



Request for Proposals to prepare an Educational Monograph on the Adjustment for Risk for Financial Reporting Purposes

1. Introduction and Background

- 1.1. The International Actuarial Association (IAA) is an association of national actuarial associations. Our sixty-three Full Member actuarial associations represent more than 95% of all actuaries practicing around the world. The IAA promotes high standards of actuarial professionalism across the globe and serves as the voice of the actuarial profession when dealing with other international bodies on matters falling within or likely to have an impact on the areas of expertise of actuaries. The requirements for membership in the IAA are set out in the Statutes and Internal Regulations, which can be found on our website, www.actuaries.org. The IAA's strategic objectives are to:
- Identify, establish, and maintain relationships with key supranational audiences and provide them with actuarial input to improve the soundness of decisions being made on important issues with a global impact.
 - Facilitate the use and expansion of the scientific knowledge and skills of the actuarial profession, including beyond the traditional areas of actuarial practice, to help enhance the scope, availability, and quality of actuarial services offered by individual members of its member associations.
 - Establish, maintain and promote common standards of actuarial education, common principles of professional conduct. Promote the development and issuance of actuarial standards in the jurisdictions of all Full Member Associations, and the global convergence of actuarial standards.
 - Support the development, organization and promotion of the actuarial profession in areas of the world in which it is not present or is not fully developed.
 - Provide a forum for discussion among actuaries and actuarial associations throughout the world.
- 1.2. As part of its research and educational objectives, the IAA is interested in facilitating and providing educational material that is accessible to all actuaries everywhere.
- 1.3. The IAA intends to publish one or two monographs (see paragraph 1.4 for a possible subdivision). They will address the application of risk and uncertainty to the measurement of the liability of insurance contracts in the context of general purpose accounting as adopted by the International Accounting Standards Board (IASB).
- 1.4. Because practice and issues associated with the quantification of adjustments for risk differ by type of contracts, proposals may address either the adjustment for risk for (1) all insurance contracts, (2) property & casualty (in some jurisdictions referred to as 'non-life' or 'general') insurance contracts or (3) life and health insurance and annuity contracts. If the proposer wishes to propose other than all types of insurance

contracts, please identify the proposed scope of the proposal. In any case, the monograph(s) will address both direct written and reinsured insurance contracts.

- 1.5. Risk and uncertainty are key factors that actuaries consider in a wide range of practice. Inclusion in general purpose financial reporting is no exception. In the measurement of the liabilities of insurance contracts, the principle that the liabilities should reflect the risk and uncertainty associated with the effect of the obligations and rights provided in the insurance contracts is firmly established in many countries. Nevertheless, the methods of reflecting them are still evolving. In the revision of International Financial Reporting Standard (IFRS) 4, it is (at the time of writing of this Request for Proposal (RFP)) likely that the measurement of the liability for insurance contracts and claims will incorporate an explicit adjustment for risk.
- 1.6. Although actuarial literature and regulation around the world are full of examples of methods used to quantify risk and uncertainty, only a handful of financial reporting requirements in a limited number of small jurisdictions currently require an explicit adjustment for risk of the type contemplated in the upcoming revision to IFRS 4. These applications call for more refined and explicit techniques than some actuaries have historically applied.
- 1.7. Risk and uncertainty play a large role in each element in the measurement of liabilities under the IASB building block liability model, i.e., in the derivation of expected values (building block 1), for discount rates either the sovereign and illiquidity risk in a bottom-up approach and credit risk in a top-down approach (building block 2), and for an explicit risk adjustment (building block 3). However, the focus of the proposed monograph(s) is primarily on the explicit adjustment for risk, specifically covering the identification of the risks covered, the methods and assumptions/parameters used in its estimation, and practical applications. Its focus is to be on the risks and adjustments for risk as envisaged in the application of the revised version of IFRS 4, *Insurance Contracts*.
- 1.8. Although the focus of the monograph(s) is on the methods that might be applied to develop an adjustment for risk for general purpose financial reporting, it may also be appropriate to address related issues. The issues to be addressed include but are not limited to the following:
 - a) The objective of risk adjustments -- note that there is an extensive discussion in the IAA paper *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins* (section 2.1) -- see paragraph 2.2 below). In addition, the preliminary view of the IASB at the time of preparation of this RFP, subject to change, is that "the risk adjustment shall be the compensation the insurer requires to bear the risk that the ultimate cash flows could exceed those expected".
 - b) Identification of risks and uncertainties that should be included in an explicit risk adjustment in the context of IASB standards).
 - c) Identification and description of the methods or family of methods (see IAA paper *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins* (section 2.2), for one categorization of these methods).

- d) Discussion of the criteria included in the revised IFRS 4 as to acceptable methods for the adjustment of risk (at the time of this writing, as described the IASB's agenda papers).
- e) Description of inputs and factors to be considered in the parameters/assumptions of the methods that might be used.
- f) Limitations of the methods regarding specific application.
- g) Effect of various types of ceded reinsurance.
- h) Effects of other mitigation approaches -- note the extensive discussion in the aforementioned IAA *Measurement of Liabilities for Insurance Contracts: Current Estimates and Risk Margins* (section 7) paper.
- i) Methods of complying with disclosure requirements regarding risk adjustments (as of the writing of this RFP, these have not been agreed upon -- see the IASB website for a current write-up of these).

1.9. There has been a great deal of actuarial literature written regarding the risk and uncertainty associated with insurance contracts. However, historically most of this literature has been directed at either pricing of insurance contracts or capital assessment of entities offering insurance contracts. As a result, there exists a need for a comprehensive summary of alternative approaches that might be used in the context of general purpose financial reporting, although it is recognized that many of the same approaches/considerations have been applied in the development of other aspects of risk adjustments.

1.10. As a result of the revised IFRS 4 and a lack of literature in this specific area, the IAA is anxious to facilitate the development of educational material on the topic of concepts and practical methods that can be used in the application of the determining of an explicit adjustment for risk for insurance contracts in compliance with revised IFRS 4.

1.11. In addition, the International Association of Insurance Supervisors (IAIS) is in the process of finalizing a set of standards on the valuation of insurance contracts. This includes standards (currently in draft form) that are expected to confirm the use of economic valuation of assets and liabilities for solvency purposes that reflect the risk-adjusted present value of future cash flows and the definition of a technical provision to exceed the present value of future cash flows (or "current estimate"). It is expected the margin in excess of the current estimate will be calculated on an economic basis.

2. Existing Work on the Topic

2.1. Many papers have been written about risk margins and adjustments for risk, on a variety of applications, ranging from pricing of and financial reporting for insurance contracts, in actuarial and economic journals of many countries.

2.2. Many of the issues associated with the topic are discussed in the IAA's *Measurement of Liabilities for Insurance Contracts: Current Estimate and Risk Margins* (April 2009). It is strongly suggested that this should be reviewed prior to submission of a proposal.

2.3. IASB, available at www.ifrs.org.

- 2.3.1. Exposure Draft, *Insurance Contracts*, July 2010, B67-B103.
- 2.3.2. Agenda Paper 3G for 15-18 February 2011 meeting (discussion on relevance of an explicit risk adjustment)
- 2.3.3. Agenda Paper 12D for 21-22 March 2011 meeting (objective of a risk adjustment)
- 2.3.4. Agenda Papers for 17-18 May 2011 meeting, Agenda Papers 3, 3A, 3B, 3C, 3D.
- 2.4. *Market Value of Liabilities for Insurance Firms*, CRO Forum 2008. http://www.croforum.org/publication/market_value/
- 2.5. Quantitative Impact Study 5. CEIOPS (2010). Current description of Solvency II requirements can be found on the European Insurance and Occupational Pensions Authority (EIOPA) website, available on www.eiopa.europa.eu.
- 2.6. A set of standards on insurance valuation, part of the work by the IAIS on its Insurance Core Principles (ICPs), expected to be finalized later in 2011. At the time that this RFP was prepared, it is covered in ICP 14.7.

3. Anticipated Product

- 3.1. This RFP is intended to produce a combined monograph of between 150 and 250 pages or two monographs of between 100 and 200 pages each, covering both the framework for determining explicit adjustments for risk under different methods and practical examples of their application.
- 3.2. A proposer can either propose a consolidated monograph, or a separate one addressing risk adjustments for (1) life, health and annuity contracts or (2) primarily the claims liability for property & casualty insurance. If the proposer chooses to propose on a set of products covering either of these two coverage types, the proposer should be specific as to how the scope of the two parts should be expressed (e.g., instead of the above split, possibly adjustments for risk between a different product split or between pre-claims and post-claims liabilities).
- 3.3. The audience for this monograph(s) will primarily be the practicing actuary who is applying the revised version of IFRS 4, although it will also include students of actuarial science. It should be assumed that the monograph's audience has a basic statistical background, as provided in university programs of actuarial science or by the education programs of actuarial associations, e.g., those of the Institute and Faculty of Actuaries (U.K.), the Society of Actuaries (North America) and the Casualty Actuarial Society (North America).
- 3.4. The monograph(s) must contain three main sections:
 - a) Background / framework / methods (see paragraph 1.8 for a list of some of the key issues involved and paragraph 3.5 for a more detailed list of items to be covered). This section should provide practicing actuaries a firm foundation in the concepts underpinning the measurement of an adjustment for risk and uncertainty. This would include a description of the requirements for a risk

adjustment as described in the revised IFRS 4, although it is not within the scope of the monograph(s) to provide an interpretation of the revised IFRS 4 or an actuarial standard of practice for its application. It would however address the methods likely to be used in applying the revised IFRS 4, inputs to their derivation, and limitations in their general application. This will likely include methods currently in use for financial reporting, pricing or other applications.

- b) Practical examples / case studies, including illustrations of each of the methods identified in several types of contracts. This section is particularly aimed at the current methods (measurement techniques) used for the intended and other purposes. The section should cover a selection of successful and practical measurement techniques that can be used in this area. Illustrations of these successful applications should be included, including transparent case studies of each. The monograph(s) should include examples of model usage that have been generally accepted, if not as standard practice, in the areas of general purpose and regulatory reporting, economic valuation, and/or other areas of (insurance) financial reporting or financial management. The numerical parts of these case studies should also be provided in spreadsheet form including sample calculations of a small set of representative insurance contracts.
- c) References to supporting technical papers or texts and any other base material that is relevant to the subject matter addressed.

3.5. Topics included in the background/conceptual framework/methods section (see paragraph 3.4(a)) must include at least:

- a) Introduction and description of objectives, requirements of the revised IFRS 4, including those of disclosure, and criteria to be used to assess the appropriateness of methods
- b) Risks considered, as well as those risks incorporated in other building blocks, to ensure that such risks are not duplicated or overlooked in the overall measurement of liabilities for insurance contracts
- c) Discussion of possible (families and specific) methods, for example, including
 - 1) Quantile method, including confidence interval (value at risk) and conditional tail expectation (tail value at risk)
 - 2) Cost of capital, based on economic (or regulatory required if consistent with economic principles) capital and the present value of the costs of holding that capital
 - 3) Others
- d) Methods to derive probability distributions applicable to the methods, especially in those cases where no experience is observable or where multiple methods have been used in deriving the expected value of estimated cash flows. Methods to be used to derive the expected values are outside the scope of this project, although references to them would be included as appropriate.
- e) Techniques that might be applied, including at least:
 - 1) Stochastic methods and option-pricing techniques (see the IAA's *Stochastic Modeling: Theory and reality from an actuarial perspective* (June 2010))
 - 2) Use of moments of distributions
 - 3) Copulas and Wang transforms

- f) Factors to consider
 - 1) Sources of inputs
 - 2) Correlation of variables, e.g., the interaction between mortality and policyholder behaviour, frequency and severity of claims;
 - 3) Methods to reflect either entity-specific view of cost of bearing risk or risk appetite (liability), or market-based view of cost for bearing risk or risk appetite (fair value, for use in business combinations)
 - g) Effect of ceded reinsurance (both quota share and non-quota share) and other risk mitigating techniques (see section 7 of the IAA *Measurement of Liabilities for Insurance Contracts: Current Estimate and Risk Margins* paper, see paragraph 2.2), including the effect of pooling, diversification, and contract features (e.g., participating features)
 - h) Suitable practical approximations and their limitations.
 - i) Validation approaches, e.g., assessment of historical variability of portfolios or methodology inputs
 - j) Methods and examples of communication (through disclosure) of methods, assumptions and results, e.g., roll-forwards.
- 3.6. The application / case study section (see paragraph 3.4 for possible overall structure of the monograph(s)), including accompanying spreadsheets, must include at least:
- a) Quantile approaches as applied in practice, including Conditional Tail Expectations and Confidence Intervals;
 - b) Cost of capital approaches;
 - c) Other approaches, including those identified in the IAA *Measurement of Liabilities for Insurance Contracts: Current Estimate and Risk Margins* paper (see paragraph 2.2 above) or the revised IFRS 4, as appropriate.

4. Request for Proposal

- 4.1. The IAA invites appropriately qualified and experienced respondents to submit proposals to prepare the requested monograph(s).
- 4.2. Both the proposal and the end product will be in English.
- 4.3. The proposal will be specific as to scope of the proposed monograph(s) described in paragraphs 1.4 and 3.2.
- 4.4. The proposal is expected to expand upon the outline provided in paragraphs 3.4 through 3.6.
- 4.5. The proposal must include at least the following sections:
 - a) Statement of qualifications, including resumes of the principal authors. This section should indicate how the background, education and experience of the principal authors and the resources of the firm/entity responding relate to their qualifications to undertake this work. Specifically, proposers should indicate their qualifications and expertise in the areas of insurance financial reporting and capital assessment, statistics, finance, and stochastic modeling. This

section of the proposal should include a list of relevant work, publications and applications conducted.

- b) A proposed outline for the background section, listing main topics and first-order sub-topics. In addition, provide a current estimate of the approximate number of pages allocated to each topic expected to be covered.
 - c) A draft proposed list of issues and corresponding techniques that are anticipated to be included in the practical examples / case studies section, with the understanding that this may be modified as the project progresses. This section of the proposal should include a description of the firms' and principal authors' experience with the issues to be addressed in the monograph(s).
 - d) Total cost, including all applicable loads and taxes.
 - e) If any deviation is made to the above described proposal or approach taken to the monograph(s), please indicate what they are and why they have been proposed.
 - f) Statement of agreement to sign a research agreement with the IAA, if selected, within 30 days of the award of the project.
 - g) Contact information.
- 4.6. If the IASB decides not to include in its revision to its insurance contracts standard an explicit risk adjustment, the IAA may decide to cancel this Request for Proposal. Please follow the discussions of the IASB on its website, ifrs.org and if in doubt, contact Mr. Levac as indicated in paragraph 6.1.
- 4.7. In order to be considered, all proposals must be received at the contact address in paragraph 6.1 **no later than close of business on July 31, 2011**. Receipt of all proposals will be acknowledged.
- 4.8. If proposers have questions before submission of the proposals, they should be sent electronically to the e-mail address or by phone to Mr. Levac, as indicated in paragraph 6.1. All efforts will be made to provide a prompt response.

5. Critical Proposal and Project Dates

Date	Step
May 30, 2011	1. Release of RFP
July 31, 2011	2. Proposals received by IAA
September 30, 2011	3. Award of project
October 30, 2011	4. Contract signing deadline
November 31, 2011	5. Outline of monograph(s) received by IAA
December 23, 2011	6. Comments on monograph(s) outline returned to authors
May 2012	7. Draft of the complete monograph(s) due
June 2012	9. Comments on the draft returned to authors
August 2012	10. Final monograph(s) due

The author team will be expected to provide drafts in sections as they are completed ready for review.

6. Address to Use for Submission of Proposal

- 6.1 Proposals must be received no later than the close of business on July 31, 2011 at the address below. Proposals may be submitted as Word or Adobe PDF files to:

Mr. Christian Levac
Manager, IT and Member Services
International Actuarial Association
601-150 Metcalfe Street
Ottawa, Ontario K2P 1P1
Canada
Phone: +1-613-236-0886, ext. 118
Fax: +1-613-236-1386
E-mail: christian.levac@actuaries.org

7. Evaluation and Selection Process

- 7.1. Proposals will first be evaluated on their technical merit, according to the following criteria:

Criteria	Approximate weight
Technical qualifications of the principal authors and their firm	1 / 3
Experience in the use of the models discussed in the application/case study section	1 / 3
Publication qualifications of the principal authors, i.e., demonstrated ability to write clearly for a non-technical audience	1 / 3

At the time of evaluation, based upon the proposals received, the IAA will decide whether one or two monographs will be prepared. During this process, the proposals will then be assessed as to their financial viability for the IAA in the context of available funding. This step might either change the choice or indicate that a contract will not be awarded.

- 7.2. The IAA Committee on Insurance Accounting will appoint an ad hoc project oversight group, including several of its members and representatives of the funding organizations for this project to evaluate the proposals received. This group may request clarification or additional information during its evaluation process. It is the current intent to have the ad hoc group recommend to the IAA Committee on Insurance Accounting with respect to the proposals received. It is expected that a decision regarding acceptance or refusal will be reached in about 30 days from the due date for the proposals. In addition, the ad hoc project oversight group will be

responsible for providing guidance to the authors relating to the outline of the monograph(s), advising the authors of any required changes to the monograph(s), and providing approval in respect to the final product. If it is decided to have two monographs, the ad hoc project oversight group may form a separate group or operate in subgroups.

- 7.3. The IAA reserves the right not to award a contract for this purpose. Reasons for not awarding a contract could include, but are not limited to, lack of inclusion of an explicit risk adjustment in the final version of IFRS 4, a lack of acceptable proposals or a finding that insufficient funds are available to proceed. It is expected that the successful proposer will sign the standard IAA contract for this purpose. The IAA also reserves the right to redirect the project as it deems appropriate.

8. Proposal Funding

- 8.1. Funding for this work is being provided primarily by both actuarial organizations, the Sections of the IAA and the IAA itself. It is expected that the successful proposal will be given on a do-not-exceed fixed fee, plus reasonable expenses incurred at the request of, and subject to advance approval by the IAA. The IAA understands that the price may not completely fund the entire expected cost of preparing the monograph(s). In recognition of this, the selected individuals / firms will be publicly recognized as part of the distribution of the monograph(s).
- 8.2. The IAA anticipates that it will pay 25% of the fee at the time of contract award, 25% of the fee upon receipt of the initial draft of the monograph(s), and the remaining 50% within 30 days after acceptance by the IAA of the final report.

9. Presentation, Ownership and Publication of the Monograph(s)

- 9.1. If asked by the IAA, the principal authors agree to be available to present their work at one or two actuarial meetings, to be agreed upon. If travel is required, reasonable expenses in accordance with IAA policy will be paid in addition to the compensation provided in the research agreement.
- 9.2. As a condition of selection, the IAA requires that the intellectual property in the monograph(s), including copyright, patent, titles and all rights and interests in any country or language, will belong to the IAA. The selected authors/firms must sign a formal Agreement that assigns the intellectual property and all ownership rights to the IAA. Of course, in any publication of the monograph(s), the authors and their firms will be given appropriate credit. The IAA retains the right to publish the monograph(s) electronically and/or in hardcopy, and will bear all costs of such publication.