 Insurance Contracts, including Principles of International Standard of Actuarial Practice 4 – Actuarial Practice in Relation to IFRS 17 Insurance Contracts, into the Canadian Standards of Practice**

Comment Deadline: **July 31, 2020**

Introduction

This revised exposure draft (ED) proposes changes to the general standards (Part 1000) and the practice-specific standards for insurance (Part 2000). It was approved by the Actuarial Standards Board (ASB) on March 4, 2020. Due process has been followed in the development of this revised ED.

A notice of intent (NOI) to provide the background and general information on these proposed changes was distributed by the ASB on June 22, 2015.

The initial ED was published on May 16, 2018.

Background

The International Accounting Standards Board (the Board) issued IFRS 17 for the valuation of insurance contracts under International Financial Reporting Standards® (IFRS). The Canadian Accounting Standards Board has indicated its intention that, subject to its due process, IFRS 17 will be adopted without modification for the valuation of insurance contracts in Canadian generally accepted accounting principles (GAAP) financial statements. The effective date is expected to be January 1, 2022.

These developments require changes to the Canadian Standards of Practice (SOP), as the valuation methods under IFRS 17 are significantly different from the current methods of valuation of insurance contracts in Canada.

The International Actuarial Association (IAA) has developed International Standard of Actuarial Practice 4 (ISAP 4) in relation to IFRS 17. ISAP 4 covers actuarial practice in support of valuation of insurance contract liabilities in accordance with IFRS 17.

The proposed changes align the SOP with the requirements of IFRS 17, and incorporate the guidance of ISAP 4.

While IFRS 17 itself does not require an actuary to value the insurance contract liabilities or provide an opinion on the valuation, an actuary will usually be employed as a professional expert on insurance contract valuation. Furthermore, in Canada, where the Canadian GAAP valuation is being used for filing of regulatory statements under the Insurance Companies Act (and equivalent provincial laws and regulations for provincially regulated companies,) the actuary will be required to value the insurance contract liabilities in accordance with IFRS 17 and provide an opinion on the valuation. The SOP will apply whenever an actuary performs work related to an IFRS 17 valuation.

Summary of Proposed Changes (Original and Revised Exposure Drafts)

The text below summarizes the proposed changes, including those in the initial ED.

Part 1000 General Standards

The proposed changes to part 1000 are minimal. They relate primarily to terminology changes and example changes, made to ensure Part 1000 and the revised Part 2000 (where the substantive changes are made) remain aligned. Importantly, we do not believe any of the changes to Part 1000 affect areas of actuarial practice other than those related to IFRS 17 valuation. The revised ED does not make any further changes to the initial ED.

Part 2000 Insurance

The changes to Part 2000 are substantial. The current sections 2100 (Insurance Contract Valuation: All Insurance), 2200 (P&C valuation), and 2300 (Life and Health Valuation) have all been replaced.

Note that Part 2000, with the exception of Section 2800 related to public personal injury compensation plans, covers only valuations in accordance with IFRS 17 – it is not a general insurance contract valuation standard of practice applicable to other situations.

Section 2100 is a short section that covers the scope of application and the organization of Part 2000. Text has been added in paragraph 2110.04 of the revised ED to highlight which standards are applicable if a valuation is not required to be in accordance with IFRS 17.

Section 2200 covers general considerations for performing a valuation in accordance with IFRS 17, including how Part 2000 integrates with Part 1000, a glossary of terms unique to Part 2000, and considerations unique to Canada, such as Canadian reporting

and opinion requirements. Paragraph 2210.05 has been added to cover reliance on other parties in an IFRS 17 valuation. The work of the recently formed ASB Designated Group on the Review of the Role of the Actuary in the Context of IFRS 17 is expected to lead to further changes to Subsection 2230 Reporting as well as changes to other sections relevant to their mandate.

Section 2300 reflects, with minimal changes, the text of the final ISAP as approved by the IAA in November 2019. The changes in this final ISAP and hence to section 2300 are not substantive in nature versus the earlier draft. Sections 2400 (The Appointed Actuary), 2500 (Financial Condition Testing), 2600 (Ratemaking: Property and Casualty Insurance) and 2700 (Policyholder Dividend Determination) are unchanged.

A new section 2800 (Public Personal Injury Compensation Plans) that will replace current Part 5000 has been introduced in the revised ED. The text in 2800 maintains separate sections for the valuation of insurance contract liabilities for financial reporting and the valuation of benefits liabilities for funding purposes. Other topics will be covered in educational notes to be developed by the Committee on Workers' Compensation.

Comments

Interested parties are invited to submit their feedback on this revised ED. Comments should be directed to Simon Curtis at scurtis@munichre.com with a copy to Chris Fievoli at chris.fievoli@cia-ica.ca **by July 31, 2020**. Queries may also be directed to any member of the designated group (DG), as listed below.

Members of the DG IFRS 17

The group responsible for the development of the revisions to the SOP consists of the following 11 members: Hélène Baril, Simon Curtis (Chair), Micheline Dionne, Stéphanie Fadous, Conrad Ferguson, Marco Fillion, Cynthia Potts, Warren Rodericks, Rebecca Rycroft, Lesley Thomson, and Jacques Tremblay. Members of the DG may all be contacted at their membership directory addresses.

JM, SC

1100 Introduction

1110 Application

.01 These Standards of Practice apply to actuarial work in Canada. Responsibility for these Standards of Practice vests in the Actuarial Standards Board (Canada) and approval of standards and changes to standards are made through a process that includes consultation with the actuarial profession and other interested parties. They are intended for the benefit of the public. The work in Canada of a member of a professional actuarial organization is expected to conform to these Standards of Practice.

.02 The existence of standards is not a substitute for professional judgment or consideration for the needs of the user(s) when performing specific work.

.03 The authority of these Standards of Practice derives from the powers of those bodies that recognize them for actuarial work in Canada. Among others, these include professional actuarial bodies and relevant laws such as those regulating pensions and insurance. Compliance with these Standards of Practice is also likely to be taken into account when the quality of actuarial work is being considered in a court of law or in other contested situations. However, in such circumstances, deviation from any provision of these Standards of Practice should not, in and of itself, be presumed to be malpractice.

1120 Definitions

.01 Each term set over dotted underlining has the meaning given in this subsection. A term that is not set over dotted underlining has its ordinary meaning.

.02 Accepted actuarial practice is the manner of performing work in accordance with these Standards of Practice. Unless the context requires otherwise, it refers to work in Canada. [*pratique actuarielle reconnue*]

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

.04 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*]

.05 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, where appropriate, contingent events. [*méthode de la valeur présente actuarielle*]

.06 Actuary, as it is used in these standards, means a member of a professional actuarial organization whose work in Canada is expected to conform to these standards. [*actuaire*]

.07 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*]

.08 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*]

.09 Appropriate engagement is one that does not impair the actuary's ability to conform to the precepts of ethical and professional conduct such as those that may be found in the Rules of Professional Conduct of the Canadian Institute of Actuaries or relevant law or regulation. Unless the context otherwise requires, wherever the word "engagement" is used in these standards it refers to an appropriate engagement. [*mandat approprié*]

.10 Automatic balancing mechanisms automatically adjust contributions, benefits, and/or parameters of a plan in order to restore the balance between its source of financing and its benefits. The mechanism is prescribed by a set of predetermined measures to be taken, either immediately or later as prescribed, upon being triggered by certain demographic, economic, or financial indicators. [*mécanismes automatiques de compensation*]

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

.12 Best estimate means without bias. [*meilleure estimation*]

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

.14 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*]

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

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

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

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

.19 Contribution principle is a principle of policyholder dividend determination whereby the amount deemed to be available for distribution to policyholders by the directors of a company is divided among policies in the same proportion as policies are considered to have contributed to that amount. [*principe de contribution*]

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

.21 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*]

.22 Definitive refers to a matter that is final and permanent rather than tentative, provisional, or unsettled. [*décision définitive*]

.23 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*]

.24 Explanatory text is text that appears outside of a box in these standards. [*texte explicatif*]

.25 External user is a user other than the actuary's client or employer. Internal user and external user are mutually exclusive. [*utilisateur externe*]

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

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

.28 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*]

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

.30 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, post-employment benefit plan, or social security program. [*niveau de provisionnement*]

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

.32 Indexed benefit is a benefit whose amount depends on the movement of an index such as the consumer price index. [*prestation indexée*]

.33 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*]

.34 Insurance contract is a contract under which one party (the issuer~~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. [*contrat d'assurance*]

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

.36 Insurer is a federally or provincially licensed insurance company that is an issuer of insurance contracts~~ 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 or a post-employment benefit plan[1]. [*assureur*]

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

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

~~.38~~.39 Issuer is the party under an insurance contract that accepts significant insurance risk. [*émetteur*]

~~.39~~.40 Margin for adverse deviations is the difference between the assumption for a calculation and the corresponding best estimate assumption. [*marge pour écarts défavorables*]

~~.40~~.41 Model is a practical representation of relationships among entities or events using statistical, financial, economic, or mathematical concepts. A model uses methods, assumptions, and data that simplify a more complex system, and produces results that are intended to provide useful information on that system. A model is composed of a model specification, a model implementation, and one or more model runs. Similarly for "to model". [*modèle*]

~~.41~~.42 Model implementation is one or more systems developed to perform the calculations for a model specification. For this purpose "systems" include computer programs, spreadsheets, and database programs. [*implémentation du modèle*]

~~.42~~.43 Model risk is the risk that, due to flaws or limitations in the model or in its use, the actuary or a user of the results of the model will draw an inappropriate conclusion from those results. [*risque de modélisation*]

~~.43~~.44 Model run is a set of inputs and the corresponding results produced by a model implementation. [*exécution d'un modèle*]

~~.44~~.45 Model specification is the description of the components of a model and the interrelationship of those components with each other, including the types of data, assumptions, methods, entities, and events. [*spécifications du modèle*]

~~.45~~.46 New standards means new standards, or amendment or rescission of existing standards. [*nouvelles normes*]

~~.46~~.47 Periodic report is a report that is repeated at regular intervals. [*rapport périodique*]

~~.47~~.48 Plan administrator is the person or entity with overall responsibility for the operation of a benefit plan. [*administrateur d'un régime*]

~~.48~~.49 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, that are in force at that date or that 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*]

~~.49~~.50 Policyholder is a party that has a right to compensation under an insurance contract if an insured event occurs~~[1]~~. [*titulaire de police*]

~~[1] The wording of this definition is identical to the corresponding definition appearing in IFRS 4 appendix A, as of November 2009.~~

~~.50~~.51 Premium liabilities are the portions of insurance contract liabilities that are not claim liabilities. [*passif des primes*]

~~.51~~.52 Prescribed means prescribed by these standards. [*prescrit*]

~~.52~~.53 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*]

~~.53~~.54 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*]

~~.54~~.55 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*]

~~.55~~.56 Recommendation means text that appears in a box in these standards. Similarly for "recommend". [*recommandation*]

~~.56 Reinsurance recoverables in an insurer's statement of financial position are the assets at the calculation date on account of reinsurance treaties, including commitments, that are in force at that date or that were in force before that date. [*sommes à recouvrer auprès des réassureurs*]~~

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

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

.59 Report date is the date the actuary specifies as such in the report. It usually differs from the calculation date. [*date du rapport*]

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

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

.62 Social security program means a program with all the following attributes regardless of how it is financed and administered:

- Coverage is of a broad segment, or all, of the population, often on a compulsory or automatic basis;
- Benefits are provided to, or on behalf of, individuals;
- The program, including benefits and financing method, is mandated by law;
- The program is not financed through private insurance; and
- Program benefits are principally provided or delivered in the form of periodic payments upon old age, retirement, death, disability, and/or survivorship. [*programme de sécurité sociale*]

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

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

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

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

.67 Virtually definitive refers to a matter that is almost certain, but that lacks one or more formalities like ratification, due diligence, regulatory approval, third reading, royal assent, or proclamation. However, a decision that still involves discretion at an executive or administrative level is not virtually definitive. [*pratiquement définitive*]

.68 Work means work that is commonly, but not necessarily exclusively, performed by actuaries in assessing, measuring, and evaluating risks and contingencies and usually includes

- Acquisition of knowledge of the circumstances affecting the work that the actuary is undertaking;
- 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*]

1130 Interpretation

Recommendations

.01 These standards consist of recommendations and explanatory text.

.02 A recommendation is the highest order of guidance in these standards.

.03 Each recommendation is in boxed text where it is accompanied by its effective date, shown in square brackets.

Explanatory text

.04 The explanatory text supports and expands upon the recommendations. The explanatory text consists of definitions, explanations, examples, and useful practices.

Effective date of recommendations

.05 The notice of adoption for new standards would indicate their effective date and whether early implementation is permitted and may provide additional direction regarding the application of new standards.

.06 Subject to the notice of adoption, a recommendation applies to work with a calculation date that is on or after the recommendation's effective date. Superseded recommendations that were in effect at the calculation date would apply to work with a calculation date prior to the effective date of new standards unless early implementation is permitted and applied to the work.

.02 Usually, the actuary is responsible for all aspects of his or her work and performs it in accordance with accepted actuarial practice. The engagement to which the recommendation applies is usually one in which one or more aspects of work are omitted or are stipulated by the client or employer or the terms of a benefit plan. Examples include situations where

- The actuary uses, but does not take responsibility for, the software system, or the work, of the staff of the client or employer; and
- The client or employer or the terms of a benefits plan stipulates an assumption or a method that is not in accordance with accepted actuarial practice.

.03 Conflict between accepted actuarial practice and the law is not the same as conflict between accepted actuarial practice and the terms of an engagement. In the case of an engagement whose terms call for deviation from accepted actuarial practice, the actuary has discretion to accept or not to accept the engagement.

.04 The practicality and usefulness of reporting a result in accordance with accepted actuarial practice are the same as for subsection 1210, Conflict with law.

1230 Unusual and unforeseen situations

.01 Deviation from a particular recommendation or other guidance in these standards is accepted actuarial practice for an unusual or unforeseen situation for which the standards are inappropriate[2]. [Effective February 1, 2018]

.02 The actuary would report without reservation when deviating from a particular recommendation or other guidance in these standards in accordance with this subsection 1230, but it may sometimes be appropriate to describe and justify the deviation in the report.

1240 Materiality

.01 Deviation from a particular recommendation or explanatory text in these standards is accepted actuarial practice if the effect of so doing is not material. [Effective February 1, 2018]

[2] Actuaries are encouraged to bring such situations to the attention of the Actuarial Standards Board, who may wish to consider how standards might be improved so that they do contemplate such situations.

.02 "Material" has its ordinary meaning, but is judged from the point of view of a user, having regard for the purpose of the work. Thus, an omission, understatement, or overstatement is material if the actuary expects it to affect either the user's decision-making or the user's reasonable expectations. When the user does not specify a standard of materiality, judgment falls to the actuary. That judgment may be difficult for one or more of these reasons:

- The standard of materiality depends on how the user uses the actuary's work, which the actuary may be unable to foresee. If practical, the actuary would discuss the standard of materiality with the user. Alternatively, the actuary would report the purpose of the work as precisely as possible, so that the user is warned of the risk of using the work for a different purpose with a more rigorous standard of materiality.
- The standard of materiality may vary among users. The actuary would choose the most rigorous standard of materiality among the users.
- The standard of materiality may vary among uses. For example, the same accounting calculations may be used for a pension plan's financial statements and the financial statements of its participating employer. The actuary would choose the more rigorous standard of materiality between those two uses.
- The standard of materiality depends on the user's reasonable expectations, consistent with the purpose of the work. For example, advice on winding-up a pension plan may affect each participant's share of its assets, so there is a conflict between equity and practicality. The same is true for advice on a policy dividend scale.

.03 The standard of materiality also depends on the work and the entity that is the subject of that work. For example,

- A given dollar standard of materiality is more rigorous for a large than for a small entity;
- The standard of materiality for valuation of an insurer's policy liabilities is usually more rigorous for those in its financial statements than for those in a forecast in dynamic capital adequacy testing;
- The standard of materiality for data is more rigorous for calculating an individual benefit (such as in a pension plan wind-up) than for a valuation of a group benefit plan (such as a going concern valuation of a pension plan); and
- The standard of materiality for work involving a threshold, such as a regulatory capital adequacy requirement calculation of an insurer or a statutory minimum or maximum funding level for a pension plan would become more rigorous as the entity approaches that threshold.

.04 The actuary would not report an immaterial deviation from a particular recommendation or other guidance in these standards except if doing so assists a user to decide whether the standard of materiality is appropriate for that user.

.05 The recommendation applies to both calculation and reporting standards.

Calculation standards

.06 The result of applying a recommendation may not differ materially from the result of a simpler practice requiring less time and expense. For example, the practice-specific recommendations for valuation of insurance contract liabilities for term life insurance have little effect on an issuer~~insurer~~ whose volume of term life insurance is trivial. To ignore them in that situation is accepted actuarial practice if it helps the actuary to concentrate time and resources on material items.

.07 In considering materiality, it is not appropriate to net items that are reported separately. For example, if simple practices requiring less time and expense than those in the recommendations materially overstate the premium liabilities and materially understate its claim liabilities, but do not materially affect their sum, the understatement and overstatement are each material if the two items are reported separately. In considering materiality, it is, however, appropriate to net components within a separately reported item. To continue the example, it would be appropriate to net the overstatement of premium liabilities with the understatement of claim liabilities if only the sum of the two (i.e., the insurance contract liabilities) is reported.

.08 The effect of using a simpler practice requiring less time and expense than those in the recommendations may be conservative or not conservative. Usually, the criterion of materiality is the same in both cases.

Reporting standards

.09 The result of applying a recommendation may provide information that is not useful. For example, disclosure of a material change in the basis for valuing the liabilities with respect to a material class of a benefit plan's members is not useful if that class was trivial at the previous valuation. Also, description of immaterial provisions of a benefit plan is not useful. To ignore the recommendation is accepted actuarial practice in that situation.

1430 Subsequent events

.01 The actuary should correct any data defect or calculation error that is revealed by a subsequent event. [Effective February 1, 2018]

.02 For work with respect to an entity, the actuary should take a subsequent event into account (other than in a pro forma calculation) if the subsequent event

- Provides information about the entity as it was at the calculation date;
- Retroactively makes the entity different at the calculation date; or
- Makes the entity different after the calculation date and a purpose of the work is to report on the entity as it will be as a result of the event. [Effective February 1, 2018]

.03 The actuary should not take the subsequent event into account if it makes the entity different after the calculation date and a purpose of the work is to report on the entity as it was at the calculation date. Nevertheless, the actuary should report that subsequent event. [Effective February 1, 2018]

Classification

.04 A subsequent event is relevant to the recommendation if it reveals an error, provides information about the entity, or is a decision that makes the entity different.

.05 The actuary would correct an error revealed by a subsequent event. The actuary would classify each subsequent event other than those that reveal errors and, depending on the classification, the actuary would either

- Take that event into account; or
- Report that event, but not take it into account.

Entity

.06 Examples of entities are

- The pension plan, in the case of an actuary doing a valuation of a pension plan;
- The block of annuity business, in the case of an actuary calculating the insurance contract liabilities for an issuer's ~~insurance company's~~ annuity business;
- A combination of the pension plan and the member's specific data, in the case of the determination of a member's individual entitlement under a pension plan; and
- The insurance company, in the case of an actuary valuing the insurance contract liabilities of an insurance company.

Event provides information about entity as it was or retroactively makes entity different

.07 Examples of subsequent events that provide information about an entity as it was at the calculation date are

- Publication of an experience study that provides information for selection of assumptions;
- Reporting ~~to an insurer~~ of a claim that was incurred on or before the calculation date; and
- Adoption of a pension plan amendment prior to the calculation date of which the actuary becomes aware after the calculation date.

.08 Examples of events that retroactively make the entity different at the calculation date are definitive or virtually definitive decisions, made after the calculation date but effective on or before the calculation date, to

- Wind-up a pension plan, partially or fully;
- Sell a portion of a participating employer's business and consequently to spin off the corresponding members from the participating employer's pension plan;
- Amend the benefits of a pension plan;
- Transfer a portion of an insurer's policies to another insurer; or
- Invoke a judicial decision that nullifies or significantly modifies the law affecting insurance claims.

.09 If an event provides information about the entity as it was at the calculation date or provides information that retroactively makes the entity different at the calculation date, the effect of the subsequent event on the work is the same as if the actuary first became aware of the information on or before the calculation date and the actuary would not report the event as a subsequent event. That is, the actuary would report the event only to the extent that the event would have been reported had the actuary first become aware of the information before the calculation date.

Event makes entity different after

.10 If the subsequent event makes the entity different after the calculation date, the purpose of the work determines whether or not the actuary takes the event into account.

.11 If the subsequent event makes the entity different after the calculation date and the purpose of the work is to report on the entity as it will be as a result of the event, the actuary would take that event into account and would describe it in reporting.

.12 If the subsequent event makes the entity different after the calculation date and the purpose of the work is to report on the entity as it was at that date, the actuary would not take that event into account but would report the event since it would affect the entity's future operations and the actuary's subsequent calculations.

Classification not clear

.13 The classification of a subsequent event may be unclear, at least a priori, although the circumstances affecting the work and the actuary's engagement may make it clear. The following are examples of such events:

- A precipitous fall in the stock market. For financial reporting, one can argue that the stock market crash provides additional information about the entity as it was at the calculation date, because the crash is an indicator of the outlook for common share investments at that date; alternatively, one can argue that the crash makes the entity different only after the calculation date since it creates a new situation. The new situation would be reflected in the financial statements for the subsequent financial reporting period.
- A salary freeze for employees who are members of a pension plan. If the salary freeze is a correction of excessive salaries, it provides additional information about the entity as it was at the calculation date, because the freeze is an indicator of the outlook for salaries at the calculation date. If the salary freeze deals with a recent problem, it indicates a change in conditions that makes the entity different after the calculation date. In either case, the actuary would consider the effect of the freeze on the employees' pension benefits. It may be that the freeze will have a lasting effect. Alternatively, it may be that the freeze will be compensated for by higher salaries later on, so that the salary inflation assumption based on historical trends continues to be valid.
- Default on a bond. If the default was the culmination of a gradual deterioration in its issuer's financial circumstances, most of which had occurred before the calculation date but that was not apparent until revealed by the default, the default provides additional information about the entity as it was at the calculation date. If the default was precipitated by a catastrophe, it provides information about a change in conditions that makes the entity different after the calculation date.
- Insolvency of an insurer's reinsurer. This is similar to default on a bond. If the insolvency was the culmination of a gradual deterioration in the reinsurer's financial circumstances, most of which had occurred before the calculation date but that was not apparent until revealed by the insolvency, the insolvency provides information about the entity as it was at the calculation date. If the insolvency was precipitated by a catastrophe, it provides information about a change in conditions that makes the entity different after the calculation date.

Reporting

.14 Sometimes, either because the actuary considers it appropriate or the terms of the work require it, the actuary may report as an alternative the opposite calculation; i.e., one that does not take the subsequent event into account when the main calculation does, or that takes the subsequent event into account when the main calculation does not. For example, in a province for which the calculation date for a pension valuation following marriage breakdown is the date of separation, a subsequent event may be the early retirement of the plan member at some time between the calculation date and the report date. The actuary would consider reporting values assuming that this subsequent event had been an established intention at the calculation date, instead of or in addition to retirement scenarios otherwise recommended in the practice-specific standards. In such cases, the actuary would make the same calculations regardless of the purpose of the work but the reporting thereof would depend on the purpose of the work.

1440 Data

.01 The actuary should apply such procedures as are necessary for the actuary to arrive at a conclusion as to the sufficiency and reliability of the data. [Effective February 1, 2018]

.02 Data relevant to the work may include experience data, membership or policyholder data, census data, claims data, asset and investment data, economic data, operational data, benefit definitions, and policy or contract terms and conditions and other data relevant to the work.

.03 Sources of data may include data obtained from inventory or sampling methods. Data may be obtained directly by the actuary or may be provided to the actuary by the client, by an accountant or auditor, by a government or statistical body, from a financial statement, or by others. Data may be specific to the client. Where data specific to the client are not available or not relevant, the actuary would consider using industry data, population data, or other published data with suitable adjustments where relevant and appropriate.

Sufficiency and reliability

.04 Data are sufficient if they include the needed information for the work. For example, participants' dates of birth are needed to value the liabilities of a pension plan.

.05 Data are reliable if they are sufficiently complete, consistent, and accurate for the purposes of the work.

1600 Assumptions and Methods

1610 Methods

.01 The actuary should select a method that takes account of the circumstances affecting the work. [Effective February 1, 2018]

.02 The basis for calculating actuarial estimates is comprised of a method and one or more assumptions. Methods represent the underlying manner in which actuarial calculations are undertaken. Methods differ from one area of actuarial practice to another and have differed over time.

.03 In selecting an appropriate method, the actuary would consider whether any method is mandated by law, by practice-specific standards or by the terms of the engagement.

1620 Assumptions

.01 The actuary should identify and select each assumption that is needed for the work, except for those that are prescribed, that are mandated by law or that are stipulated by the terms of the engagement. [Effective February 1, 2018]

.02 The actuary should select an appropriate model or data assumption for a matter as the best estimate assumption relating to that matter, modified, if appropriate, to make provision for adverse deviations. In selecting an assumption, the actuary should take account of the circumstances affecting the work, past experience data, the relationship of past to expected future experience, anti-selection, and the relationship among matters. [Effective February 1, 2018]

.03 The appropriate assumption for a matter, other than a model or data assumption, should be continuation of the status quo, unless there is none or unless there is a reasonable expectation that it will change, and the actuary so reports. [Effective February 1, 2018]

.04 Throughout the standards, the word “calculation” appears, but not as a defined term. It can imply a mathematical operation as simple as adding two numbers or as complex as a scenario of dynamic capital adequacy testing. “Calculation” does not necessarily imply that a model is used. The word “calculation”, when used in the context of a model, emphasizes the result of a model run and to a lesser extent model specification and model implementation.

.05 It may be useful, under the terms of the engagement, to report the result of two assumptions without opining on their relative appropriateness and to recommend that each user select that which meets his or her needs.

Model assumptions

.06 The model assumptions are quantitative assumptions in a model about

- Contingent events;
- Investment return and other economic matters, such as price and wage indices; and
- Numerical parameters of the environment, such as the income tax rate.

.07 There is a model assumption for each of the matters that the actuary's model takes into account. Those matters would be sufficiently comprehensive for the model reasonably to represent reality.

.08 A model, whether simple or complex, requires model assumptions. The model depends on the purpose of the work and the sensitivity of the model run to the various matters about which assumptions could be made. The actuary would strike a balance between the complexity needed for reasonable representation of reality and the simplicity needed for a practical calculation. If the model specification does not take into account a matter, the result is an implicit assumption about that matter, usually an assumption of zero probability or of zero rate. The actuary may compensate for an inappropriate implicit assumption regarding a matter that the model specification does not take into account by altering the explicit assumption regarding a matter that the model does take into account.

.09 For models with interrelated model assumptions, the actuary would consider the interaction between assumptions.

Data assumptions

.10 Data assumptions are the assumptions, if any, needed to relieve insufficiency or unreliability in the data.

.11 The available data may be not sufficient or not reliable. For example, files of pension plan members may lack the date of birth of the members' spouses. Based on sampling, or on comparison with comparable data, it may be appropriate to assume a relationship between spouse and member ages; for example, that a male spouse's date of birth is three years before the member's, and that a female spouse's date of birth is three years after the member's.

Assumptions other than model and data assumptions

.12 The assumptions other than model and data assumptions are the assumptions about the legal, economic, demographic, and social environment upon which the model and data assumptions depend.

.13 Such other assumptions are usually qualitative, dealing with the environment; for example,

- Legislation, like the Income Tax Act (Canada);
- Student education;
- The medical care system;
- Government social security systems; and
- International treaties.

.14 Those assumptions are needed to the extent that the model assumptions and, in some cases, the data assumptions depend upon them. Such assumptions are numerous and it is not practical to identify all of them.

.15 Continuation of the status quo is usually the appropriate assumption for other than model and data assumptions; for example, an assumption that the fund of a registered pension plan continues not to be taxed or that the capital markets remain more or less as they are. Users may infer that assumption except where the actuary reports otherwise. The actuary would report an assumption

- That is different from continuation of the status quo; and
- Regarding a matter for which there is no status quo, for example, a student's assumed occupation after completion of education.

Acceptable range

.16 There is a reasonable range of assumptions that may be selected by an actuary for particular work and that might produce materially different results. Sometimes, it is desirable that actuaries produce results within a relatively narrow range, in which case the practice-specific standards may prescribe certain methods and/or assumptions to achieve that purpose.

Circumstances affecting the work

.17 Knowledge of the circumstances affecting the work may require consultation with the persons responsible for the functions that affect experience. For example, if the calculation is to value the assets or liabilities of a benefits plan, the actuary would consult the persons responsible for investments, administration, and plan provisions. If the calculation is to value the policy liabilities of an insurer, the actuary would consult the officers responsible for investments, underwriting, claims, marketing, product design, policy dividends, and policy servicing.

.18 An assumption about a matter would take account of the circumstances affecting the work if those circumstances affect that matter. The circumstances affecting the work are relevant for experience in most matters other than economic matters.

Past experience data

.19 The available and pertinent past experience data are helpful in the selection of assumptions.

.20 Other things being the same, pertinent past experience data are data

- Relating to the case itself rather than to similar cases;
- Relating to the recent past rather than to the distant past;
- That are homogeneous rather than heterogeneous; and
- That are statistically credible.

These criteria may conflict with each other.

Expected future experience vs. past experience

.21 To extrapolate pertinent past experience and its trend to the near future is often, but not necessarily, appropriate.

.22 The appropriateness of the extrapolation depends on the matter assumed. For example, pertinent past mortality experience is a better indicator of the outlook than is pertinent past investment return experience.

.23 An extrapolation would take account of a change that affects the outlook. For example,

- Adoption of a subsidized early retirement option in a pension plan may affect retirement rates;
- A change in an issuer's ~~insurer's~~ case estimate practices may affect its claims development;
- An issuer's ~~insurer's~~ discontinuance of a line of business may affect its expense rates allocable to the remaining lines; and
- A change in judicial practice may affect the settlement of claims.

Anti-selection

.24 Each assumption would normally take account of potential anti-selection.

.25 One party in a relationship may have the right (or the administration of the relationship may give the privilege) to exercise certain options. That party may be, for example, a ~~n insurer's~~ policyholder ~~owner~~, a benefits plan's member, a borrower, a lender, or a shareholder.

.26 Examples are the right or privilege of a

- Pension plan member to select his or her retirement date when the pensions at various retirement ages are not actuarially equivalent;
- Policyholder ~~owner~~ to renew term life insurance at its expiry for a stipulated premium;
- Mortgagor to prepay principal, or an issuer to call a bond or redeem a preferred share; and
- Shareholder to retract a share.

.27 When considering a single relationship, it is reasonable to expect that party to exercise those options to the detriment of the other party in the relationship if it is to the first party's advantage to do so. However, where a number of such relationships are concerned, such as a portfolio of policyholders ~~owners~~ or members of a benefit plan, it may not be reasonable to assume that every one of these would exercise such an option in that manner.

.28 The extent of anti-selection depends on

- The size of the advantage from each exercise of the option (for example, anti-selection is dampened if the advantage to each policyholder ~~owner~~ is small even when the aggregate potential detriment to an issuer~~insurer~~ is large);
- The concomitance of exercise of the option (for example, election of a favourable early retirement pension may force the plan member into unwanted unemployment, or a policyholder ~~owner~~ (who is also the life insured) in ill health may be unable to afford to continue an insurance policy with a low premium);
- The policyholder ~~owner~~'s or plan member's difficulty in making the required judgment (for example, everyone knows his or her age, but a person may be unable to gauge the effect of ill health on longevity); and
- The sophistication of the policyholder ~~owner~~, plan member, borrower, lender, or shareholder.

Independently reasonable and appropriate in the aggregate

.29 The assumptions that the actuary selects or for which the actuary takes responsibility, other than alternative assumptions selected for the purpose of sensitivity testing, would be independently reasonable and appropriate in the aggregate.

.30 The actuary would select independently reasonable assumptions. The following ~~are~~ is an example~~s~~:

- For a typical defined benefit pension plan valuation, the actuary would adopt an explicit investment assumption, as well as an explicit expense assumption rather than using implicit assumptions incorporated within a net discount rate. However, for a small defined benefit pension plan, the actuary may choose to use approximations for the investment expenses.
- ~~For a typical non-participating life insurance portfolio where experience is not passed on to policy owners, all assumptions would be established independently. However, for a typical participating life insurance portfolio where experience is passed on to policy owners through changes to the dividend scale, a reasonable representation of reality would be to assume that the current dividend scale and current experience persist into the future, as long as any implicit offsets in assumptions simplify the valuation and do not materially affect the amount of the valuation.~~

.31 The actuary would avoid the use of independently reasonable assumptions that are inconsistent or biased in the same direction, either of which might result in the assumptions not being reasonable in the aggregate. If an assumption is prescribed, is mandated by law or is stipulated by the terms of the engagement, it would not be appropriate to compensate for this prescription or stipulation by modifying other assumptions. The remaining assumptions would be reasonable in the aggregate and to the extent possible be independently reasonable.

.32 The use of independently reasonable assumptions implies that each assumption is explicitly defined. However, there would be no requirement to use explicit assumptions in the model specification, as long as the result of using that model does not produce a material error. For example, for pension valuations, use of a discount rate net of expenses may produce a value very close to the value obtained by using explicit assumptions. In this case, the actuary would disclose both the gross investment rate assumption and the expense assumption.

Stipulated or mandated assumptions

.33 Use of an assumption stipulated by the terms of the engagement is use of the work of another person.

.34 If the assumption is mandated by law and an amendment to the law is virtually definitive, it may be useful to report a result that reflects the amendment.

Discount rate

.35 The use of a discount rate is inherent in the actuarial present value method. The discount rate may be constant or it may vary over time. In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may either

- Take into account the expected investment returns of the assets that support the liabilities; or
- Reflect interest rates on relevant fixed income reference securities.

.36 In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may assume that the yields on fixed income investments at future dates, either

- Remain at levels applicable at the calculation date; or
- Revert in the long term to expected levels.

1630 Provision for adverse deviations

.01 The actuary should include a provision for adverse deviations in calculations only to the extent required by the terms of the actuary's engagement or as mandated by law or as prescribed by practice-specific standards. [Effective February 1, 2018]

1640 Comparison of current and prior assumptions

.01 Unless the actuary reports the inconsistency, the assumptions for a calculation for a periodic report should be consistent with those of the prior calculation. [Effective February 1, 2018]

.02 The definition of consistency for the purpose of this recommendation varies among practice areas. For example,

- For advice on funding a pension plan, the assumption at a calculation date is consistent with the corresponding assumption at the prior calculation date if the two are numerically the same; and
- For valuation of ~~an insurer's~~ insurance contract liabilities for ~~its~~ financial reporting, an assumption at a calculation date is consistent with the corresponding assumption at the prior calculation date if the two assumptions
  - Each reflect the conditions and outlook at their respective calculation dates consistent with the circumstances affecting the work in the case of a best estimate assumption;

- Each reflect the risks at their respective calculation dates consistent with the circumstances affecting the work in the case of a margin for adverse deviations; and
- Are located at the same point within the range of accepted actuarial practice.

.03 If the assumptions are not so consistent, the actuary would report the inconsistency. If practical, useful and appropriate under the terms of the engagement, the report would quantify the effect of the inconsistency.

2100 Insurance Contract Valuation: All Insurance

2110 Scope

.01 Part 1000 applies to work within the scope of ~~p~~Part 2000.

.02 ~~Section 2100 applies to all kinds of insurance.~~Repealed

.03 Section~~s~~ 2200 and 2300 appl~~y~~~~ies~~ to the valuation of insurance contracts and other obligations in accordance with IFRS 17, even where the reporting entity is not an insurer~~property and casualty insurance~~.

- Section 2200 reflects Canadian-specific considerations. It includes specific exclusions from ~~p~~Part 1000, a glossary of terms applicable to IFRS 17, and valuation and reporting requirements.
- Section 2300 reflects the International Standard of Actuarial Practice 4 (ISAP 4), developed by the International Actuarial Association. It provides guidance to actuaries when performing actuarial services related to contracts covered by IFRS 17 to be used.

.04 Where the valuation of insurance contracts and other obligations is not required to be in accordance with IFRS 17, then sections 2200 and 2300 do not apply to the valuation and the valuation would be in accordance with any applicable accounting standards if the valuation is to be used for financial reporting, or the terms of the actuary's engagement or as mandated by law or as prescribed by practice-specific standards. ~~Section 2300 applies to life and health (accident and sickness) insurance.~~Repealed

.05 Section~~s~~ 2400 ~~and 2500~~ appli~~es~~~~y~~ to actuaries performing the role of appointed actuary as defined in ~~s~~subsection 2420~~all kinds of insurance~~.

.06 Section 25~~6~~00 applies to the appointed actuary of an insurer when preparing a report on an insurer's financial condition as defined in ~~s~~subsection 2510~~property and casualty insurance~~.

.07 Section 26~~7~~00 applies to property and casualty ratemaking as defined in ~~s~~subsection 2610~~life and health (accident and sickness) insurance~~.

.08 Section 2700 applies to policyholder dividend determination as defined in ~~s~~subsection 2710~~Part 2000 does not apply to post-employment benefit plans covered by the Practice-Specific Standards for Post-Employment Benefit Plans, nor does it apply to personal injury compensation plans covered by the Practice-Specific Standards for Public Personal Injury Compensation Plans~~.

.09 Section 2800 applies to public personal injury compensation plans for both the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 and the valuation of benefit liabilities for funding purposes~~The legal form of the insurer is not relevant for purposes of the application of part 2000~~.

~~.10 Sections 2100, 2200, and 2300 apply to the valuation of the insurance contract liabilities and reinsurance recoverables in an insurer's financial statements when the intent is that those statements be in accordance with generally accepted accounting principles in Canada, whether or not the insurer is a publicly accountable enterprise[1]. They also apply where statutory or regulatory instructions require the actuary to value the insurer's policy liabilities in accordance with accepted actuarial practice.~~

~~.11 In certain cases, methodology described in one of sections 2200 or 2300 may be useful for the insurance to which the other section applies. For example, while a simple technique is usually appropriate for valuation of claim liabilities for life and health insurance, the more sophisticated techniques used for property and casualty insurance may be appropriate for life and health insurance contracts for which claim development is complex. Similarly, for travel insurance and other short-term policies sold by property and casualty insurers, a simple technique may be appropriate.~~

~~[1] The *CPA Canada Handbook* contains both Canadian generally accepted accounting principles applicable to publicly accountable enterprises (i.e., International Financial Reporting Standards) and Canadian generally accepted accounting principles applicable to private enterprises and not-for-profit organizations.~~

2120 Method

.01 The actuary should value the insurance contract liabilities and the reinsurance recoverables for the statement of financial position and the changes in them for the statement of income. [Effective April 15, 2017]

.02 The actuary should coordinate the valuation with the insurer's accounting policy as respects the choice between going concern and wind-up accounting, and so that the insurance contract liabilities, reinsurance recoverables, and other items in the statement of financial position

- Are consistent;
- Avoid omission and double counting; and
- Conform to the presentation of the statement of income. [Effective April 15, 2017]

.03 The relevant insurance contracts for the valuation are those that are in force, including those whose issue is then committed, at the calculation date, or that were in force earlier and that will generate cash flow after the calculation date. [Effective April 15, 2017]

.04 The insurance contract liabilities, net of reinsurance recoverables, in respect of each of the relevant insurance contracts should be comprised of the cash flow after the calculation date from the premiums, benefits, claims, expenses, and taxes that are incurred during the term of its liabilities. [Effective April 15, 2017]

.05 The cash flows that comprise the insurance contract liabilities should include the effect of

- Retrospective premium, commission, and similar adjustments;
- Experience rating refunds;
- Reinsurance ceded;
- Subrogation and salvage;
- The exercise of policy owner options; and
- The deemed termination at the end of the term of its liabilities of each policy then in force. [Effective April 15, 2017]

.06 The valuation should take account of the time value of money. [Effective April 15, 2017]

.07 The actuary should ensure that the application of margins for adverse deviations with respect to the insurance contract liabilities and the related reinsurance recoverables results in an increase to the value of the liability net of reinsurance. The provision resulting from the application of all margins for adverse deviations, in addition to increasing the net liability, should be appropriate in the aggregate. [Effective April 15, 2017]

.08 Policy liabilities other than insurance contract liabilities would be valued in conformity with applicable International Financial Reporting Standards and accepted actuarial practice.

Calculation date

.09 Consistent with its definition in part 1000, the term "calculation date" as used throughout part 2000 refers to the effective date of the valuation of assets and liabilities reported in the financial statements (commonly referred to in practice as the "balance sheet date").

The insurer's accounting policy

.10 In preparing the insurer's financial statements, management would choose between going concern and wind-up accounting. The actuary would conform the valuation to that choice. If the actuary believes the choice to be inappropriate, then, after consultation with the auditor, he or she would so report.

.11 Going concern accounting is appropriate for an insurer that is expected to remain open to new business and in satisfactory financial position indefinitely.

.12 Going concern accounting is also appropriate for an insurer that is expected to become closed to new business, but to continue in a satisfactory financial position, either indefinitely or until

- An increase in capital; or
- A combination with, or transfer of its policies to, another insurer in a satisfactory financial condition,

brings financial relief.

.13 Use of the terms "insurance contract liabilities", "policy liabilities", "reinsurance recoverables", "premium liabilities", and "claim liabilities" is desirable in financial statements, but the choice of the terminology and itemization is a management decision. Regardless of the terminology and itemization chosen, the actuary would ensure that all relevant liabilities are identified and valued.

.14 Insurance contract liabilities and reinsurance recoverables consist of premium liabilities and claim liabilities. Claim liabilities are those in respect of benefits and claims incurred on or before the calculation date. The valuation of claims liabilities would reflect all cash flow related to such claims, including benefit payments, expenses and taxes, occurring after the calculation date. Premium liabilities are those in respect of premiums and all other benefits and claims, including their related expenses and taxes, incurred after the calculation date.

.15 When reporting under International Financial Reporting Standards, insurance contract liabilities reported in the insurer's statement of financial position would be presented gross of reinsurance recoverables. The value of the reinsurance recoverables is recorded separately and would be valued appropriately. The valuation of the reinsurance recoverables would take account of not only the reinsurer's share of claims but also reinsurance commissions, allowances, retrospective premium adjustments, and the financial condition of the reinsurer. Where an actuary is valuing, and reporting on, the valuation of policy liabilities other than in compliance with International Financial Reporting Standards, the policy liabilities may be reported net of reinsurance recoverables.

.16 For the purposes of part 2000, the insurance contract liabilities reported in the insurer's statement of financial position would exclude the liabilities of its segregated funds, but would include, in respect of segregated fund contracts, the liabilities of its general fund related to insurance benefits payable under the terms of such contracts, such as guaranteed minimum benefits in excess of policy owner account values.

.17 The insurer's accounting policy may report amounts related to insurance contracts and the assets that support insurance contract liabilities, as part of the insurance contract liabilities, or as separate items in the statement of financial position, or as a mixture of the two. Examples of such related items include

- Deposit liabilities (for example, policy dividends on deposit);
- Incurred but unpaid items (for example, taxes incurred but not paid and policy dividends due but not paid);
- Future tax liabilities and assets (for example, those in connection with the timing differences between accounting and tax liabilities);
- Receivables from, payables to, and deposits by reinsurers;
- Amounts recoverable from policy owners;
- Provisions for asset depreciation; and
- Deferred policy acquisition expenses.

The actuary would value the insurance contract liabilities so that

- In the aggregate, the insurance contract liabilities and those separate items are consistent and avoid omission and double counting; and
- The separate reporting of those items does not affect the insurer's capital.

.18 As respects consistency, the actuary would, for example, ensure that the cash flows included in the insurance contract liabilities and the reinsurance cash flows in respect of the same policies are estimated based on consistent assumptions, except that reinsurance cash flows would also take account of the financial condition of the reinsurer.

.19 As respects double counting and omission, the actuary would, for example, ensure that

- No asset is allocated more than once to support liabilities; and
- The provision for asset depreciation included in the insurance contract liabilities does not duplicate any provision for asset depreciation deducted from the asset side of the statement of financial position.

Relevant insurance contracts

.20 At the calculation date, the relevant contracts for the valuation include

- Policies that are in force at that date;
- policies which, at that date, the insurer is committed to issue; and
- Policies that were in force prior to that date which could generate cash flow after that date.

There are no amounts included in insurance contract liabilities in the financial statements in respect of other policies expected to be issued after the calculation date, whether or not they are expected to be profitable.

.21 There usually are both premium liabilities and claim liabilities in respect of policies that are in force at the calculation date. There may be reinsurance recoverables in respect of insurance contracts that are in force at the calculation date.

.22 There may be claim liabilities in respect of policies that are not in force at the calculation date as a result of outstanding claims incurred while they were in force. There may be premium liabilities in respect of those policies as a result of the right of policy owners to reinstate them, or of their unpaid

- Retrospective premium, commission, and similar adjustments;
- Experience rating refunds; and
- Subrogation and salvage.

There may be reinsurance recoverables related to policies that are not in force at the calculation date as a result of outstanding claims incurred while they were in force.

Cash flows comprising the insurance contract liabilities

.23 The insurance contract liabilities in respect of a relevant policy are comprised of that policy's cash flows after the calculation date that would be incurred during the term of the liability for that policy. Considerations in determining the term of the liability for life and health (accident and sickness) insurance are discussed in section 2300.

.24 The tax cash flows are limited to those generated by premiums, benefits, claims, and expenses, and by the assets that support the insurance contract liabilities. The expense cash flows are limited to those generated by the relevant policies, including overhead allocations. The tax and expense cash flows exclude, for example, tax on investment income from, and the investment expense of, assets that support capital.

.25 The actual timing of cash flow for a given policy may occur beyond the term of its liabilities as a result of lag between an insured event (e.g., the incurring of a claim) and its resultant cash flow. The extension may be prolonged, for example, for a claim payable in instalments under long-term disability insurance, and a claim under product liability insurance that has a long settlement period.

Retrospective premium, commission, and similar adjustments

.26 In determining the value of a contractual right of the insurer to future premiums that depend on past claims experience, the actuary would take account of creditworthiness of the policy owner.

Experience rating refunds

.27 The liability for experience rating refunds would take account of

- The assumptions used in calculating the insurance contract liabilities in respect of those matters which determine experience rating refunds;
- The difference between the basis for the insurance contract liabilities and the corresponding basis in the experience rating; and
- Any cross-rating across coverages in the experience rating.

.28 The experience rating refund element of the insurance contract liabilities would include provision for adverse deviations only for

- Risk of misestimation of interest rates and risk of interest rate changes; and
- Uncertainty in the calculation of the experience rating refund.

.29 The experience rating refund element of the insurance contract liabilities would not be negative except to the extent that in settlement it may be offset against another liability or recovered from policy owners.

.30 Where an insurer holds an asset for an accrued experience rating deficit, the actuary would test the appropriateness and recoverability of the receivable amount using the valuation assumptions and methodology for experience rating refunds, and make an adjustment to the insurance contract liabilities if necessary.

Reinsurance ceded and retroceded

.31 The estimated amount of recovery on account of reinsurance ceded would take account of the financial condition of the reinsurer.

.32 The actuary would assume that the insurer and the reinsurer each exercises its rights under a treaty (e.g., recapture, cancellation or commutation) to its advantage.

Subrogation and salvage

.33 The actuary would either net subrogation and salvage amounts against claims or value them as a separate item, depending on the insurer's accounting policy.

Exercise of policy owner options

.34 Examples of policy owner options are

- The conversion of group insurance or individual term insurance;
- The election of a settlement option in individual life insurance;
- The purchase of additional insurance or coverage without underwriting; and
- The selection of the amount of premiums for universal life insurance.

Deemed termination of remaining policies

.35 The comprised cash flow in respect of a policy that is deemed to terminate at the end of the term of its liabilities would include any amount then payable by the insurer in the event of its termination, modified to take account of the fact that the termination is deemed and not actual. For example, the modification would

- Forego a surrender charge deducted at an actual termination from the policy's account value to calculate its cash value;
- Forego a deduction at an actual termination from the policy's unearned premium to calculate its premium refund; and
- Anticipate a persistency bonus becoming payable at a date after the end of the term of the policy's liabilities if the policy remains in force to that date.

Time value of money

.36 In this context, "supporting assets" means the insurer's assets and asset commitments that support its insurance contract liabilities.

.37 To take account of the time value of money is to express the forecast of periodic future cash flows as an equivalent single amount at the calculation date, thereby reflecting in the value of the liabilities the amount of future investment income forecast to be earned on the supporting assets. There are two common methods of doing so – a roll-forward approach (e.g., the Canadian asset liability method) and a discounting approach (e.g., the actuarial present value method).

.38 The discount rates and forecast of supporting assets used in the valuation, would take account of

- The supporting assets owned at the calculation date;
- The insurer's policy for asset-liability management; and
- Assumptions about investment return after the calculation date.

.39 The actuary would value the insurance contract liabilities and reinsurance recoverables so that their aggregate value in combination with the value of other policy-related items in the statement of financial position appropriately takes account of the time value of money.

Margin for adverse deviations

.40 The margin for adverse deviations reflects the degree of uncertainty of the best estimate assumption. This uncertainty results from the risk of misestimation of and deterioration from the best estimate assumption. The potential for misestimation is greater when the past experience has been more volatile and hence would justify a greater margin. However, the margin for adverse deviations would be based on a forward-looking assessment of the expected experience and would not act as a mechanism to absorb changes in observed experience, such as changes caused by statistical fluctuations.

.41 Where ceded reinsurance is involved, the sign (positive or negative) of a margin for adverse deviations for a given assumption would take account of the impact of the assumption on assumed recapture, cancellation, commutation, or other treaty provisions and of the corresponding impact on insurance contract liabilities net of reinsurance recoverables.

21302110 Reporting

.01 The actuary's report should describe

- The valuation and presentation of policy liabilities and reinsurance recoverables for the insurer's statement of financial position and statement of income;
- The actuary's opinion on the appropriateness of those liabilities and recoverables and on the fairness of their presentation; and
- The actuary's role in the preparation of the insurer's financial statements if that role is not described in those statements or their accompanying management discussion and analysis. [Effective April 15, 2017]

.02 If the actuary can report without reservation, then the actuary's report should conform to the standard reporting language, consisting of

- A scope paragraph, which describes the actuary's work; and
- An opinion paragraph, which gives the actuary's favourable opinion on the valuation and its presentation;

otherwise the actuary should modify the standard reporting language to report with reservation. [Effective February 1, 2018]

.03 The actuary's report would conform to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities and related reinsurance recoverables.

Accounting in the statement of financial position

.04 The amount of the insurance contract liabilities is usually the largest amount in the statement of financial position, so that the disclosure of its main components is desirable.

.05 The reference to "policy liabilities", "insurance contract liabilities" and "reinsurance recoverables" in the standard reporting language is adequate if the notes to the financial statements or their accompanying management discussion and analysis verbally define "insurance contract liabilities" and "reinsurance recoverables", and the statement of financial position presents their total amount as a separate item.

Accounting in the statement of income

.06 The standard reporting language implies that the statement of income accounts for the total change in the policy liabilities, consisting of the insurance contract liabilities and the liabilities for policies other than insurance contracts, during the financial reporting period, and that it accounts for the total change in reinsurance recoverables. That accounting is direct in the case of a life insurer's insurance contract liabilities and reinsurance recoverables, whose change is presented as a separate item in the statement of income. That accounting may be indirect in the case of other policy liabilities, if their change is not separately presented, but is included within other items in the statement of income. For example, the item incurred claims would be equal to

- Claims and claim expenses paid during the financial reporting period; plus
- Claim liabilities (which are part of the policy liabilities) at the end of the financial reporting period; minus
- Claim liabilities at the beginning of the financial reporting period.

Such indirect accounting would be considered fair presentation, as would the direct accounting presentation.

Disclosure of unusual situations

.07 The items that the actuary values for the financial statements may be misleading if the financial statements do not present them fairly. The actuary's report signals to the reader of the financial statements that there is, or is not, fair presentation.

.04 In an unusual situation, fair presentation may require explanation of an item that the actuary values for the financial statements. Usually, the notes to the financial statements would provide that explanation, including, where appropriate, disclosure of the situation's effect on income and capital. In the absence of such explanation, the actuary would provide it by a reservation in reporting.

.05.04 The question, "Will explanation enhance the user's understanding of the insurer's financial position?" may help the actuary to identify such a situation. Unusual situations may include

- Capital appropriated or repatriated on the actuary's advice;
- Off-balance-sheet obligations (e.g., contingent policy liabilities in connection with market conduct);
- Restatement of items for preceding financial reporting periods;
- Inconsistency among financial reporting periods;
- The impracticality of restating any items that are reported in current period financial statements and that were reported inconsistently in preceding period financial statements;
- An unusual relationship between the items in current period financial statements and the expected corresponding items in future period financial statements;
- A change in the method of valuation that does not have an effect in the current financial reporting period but that is expected to have an effect in future financial reporting periods;
- A difference between the insurer's present practices (e.g., policy for setting dividend scales) and those which the actuary assumed in valuing the policy liabilities; and
- A subsequent event.

Consistency across financial reporting periods

.06.04 Financial statements usually present results for one or more preceding financial reporting periods in comparison to those for the current period. Meaningful comparability requires the financial statement items for the various periods to be consistent, which can be achieved by the restatement of preceding period items that were previously reported on a basis which was inconsistent with that for the current period. A less desirable alternative to restatement is disclosure of the inconsistency.

.07.04 A change in the method of valuation creates an inconsistency. A change in the assumptions for valuation reflecting a change in the expected outlook does not constitute an inconsistency although, if its effect is material, then fair presentation would require its disclosure.

.08.04 A change in assumptions that results from the application of new standards may create an inconsistency.

Communication with the auditor

.09.04 Communication with the auditor is desirable at various stages of the actuary's work. These include

- Use of work in accordance with the CIA/CICA Joint Policy Statement;
- The drafting of common features in the auditor's report and actuary's report;
- The drafting of a report with reservations;
- The presentation of the insurance contract liabilities, policy liabilities other than insurance contract liabilities, and the reinsurance recoverables; and
- The treatment of subsequent events.

Description of the actuary's role

.10.04 The actuary would report a description of his or her role in the preparation of the insurer's financial statements only if the financial statements or their accompanying management discussion and analysis do not provide that description.

.11.04 Here is an illustrative description.

"The Appointed Actuary is

appointed by the [Board of Directors] of [the Company];

responsible for ensuring that the assumptions and methods for the valuation of policy liabilities [and reinsurance recoverables] are in accordance with accepted actuarial practice in Canada, applicable legislation, and associated regulations and directives;

required to provide an opinion on the appropriateness of the policy liabilities [net of reinsurance recoverables] at the calculation date to meet all policy obligations of [the Company]. The work to form that opinion includes an examination of the sufficiency and reliability of policy data and an analysis of the ability of the assets to support the policy liabilities; and

required each year to analyze the financial condition of the company and prepare a report for the [Board of Directors]. The analysis tests the capital adequacy of the company until [31 December xxxx] under adverse economic and business conditions."

The wording of the illustrative description conforms to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities.

Standard reporting language

.12.04 Here is the standard reporting language.

Appointed Actuary's Report

To the policyholders [and shareholders] of [the ABC Insurance Company]:

I have valued the policy liabilities [and reinsurance recoverables] of [the Company] for its [consolidated] [statement of financial position] at [31 December xxxx] and their changes in the [consolidated] [statement of income] for the year then ended in accordance with accepted actuarial practice in Canada including selection of appropriate assumptions and methods.

In my opinion, the amount of policy liabilities [net of reinsurance recoverables], makes appropriate provision for all policy obligations and the [consolidated] financial statements fairly present the results of the valuation.

[Montréal, Québec] [Mary F. Roe]
[Report date] Fellow, Canadian Institute of Actuaries

.13.04 The language in square brackets is variable and other language may be adjusted to conform to interim financial statements and to the terminology and presentation in the financial statements.

.14.04 An auditor's report usually accompanies the financial statements. Uniformity of common features in the two reports will avoid confusion to readers of the financial statements. Those common features include

- Addressees: Usually, the actuary addresses the report to the policyholders of a mutual insurer and to both the policyholders and shareholders of a stock insurer.
- Years referenced: Usually, the actuary's report refers only to the current year, even though financial statements usually present results for both the current and prior years.
- Report date: If the two reports have the same date, then they would take account of the same subsequent events.

Reservations in reporting

.15.04 The examples that follow are illustrative and not exhaustive.

Self-insured organization that is not obligated to have an appointed actuary

.16.04 Here is an example of a report prepared for an underfunded self-insured organization that is not obligated to have an appointed actuary.

> I have valued the outstanding claim liabilities of [the Self-Insured Liability Plan] for its statement of financial position at [31 December xxxx] in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.
>
> As explained in Note [XX], the [Plan's] self-insured liabilities are not fully funded.
>
> In my opinion, and having regard for Note [XX], the amount of policy liabilities makes appropriate provision for all of the [Plan's] outstanding claims and the financial statements fairly present the results of the valuation.

Note [XX] would quantify and describe the actuary's assumptions with respect to the asset shortfall, describe the plan, if any, for its funding, and explain its implications for the financial security of participants and claimants.

New appointment

.17.04 A newly appointed actuary who is unable to use the predecessor actuary's work, but who has no reason to doubt its appropriateness, would modify the standard reporting language as follows:

> I have valued the policy liabilities [and reinsurance recoverables] of [the Company] for its [consolidated] statement of financial position at [31 December xxxx] and, except as noted in the following paragraph, their change in the statement of income for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.
>
> The policy liabilities [and reinsurance recoverables] at [31 December xxxx-1] were valued by another actuary who expressed a favourable opinion without reservation, as to their appropriateness.
>
> In my opinion, the amount of policy liabilities [net of reinsurance recoverables], makes appropriate provision for all policy obligations and the [consolidated] financial statements fairly present the results of the valuation. For the reason stated in the previous paragraph, I am unable to say whether or not those results are consistent with those for the preceding year.

.18.04 If the actuary doubts the appropriateness of the predecessor actuary's work as a result of a review of it, then the actuary would consider a more serious reservation.

Impracticality of restatement

.19 .04 The actuary would, if necessary, restate the preceding year valuation to be consistent with the current year valuation. If it is not practical to restate the preceding year valuation, then the actuary would modify the opinion paragraph in the standard reporting language as follows:

> In my opinion, the amount of policy liabilities [net of reinsurance recoverables] makes appropriate provision for all policy obligations. As explained in Note [XX], the method of valuation for the current year is inconsistent with that for the previous year. Except for that lack of consistency, in my opinion the [consolidated] financial statements fairly present the results of the valuation.

.24 Note [XX] would usually explain the change in the basis of valuation, explain the impracticality of applying the new basis retroactively, and disclose the effect of the change on the opening equity at the beginning of the preceding year.

Takeover of insurer with insufficient records

.20 If the insurer took over another insurer with records that did not provide sufficient and reliable data for the valuation, then the actuary would modify the standard reporting language as follows:

> I have valued the policy liabilities [and reinsurance recoverables] of [the Company] for its [consolidated] statement of financial position at [31 December xxxx] and their change in the statement of income for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods, except as described in the following paragraph.
>
> During the year, [the Company] took possession of the assets, liabilities, and policies of [WWW Insurer], whose policy records are, in my opinion, unreliable. [The Company] is implementing but has not completed the necessary improvements. My valuation with respect to the policies taken over from [WWW Insurer] therefore involves an unusual degree of uncertainty. The associated policy liabilities [net of reinsurance recoverables] comprise [N]% of [the Company's] total policy liabilities [net of reinsurance recoverables] at [31 December xxxx].
>
> In my opinion, except for the reservation in the previous paragraph, the amount of policy liabilities [net of reinsurance recoverables] makes appropriate provision for all policy obligations and the [consolidated] financial statements fairly present the results of the valuation.

Liabilities greater than those calculated by the actuary

~~.21.20 If the financial statements of an insurer report policy liabilities, net of reinsurance recoverables, that are greater than those calculated and reported by the actuary, and if the notes to those financial statements do not provide sufficient disclosure of the rationale for doing so, then the actuary would report as follows:~~

> ~~I have valued the policy liabilities [and reinsurance recoverables] of [the Company] for the statement of financial position at [31 December xxxx] and their change in the statement of income for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods, except as described in the following paragraph.~~
>
> ~~In my valuation, the amount of the policy liabilities [net of reinsurance recoverables] is $[X]. The corresponding amount in the [consolidated] financial statements is $[Y].~~
>
> ~~In my opinion, the amount of policy liabilities [net of reinsurance recoverables] of $[X] makes appropriate provision for all policy obligations and, except as described in the preceding paragraph, the [consolidated] financial statements fairly present the result of the valuation.~~

2200 Insurance Contract Valuation: Canadian Considerations~~Property and Casualty Insurance~~

2210 ~~Scope~~General

.01 ~~23B~~IFRS 17 Insurance Contracts ("IFRS 17") establishes principles for the recognition, measurement, presentation and disclosure of insurance contracts. The actuary should be familiar with IFRS 17 and apply the requirements in the valuation of insurance contracts and other obligations where such valuation is to be in accordance with IFRS 17 ~~liabilities.This section 2200 applies in accordance with subsection 2110.~~ [Effective Month XX, 20XX]

.02 The Standards of Practice provide guidance to actuaries when performing actuarial services in connection with IFRS 17. They are intended to supplement and not replace or restate the requirements of IFRS 17 ~~in the valuation of insurance contract liabilities~~.

.03 Notwithstanding the general applicability of Part 1000, paragraphs 1620.35 and 1620.36 on Discount Rate ~~and part 2000 of the Standards of Practice are both applicable~~do not apply to the valuation of~~-~~ insurance contracts and other obligations where such valuation is to be in accordance with IFRS 17~~insurance contract liabilities~~.

.04 The IFRS 17 risk adjustment for non-financial risk is not considered to be a provision for adverse deviations as defined in paragraph 1120.53~~section 1600~~.

.05 When the principal or another party sets or prescribes an assumption or methodology used by the actuary in performing actuarial services in connection with a valuation of insurance contracts in accordance with IFRS 17, it is to be treated as the actuary's use of another person's work as described in subsection 1510. To decide whether the actuary will 'take responsibility' for such work, the actuary would assess whether the assumption or methodology set or prescribed by the principal or another party is in compliance with IFRS 17.

2220 ~~Claim liabilities~~Definitions

.01 Sections 2100, 2200, 2300, and 2800 use various terms whose specific meanings are defined in the ISAP 4. These terms are highlighted in the text with a dashed underscore and in blue (e.g., Accounting Policies). For the purpose of these sections~~s~~, these terms have the meaning given in this subsection and have their ordinary meaning otherwise.

.02 Sections 2100, 2200, 2300, and 2800 also use key terms found in IFRS 17 ~~Appendix~~, in which case they have the meaning as used in IFRS 17. These terms are highlighted in the text with a double underscore and in green (e.g., insurance contract).

.03 **Accounting Policies –** As defined by the International Accounting Standards Board® (~~IASB~~the Board) in paragraph 5 of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors, "*the specific principles, bases, conventions, rules and practices applied by an [reporting] entity in preparing and presenting financial statements."

.04 **Actuarial Services –** Services based upon actuarial considerations provided to intended users that may include the rendering of advice, recommendations, findings, or opinions.

.05 **Communication –** Any statement (including oral statements) issued or made by an actuary with respect to actuarial services.

.06 **Data –** Facts often collected from records, experience, or observations. Data are usually quantitative but may be qualitative. Examples of data include membership or policyholder details, claims details, asset and investment details, operating expenses, benefit definitions, and policy terms and conditions. Assumptions are not data, but data are commonly used in the development of actuarial assumptions.

.07 **General Measurement Approach –** The basis for measuring insurance contracts set out in IFRS 17, except where IFRS 17 permits a simplification (in the case of the premium allocation approach) or is modified (in the case of the variable fee approach).

~~.06 **Contract Owner –** The party defined under the terms of insurance contract who has elected to purchase the insurance coverage from an issuer and has a right to dispose of the insurance contract.~~

~~.07~~.08 **IFRS 17 –** International Financial Reporting Standard 17 – Insurance Contracts, including any interpretations from the International Financial Reporting Interpretations Committee thereon, as issued through 16 August 2019~~[MONTH YEAR]~~.

~~.08 **Insurance Coverage –** Any portion of an insurance contract providing a coverage specific to one, or more, insured events.~~

.09 **International Financial Reporting Standards (IFRSs) –** As defined by the IASB in paragraph 7 of IAS 1 Presentation of Financial Statements, as amended in June 2011, by Presentation of Items of Other Comprehensive Income (Amendments to IAS 1): "Standards and Interpretations issued by the International Accounting Standards Board (IASB). They comprise:

a. International Financial Reporting Standards;

b. International Accounting Standards;

c. [International Financial Reporting Interpretations Committee] IFRIC® Interpretations; and

~~.10~~d. [The former Standing Interpretations Committee] SIC Interpretations."

~~.11~~.10 **Intended User –** Any legal or natural person (usually including the principal) ~~by~~ whom the actuary intends to use ~~of~~ the ~~report is intended by the actuary at the time the actuary performs~~output of the actuarial services at the time the actuary performs those services.

~~.12~~.11 **Law –** Applicable acts, statutes, regulations, or any other binding authority (such as accounting standards and any regulatory guidance that is effectively binding).

~~.13~~.12 **Measurement Date –** The date as of which the value of an asset or liability is presented, whether or not the actual calculations have been made as of a different date and rolled forward or back to the measurement date. This has the same meaning as calculation date.

.14.13 **Opinions –** An opinion expressed by an actuary and intended by that actuary to be relied upon by the intended users.

.15.14 **Principal –** The party who engages the provider of actuarial services. The principal will usually be the client or the employer of the actuary.

.15 **Variable Fee Approach –** The measurement approach that is a modification of the general measurement approach for the valuation of insurance contracts with direct participation features as set out in IFRS 17~~, according to IFRS 17, should be applied to a group of insurance contracts with direct participation features~~.

2230 Reporting

.01 The actuary's report should ~~describe~~

- conform to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities;
- ~~T~~describe the valuation and presentation of policy liabilities ~~and reinsurance recoverables~~ for the ~~insurer~~~~issuer~~insurer's statement of financial position and statement of financial performance~~income~~;
- ~~T~~describe the actuary's opinion on the appropriateness of those policy liabilities ~~and recoverables~~ and on the fairness of their presentation; and
- describe t~~T~~he actuary's role in the preparation of the ~~insurer~~~~issuer~~insurer's financial statements if that role is not described in those statements or their accompanying management discussion and analysis. [Effective ~~April 15, 2017~~Month XX, 20XX]

.02 If the actuary can report without reservation, then the actuary's report should conform to the standard reporting language, consisting of

- A scope paragraph, which describes the actuary's work; and
- An opinion paragraph, which gives the actuary's favourable opinion on the valuation and its presentation;

otherwise the actuary should modify the standard reporting language to report with reservation. [Effective ~~February 1, 2018~~Month XX, 20XX]

Disclosure of unusual situations

~~.03 The actuary's report would conform to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities and related reinsurance recoverables.~~

~~Disclosure of unusual situations~~

.03~~4~~7 The items that the actuary values for the financial statements may be misleading if the financial statements do not present them fairly. The actuary's report signals to the reader of the financial statements that there is, or is not, fair presentation.

.04 In an unusual situation, fair presentation may require explanation of an item that the actuary values for the financial statements. Usually, the notes to the financial statements would provide that explanation, including, where appropriate, disclosure of the situation's effect on income and capital. In the absence of such explanation, the actuary would provide it by a reservation in reporting.

.05 The question, "Will explanation enhance the user's understanding of the ~~insurer~~~~issuer~~insurer's financial position?" may help the actuary to identify such a situation. Unusual situations may include

- Capital appropriated or repatriated on the actuary's advice;
- Off-balance-sheet obligations (e.g., contingent policy liabilities in connection with market conduct);
- Restatement of items for preceding financial reporting periods;
- Inconsistency among financial reporting periods;
- The impracticality of restating any items that are reported in current period financial statements and that were reported inconsistently in preceding period financial statements;
- An unusual relationship between the items in current period financial statements and the expected corresponding items in future period financial statements;
- A change in the method of valuation that does not have an effect in the current financial reporting period but that is expected to have an effect in future financial reporting periods;
- A difference between the ~~insurer~~~~issuer~~insurer's present practices (e.g., policy for setting dividend scales) and those which the actuary assumed in valuing the policy liabilities; and
- A subsequent event.

Consistency across financial reporting periods

.06 Financial statements usually present results for one or more preceding financial reporting periods in comparison to those for the current period. Meaningful comparability requires the financial statement items for the various periods to be consistent, which can be achieved by the restatement of preceding period items that were previously reported on a basis which was inconsistent with that for the current period. A less desirable alternative to restatement is disclosure of the inconsistency.

.07 A change in the method of valuation creates an inconsistency. A change in the assumptions for valuation reflecting a change in the expected outlook does not constitute an inconsistency although, if its effect is material, then fair presentation would require its disclosure.

.08 A change in assumptions that results from the application of new standards may create an inconsistency.

Communication with the auditor

.09 Communication with the auditor is desirable at various stages of the actuary's work. These include

- Use of work in accordance with the ~~CIA/CICA~~ Joint Policy Statement ~~approved by the Actuarial Standards Board (Canada) and by the Auditing and Assurance Standards Board (Canada)~~;
- The drafting of common features in the auditor's report and actuary's report;
- The drafting of a report with reservations;
- The presentation of the insurance contract liabilities and~~, and~~ policy liabilities other than insurance contract liabilities~~, and the reinsurance recoverables~~; and
- The treatment of subsequent events.

Description of the actuary's role

.10 The actuary would report a description of his or her role in the preparation of the ~~insurer~~~~issuer~~insurer's financial statements only if the financial statements or their accompanying management discussion and analysis do not provide that description.

.11 Here is an illustrative description.

"The Appointed Actuary is

appointed by the [Board of Directors] of [the Company];

responsible for ensuring that the assumptions and methods for the valuation of policy liabilities ~~[and reinsurance recoverables]~~ are in accordance with accepted actuarial practice in Canada, applicable legislation, and associated regulations and directives;

required to provide an opinion on the appropriateness of the policy liabilities ~~[net of reinsurance recoverables]~~ at the calculation date ~~to meet all policy obligations of [the Company]. The work to form that opinion includes an examination of the sufficiency and reliability of policy data and an analysis of the ability of the assets to support the policy liabilities~~; and

required each year to analyze the financial condition of the company and prepare a report for the [Board of Directors]. The analysis tests the capital adequacy of the company until [31 December xxxx] under adverse economic and business conditions."

The wording of the illustrative description conforms to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities.

Standard reporting language

.12 Here is the standard reporting language.

Appointed Actuary's Report

To the policyholders [and shareholders] of [the ABC Insurance Company]:

I have valued the policy liabilities ~~[and reinsurance recoverables]~~ of [the Company] for its [consolidated] [statement of financial position] at [31 December xxxx] and their changes in the [consolidated] [statement of financial performance~~financial performance~~~~income~~] for the year then ended in accordance with accepted actuarial practice in Canada including selection of appropriate assumptions and methods.

In my opinion, the amount of policy liabilities ~~[net of reinsurance recoverables],~~ is~~makes~~ appropriate ~~provision for all policy obligations~~ and the [consolidated] financial statements fairly present the results of the valuation.

[Montréal, Québec] [Mary F. Roe]
[Report date] Fellow, Canadian Institute of Actuaries

.13 The language in square brackets is variable and other language may be adjusted to conform to interim financial statements and to the terminology and presentation in the financial statements.

.14 An auditor's report usually accompanies the financial statements. Uniformity of common features in the two reports will avoid confusion to readers of the financial statements. Those common features include

- Addressees: Usually, the actuary addresses the report to the policyholders of a mutual insurer and to both the policyholders and shareholders of a stock insurer.
- Years referenced: Usually, the actuary's report refers only to the current year, even though financial statements usually present results for both the current and prior years.
- Report date: If the two reports have the same date, then they would take account of the same subsequent events.

Reservations in reporting

.15 The examples that follow are illustrative and not exhaustive.

Self-insured organization that is not obligated to have an appointed actuary

.16 Here is an example of a report prepared for an underfunded self-insured organization that is not obligated to have an appointed actuary.

> I have valued the outstanding claim liabilities of [the Self-Insured Liability Plan] for its statement of financial position at [31 December xxxx] in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.
>
> As explained in Note [XX], the [Plan's] self-insured liabilities are not fully funded.
>
> In my opinion, and having regard for Note [XX], the amount of policy liabilities makes appropriate provision for all of the [Plan's] outstanding claims and the financial statements fairly present the results of the valuation.

Note [XX] would quantify and describe the actuary's assumptions with respect to the asset shortfall, describe the plan, if any, for its funding, and explain its implications for the financial security of participants and claimants.

New appointment

.17 A newly appointed actuary who is unable to use the predecessor actuary's work, but who has no reason to doubt its appropriateness, would modify the standard reporting language as follows:

> I have valued the policy liabilities ~~[and reinsurance recoverables]~~ of [the Company] for its [consolidated] statement of financial position at [31 December xxxx] and, except as noted in the following paragraph, their change in the statement of financial performance ~~financial performance~~~~income~~ for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.
>
> The policy liabilities ~~[and reinsurance recoverables]~~ at [31 December xxxx-1] were valued by another actuary who expressed a favourable opinion without reservation~~,~~ as to their appropriateness.
>
> In my opinion, the amount of policy liabilities is ~~[net of reinsurance recoverables],~~ ~~makes~~ appropriate~~-~~ ~~provision for all policy obligations~~ and the [consolidated] financial statements fairly present the results of the valuation. For the reason stated in the previous paragraph, I am unable to say whether or not those results are consistent with those for the preceding year.

.18 If the actuary doubts the appropriateness of the predecessor actuary's work as a result of a review of it, then the actuary would consider a more serious reservation.

Impracticality of restatement

.19 The actuary would, if necessary, restate the preceding year valuation to be consistent with the current year valuation. If it is not practical to restate the preceding year valuation, then the actuary would modify the opinion paragraph in the standard reporting language as follows:

> In my opinion, the amount of policy liabilities ~~[net of reinsurance recoverables]~~ is ~~makes~~ appropriate ~~provision for all policy obligations~~. As explained in Note [XX], the method of valuation for the current year is inconsistent with that for the previous year. Except for that lack of consistency, in my opinion the [consolidated] financial statements fairly present the results of the valuation.

~~.214~~ Note [XX] would usually explain the change in the basis of valuation, explain the impracticality of applying the new basis retroactively, and disclose the effect of the change on the opening equity at the beginning of the preceding year.

Takeover of ~~insurer~~insurer with insufficient records

.20 If the ~~insurer~~issuer~~issuer~~insurer took over another ~~insurer~~issuer~~issuer~~insurer with records that did not provide sufficient and reliable data for the valuation, then the actuary would modify the standard reporting language as follows:

> I have valued the policy liabilities ~~[and reinsurance recoverables]~~ of [the Company] for its [consolidated] statement of financial position at [31 December xxxx] and their change in the statement of financial performance~~income~~~~financial performance~~ for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods, except as described in the following paragraph.
>
> During the year, [the Company] took possession of the assets, liabilities, and policies of [WWW ~~Insurer~~~~Issuer~~Insurer], whose policy records are, in my opinion, unreliable. [The Company] is implementing but has not completed the necessary improvements. My valuation with respect to the policies taken over from [WWW ~~Insurer~~~~Issuer~~Insurer] therefore involves an unusual degree of uncertainty. The associated policy liabilities ~~[net of reinsurance recoverables]~~ comprise [N]% of [the Company's] total policy liabilities ~~[net of reinsurance recoverables]~~ at [31 December xxxx].
>
> In my opinion, except for the reservation in the previous paragraph, the amount of policy liabilities is ~~[net of reinsurance recoverables] makes~~ appropriate ~~provision for all policy obligations~~ and the [consolidated] financial statements fairly present the results of the valuation.

Liabilities greater than those calculated by the actuary

.21 If the financial statements of an ~~insurer~~issuerinsurer report policy liabilities~~, net of reinsurance recoverables,~~ that are greater than those calculated and reported by the actuary, and if the notes to those financial statements do not provide sufficient disclosure of the rationale for doing so, then the actuary would report as follows:

> I have valued the policy liabilities ~~[and reinsurance recoverables]~~ of [the Company] for the statement of financial position at [31 December xxxx] and their change in the statement of financial performance ~~income~~~~financial performance~~ for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods, except as described in the following paragraph.
>
> In my valuation, the amount of the policy liabilities ~~[net of reinsurance recoverables]~~ is $[X]. The corresponding amount in the [consolidated] financial statements is $[Y].
>
> In my opinion, the amount of policy liabilities is ~~[net of reinsurance recoverables] of $[X]~~ appropriate ~~makes appropriate provision for all policy obligations~~ and, except as described in the preceding paragraph, the [consolidated] financial statements fairly present the result of the valuation.

~~.01 The amount of the claim liabilities should be equal to the present value, at the calculation date, of cash flow on account of claims (and of related expenses and future income taxes) incurred on or before that date with provision for adverse deviations. [Effective April 15, 2017]~~

~~.16 The amount of claim liabilities consists of the following components on a present value basis:~~

- ~~The amount of the case estimates;~~
- ~~A provision (which may be positive or negative) for development on reported claims, including claim adjustment expenses;~~
- ~~A provision for incurred but unreported claims, including claim adjustment expenses; and~~
- ~~A provision for adverse deviations.~~

~~For property and casualty practitioners, this is also referred to as the actuarial present value basis.~~

~~.17 The development on reported claims compensates for the inadequacy or redundancy in case estimates.~~

~~.18~~.16 ~~The incurred but unreported claims are those not yet reported to the insurer, including those reported but not yet recorded.~~

~~.19 The development on reported claims and the incurred but unreported claims need not be calculated separately. Some valuation methods calculate only their combined amount.~~

~~.20 The selection of valuation methods depends on the circumstances affecting the work. The actuary would usually consider several methods, each of which involves assumptions.~~

.21 The actuary would consider the circumstances affecting the work in selecting assumptions. The available past claims experience may lack pertinence for assumptions about the insurer's future claims experience as a result of internal changes, such as changes in

- The insurer's underwriting practice;
- Its claims handling practice, including case estimate practice;
- Its reinsurance;
- Its data processing; and
- Its accounting;

and as a result of external changes, such as inflation and changes in

- The legal, regulatory, and legislative environment; or
- Residual mechanisms, like the Facility Association.

.22 The past and future claims experience of a pool or association in which the insurer participates tends to be beyond the insurer's control and may differ from the insurer's own claims experience.

2230 Premium liabilities

.01 The amount of the premium liabilities (after deducting any deferred policy acquisition expense asset) should be equal to the present value, at the calculation date, of cash flow on account of premium development and of the claims, expenses and future income taxes, including provision for adverse deviations, to be incurred after that date on account of the policies in force at that date or an earlier date. [Effective April 15, 2017]

.02 The amount of premium liabilities consists of the following components on a present value basis:

- The future claims and claim adjustment expenses;
- A provision for adverse deviations;
- The expected reinsurance costs (on a net basis only);
- The maintenance costs;
- All other liabilities related to premium development; and
- A premium deficiency, if any.

.03 The actuary would consider the Standards of Practice for claim liabilities in selecting assumptions about claims.

.04 Premium development includes additional premiums such as reinstatement premiums and experience adjustments for policies with retrospective pricing.

.05 Premium deficiency is the amount which, when added to the net unearned premium reserve and unearned (reinsurance) commissions, makes an appropriate provision for future costs arising from the unexpired portion of in-force policies at the calculation date.

2240 Present values

.01 The expected investment return rate for calculation of the present value of cash flows, net of reinsurance, is that to be earned on the assets, taking into account reinsurance recoverables, that support the insurance contract liabilities. The expected investment return depends on

- The assets owned at the calculation date;
- The allocation of those assets and related investment income among lines of business;
- The method of valuing assets and reporting investment income;
- The yield on assets acquired after the calculation date;
- The capital gains and losses on assets sold after the calculation date;
- Investment expenses; and
- Losses from asset depreciation.

.02 The expected investment return rate for calculation of the present value of ceded cash flow may be selected from the following or a combination thereof:

- The investment return rate selected for net present value net of reinsurance (i.e., as described in paragraph 2240.01);
- A risk-free rate; and
- The investment return rate used by the assuming company.

.03 The actuary need not verify the existence and ownership of the assets at the calculation date, but would consider their quality.

2250 Margin for adverse deviations – general

.01 The criteria for selection of the margin for adverse deviations for an assumption are based upon the considerations for that assumption. The selected margin for adverse deviations used in the valuation of insurance contract liabilities should tend toward a higher margin for adverse deviations to the extent that the considerations for that assumption, viewed in the aggregate but considering their individual relative importance,

- Have been unstable during the period covered by the experience data on which the selection of the corresponding expected assumption is based and the effect of that instability cannot be quantified; or
- Otherwise undermine confidence in the selection of the corresponding expected assumption;

and should tend toward a lower margin for adverse deviations to the extent that the opposite is the case. [Effective April 15, 2017]

.02 The selected margin for adverse deviations should vary

- Between premium liabilities and claim liabilities;
- Among lines of business; and
- Among accident years, policy years, or underwriting years, as the case may be,

according to how the considerations of paragraphs 2250.08 and 2250.09 so vary. [Effective April 15, 2017]

Assumptions subject to a margin for adverse deviations

.03 The actuary would include a margin for adverse deviations in the assumptions for

- Claims development;
- Recovery from reinsurance ceded; and
- Investment return rates.

Expression of a margin for adverse deviations

.04 The margin for adverse deviations for claims development would be a percentage of the claim liabilities excluding provision for adverse deviations.

.05 The margin for adverse deviations for recovery from reinsurance ceded would be a percentage of the amount deducted on account of reinsurance ceded in calculating the premium liabilities or claim liabilities, as the case may be, excluding provision for adverse deviations.

.06 The margin for adverse deviations for investment return rate would be a deduction from the expected investment return rate per year.

.07 The actuary would not usually include a margin for adverse deviations in the other assumptions. An example of an unusual circumstance that warrants an exception is a salvage and subrogation assumption when presented as an asset separate from the claim liabilities.

Considerations

.08 The actuary would select and evaluate considerations for each assumption that are appropriate to the circumstances of the insurer, including

- Insurer practices, for example, the guidelines for setting and reviewing case estimates;
- Data, for example, the stability of claims frequency and average claim cost;
- Reinsurance, for example, the history of claim and coverage disputes with reinsurers;
- Investments, for example, the matching of assets and liabilities and risk of asset depreciation; and
- The external environment, for example, the effect of regulatory change on claim settlements.

.09 A consideration for an assumption reduces confidence in that assumption as a result of past or future instability of the consideration or a shortcoming in its quality, quantity, or performance. Significant considerations indicating difficulties in properly estimating the best estimate assumption would include, but would not be limited to

- Instability in the guidelines for setting and reviewing case estimates possibly resulting in inconsistent development among accident years;
- The credibility of the company's experience being too low to be the primary source of data;
- Future experience being difficult to estimate;
- Lack of homogeneity in the cohort of risks;
- Operational risks adversely affecting the likelihood of obtaining the best estimate assumption;
- Past experience not being representative of the future experience and the experience possibly deteriorating; or
- The derivation of the best estimate assumption being unrefined.

2260 Margin for adverse deviations – deterministic analysis

.01 The actuary should select a margin for adverse deviations for an assumption that is at least as much as the amount defined by the low margin for adverse deviations and is not excessive. [Effective April 15, 2017]

.02 The range of margin for adverse deviations would be

	High	Low
claims development	20%	2.5%
recovery from reinsurance ceded	15%	0
investment return rates	200 basis points	25 basis points

.03 Usually, a selection above this high margin for adverse deviations would be considered excessive.

.04 A selection above this high margin for adverse deviations would be appropriate, however, for unusually high uncertainty or when the resulting provision for adverse deviations is unreasonably low because the margin for adverse deviations is expressed as a percentage and the best estimate is unusually low.

.05 A selection below the low margin for adverse deviations may be appropriate in unusual situations. For example, in a situation wherein the best estimate discount rate based on the insurer's asset portfolio is less than 0.25% per annum, a margin for adverse deviations for investment return rates below that specified in paragraph 2260.02 may be reasonable. Similarly, unique situations may support a claims development margin for adverse deviations below that specified in paragraph 2260.02, as in the case of an insurer with aggregate stop loss coverage that is reserved at the stop loss limit.

2270 Margin for adverse deviations – stochastic analysis

.01 The margin for adverse deviations selected based on stochastic techniques should not be less than the low margin for adverse deviations set out in paragraph 2260.02 and should not be excessive. [Effective April 15, 2017]

.02 It is expected that margins for adverse deviations obtained using stochastic techniques would generally be consistent with the range provided in paragraph 2260.02.

.03 ~~In addition to the circumstances described in paragraph 2260.04, a selection above the high margin for adverse deviations set out in paragraph 2260.02 may be appropriate when stochastic modelling indicates variability in estimates of insurance contract liabilities that may not be identified using deterministic analysis.~~

~~.04 A selection below the low margin for adverse deviations may be appropriate as set out in paragraph 2260.05.~~

2300 Insurance Contract Valuation:
~~Life and Health (Accident and Sickness) Insurance~~International Actuarial Standards of Practice

2310 ~~Scope~~General

Purpose

.01 ~~This s~~Section 2300 ~~applies in accordance with subsection 2110.~~provides guidance to actuaries when performing actuarial services in connection with IFRS 17. Its purpose is to increase intended users confidence that

- Actuarial services are carried out professionally and with due care;
- The results are relevant to their needs, are presented clearly and understandably, and are complete; and
- The assumptions and methodology (including, but not limited to, models and modelling techniques) used are disclosed appropriately.

Relationship to IFRS

.02 Section 2300 refers to the content of IFRS 17 and other IFRSs, including any interpretations from the International Financial Reporting Interpretations Committee (IFRIC) or its predecessor, the Standing Interpretations Committee~~ thereon (IFRIC)~~, as issued through ~~MONTH 20XX [date of final consultation on ISAP]~~16 August 2019. ~~Compliance with IFRS 17 is a prerequisite to compliance with~~The guidance in this ~~s~~section 2300 complements the guidance in ~~. Repetition of~~ IFRS 17, which is not repeated in this ~~has been deliberately restricted and s~~section 2300 ~~has been constructed as complementary guidance to IFRS 17 guidance~~.

~~Effective date~~

~~Section 2300 is effective for {actuarial services performed/actuarial services commenced/actuarial services performed with respect to an IFRS financial statement for a reporting period ending}1F[4] on or after [Date].~~

[4] ~~[Phrase to be selected and date to be inserted by standard-setter adopting or endorsing this ISAP.]~~

2320 ~~Method~~Appropriate Practices

Relevant knowledge requirements

.01 The actuary ~~should~~ would have or obtain sufficient knowledge and understanding of information necessary to perform the assignment, such as:~~calculate insurance contract liabilities net of reinsurance recoverables by the Canadian asset liability method~~

- IFRS 17, applicable sections of other relevant IFRSs (e.g., IFRS 13 when measuring Fair Value),~~,~~ the entity's accounting policies and the relevant processes that are applied in the preparation of IFRS financial statements;
- The business environment in which the entity operates, including the financial market(s) from which it obtains data;
- The entity's appetite for risks that have an impact on the measurement under **IFRS 17**;
- The entity's products and operations;
- The methodologies and assumptions used by the entity in other relevant contexts and the rationale for any differences;
- How laws affect the application of~~h~~ IFRS 17; and
- The relevant auditing standards. ~~[Effective April 15, 2017]~~

Materiality

~~.01~~.02 The actuary would understand the distinction between materiality with respect to the actuarial services, the preparation of IFRS financial statements and the auditing of those financial statements.

- When appropriate for the work, the actuary would seek guidance from the principal or the entity regarding materiality.
- In applying ~~S~~subsection 1240, with respect to the preparation of IFRS financial statements, the actuary's threshold of materiality with respect to the actuarial services would not be greater than the entity's threshold of materiality.
- In all following paragraphs of ~~S~~section 2300, any use of 'material' or 'materiality' is with respect to the actuarial services carried out in accordance with this ~~S~~section.

Proportionality

~~.02~~.03 The degree of refinement in specific assumptions or methods recommended by the actuary would be proportionate to their possible impact on the results of the actuarial services.

Identification, combination, aggregation, separation, recognition, derecognition and modification

.02.04 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 calculation date that are forecast to reduce to zero coincident with the last liability cash flow in that scenario~~ actuary ~~should~~would treat the processes of

- Identification of insurance contracts;
- Combination of insurance contracts;
- Determination of the level of aggregation (refer to 2320.17);
- Separation of components from an insurance contract for treatment under a different standard;
- Separation of components of an insurance contract for different treatment under IFRS 17 (if and to the extent permitted);
- Recognition of groups of insurance contracts and derecognition of insurance contracts; and
- Treatment of insurance contract modifications

as work subject to paragraph 2210.05~~P~~.

The actuary would disclose in the actuary's report changes in the above processes, including the rationale for, and impact of the changes. ~~[Effective April 15, 2017]~~

Measurement approach

The actuary ~~should~~would treat the processes of selecting the appropriate measurement approach~~-~~ to be applied to each group of insurance contracts, whether it is the general measurement approach, the premium allocation approach (PAA), or the variable fee approach, as work subject to paragraph 2210.05~~Pterm of the liabilities should take account of any renewal, or any adjustment equivalent to renewal, after the calculation date ifThe insurer's discretion at that renewal or adjustment is contractually constrained; and~~

.05 ~~Insurance contract liabilities are larger as a result of taking account of that renewal or adjustment~~.

The actuary would disclose in the actuary's report changes in the above processes, including the rationale for, and impact of the changes. ~~[Effective April 15, 2017]~~

The General Measurement Approach

~~.03~~.06 **General approach for selection of assumptions ~~–~~** In applying Part 1000, ~~W~~when advising the principal or the entity on actuarial assumptions~~In forecasting the cash flow expected to be generated by an insurance contract~~, the actuary ~~sh~~would consider matters such as:

- ~~For the purpose of setting assumptions, consider~~Consider ~~disaggregating contracts into separate coverages and~~Combining similar risks based on the nature of the insurance obligation, without being constrained by the actual grouping of insurance contracts that is used for measurement purposes~~Take account of policy owner reasonable expectations~~;
- Whether assumptions developed in other contexts, for example ~~Be aware that current~~ pricing assumptions, may ~~not~~ be inappropriate for IFRS 17 purposes;
- ~~Make l~~Links as necessary to ensure consistency between assumptions, (e.g., assumptions related to option exercise patterns would be linked to the economic scenarios);
- ~~Consider t~~The potential asymmetrical distribution of the current estimates (e.g., assumptions to deal with extreme events like tail events or options and guarantees that ~~-~~are triggered by market conditions);
- ~~Consider the use of~~The credibility ~~techniques~~of data when combining information from various sources or time periods; and
- Long term trends and seasonal variations, and other changes in the environment (e.g., applicable law, economic, demographic, technological and social)~~Consider anti-selection ; and its effect over time~~.
- ~~Consider the entity's cost accounting and expense allocation policies when assessing the assumption for expense rates~~Include policy dividends, other than the related transfers to the shareholders' account and other than ownership dividends, in the comprised cash flow from benefits. ~~[Effective April 15, 2017]~~

Process for updating assumptions ~~–~~ ~~.05 Generally, T~~the actuary ~~should apply a consistent process to develop recommended assumptions~~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.~~

.07 If the actuary considers it appropriate to change the process, including the methodology, used to update a recommended assumption, the actuary would discuss the change with the principal, including whether it would constitute a change in accounting policy or just a change in an accounting estimate as defined in the International Accounting Standard 8 (IAS 8) *Accounting Policies, Changes in Accounting Estimates and Errors*.

The actuary would disclose in the actuary's report changes in ~~the above~~such processes, including the rationale for, ~~the changes~~ and ~~their~~ impact of the changes.~~[Effective April 15, 2017]~~

Specific considerations for insurance risks

.08 **Insurance risks –** When advising the principal or the entity on ~~the selection of~~~~The~~ assumptions to measure insurance risks, the actuary would consider relevant factors including the following:~~s uch as~~~~for a particular scenario consist of~~

- Characteristics of the insurance contract including the risks being insured;
- Characteristics of the policyholder~~,~~ and the way the contract was sold;
- Past experience of incurred claims including patterns of delays ~~of~~in reporting and payment and the~~its~~ relevance to expected future experience; and
- ~~Adjustment to past experience of incurred claims, including claim inflation;~~
- ~~Allowance for extreme events;~~
- ~~Internal p~~Practices of the entity such as underwriting procedures and claims management~~; and~~
- ~~External factors, such as secular trends and seasonal variations, and changes in the legal, economic, legislative, regulatory, supervisory, demographic, technological, and social environments~~. ~~[Effective April 15, 2017]~~

.09 **Policyholder Options –** When advising the principal or the entity on assumptions for the exercise of options by policyholders, the actuary would consider factors such as the following:

- Past experience of how policyholders have exercised options;
- Likely behaviour of policyholders, taking into account factors such as anti-selection, the effects of non-financial considerations, and the relative advantages to the policyholder of exercising any options;
- Characteristics of how the insurance contracts are sold and serviced;
- Significant scheduled changes in premiums, charges, benefits or terms and conditions; and
- Any short-term spikes in cancellation rates created by the exercise of certain options.

.10 **Entity Discretion –** When advising the principal or the entity on assumptions which consider the exercise of discretion by the entity, the actuary would take into account expectations, or limitations that may arise from sources, such as

- The entity's marketing and promotional materials;
- The entity's past practices;
- The entity's current policy;
- Market practices; and
- Laws and rulings of relevant authorities.

.11 **Reinsurance Contracts Held –** When advising the principal or the entity on the measurement of reinsurance contracts held, the actuary would

- When estimating amounts recoverable under multiple reinsurance arrangements, consider the order in which the reinsurance contracts apply;
- When estimating non-recoverable amounts, consider the financial condition of the reinsurer, the existence of collateral and the extent to which default by one reinsurer may affect the amounts recoverable from other reinsurers; and in the estimates of future cash flows to be received from reinsurance contracts, allow for the uncertainty caused by the potential of non-performance by reinsurers;
- When estimating fulfilment cash flows, consider the extent to which each reinsurance counterparty exercises its control over recapture, cancellation or commutation to its advantage; and
- Consider the impact of reinstatement of reinsurance contracts following claims.

.12 **Reinsurance Contracts Issued –** When advising the principal or the entity on the measurement of reinsurance contracts issued, the actuary would consider circumstances such as:

- The expected behaviour with respect to the available options of the policyholders, the issuer of the underlying insurance contracts and all intermediate reinsurers;
- The underwriting and management practices, including the underwriting of facultative placements, and the claim management processes impacting the reinsurance contracts issued;
- Reinstatements of reinsurance contracts following claims; and
- Default by the issuer of the underlying insurance contracts and all intermediate reinsurers.

.13 **Currency exchange** - When advising the principal or the entity on the estimation of fulfilment cash flows in multiple currencies, the actuary would reflect current market expectations of future currency exchange rates.

.14 **Discount rates –** When advising the principal or the entity on the derivation of

- Discount rates for periods beyond those for which observable data from an active market is available, the actuary would consider how current rates are expected to evolve over time using the best information available in the circumstances, including such market prices as are observable; and
- Discount rates for cash flows of insurance contracts that vary with returns of the entity's invested assets, the actuary would consider the entity's investment policy, as applied in practice, taking into account the entity's communications to various stakeholders and, where applicable, anticipated policyholder behaviour;

- Illiquidity and credit or default adjustments for determining the discount rates, the actuary would consider
  - Approaches that are robust and that would be able to be applied reliably over time and under a variety of market conditions, to reflect the illiquidity of the cash flows underlying the relevant liabilities; and
  - The possible methods for calculating such adjustments to observed market rates. Methods include market-based techniques, structural model techniques and expected/unexpected credit loss techniques.

.15 **Contracts with cash flows that vary with returns on underlying items –** When advising the principal or the entity on contracts whose cash flows vary with returns on underlying items, the actuary would

- Select discount rates used to calculate the present value of the cash flows to measure the fulfilment cash flows that are consistent with the investment returns anticipated in the estimates of the future cash flows. Returns on assets would be estimated using prospective expectations consistent with current market expectations of future economic conditions; and
- For cash flows which are subject to a floor or a cap, consider the associated impact, if any, on the estimates of future cash flows, the risk adjustment for non-financial risk and the discount rates in the projection.

.16 **Maintenance expenses –** When advising the principal or the entity on the estimation of cash flows for maintenance expenses, such as policy administration and claim handling costs, and attributable overheads, the actuary would consider factors such as:

- The entity's cost-accounting and expense allocation policies;
- Expenses expected to arise from fulfilling insurance obligations existing on the measurement date. This estimate would consider factors such as the entity's past experience and current business plans, and the impact of future inflation; and
- Terms of any outsourcing arrangements.

.17 **Insurance acquisition cash flows –** The actuary would be satisfied that the allocation of insurance acquisition cash flows to each portfolio of insurance contracts is made on a consistent basis.

.18 **Risk adjustment for non-financial risk –** When advising the principal or the entity on the risk adjustment for non-financial risk, the actuary would

- Understand the non-financial risk inherent in the insurance contracts;
- In assessing what the entity requires as compensation for bearing the non-financial risk:
  - Reflect the diversification benefit that the entity recognizes at the relevant level of consolidation; and
  - Consider sources of relevant information such as the entity's capital management, risk management and pricing policies;
- Select a methodology that, at the chosen level of aggregation
  - Uses assumptions that are consistent with those used in the determination of the corresponding estimates of future cash flows;
  - Reflects the risk differences between the portfolios of insurance contracts; and
  - Allows for the diversification that the entity recognizes.
- Make appropriate allowance for mechanisms that result in risk being passed to the policyholder (e.g., contracts with participation or adjustment features);
- Consider whether the difference between the total of the calculated gross risk adjustments for non-financial risk and the total of the ceded risk adjustment for non-financial risk fairly reflects the compensation that the entity requires for bearing the uncertainty of its net exposure; and
- When advising on the confidence level disclosure required by IFRS 17, where the risk adjustment for non-financial risk has not been determined using a specified confidence level approach, consider
  - The ability to diversify non-financial risk over the entity's consolidated business; and
  - The inherent uncertainty in the translation to a confidence level and the need to describe such uncertainty in the actuary's report.

.19 **Aggregation and Contractual Service Margin (CSM) –** The actuary would treat the processes of

- Identification of portfolios of insurance contracts;
- Allocation of individual insurance contracts into portfolios of insurance contracts, and division of each portfolio of insurance contracts into groups of insurance contracts;
- Treatment of the loss component on onerous contracts;
- Determination of the coverage units; and
- Roll forward of the contractual service margin

as work subject to paragraph 2210.05.

The actuary would disclose in the actuary's report changes in the above process, including the rationale for, and impact of the changes.

The Premium Allocation Approach (PAA)

.20 When advising the principal or the entity in relation to the use of the PAA for a group of insurance contracts, the actuary would

- At initial recognition, if the coverage period is longer than one year, consider:
  - Differences between the expected patterns of insurance revenue under the general measurement approach and under the PAA;
  - Differences between the expected timing of cash flows under the general measurement approach and the insurance revenue under the PAA, resulting in different adjustments for the time value of money; and
  - Whether future assumption changes under the general measurement approach would render the simplification invalid

  when assessing whether material differences between the respective carrying amounts of the liabilities for remaining coverage under the PAA and the general measurement approach are reasonably expected to arise;
- Assess whether insurance contracts in the group have a significant financing component, advise the principal or the entity accordingly, and measure the liability accordingly;
- Be aware of whether the entity has chosen, in accordance with IFRS 17, to recognize insurance acquisition cash flows as expenses when it incurs those costs and determine the liability in accordance with the entity's choice;
- Be aware of whether the entity has chosen to reflect the time value of money and the effect of financial risk, when not required to do so, and determine the liability in accordance with the entity's choice; and
- Consider whether facts and circumstances indicate that the group of insurance contracts is or has become onerous and advise the principal or the entity accordingly.

The Variable Fee Approach

.21 In using the variable fee approach, the actuary would apply the guidance for the general measurement approach except for 2320.09 (Reinsurance Contracts Held) and 2320.10 (Reinsurance Contracts Issued), as the variable fee approach does not apply to reinsurance.

Financial statement presentation and disclosure

.22 Where the information provided by the actuary will be used in financial statement presentation and disclosure,

- The actuary would provide the related information needed to comply with the relevant presentation and disclosure requirements of IFRS 17 and the entity's accounting policies; and
- If the actuary becomes aware that such information is used in the presentations and/or disclosures incorrectly or inappropriately, the actuary would discuss and report these issues to the principal.

.23 In providing advice on the disclosures of reconciliations where the order of calculation alters the information disclosed, the actuary would apply a consistent order of calculation across all reconciliations and from period to period, or disclose any change, including the rationale for and impact of the change, in the actuary's report.

Transition

.24 When advising the principal or entity on whether the full retrospective application of IFRS 17 at transition is impracticable, the actuary would take into consideration factors such as:

- The availability and integrity of the past data that are required to determine the fulfilment cash flows;
- The availability and integrity of information on past products;
- The availability, without the benefit of hindsight, of sufficient data to determine the initial assumptions and subsequent changes that the entity would have adopted over the lifetime of the insurance contracts;
- The method that would have been used to adjust past known interest rates to achieve the rates that reflect the characteristics of the insurance contracts; and
- The difficulty, without the benefit of hindsight in evaluating the past risk adjustment for non-financial risk and entity's use of discretion.

Specific considerations for options

.07 When advising the principal or the entity deriving onthe assumptions for expected option exercise patterns, the actuary would consider relevant factors and changes therein including the following:

- Sophistication of the policyholder, as well as the relative advantages, to the policyholder, of exercising any options;
- Characteristics of how the insurance contracts are sold and serviced;
- Significant scheduled changes in benefits;
- Any short-term spikes in cancellation rates created by the exercise of certain options; and
- External factors such as the market conditions, legal, economic, legislative, regulatory, supervisory, demographic, technological, and social environments. [Effective April 15, 2017]

Specific consideration for maintenance expenses

.08 When advising the principal or the entity on the projection of cash flows for maintenance expenses, the actuary would consider relevant factors including the following:

- The entity's cost accounting and expense allocation policies;
- Expenses expected to arise infrom fulfilling obligations existing on the measurement date. This estimate would consider the entity's past expenses and the likelihood of the realization of business planA base scenario, as defined under paragraph 2330.14;
- Each of the prescribed scenarios in a deterministic application;
- Stochastic scenarios, as defined in subsection 2370, in a stochastic application; and
- Any outsourcing arrangementsOther scenarios appropriate for the circumstances of the insurer. [Effective April 15, 2017]

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, and would not be expected to preclude the 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.

Supporting assets

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

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

.13 The value of the assets and forecasted cash flow would take account of the insurer's hedging instruments existing at the calculation 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 tax law.

Term of the liabilities

.15 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.

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

.17 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 unilateral 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.

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

.19 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.

.20 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.

.21 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 calculation date at which there is no constraint; and
- The renewal or adjustment date after the calculation date that maximizes the insurance contract liabilities.

.22 The actuary would extend or amend such term as defined in paragraphs 2320.20 and 2320.21 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

For the purpose of the valuation of liabilities related to segregated fund guarantees, as set out in subsection 2360.

.23 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 calculation date, and where not fully recoverable at the calculation date, is written down to the recoverable amount, with the expected amount of write-down in each future period proportionately reduced.

.24 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.

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

- The calculation 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 calculation 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 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

.26 The insurer's policies contractually define 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.

.27 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.

.28 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 on its behalf.

.29 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.

.30 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.

.31 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.

.32 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

.33 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.

.34 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 participating 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 be reduced for that excess provision for adverse deviations.

.35 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 trigger a change in it.

.36 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.

.37 An assumption of cash dividends to all policy owners is appropriate only if the alternative options to cash have equivalent value. If the alternatives do not have equivalent value, 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

.38 In calculating insurance contract liabilities, the actuary would allocate assets to the liabilities at the calculation 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.

.39 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

.40 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").

.41 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 financial reporting period after the calculation 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 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.

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

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

.44 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 calculation date, and of alternative taxes incurred after the calculation date.

.45 The actuary would make appropriate provision for cash flow on account of such taxes in the insurance contract liabilities. If the insurer's statement of financial position 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 a future tax asset and downward to reflect the existence of a future tax liability.

.46 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

.47 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.

.48 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

.49 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. In the case of interest rate scenarios, the insurance contract liabilities would not be less than those in the prescribed scenario with the largest insurance contract liabilities.

.50 If the selection of scenarios is stochastic, then the actuary would establish insurance contract liabilities that are within the range defined by

- The average of the insurance contract liabilities that are above the 60th percentile of the range of insurance contract liabilities for the selected scenarios; and
- The corresponding average for the 80th percentile.

Scenario-tested assumptions

.51 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~~

~~.52 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.~~

~~.53 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~~

~~.40 The margin for adverse deviations would be at least the average of the applicable high and low margin, as specified in subsections 2340 and 2350, 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~~Communication

~~General considerations~~Disclosures

.01 In addition to complying with ~~subs~~Section ~~1640 and section~~ 1700, the actuary would disclose in the actuary's report

- Information regarding a change in assumptions or method, whether arising from a consistent or changed process;
- Changes in processes, together with the rationale for and impact of the changes, related to

~~The rationale and impact of any changes in approaches, including:~~

- The identification, combination, aggregation, ~~of insurance contracts, the~~ separation, recognition, derecognition ~~of components, the recognition, derecognition~~ and modification ~~of insurance contracts~~ (2320.02);
- The ~~determination~~selection of the measurement approach (2320.03);
- The process for updating assumptions (2320.05);
- ~~The identification of portfolios of insurance contracts, the allocation into groups of insurance contracts, the treatment of loss component and the approach to the determination of coverage units~~Aggregation and contractual service margin (2320.17); and
- The order of calculation on reconciliation provided for financial statement presentation ~~items~~and disclosure (2320.21);~~.~~ and

~~When~~ the risk adjustment for non-financial risks ~~is~~has not been determined using a ~~technique other than a specified~~ confidence level approach, the uncertainty inherent in the translation to a confidence level~~; and~~ (2320.16)

- ~~Any concerns about the presentation of any items or of any disclosures.~~

~~.01 An interest rate scenario comprises, for each forecast period between the calculation 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~~.01 ~~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, depreciation 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 consistent 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).~~

.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.

.08 In all scenarios other than the base scenario, credit spreads include margins for adverse deviations as described in paragraph 2340.14. 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 calculation date, such that

- For assets purchased or sold on or after the 30th anniversary from the calculation date, the difference between the asset's credit spread and its asset depreciation assumption, the net credit spread 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 calculation date, the net credit spread is not larger than that determined using a uniform transition between the corresponding difference if the asset were purchased on the 5th anniversary from the calculation date and the promulgated maximum if the asset were purchased on the 30th anniversary from the calculation date.

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

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

.11 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.

.12 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.

.13 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

.14 In the base scenario,

- Risk-free interest rates effective after the calculation 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 calculation date;
- At and after the 60th anniversary from the calculation date, risk-free interest rates would be equal to the ultimate risk-free reinvestment rate-median;
- At the 40th anniversary from the calculation 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 2340.12.

.15 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

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

.17 The prescribed scenarios apply to fixed-income assets purchased or sold after the calculation date.

.18 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 2330.19.

.19 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 repayable soon by subsequent positive forecasted net cash flow.

Prescribed scenario 1

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

- At the calculation date are those available in the market;
- At the 40th anniversary from the calculation date and beyond, the risk-free interest rates are equal to ultimate risk-free reinvestment rate-low;
- At the 1st anniversary from the calculation date, the risk-free interest rates are equal to 90% of the risk-free interest rates at the calculation date;
- At the 20th anniversary of the calculation date, the risk-free interest rates are equal to 10% of the risk-free interest rates at the calculation date plus 90% of ultimate risk-free reinvestment rate-low; and

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

Prescribed scenario 2

.21 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

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

~~.23 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 calculation date to 75% of (80% of the risk-free interest rates at the calculation 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 calculation 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.~~

~~.24 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 calculation date to 50% of (80% of the risk-free interest rates at the calculation 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 calculation 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.~~

~~.25 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

.26 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 calculation date to 125% of (80% of the risk-free interest rates at the calculation 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 calculation 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.

.27 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 calculation date to 150% of (80% of the risk-free interest rates at the calculation 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 calculation 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

.28 This scenario is the same as prescribed scenario 3, except that the short-term risk-free interest rate at an anniversary of the calculation 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 calculation 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

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

.30 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 calculation 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

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

- At the calculation date are those available in the market;
- At the 60th anniversary from the calculation date and beyond, are equal to 80% of the ultimate risk-free reinvestment rate-median;
- At the 1st anniversary from the calculation date, are equal to 80% of the risk-free interest rates at the calculation date;
- At the 20th anniversary from the calculation date, are equal to 80% of (30% of the risk-free interest rates at the calculation date plus 70% of ultimate risk-free reinvestment rate-median);
- At the 40th anniversary from the calculation date, are equal to 80% of (10% of the risk-free interest rates at the calculation date plus 90% of ultimate risk-free reinvestment rate-median); and
- Between each of the calculation date and the 1st, 20th, 40th, and 60th anniversaries, are determined using a uniform transition.

Prescribed scenario 8

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

Other scenarios

.33 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 affecting the work. 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.

~~.34 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 policy allows a wide range of practice; or~~
- ~~Flexibility to manage assets or liabilities is limited.~~

~~2340 Other assumptions: Economic~~

~~Margin for adverse deviations~~

~~.01 To set the level of the margin for adverse deviations as specified in paragraph 2320.54, 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-pass-through 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 pass-through structure that repackages credit risks;~~
- ~~There is uncertainty about the counterparty credit; or~~
- ~~There is no netting of the aggregate exposure with a counterparty.~~

~~.02 Significant considerations indicative of a potential deterioration of the best estimate assumption would include situations where operational risks are present such that the likelihood of continuing to obtain the best estimate assumption is adversely impacted.~~

~~Fixed income assets: investment return~~

~~.03 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

.04 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 investment, to the extent that it is indicative of the future, and 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.

.05 Asset depreciation comprises that of both assets that are impaired at the calculation date and assets that become impaired after the calculation date, and includes loss of interest, loss of principal, and expense of managing depreciation.

.06 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.

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

.08 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.

Fixed income assets: exercise of borrower and issuer options

.09 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.

.10 The assumed exercise of an option may depend on the interest rates in the scenario. Anti-selection by commercial borrowers and issuers would usually occur systematically.

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

Fixed income assets: credit spreads

.12 The best estimate of credit spreads

- Would be the credit spreads observable in the market at the calculation date;
- At and after the 5th anniversary from the calculation date, would be based on long-term historical average credit spreads corresponding to assets by type, credit rating, and term; and
- Between the calculation date and the 5th anniversary, would be determined using a uniform transition.

.13 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.

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

- Zero at the calculation date;
- An addition or subtraction, as appropriate in aggregate, of 10% of the best estimate assumptions at and after the 5th anniversary from the calculation date; and
- Between the calculation 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

.15 Where reliable historical data are available, the actuary would choose the best estimate of investment return on a non-fixed income asset (such as common shares, real estate and other non-fixed income portfolios) such that it would not be more favourable than a benchmark based on historical performance of assets of its class and characteristics.

~~.16 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.~~

~~.17 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 2340.16, 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.~~

~~.18 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.~~

~~.19 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.~~

.20 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, if needed, so that the amount of non-fixed income assets supporting such liability cash flows at the calculation 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. The actuary would not consider this additional provision when selecting the scenario used to establish the insurance contract liabilities. This modification of the assumed investment strategy would be applied at each duration independently.

Taxation

.21 The best estimate would be for continuation of the tax regime at the calculation 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

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

.23 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.

.24 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.

.25 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 5% margin to the projected exchange rates underlying the base scenario over the insurance contract liabilities calculated using the base scenario.

2350 Other assumptions: non-economic

Margin for adverse deviations

.01 The actuary would select a margin for adverse deviations between a low margin and a high margin

- Specified for each best estimate assumption discussed below; and
- Of 5% and 20% (or –5% and –20%), respectively, of each other best estimate assumption.

.02 If a margin for adverse deviations cannot be defined as a percentage of the best estimate assumption, then the related provision for adverse deviations would be taken as the increase in insurance contract liabilities that results from substitution of a conservative assumption for the best estimate assumption.

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

- The credibility of the company's experience is too low to be the primary source of data;
- Future experience is difficult to estimate;
- The cohort of risks lacks homogeneity;
- Operational risks adversely impact the likelihood of obtaining best estimate assumption; or
- The derivation of the best estimate assumption is unrefined.

.04 Significant considerations indicative of a potential deterioration of the best estimate assumption would include

- A significant concentration of risks and/or lack of diversification;
- Operational risks that adversely affect the likelihood of continuing experience which is consistent with the best estimate assumption; or
- Past experience that may not be representative of future experience and the experience may deteriorate.

Other significant considerations may exist, but are tied to specific assumptions. Where applicable, they are described below.

.05 A selection above the high margin would be appropriate, however, for unusually high uncertainty or if the resulting provision for adverse deviations is unreasonably low because the margin is expressed as a percentage and the best estimate is unusually low.

Insured life mortality

.06 The actuary's best estimate of insured life mortality would depend on

- The life insured's age, sex, smoking habit, health, and lifestyle;
- Duration since issue of the policy;
- Plan of insurance and its benefits provided;
- The insurer's underwriting practice (that of its reinsurer for facultative reinsurance), including, if applicable to the policy, the absence of underwriting or less stringent underwriting for a group of simultaneously sold policies;
- The size of the policy; and
- The insurer's distribution system and other marketing practice;

and would include the effect of any anti-selection.

.07 The actuary would consider the inclusion of mortality improvement (a secular trend toward lower mortality rates) in the best estimate assumption and associated margin. The margin for adverse deviations related to the mortality improvement assumption is not restricted to the range of 5% to 20% noted in paragraph 2350.01.

.08 If the inclusion of mortality improvement reduces the insurance contract liabilities, then the resulting reduction would be no greater than that developed using prescribed mortality improvement rates as promulgated from time to time by the Actuarial Standards Board. If, at an appropriate level of aggregation, the inclusion of mortality improvement increases the insurance contract liabilities, then the actuary's assumption would include such improvement. The resulting increase in insurance contract liabilities would be at least as great as that developed using prescribed mortality improvement rates as promulgated from time to time by the Actuarial Standards Board.

.09 The low and high margins for adverse deviations for the mortality rates per 1,000 would be respectively an addition or subtraction, as appropriate, of 3.75 and 15, each divided by the curtate expectation of life at the life insured's projected attained age. These margins for adverse deviations are applied after mortality improvement.

Annuitant mortality

.10 The actuary's best estimate assumption of annuitant mortality would depend on

- The annuitant's age, sex, smoking habit, health, and lifestyle;
- Size of premium;
- Plan of annuity and its benefits provided; and
- Whether registered or not, whether structured settlement, and whether group or individual contract;

and would include the effect of any anti-selection resulting from the annuitant's option to select the timing, form, or amount of annuity payment, or to commute annuity payments.

.11 The insurance underwriting in a "back-to-back" insurance/annuity package may unfavourably affect the best estimate.

.12 The mortality improvement assumption would include a best estimate assumption and an associated margin. The margin for adverse deviations related to the mortality improvement assumption is not restricted to the range of 5% to 20% noted in paragraph 2350.01. The actuary's assumption would include mortality improvement, the effect of which is to increase insurance contract liabilities, such that the resulting increase would be at least as great as that developed using prescribed mortality improvement rates as promulgated from time to time by the Actuarial Standards Board.

.13 The low and high margins for adverse deviations for the mortality rates would be respectively a subtraction of 2% and 8% of the best estimate.

.14 An additional significant consideration for the determination of the level of margin for adverse deviations would be the possibility of commuting survival dependent benefits after periodic payments have started.

Morbidity

.15 The actuary's best estimate of insured life morbidity would depend on

- The life insured's age, sex, smoking habit, occupation, industry, health, and lifestyle;
- Duration since issue of the policy;
- In the case of income replacement insurance, definition of disability, unemployment levels, and, in the case of an outstanding claim, cause of disability;
- Plan of insurance and its benefits provided, including elimination period, guarantees, deductibles, coinsurance, return-of-premium benefits, and benefit limits, indexation, and offsets;
- The insurer's underwriting practice (that of its reinsurer for facultative reinsurance), including, if applicable to the policy, the absence of underwriting or less stringent underwriting for a group of simultaneously sold policies;
- The insurer's administration and claim adjudication practice;
- The size of the policy;
- Seasonal variations;
- In the case of group insurance, participation level; and
- Environmental factors, such as a change in the offset to government benefits;

and would include the effect of any anti-selection.

.16 If the actuary selects a higher than usual best estimate of disability incidence because of an outlook for a high level of unemployment, he or she would not necessarily select a concomitant higher than usual best estimate of disability termination.

.17 The low and high margins for adverse deviations would be, respectively, an addition of 5% and 20% of the best estimate of morbidity incidence rates, and a subtraction of 5% to 20% of the best estimate morbidity termination rates. The actuary's selection would reflect any expected correlation between incidence and termination rates.

.18 Additional significant considerations to be taken into account when determining the level of margin for adverse deviations would include

- Contract wording is not tight enough to protect against medical advances;
- Definitions of claim events are not precise and/or not protecting against potential anti-selection; or
- Interpretation of claim event definitions by the court uncertain.

Withdrawal and partial withdrawal

.19 The actuary's best estimate of withdrawal rates would depend on

- Policy plan and options;
- The life insured's attained age;
- Duration since issue of the policy;
- Method of payment and frequency of premiums;
- Premium paying status;
- Policy size;
- The policy's competitiveness, surrender charges, persistency bonuses, taxation upon withdrawal, and other incentives and disincentives to withdrawal;
- Policy owner and sales representative sophistication;
- The insurer's distribution system and its commission, conversion, replacement, and other marketing practices; and
- The interest rate scenario;

and would include the effect of any anti-selection.

.20 The insurer's withdrawal experience would be pertinent and usually credible. It would not be available for new products and for higher durations on recent products, which is a problem for the actuary if the insurance contract liabilities are sensitive to withdrawal rates.

.21 The automatic payment of insurance premiums by the annuity benefit in a "back-to-back" insurance/annuity package would be a disincentive to withdrawal.

.22 Reinsurance assumed withdrawal rates would depend on practice in the direct insurer.

.23 A "cliff" is a sudden significant increase in the benefit available at withdrawal. That increase may result from increase in cash value, decrease in surrender charge, or availability of a maturity benefit or persistency bonus. Unless there is pertinent persistency experience data to the contrary, the actuary's best estimate withdrawal rates would grade to zero as the cliff approaches and remain at zero for an interval before the cliff is reached. The same would apply to a return of premium benefit in life insurance and to one in accident and sickness insurance, with modification in the latter case if the benefit is contingent upon zero claims or reduced by the amount of claims.

.24 The actuary's best estimate withdrawal rate would be zero for a paid-up policy without non-forfeiture benefit.

.25 The low and high margins for adverse deviations would be, respectively, an addition or subtraction, as appropriate, of 5% and 20% of the best estimate withdrawal rates. In order to ensure that the margin for adverse deviations increases insurance contract liabilities, the choice between addition and subtraction may need to vary by interest scenario, age, policy duration, and other parameters. In the case of partial withdrawal, two assumptions would be needed, the amount withdrawn and the partial withdrawal rate.

.26 Additional significant considerations to be taken into account when determining the level of margin for adverse deviations in situations where a decrease in lapse rates increases the insurance contract liabilities would include

- Remuneration policy encouraging persistency; or
- Cancellation of a contract being clearly detrimental to the policy owner.

.27 Additional significant considerations to be taken into account when determining the level of margin for adverse deviations in situations where an increase in lapse rates increases the insurance contract liabilities would include

- Remuneration policy encourages terminations;
- Cancellation of a contract would be clearly beneficial to the policy owner;
- Company's contracts have provisions where rating decreases may trigger additional withdrawals; or
- There is no market value adjustment on withdrawals for deposits and deferred annuities.

Anti-selective lapse

.28 Strictly speaking, "lapse" means termination of a policy with forfeiture, but in the context of anti-selection has come to include any termination or the election of the extended term insurance non-forfeiture option. "Anti-selective lapse" is a tendency of policies on healthy insured lives to lapse or unhealthy insured lives not to lapse, with a concomitant deterioration in the insurer's mortality or morbidity experience. To determine whether the tendency has operated in a particular case would require either a re-underwriting of those who have lapsed and those who have not, or a study of the mortality among those who lapsed, neither of which is likely to be practical. Policy owners will, however, make decisions in their own perceived interest, so that anti-selective lapse is plausible whenever that perceived interest is for policies on unhealthy lives not to lapse or for policies on healthy lives to lapse.

.29 It is difficult to estimate with confidence the intensity of anti-selective lapse. It is plausible for the intensity to be proportional to the intensity of policy owner perceived interest. However, anti-selective lapse is merely a tendency provoked by the policy owner's perceived interest. The policy owner may not know the true state of health of the life insured. The policy owner may imprudently favour, or be obliged by financial pressure to adopt, a short-term interest with long-term detriment; thus, a policy on an unhealthy life may lapse when the premium increases, the policy owner perceiving the policy to be no longer affordable. Through ignorance or inertia, a policy on a healthy life may be continued by a policy owner, even though it could be replaced by a superior one. Moreover, anti-selective lapse is not the unvarying effect of a decision in the policy owner's perceived interest. For instance, a policy owner may lapse a policy on an unhealthy life, if the policy is no longer needed, or the policy on a healthy life may remain in force if the policy owner perceives a continuing need. Without pertinent and reliable experience, however, the actuary would not assume that the non-lapsation of policies on healthy lives favourably affects the mortality best estimate for the persisting insurance contracts.

.30 The premise to the actuary's assumptions would be that policy owners' decisions

- Will tend to serve their perceived interest; and
- Will not serve the insurer's interest unless the two run together.

.31 Examples where the perceived interest of the policy owners of policies with healthy life insureds may be to lapse include

- Premium increase at renewal of term insurance;
- Unfavourable underwriting decision at renewal of re-entry term insurance;
- Benefit decrease or premium increase of adjustable insurance;
- Premium needed to avoid termination of universal life insurance with exhausted funding;
- Reduction in policy dividend scale;
- Offer or availability of a superior replacement policy, such as by the creation of preferred underwriting class;
- Significant but temporary increase (spike) in non-forfeiture value; and
- Downgrade in the insurer's credit rating.

Expense

.32 The actuary would select a best estimate assumption that provides for the expense of the relevant policies and their supporting assets, including overhead. The insurer's other expense is irrelevant to the valuation of insurance contract liabilities. Other expense would include

- Expense related to policies that, for the relevant policies, was incurred before the calculation date, such as marketing and other acquisition expense; and
- Expense not related to the relevant policies and their supporting assets, such as investment expense for the assets that support capital.

.33 The assumption would provide for future expense inflation consistent with that in the interest rate scenario.

.34 A stable insurer's expense experience is pertinent if its expense allocation is appropriate for valuation of insurance contract liabilities (or if the actuary can correct the inappropriateness, e.g., by reallocating corporate expense to operating lines of business).

.35 A particular insurer may have an expectation of reduced expense rates, but the actuary would anticipate only a reduction that is forecasted with confidence.

~~.36 Investment expense comprises~~

- ~~Administration expense, both internal and external;~~
- ~~Expense related to investment income, such as deferred fees and commissions and direct taxes; and~~
- ~~Interest on money borrowed to finance investment.~~

~~.37 The insurer incurs neither cash rental expense nor cash rental income on real estate that it owns and occupies. The actuary would deem such expense and, if the real estate supports the insurance contract liabilities, such income at a reasonable rate in the selection of an assumption of expense and investment return.~~

~~.38 Certain taxes are akin to expenses. The actuary would make similar provision for them in the insurance contract liabilities to the extent that they relate to the relevant insurance contracts and their supporting assets. They include both premium taxes, which are straightforward, and taxes whose basis is neither income nor net income but which may be complicated by a relationship with income tax; for example, those currently incurred may be offset against later income tax.~~

~~.39 The low and high margins for adverse deviations would be respectively 2.5% and 10% of best estimate expense including inflation thereof. No margin for adverse deviations is needed for a tax, such as premium tax, whose history has been stable.~~

~~.40 Additional significant considerations to be taken into account when determining the level of margin for adverse deviations would include~~

- ~~Distribution of general expenses by line of business, by product, or by issue and administrative expenses is not based on a recent internal expense study;~~
- ~~Allocation is not an appropriate basis for the best estimate expense assumption;~~
- ~~Expense study does not adequately reflect the appropriate expense drivers; or~~
- ~~Future reductions in unit expenses (before inflation) are assumed.~~

Policy owner options

.41 Examples of policy owner options are options to

- Purchase additional insurance;
- Convert term to permanent insurance;
- Select the extended term insurance non-forfeiture option;
- Make partial withdrawal from a universal life insurance policy;
- Select the amount of premium for a flexible premium policy; and
- Purchase an annuity at a guaranteed rate.

.42 The actuary would select a best estimate assumption of policy owner exercise of both contractual options and extra-contractual options of which they have reasonable expectations.

.43 The actuary's best estimate would depend on

- Life insured's attained age;
- Duration since issue of the policy;
- Plan of insurance and its benefits provided;
- Historical premium payment patterns;
- Method of premium payment;
- Sophistication of the policy owner and the intermediary;
- Perceived self-interest of the policy owner and the intermediary;
- Policy's competitiveness; and
- Insurer's distribution system and other marketing practice;

and would make provision for anti-selection.

.44 The actuary would make provision for adverse deviations by testing the effect on insurance contract liabilities of plausible alternative assumptions of policy owner exercise of options and adopting one with relatively high insurance contract liabilities.

Related assumptions

.45 The actuary would consider how the assumptions may be interrelated in determining the best estimate assumptions and appropriate margins. In determining these interrelationships the actuary would take account of potential anti-selection. For example, the actuary would consider what the relationships among term conversions, withdrawals, and mortality might be as a contract nears the end of a term renewal period.

Other examples of how potential anti selection might affect the selection of assumptions are provided above and in subsection 1620.

2360 Valuation of segregated fund insurance contract liabilities

.01 This subsection addresses considerations applicable to the valuation of insurance contract liabilities related to guarantees provided under the terms of segregated fund contracts. While the requirements of subsections 2310 to 2350 apply generally to all life and health insurance contracts including segregated fund contracts, the nature of the insurance guarantees and other provisions of segregated fund contracts are such that this additional subsection is warranted to supplement, and to clarify the application of, the preceding requirements to such contracts.

Method

.02 The actuary should calculate insurance contract liabilities for the guaranteed benefits of segregated fund contracts by the Canadian asset liability method using stochastic modelling. [Effective April 15, 2017]

.03 If the bifurcated approach is used, the allocation of future fee revenue between recoverability testing of the allowance for acquisition expense and providing for the cost of guarantees should not change from period to period. [Effective April 15, 2017]

.04 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.

.05 Either of two approaches would be appropriate to value segregated fund policies where guaranteed benefits are involved and an allowance for acquisition expense is being amortized.

- For the bifurcated approach, forecast fee revenue is allocated between recoverability testing of the allowance for acquisition expense and providing for the cost of the guarantees. Where the actuary can reasonably determine an additional charge priced into the contract to cover the cost of guarantees, the portion of revenue allocated to the guarantees would reflect such additional charge, with the remainder of revenue applied to test the recoverability of the unamortized allowance for acquisition expense. The insurance contract liability for the guarantees is calculated separately using the net cash flows allocated to the guarantees while the recoverability of the allowance for acquisition expense is tested excluding those revenues allocated to the guarantees.
- For the whole contract approach, all general account net cash flows associated with segregated funds are considered in calculating the total liability, i.e., the liability for guaranteed benefits less the balance of unamortized acquisition expense. 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.

.06 Under the bifurcation approach, the requirement to use the Canadian asset liability method applies to the calculation of the liability related to guaranteed benefits and to recoverability testing of the unamortized balance of the allowance for acquisition expenses; whereas under the whole contract approach, the Canadian asset liability method would be used to calculate the total liability. In either case, 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 calculation date, and where not fully recoverable at the calculation date, is written down to the recoverable amount, with the expected amount of write-down in each future period proportionately reduced.

Term of the liability

.07 While the provisions of subsection 2320 concerning the term of the liability apply generally to segregated fund contracts, an exception to paragraph 2320.21 would apply to segregated fund contracts that contain material constraints. In this situation, the term of the liability would end at the date after the calculation date which maximizes the insurance contract liabilities, consistent with the treatment for contracts with no material constraints.

.08 The actuary would extend the term of the liability as determined under subsection 2320

- 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 statement of financial position presentation is consistent with market movements over the reporting period; and
- Where such extension would be subject to constraints on the amount of net cash flow capitalized, consistent with an unhedged position.

Assumptions – non-economic

.09 In addition to considerations discussed in subsection 2350, the following considerations apply to the valuation of liabilities for segregated fund guarantees and recoverability testing of the allowance for acquisition expense.

.10 The actuary's best estimate of withdrawal rates would depend on

- Extent to which the guaranteed values are greater or less than the market value of the funds;
- Time to maturity;
- Systematic withdrawal consistent with the contractual terms of the policies;
- Market conditions; and
- Distribution of investment income from the funds if such amounts are not automatically reinvested.

.11 The actuary would select a best estimate assumption for management expense ratios (including all taxes charged to the fund such as GST) that varies by fund according to the terms of the contract and recent practice of the insurer. The actuary would not assume a change in management expense ratios in the future unless there is a clear and justifiable reason for doing so, taking into account past practices, competitive pressures, and reasonable policy owner reactions.

Policy owner options

.12 The actuary would assume the contract terminates on maturity unless allowing a proportion of the policy owners to roll their contracts over would increase the insurance contract liabilities. The proportion of policy owners that elect to roll their policies over would take into account the experience of the insurer. The actuary would test future maturity dates that the policy owner may elect and would use caution in setting this maturity date assumption.

.13 The actuary would test the effect of fund transfers and shifting asset mix and would exercise caution in assuming that the status quo would be maintained indefinitely.

.14 The actuary would test the effect of future optional deposits to the extent they can reasonably be anticipated and use caution in assuming that the status quo would be maintained indefinitely.

.15 The actuary's best estimate of rates at which ratchet and reset options are exercised by policy owners would depend on the

- Extent to which the guaranteed values are greater than the market value of the funds;
- Relationship of the fund value and guaranteed benefit amounts;
- Term to maturity; and
- Growth of funds.

.16 If resets are discretionary, the actuary would assume that some proportion of policy owners would elect to exercise the reset option when it is in their financial best interest to do so. The actuary need not assume that all policy owners would act with absolute efficiency in an economically rational manner. However, the assumptions would allow the frequency of elective resets to vary according to the current and/or historical economic environment.

.17 The actuary would consider the extent to which an increase in partial withdrawals on segregated funds might lead to deferrals in benefit commencement dates.

~~2370 Stochastic scenarios~~

~~.01 Where the actuary uses stochastic modelling techniques to reflect assumptions for interest rates and/or investment returns, the development of scenarios 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 April 15, 2017]~~

~~.02 Where investment returns are stochastically modelled, the calibration of stochastic models used in the valuation should meet the criteria for investment returns as promulgated from time to time by the Actuarial Standards Board. [Effective April 15, 2017]~~

~~.03 Where the interest rate scenarios selected are stochastically modelled, the actuary's calibration of stochastic models should meet the criteria for risk-free interest rates as promulgated from time to time by the Actuarial Standards Board. [Effective April 15, 2017].~~

~~.04 Where valuation is performed using stochastic scenarios, the actuary would assign a value to the insurance contract liabilities which is within the range defined by~~

- ~~The average of those values that are above the 60th percentile of the range of liability values produced by the entire set of modelled scenarios; and~~
- ~~The corresponding average for the 80th percentile.~~

~~.05 Each average value referred to above is referred to as a conditional tail expectation and the specific average values described above can for simplicity be denoted by CTE[60] and CTE[80] respectively.~~

~~.06 With respect to interest rate scenarios, the actuary would adopt a scenario where the insurance contract liabilities are higher than the midpoint of the range CTE[60] to CTE[80] 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 2330.34 exist.~~

Random number generators

.07 The random numbers generated by computer algorithms are called pseudorandom because they are not truly random. Knowing the algorithm and the seed to the sequence is sufficient to predict the next random number that will be generated. A sound pseudorandom number generator provides a sequence that is statistically indistinguishable from a truly random sequence from the given distribution. The actuary would test the random number generator to demonstrate that it provides a sequence that is statistically indistinguishable from a truly random sequence for the given distribution.

.08 It would be preferable for the results from stochastic modelling to be reproducible, so that a repeatable pseudorandom number generator would be available to an auditor.

Number of scenarios

.09 The actuary would test that the number of scenarios used to calculate the insurance contract liabilities provides an acceptable level of precision that meets the standard of materiality. To increase the precision of the insurance contract liability calculation, it may be necessary to increase the number of scenarios significantly.

.10 The actuary may consider scenario reduction techniques, such as stratified sampling, to reduce the number of scenarios on a sound statistical basis.

Modelling period

.11 The actuary would use a modelling period that is not longer than one month unless testing shows that the liability value is not sensitive to the frequency of election of benefits or features.

Economic scenario generators

.12 The actuary would develop stochastic models for each market index or proxy that is constructed.

.13 The actuary would select economic scenario generators for stochastic models that are robust and statistically sound.

Model parameter estimation

.14 The actuary would estimate model parameters based on historical market data as opposed to recent market performance. The historical data would cover a period at least twice as long as the projection period. However, when historical data are not available or appropriate for use, adjustments may be required.

.15 The actuary would update model parameters regularly to reflect recent changes in market conditions.

.16 When market data for foreign indices are used to estimate model parameters, the foreign exchange rate would be taken into account. The actuary may consider separate parameters for the market index and for the foreign exchange rate, for example, by including an explicit currency exchange model together with using local currency data to estimate the model parameters.

.17 Parameters would take into account appropriate correlations among investment returns for all market indices and proxies that are constructed.

Selecting investment return assumptions for specific funds

.18 To develop investment returns for a specific fund, an appropriate proxy for the fund would be constructed. The specific fund's investment policy, its asset allocation implied by the fund performance objective, its performance history, and its trading activities would be considered and reflected in the proxy asset composition. The proxy may take the form of a combination of recognized market indices or economic sector sub-indices or, less commonly, a well-defined set of trading rules in a specified asset universe. It would be appropriate for there to be a close relationship between the investment return proxy and the specific funds.

Investment returns would be generated on a gross basis, before the application of any fees or consideration of specific product features. The objective would be to model the investment returns independently of any product features. However, care would be taken to assess whether total or price returns are required for the specific funds being modelled.

Discount rates

.19 Where a discounting approach is used in conjunction with stochastic modelling as an approximation to the Canadian asset liability method, the actuary would select discount rates (or accumulation rates) to determine the asset balance necessary to support the liabilities under a given scenario using the assets allocated at the calculation date to support the liabilities and reflecting in a reasonable manner portfolio yields that would be projected given the insurer's investment policy and hedging practices.

Base scenario

.20 With respect to investment return scenarios, the base scenario for calculating the provision for adverse deviations would be defined as a notional or implicit scenario, which would result in a liability equal to the average of the insurance contract liabilities for all modelled investment return scenarios. This implicit scenario does not need to be explicitly identified or described.

2800 Public Personal Injury Compensation Plans

2810 Scope

~~.01~~ The standards in this section~~part~~ apply to ~~as follows:~~

- ~~Section 5200 applies to an actuary's work on the valuation of benefits liabilities of a~~ public personal injury compensation plans for both the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 and the valuation of benefits liabilities for funding purposes ~~purpose of its financial statements; and~~

- ~~.01 Section 5300 applies to an actuary's work on the valuation of benefits liabilities of a public personal injury compensation plan for the purpose of providing input into its funding arrangements.~~

.02 Subsection 2820 applies to the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17.

.03 Subsection 2830 applies to the work and advice an actuary provides with respect to the valuation of benefits liabilities for funding purposes.

.04 The standards in subsection 2840 provide requirements for a gain and loss analysis resulting from the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes.

.05 The standards in subsection 2850 provide requirements for the sensitivity analysis to be conducted for the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes.

.06 The standards in subsection 2860 replace those in Subsection 2230 and provide requirements for reporting on valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes, including the actuary's opinion, reporting on the gain and loss analysis required under subsection 2840 and reporting of the work related to sensitivity testing required under subsection 2850 resulting from valuations.

~~.02~~.07 The standards in this section ~~part~~ may ~~also~~ provide useful guidance for other work of an actuary for a public personal injury compensation plan, such as work on the development of assessment rates or premiums, the costing of insurance contract ~~benefits~~ or policy changes, ~~the development of assessment rates or premiums,~~ or work on experience-rating programs.

2820 Valuation of Insurance Contracts and Other Obligations for Financial Reporting

.01 The actuary ~~shall~~ should follow the requirements under Sections 2100, 2200, and 2300 based on the accounting policies adopted by the public personal injury compensation plan for financial reporting under IFRS 17. [Effective Month XX, 20XX]

.02 Notwithstanding paragraph 2820.01 above, the actuary should follow the reporting requirements under subsection 2860 in lieu of those prescribed in Subsection 2230. [Effective Month XX, 20XX]

2830 Valuation of Benefits Liabilities for Funding Purposes

.01 This Subsection 2830 ~~5300~~ applies to the work and advice an actuary provides ~~with respect to the financial position, financial condition, and~~under the terms of an appropriate engagement for purposes of the funding of a public personal injury compensation plan.

.02 Sections 2100, 2200 other than subsection 2230, and section 2300 apply to the work under this subsection with the exceptions and variations as noted below.

2831 Circumstances Affecting the Work

.01 The actuary's work on the valuation of the benefits liabilities or other items for the purpose of providing input into its funding arrangements should take into account the circumstances affecting the work. [Effective December 15, 2019]

.02 For the purposes of Subsection 2830~~5300~~, the circumstances affecting the work would include:

- Terms of the relevant statute and regulations;
- Relevant policies and practices of the public personal injury compensation plan; and
- Terms of an appropriate engagement under which the work is being performed.

.03 The terms of an appropriate engagement would define the role of the actuary and the purpose of the work. The work of the actuary may be limited to the valuation of the benefits liabilities, or the work may also include advice on the funding of the public personal injury compensation plan, its financial position, ~~its financial condition,~~ and any other actuarial item required under the terms of an appropriate engagement.

.04 The terms of an appropriate engagement may specify applicable policies of the public personal injury compensation plan relevant to the work of the actuary. These policies may include a funding policy, operational policies and practices, and an investment policy.

.05 Significant terms of an appropriate engagement may stipulate one or more of:

- Use of a specified asset value or method of asset valuation;
- The treatment of self-insured employers;
- The conditions considered in the liability for potential future occupational disease claims; and
- Depending on the circumstances affecting the work, treatment of definitive amendments and other pending changes.

.06 Objectives of funding specified by the terms of an appropriate engagement may include, but are not limited to, a specific funding target, the security of benefits, a principle of equity among various groups of employers or various groups of individuals or among generations, or a funding approach for occupational disease claims.

.07 The purpose of the work may influence one or more of:

- The assumptions chosen for the valuation, including the discount rate;
- The methods used in the valuation; and
- The provision for adverse deviations included in the valuation, if any.

.08 ~~For valuations for funding purposes, t~~The actuary would consider the plan's funding and investment policies.

.09 For the purposes of Subsection 28305300:

- New injury costs refers to the actuarial present value of benefits payable by the plan in respect of all new injuries incurred in a period, whether reported or not, including a provision for the incurred exposure to long latency occupational diseases during the same period, where appropriate.
- Required revenue is an estimate of the amount necessary to fund the plan including new injury costs, plan administrative expenses, and any revenue adjustment required by the plan's funding policy to respond to its financial position.

.10 A funding valuation may be completed to determine any or all of the following:

- The plan's financial position under the funding valuation basis;
- An estimate of new injury costs for periods following the calculation date;
- An estimate of required revenue for periods following the calculation date; and
- The sufficiency of proposed premium or assessment rates.

2832 Economic Assumptions

.01 The economic assumptions chosen for the valuation ~~would depend on the purpose of the valuation. For valuations for funding purposes, the assumptions would~~should be consistent with the plan's funding and investment policies. ~~y. Considerations for funding valuations would include, but are not limited to,~~

~~The plan's risk tolerance;~~

~~Stability of premiums or assessment rates; and~~

~~Intergenerational equity among employers.~~

[Effective Month XX, 20XX]

.02 The economic assumptions that are needed would depend on the nature of the benefits that are being valued, and may vary by year. Generally, the needed economic assumptions would include a discount rate and various inflation rate assumptions such as general inflation, wage inflation, and health care inflation.

.03 The economic assumptions chosen for the valuation would be internally consistent. In particular, the chosen assumptions would generally be appropriate for a similar time horizon. For example, a long-term investment rate of return assumption would generally not be combined with an inflation assumption based on short-term expectations. Similarly, the valuation would generally not mix assumptions based on current market prices (e.g., market-implied inflation expectation) with those not based on current prices.

.04 When determining a best estimate assumption for the expected rate of investment return, the actuary would take into account the expected investment return on the assets of the public personal injury compensation plan at the calculation date and the expected investment policy after that date.

.05 In establishing the assumption for the expected rate of investment return, the actuary would assume that there would be no additional returns achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy except to the extent that the actuary has reason to believe, based on relevant supporting datadata, that such additional returns will be consistently and reliably earned over the long term.

.06 The expected investment expenses would depend on the investment policy of the plan, the types of investments held and projected to be held in the future, and the nature of investment operations.

.07 The actuary may adopt an assumption for the expected rate of investment returnincome that varies depending on the part of the public personal injury compensation plan being valued and the assets backing the liabilities in that part.

.08 The economic assumptions need not be a flat rate but may vary from period to period.

2833 Margins for Adverse Deviations

.01 The actuary should only include margins for adverse deviations when the circumstances affecting the work require such margins. A non-zero margin should be sufficient, without being excessive, and should have the effect of increasing the benefits liabilities or reducing the reported value of the offsetting assets, the computation of which falls within the scope of the work of the actuary. In addition, the provision resulting from the application of all margins for adverse deviations should be appropriate in the aggregate. [Effective Month XXFebruary 1, 202X18]

.02 If the actuary is required by legislation, regulation, or the funding policy of the plan to use a margin for adverse deviations that is outside the range that the actuary considers appropriate, the actuary may use such an imposed assumption, subject to the disclosure requirements under subsection 2860~~but the actuary should disclose that the margin is outside of the appropriate range and disclose the reason for using such margin~~. [Effective ~~December 15~~Month XX, 202X~~19~~]

.03 The actuary's decision with respect to margin for adverse deviations may reflect considerations such as

- Funding policy of the public personal injury compensation plan;
- Relative importance placed on the balancing of competing interests compared to the achievement of full funding;
- Underlying adaptability of the plan to changes in financial position;
- Legislative requirements regarding margins;
- Intergenerational equity among employers and other groups;
- Level of uncertainty inherent in the assumptions;
- Level of reliability or credibility of the data or historical information upon which the assumptions are based;
- Asset/liability mismatch risk;
- Propensity for ad hoc changes to be made to plan conditions; and
- Legislative or other restrictions on the ability to mitigate past losses.

.04 Examples of situations where the circumstances affecting the work might require a best estimate calculation include

- Legislation governing the plan may require a best estimate calculation; or
- The plan's funding policy may recognize the monopoly nature of the plan and place a high priority on equity among generations, employers, and other groups.

2840 Gain and Loss Analysis

.01 For each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830, t~~T~~he actuary should conduct a gain and loss analysis, including a comparison of actual and expected experience for the period between the prior calculation date and the current calculation date. [Effective ~~February 1, 2018~~Month XX, 202X]

.02 The actuary should also conduct a reconciliation of the surplus or deficit position of the plan, provided that such reconciliation is in accordance with the terms of an appropriate engagement. [Effective ~~February 1, 2018~~Month XX, 202X]

.03 The actuary's analysis would include all material gains and losses. At a minimum, the actuary's gain and loss analysis would consider the impact of any significant changes to the assumptions or methods used, any significant changes to the benefits or policies of the plan, legislative changes, investment returns on the plan's assets different from the assumed basis (if reconciling the surplus or deficit position of the plan), and any other areas where the difference between actual and expected experience is significant.

.04 The actuary would report a change in assumption if the current assumption differs nominally from the corresponding prior assumption, unless the change in the nominal amount results from the application of the same calculation method. For example, if certain rates used in the valuation are based on historical claims experience and calculated using the same averaging formula, the difference in assumed rates between the calculation date and the prior calculation date would not normally be considered as a change in assumptions. Nevertheless, the actuary may choose to disclose the effect of the updated rate assumption on the valuation results.

2850 Sensitivity Analysis

.01 For each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830, t~~T~~he actuary should perform sensitivity testing of adverse scenarios, to illustrate and aid the understanding of the effect of adverse changes to assumptions. [Effective ~~February 1, 2018~~Month XX, 202X]

.02 The adverse scenarios that the actuary tests should include at least:

- A decrease of 100 basis points in the gross discount rate used for the valuation; and
- An increase of 100 basis points in the assumed general rate of inflation while maintaining the gross discount rate at the value used in the underlying valuation. [Effective December 15, 2019]

.03 The actuary should consider other scenarios that, in the actuary's judgment, represent plausible material risks to which the plan may be exposed, and provide sensitivity testing of those scenarios where appropriate given the circumstances affecting the work. [Effective December 15, 2019]

.04 When selecting the assumptions and scenarios for sensitivity testing, the actuary would consider the circumstances affecting the work, and would select those assumptions that have a material impact on the benefits liabilities. The actuary may consider testing integrated sensitivity scenarios; for example, the effect of a deep and prolonged recession.

.05 The actuary may also perform sensitivity testing of favourable scenarios.

2860 Reporting

.01 For ~~work pursuant to~~ each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830~~5300~~, the actuary should prepare a report in accordance with the circumstances affecting the work. [Effective ~~December 15, 2019~~Month XX, 202X]

.02 If the actuary can report without reservation, then the actuary's report should conform to the standard reporting language. Otherwise, the actuary should modify the standard reporting language to report with reservation. [Effective Month XX, 20XX]

.03 An external user report on the work pursuant to this subsection 2820 should:

- When the insurance contract liabilities and other obligations disclosed in the financial statements are different than the benefits liabilities calculated under subsection 2830 for funding purposes, the actuary should so state, explain the reason for the difference and provide the effect on the funding level reported in the financial statements;
- Where included in the measurement of insurance contract liabilities, the actuary should disclose the present value of future premium adjustments comprised in the assessment of the fulfillment cash flows for financial reporting purposes, including the underlying methodology and assumptions; and
- Describe the actuary's role in the preparation of the public personal injury compensation plan's financial statements if that role is not described in those statements or their accompanying management discussion and analysis. [Effective Month XX, 20XX]

.04 An external user report on work pursuant to subsection 2830 should:

- When the benefits liabilities calculated for funding purposes are different than the insurance contract liabilities and other obligations calculated under subsection 2820 for financial reporting purposes, the actuary should so state, explain the reason for the difference and provide the effect on the funding level reported for funding purposes;
- Report the aggregate provision for adverse deviations included in the benefits liabilities or state that there is no provision for adverse deviations where that is the case; and
- Disclose any imposed margins that the actuary has used in accordance with paragraph 2833.02 that, in the opinion of the actuary, are outside of the appropriate range and also disclose the reason and the financial impact. [Effective Month XX, 20XX]

.05 The actuary's ~~An external user~~ report on work pursuant to section 28005300 should also

- Describe any significant terms of the appropriate engagement that are material to the actuary's work, including the purpose of the work;
- State the calculation date and the prior calculation date;
- Identify, and where applicable, conform to, the legislation or other authority under which the work is completed;
- Describe the sources of data, benefit provisions, and policies used in the work, and any limitations thereon;
- Summarize the data used for the valuation, the data tests conducted to assess the accuracy and completeness of the data used in the work, issues regarding insufficient or unreliable data, and any assumptions and methods used in respect of insufficient or unreliable data;
- Describe the plan's benefits, significant policies, and relevant administration practices, including the identification of any amendments made since the prior calculation date, and the effect of such amendment on the benefits liabilities;
- Disclose the measurement approach used;
- Describe the assumptions and methods used to calculate the benefits liabilities;
- Summarize the insurance contracts and other obligations or benefits liabilities, as may be applicable;
- Describe the treatment of insurance contracts and other obligations or benefit liabilities for self-insured employers, as may be applicable;
- Describe the treatment of the liabilities for occupational disease claims;
- Describe and quantify the gains and losses between the prior calculation date and the current calculation date, and provide an analysis and explanation of the significant gain and loss items;
- If required by the terms of an appropriate engagement, provide an opinion on the sufficiency of proposed premium or assessment rates; and
- If the the terms of an appropriate engagement ~~report~~ do~~es~~ not include a request to report the results of the sensitivity testing that was completed, be accompanied by ~~the actuary should prepare~~ a separate report for the management of the public personal injury compensation plan that does include such sensitivity testing results. [Effective Month XX, 20XX]

.06 Where the terms of an appropriate engagement require the actuary to provide information on the plan's financial position for funding purposes or cost of new injuries for rate setting purposes, the actuary should:

- Describe the sources of information on the plan's assets;
- Describe the plan's assets, including their market value, the assumptions and methods used to value the assets, and a summary of the assets by major category;
- Report the financial position for funding at the calculation date;
- Describe the determination of new injury costs or required revenue (all components separately) for periods following the calculation date; and
- Report the estimate of new injury costs or required revenue (total and all components separately) for a specified period following the calculation date and disclose the amount that constitutes the portion of new accident costs attributable to the incurred exposure to long latency occupational diseases during the same period, where applicable. [Effective Month XX, 20XX]

.07 An external user report ~~sh~~would be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation.

.08 The descriptions and estimates required in an external user report may be satisfied by reference to another report provided the actuary is satisfied that the work presented in that report is~~where~~ appropriate. For instance, the liability estimate for potential future occupational disease claims or future administrative expenses may be based on a previous study of the plan's experience that is updated periodically. The details underlying these estimates could be incorporated by referencing the last study on which they are based rather than incorporating that material directly into the valuation report. Similarly, a report prepared for one purpose (e.g., funding) may reference material in a report prepared for another purpose (e.g., financial reporting) where appropriate.

.09 An internal user report may appropriately abbreviate the reporting requirements for an external user report. The degree of abbreviation would take into consideration the circumstances affecting the work and the intended audience.

.10 The actuary's advice on funding may describe a range for required revenue including disclosure of any premium rate adjustment resulting from the application of the funding policy or expected new injury costs. Funding requirements may be expressed in dollars or as a percentage of assessable payroll.

Disclosure of Unusual Situations

.11 The items that the actuary values for the financial statements may be misleading if the financial statements do not present them fairly. The actuary's report signals to the reader of the financial statements that there is, or is not, fair presentation.

.12 In an unusual situation, fair presentation may require explanation of an item that the actuary values for the financial statements. Usually, the notes to the financial statements would provide that explanation, including, where appropriate, disclosure of the situation's effect on the financial statements. In the absence of such explanation, the actuary would provide it by a reservation in reporting.

.13 The question, "Will an explanation enhance the user's understanding of the public personal injury compensation plans financial position or performance?" may help the actuary to identify such a situation. Unusual situations may include:

- Any significant changes to the relevant statute, strategic direction, or management policy, or any significant appeal decision that would likely change management policy or practice, since the prior calculation date and the consequent effect on the benefits liabilities;
- Any pending definitive or virtually definitive amendment, policy change, or change to administration practice, confirm whether or not such amendment or change has been reflected in the insurance contracts and other obligations or benefits liabilities;
- Subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, or, if there are no significant events of which the actuary is aware, include a statement to that effect;
- A major change in coverage status from self-insured to premium paying or vice versa and the actual or expected impact on the financial position and financial performance; and
- The circumstances affecting the work may result in a deviation from accepted actuarial practice in Canada. For example, the applicable legislation or the terms of the engagement may require that the actuary use a margin for adverse deviations that is outside the range that the actuary considers appropriate, or require that the actuary exclude the benefits liabilities in respect of certain claims, such as occupational disease claims. In such case, the actuary would disclose such deviation in the report.

Consistency across financial reporting periods

.14 Financial statements usually present results for one or more preceding financial reporting periods in comparison to those for the current period. Meaningful comparability requires the financial statement items for the various periods to be consistent, which can be achieved by the restatement of preceding period items that were previously reported on a basis which was inconsistent with that for the current period. A less desirable alternative to restatement is disclosure of the inconsistency.

.15 A change in the method of valuation creates an inconsistency. A change in the assumptions for valuation reflecting a change in the expected outlook does not constitute an inconsistency although, if its effect is material, then fair presentation would require its disclosure.

.16 A change in assumptions that results from the application of new standards may create an inconsistency.

Communication with the auditor

.17 Communication with the auditor is desirable at various stages of the actuary's work. These include

- Use of work in accordance with the Joint Policy Statement;
- The drafting of common features in the auditor's report and actuary's report;
- The drafting of a report with reservations;
- The presentation of the insurance contracts liabilities and other obligations; and
- The treatment of subsequent events.

Standard reporting language

.18 The standard reporting language is as follows:

Actuary's Report

An external user report for work pursuant to Subsections 2820 and 2830 ~~5200~~ should provide the following six~~five~~ statements of opinion~~opinion~~, all in the same section of the respective report ~~and in the following order~~:

- A statement regarding data~~data~~, which would usually be, "In my opinion, the data on which the valuation is based are sufficient and reliable for the purpose of the valuation.";
- A statement regarding assumptions, which would usually be, "In my opinion, the assumptions are appropriate for the purpose of the valuation.";
- A statement regarding methods, which would usually be, "In my opinion, the methods employed in the valuation are appropriate for the purpose of the valuation.";
- A statement regarding conformation, which should be, "This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada."; and
- For valuations under subsection 2820, include a~~A~~ statement regarding appropriateness, which would usually be, "In my opinion, the [amount of insurance contracts liabilities]~~the benefits liabilities~~ make~~s~~ appropriate provision for all personal injury compensation obligations ~~and~~ given the plan's accounting~~financial statements fairly present the results of the valuation~~."; or~~and~~
- ~~•~~ For valuations under subsection 2830, include a statement regarding appropriateness, which would usually be, "In my opinion the [amount of benefits liabilities and estimated funding requirements] make appropriate provision for all personal injury compensation obligations given the plan's funding policy.". [Effective ~~December 15, 2019~~Month XX, 202X]

.19 The language ~~wording~~ in square brackets ~~in paragraph 5395.04~~ is variable and other ~~wording~~ language may be adjusted to conform to interim financial statements and to the terminology and presentation in the financial statements~~used based on the terms of the engagement for the funding valuation~~.

.20 An auditor's report usually accompanies the financial statements. Uniformity of common features in the two reports will avoid confusion to readers of the financial statements. Those common features include

- Addressees: Usually, the actuary addresses the report to the Board of Directors.
- Years referenced: Usually, the actuary's report refers only to the current year, even though financial statements usually present results for both the current and prior years.
- Report date: If the two reports have the same date, then they would take account of the same subsequent events.

Reservations in reporting

.21 The examples that follow are illustrative and not exhaustive.

New appointment

.22 A new actuary who is unable to use the predecessor actuary's work, but who has no reason to doubt its appropriateness, would modify the standard reporting language as follows:

> I have valued the insurance contracts liabilities of [the PPICP] for its financial statements at [31 December xxxx] and, except as noted in the following paragraph, their change in the statement of financial performance for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.
>
> The insurance contracts liabilities at [31 December xxxx-1] were valued by another actuary who expressed a favourable opinion without reservation, as to their appropriateness.
>
> In my opinion, the amount of insurance contracts liabilities, is appropriate and the financial statements fairly present the results of the valuation. For the reason stated in the previous paragraph, I am unable to say whether or not those results are consistent with those for the preceding year.

.23 If the actuary doubts the appropriateness of the predecessor actuary's work as a result of a review of it, then the actuary would consider additional disclosure about the reasons underlying the reservation.

Impracticality of restatement

.24 The actuary would, if necessary, restate the preceding year valuation to be consistent with the current year valuation. If it is not practical to restate the preceding year valuation, then the actuary would modify the opinion paragraph in the standard reporting language as follows:

> In my opinion, the amount of insurance contract liabilities is appropriate. As explained in Note [XX], the method of valuation for the current year is inconsistent with that for the previous year. Except for that lack of consistency, in my opinion the financial statements fairly present the results of the valuation.

Note [XX] would usually explain the change in the basis of valuation, explain the impracticality of applying the new basis retroactively, and disclose the effect of the change on the opening financial position at the end of the preceding year.