



**ASSOCIATION ACTUARIELLE INTERNATIONALE  
INTERNATIONAL ACTUARIAL ASSOCIATION**

May 14, 2003

Mr. Michael Hafeman  
Chairman, Solvency Subcommittee  
International Association of Insurance Supervisors  
c/o Bank for International Settlements  
CH-4002 Basel  
Switzerland  
Email: [mhafema@osfi-bsif.gc.ca](mailto:mhafema@osfi-bsif.gc.ca)

Dear Mr. Hafeman,

**Re: Draft Discussion Paper on Quantifying and Assessing Insurance Liabilities**

Further to my letter to you of September 18, 2002 forwarding the International Actuarial Association's (IAA) draft comments on the Draft Discussion Paper on Quantifying and Assessing Insurance Liabilities, I am pleased to confirm that the IAA's due process is now complete. The draft comments were approved by the Full Member associations for release as an IAA public statement, subject to certain revisions which are incorporated in the attached submission.

A copy of the final document is enclosed for your files.

Yours sincerely,

W. James MacGinnitie  
President

Attachment

cc: Knut Hohlfeld (E-mail: [knut.hohlfeld@bis.org](mailto:knut.hohlfeld@bis.org))  
Jukka Rantala (E-mail: [Jukka.Rantala@etk.fi](mailto:Jukka.Rantala@etk.fi))

**A Commentary on the  
DRAFT DISCUSSION PAPER ON QUANTIFYING AND ASSESSING INSURANCE LIABILITIES  
Released by the International Association of Insurance Supervisors: May 2002**

**International Actuarial Association**

The International Actuarial Association (the “IAA”) represents the international actuarial profession. Our Full Member actuarial associations exceed forty-five in number, and represent more than 95% of all actuaries practicing around the world. The Full Member associations of the IAA are listed in an Appendix to this statement. 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 IAA appreciates the opportunity to provide comments on this IAIS document.

**Due Process**

These comments have been prepared by a committee of the IAA, the members of which are listed below by name and association. These comments which were circulated for approval to the Full Member associations of the IAA as part of our due process procedures have been approved as a public statement of the IAA.

**Members of the IAA Insurance Regulation Committee**

Jukka Rantala	Chairman
David Hartman	Co-Vice-Chairman
David Sandberg	Co-Vice-Chairman
Félix Arias Bergadà	Col.Legi d'Actuaris de Catalunya
Morris Chambers	Canadian Institute of Actuaries
Isagani de Castro	Actuarial Society of the Philippines
Nelson Emiliano Costa	Instituto Brasileiro de Actuária
Joubert Fereira	Actuarial Society of South Africa
Rainer Fürhaupter	Deutsche Aktuarvereinigung e. V. (DAV)
K.S. Gopalakrishnan	Actuarial Society of India
Gyula Horvath	Hungarian Actuarial Society
Thomas Karp	Institute of Actuaries of Australia
Jean-Michel Kupper	Association Royale des Actuaire Belges
Won How Lo	Actuarial Institute of the Republic of China
Helge-Ivar Magnussen	Den Norske Aktuarforening
Ibrahim Muhanna	Cyprus Association of Actuaries, Lebanese Association of Actuaries
Ryoichi Nakamura	Institute of Actuaries of Japan
Gennaro Olivieri	Istituto Italiano degli Attuari
Ian Perera	New Zealand Society of Actuaries
Thierry Poincelin	Institut des Actuaire
Angus John Robertson	Faculty of Actuaries
Norma Alicia Rosas	Colegio Nacional de Actuarios A.C.
Simon Van Vuure	Het Actuarieel Genootschap
Robert E Wilcox	Society of Actuaries; Conference of Consulting Actuaries

## **IAA Comments**

The Insurance Regulation Committee of the IAA compliments the Solvency Subcommittee of the IAIS Technical Committee on the quality of this draft discussion paper and expresses its thanks for this opportunity to offer suggestions for improvement of the paper.

### **I. Background**

Because of the variety of terminology used globally, we find the decision to include definitions for specific expressions to be well advised. We do, however, have several suggestions for improving the section.

For instance, the description of capital makes it clear that ‘reserves’ as defined in paragraph 3 do not form part of the liabilities, but rather are part of capital itself. While we agree with this categorization, we note that in some jurisdictions, notably in North America, policy and claim liabilities have traditionally been referred to as reserves. To avoid possible confusion on the part of readers, we suggest that this usage should be acknowledged and that it be emphasized that this is not the usage intended in this paper.

In the first bullet of paragraph 7, it is unclear whether the definition of “claims provision” is meant to include the expenses necessary to settle those claims. This should be clarified with explicit language.

The definition in the penultimate bullet of paragraph 7 is deficient in that it fails to identify administrative and termination expenses specifically as elements of the life assurance provision. This same bullet leaves unanswered the question as to whether the liabilities include constructive obligations to policyholders that are not contractual but which form part of the policyholders’ reasonable expectations. Since some jurisdictions address the issue explicitly, while others rely on implicit provisioning, we believe that a clear exposition of current treatments would be worthwhile.

We recognize that these definitions are also incorporated in a glossary of terms that the IAIS has prepared. Therefore, we recommend that the changes suggested here be incorporated in the glossary as well.

Lastly, there are several other liabilities and assets arising out of non-life insurance contracts and not mentioned in this section, that are subject to estimation. These include contingent commission liabilities, deductible recoverable assets, audit premium (and other late booking premium) assets/liabilities, and premium assets/liabilities resulting from retrospectively rated insurance contracts. These items, by their omission, appear to be excluded from the paper’s scope. While that may be desirable, we suggest that the existence of these other assets/liabilities should be acknowledged.

### **II. Issues that Apply to both Life and Non-Life Sectors**

We especially endorse the paper’s reference to “*A Cyclic Process*” in establishing provisions. In fact, we might be emboldened to suggest that the process therein referred to is essentially what our profession identifies as ‘the actuarial control cycle’. Further, we applaud the identification, under the heading “*Stochastic Thinking*” in paragraph 17, of the need to reflect the nature of the

specific company including reference to local conditions in the jurisdiction. We do note, however, that data lags sometimes require the recording of ‘expectations’ before any ‘actual’ experience data can be developed. Consequently, the beginning of the cycle can vary from that described in paragraph 12.

We do recognize that a companion paper on “The Use of Actuaries” has been distributed for comment, but feel that this paper on liabilities would be improved by the inclusion of at least some reference to the unique skills and professional discipline that actuaries bring to this work.

We are surprised that there is no reference in the paper to data quality and suggest that a section devoted to that topic would be a worthy addition to the paper.

Paragraph 18 raises the important issue of assuring that all potential liabilities are being analyzed. Unfortunately, the wording herein is valid only for products where the claim must be filed while the contract is still in force and the resulting claim settlement process is completed quickly. The wording, we expect unintentionally, does not cover the situation where the claim settlement process can extend to years after the original contract is no longer ‘in force’. We suggest, therefore, that the expression “all contracts in force” be changed to “the entire portfolio of claim and other insurance contract liabilities from current and prior policies”.

In the second last line of paragraph 23, we recommend that “any solvency margin” be changed to “the solvency margin, to the extent that there is any.”. We also observe that the same paragraph states that, in the United States, accounting rules for provisions differ between GAAP and statutory regimes. It should be clarified that these differences exist mainly for life insurance products. For non-life insurance products the differences are generally not material and for many US non-life insurers they are non-existent.

There are at least two paragraphs (25 and 52) in the paper where it is assumed that the assets held affect the valuation of liabilities. This is not necessarily the case, as where the discounting rate is based on risk free rates or is dictated by statute rather than developed from company investment yields or returns.

In paragraph 27, the reference to the complex issues is most helpful. The point might be strengthened by a reference to the need for considerable experience, insight and training being essential to using such approaches properly and according to the extra risk of misuse that is inherent in the application of such methods.

### **III. Quantifying Claims Provisions for a Non-Life Insurer**

We question the need to separate the discussion into separate sections for Non-Life Insurers and Life Insurers. We expect that this has been done because many jurisdictions do not permit the establishment of mixed companies and, therefore, have a natural tendency to this separation. We note, however, that the methods identified in paragraph 35 to quantify claims provisions for non-life insurers, may also be perfectly legitimate methods for developing certain provisions of life insurers. In particular, paragraph 37 identifies a methodology that might, with care, be applied to provisions for disability income benefits offered by life insurers. Conversely, methods identified with life insurers could have legitimate application with non-life insurers.

We note that the methods listed do not provide a comprehensive inventory of those available to insurers, and suggest that the paper should acknowledge that fact. For instance, bench marking and exposure based analysis, methods used where there is only limited development history or data available, would fall under the deterministic method category. We suggest that any listing that is included make use of outside resources where available, such as accounting audit guides that may exist in several IAIS member jurisdictions. We suggest, also, that it be made clear in paragraph 21 and elsewhere that any listing of methods in the paper is not meant to be exhaustive. To leave the impression that such listing is complete could impair the development of new methods and the evolution of older ones as circumstances change.

Beyond the suggested caveat cited above, we recommend that an additional explicit method be added to the list found in paragraph 35. That method involves the use of pricing assumptions applied to the earned premium revenue. In other words, the initial estimate of claim liabilities is set equal to the assumed claim obligation underlying the newly earned premiums. This is the method that is commonly used during the period soon after insurance premiums are earned, with this estimate progressively replaced by that from another method once an actual experience is accumulated.

Paragraphs 44 through 47 discuss disadvantages of the “case estimates” method of estimating claim liabilities. This list omits a major disadvantage – the impact of outlier events. Case estimates typically focus on the most likely result from the claim, or in technical terms, the mode of the claim severity probability distribution. The claim estimates are adequate in aggregate only if those modes are good estimates of the mean. But if the distribution of potential outcomes is highly skewed, such that the risk of actual payments being much higher than the most likely scenario is greater than the risk of payments being much lower, then the case estimate method will chronically underestimate the total claim liability. This situation is most common for lines with high claim severity risk, where all facts that determine the ultimate severity are typically unknown or are unknowable at the time as case value estimation<sup>1</sup>.

Another major disadvantage of case estimates, not mentioned in the list, for lines with long payment delays lies in the treatment of future inflation. Often, cases are estimated on the basis of current standards, with no allowance for future inflation. Alternatively, this aspect may be left entirely up to individual estimators, which is likely to result in inconsistent estimates.

The IAA thinks that the case estimate method is so subjective and has such serious weaknesses that the claims provisions should not be determined solely on the basis of the "case estimate" method without any other analysis. This method is not likely to be appropriate as a method of estimating total liabilities in most jurisdictions. It could be used only as a temporary solution in such circumstances that other methods are not available, e.g. due to lack of actuarial expertise.

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<sup>1</sup> As one example of this situation, consider a group of covered tort claims where the underlying injuries are back injuries. It may take several years before the full extent of the insured damages on each claim is known. Most of the claims will probably be close to the mode or most common outcome given the initial facts, but a few claims will result in outlier values, much higher than the initial estimate set at the mode value. The sum of the initial estimates for the claims will almost always be deficient in the aggregate.

We recommend deletion of the first sentence in paragraph 48, since it does not describe the situation in many cases where run-off triangles are used. Where aggregate dollars are used in the triangles, no frequency scenario is used. Where the triangles are based on incurred amounts, no payment pattern scenario need be used. Deletion of the first sentence in that paragraph would resolve these problems, and not impair the rest of the paragraph.

The meaning of paragraph 49 is not clear to us. Is the intent to say that different methods or different approaches may be desirable for different product lines? Some clarification would be helpful.

We question the first sentence of paragraph 51, which states that the runoff triangle methods require more assumptions than the case estimates method. In most cases, the reverse is true. The reason for the confusion may be that the dozens of assumptions (or fewer) made in the runoff triangle method are more visible to the analyzer of aggregate data, while the hundreds or thousands of assumptions underlying the aggregate of the claim estimates (several assumptions per claim, times hundreds or thousands of claims) are not visible to the user of aggregate data.

Paragraph 52 states that investment earnings rates are required for the runoff triangle method. This is the case only if the claim liability is a function of interest rates, but is not the case for many general insurance liabilities throughout the world. In addition, where investment earning rates are an issue in the use of a runoff triangle method, they would also be an issue in all other methods (including the case estimates method).

Paragraph 53 states that the runoff triangle method may be harder to explain to company management than the case estimates method. This is true if the management treats the case estimates as a given with no questions asked. However, an attempt by management to gain the same level of understanding of the aggregate case estimate result would require more time and education, due to the necessity to discuss individual claim facts and circumstances. Therefore, we suggest that this paragraph be clarified or deleted.

Paragraph 58 may be overstating the degree of information obtainable from stochastic approaches. In general, the amount of information garnered from such an approach is limited by the amount put in, including the degree of sophistication involved in building and maintaining the model. In order to gain a “complete view” of the company situation, including cash flow, investment portfolio management, reinsurance credit risk, tax, etc., the stochastic model would have to be extraordinarily detailed. It is possible if not likely that most stochastic approaches would produce something less than a “complete view” of the company.

An additional danger of stochastic approaches is the potential to become too detached from the actual claim processes. Models are only an approximation of reality, and since the real world is in a state of constant change, the claim liability estimation process in the model must be constantly apprised of changes that are taking place and how they affect the insurer’s liability. This constant reassessment and re-evaluation process is sometimes lost when estimators look solely at their existing models for answers.

We do take issue with the implicit presumption in paragraph 65 that the allowance of discounting is only important for a life insurer that writes long term contracts. Surely, discounting is equally important in assessing provisions for a non-life insurer that writes long term contracts or is faced with long tail liabilities.

We heartily endorse the statement in paragraph 68 that “Discounting should be explicit.” However, the paragraph goes on to suggest implicitly that, where provisions are established without considering inflation, this omission can be addressed merely by labelling such estimates as discounted estimates, with the discount rate equal to the assumed rate of inflation. We fear that such presumption is simplistic and dangerous. To presume that the discount rate and inflation rate are not materially different without testing the premise can lead to a significant understatement of the provision. Further, even if analysis in a particular case does demonstrate that the discount rate and the inflation rate essentially offset one another, the provision would be still deficient to the extent that no margin is provided for other estimation risks.

Paragraph 70 implies that there is only one way to reflect the amortization or unwinding of discount coming from the movement of discounted policy liabilities over time – by tracking and separately reporting the investment income coming from the assets supporting the discounted liabilities. But other approaches, such as charging investment earnings for the interest expense required to unwind the discount, do exist. This latter approach does not require an assignment of specific assets to a pool of liabilities. We recommend that this paragraph be amended to recognize different approaches in accounting for the unwinding of discount.

#### **IV. Quantifying Life Assurance Provisions**

In paragraph 72, the second sentence should identify that future expenses as well as claims should be incorporated in the present value calculation. In fact, we think the second sentence would be improved if the final pair of phrases were changed to “of the present value of benefits and expenses.”

Regarding paragraph 74, while it is true that many applications of net premium valuation methods consider net premiums to provide only for death and maturity, it is not true of all. There have been net premium methods developed which provide, in addition, for withdrawal and surrender benefits. Moreover, subsidiary rider benefits such as income replacement and premium waiver benefits have been, and still are, often valued using net premium methods.

In respect of paragraph 76, in such an implicit method, the discount rate is reduced, not only to allow for future expenses and profits as noted in the discussion paper, but also for benefit options that may exist but have been excluded from the calculation of the net premium.

We note the use of the term ‘reversionary bonuses’ in the first bullet of paragraph 77. While the statement is accurate, we suggest that a more widely used expression is ‘policyholder dividends’. Consequently we suggest that the concluding portion of the bullet be altered to “profits to policyholders through policyholder dividends or reversionary bonuses;”.

It should be mentioned in paragraph 78 that some jurisdictions adopt supplemental means - such as cash flow projections - to make up for the deficiency of net premium valuation methods.

We suggest that the first sentence of paragraph 82 be augmented by adding “and other policyholder options.”

Paragraph 86 addresses the issue of early duration negative provisions and notes that there are at least two ways of dealing with such amounts. We suggest that it would be worthwhile to elaborate on this point in the paper and to identify the consequences of adopting one or other of these alternatives (for instance, in respect of understandability, or even credibility, of the income statement).

Under the general section on ‘*Issues for Additional Consideration*’, we believe that provisioning for interest rate guarantees and other financial options sometimes provided in life insurance policies should be discussed. We recognize that, currently, few jurisdictions explicitly require such provisions, but in a few years time it is likely to be very relevant.

## **V. Quantifying Provisions for Unearned Premiums and Unexpired Risks and Other Provisions**

Paragraph 88 introduces the topic of Unearned Premium Provisions. While we recognize that it is a traditional usage, we suggest that a provision for unearned premiums is only meaningful as an approximation to the total provision for unexpired risk. Since it is necessary, prudentially, to determine whether it is adequate to meet the obligation for unexpired risk (and if not, as noted in the second sentence, to hold an additional amount), we suggest that “provisions for unearned premiums” be abandoned as a concept and be replaced simply by “provisions for unexpired risk”. Then the amount of unearned premiums may in certain circumstances be found to be an acceptable approximation to the provision for unexpired risk.

In any case, the discussion of existing methods for calculating Unearned Premium Provisions is incomplete. While pro-rata may be the most widely used method for reflecting revenue for many short duration contracts, it is not the only approach to scheduling the reflection of revenue for a contract. For instance, in the U.S., GAAP guidance directs one to “recognize revenue ... in proportion to the amount of insurance protection provided”, and statutory accounting guidance uses similar language. For contracts with seasonal or non-level protection over the policy term, revenue may be recognized in a pattern that is not proportional to the expired time period. One example where non-level recognition is warranted is for a policy with an aggregate deductible on which multiple claims are expected during the policy term. In such case, the risk of loss as the end of the policy term approaches is much greater than at its outset.

## **VI. Reinsurance**

Paragraph 110 may create the incorrect impression that all facultative reinsurance is of the excess-of-loss form. Some facultative reinsurance contracts provide proportional coverage, rather than excess-of-loss coverage.

## **VII. Assessment of Provisions by Supervisors**

Paragraph 120 addresses the issue of adequacy of provisions. We suggest that, before the supervisor can get a clear understanding of the extent to which the technical provisions are adequate, the supervisor must understand what “adequate” means. Indeed, the companies and

the valuation actuaries must understand what the supervisor means by “adequate”. Is it a 100% certainty that all claims will be met? If so, there is no need for required capital. We suggest that “adequate” should be an expectation, not of the technical provisions, but rather of the combination of technical provisions and required capital.

**VIII. Summary**

We commend the subcommittee on incorporating an excellent summary of the discussion paper. We do think that the fourth bullet of paragraph 124 would be improved by amending it to read, “It is important that the amounts set aside to cover future liabilities represent a complete assessment of the risks associated with those liabilities.”

We also have some concern with the IAIS’ endorsement of the case estimate method (eighth bullet of paragraph 124) as a method for determining the aggregate claim provision. We believe that this method can potentially be dangerous and applied inappropriately unless suitable safeguards are in place, such as regular testing of the aggregate adequacy of the result. Consequently, we caution against endorsing it in a summary where the necessary safeguards are not sufficiently discussed.

*Appendix*

**FULL MEMBER ASSOCIATIONS OF THE IAA**

Consejo Profesional de Ciencias Económicas de La Ciudad Autónoma de Buenos Aires (Argentina)  
Institute of Actuaries of Australia (Australia)  
Aktuarvereinigung Österreichs (AVÖ) (Austria)  
Association Royale des Actuaires Belges (Belgique)  
Instituto Brasileiro de Atuária (IBA) (Brazil)  
Canadian Institute of Actuaries (Canada)  
Cyprus Association of Actuaries (Cyprus)  
Česká Společnost Aktuárů (Czech Republic)  
Den Danske Aktuarforening (Denmark)  
Egyptian Society of Actuaries (Egypt)  
Estonian Actuarial Society (Estonia)  
Suomen Aktuaariyhdistys (Finland)  
Institut des Actuaires (France)  
Deutsche Aktuarvereinigung e. V. (DAV) (Germany)  
Hellenic Actuarial Society (Greece)  
Actuarial Society of Hong Kong (Hong Kong)  
Hungarian Actuarial Society (Hungary)  
Félag Íslenskra Tryggingastærðfræðinga (Iceland)  
Actuarial Society of India (India)  
Society of Actuaries in Ireland (Ireland)  
Israel Association of Actuaries (Israel)  
Istituto Italiano degli Attuari (Italy)  
Institute of Actuaries of Japan (Japan)  
Japanese Society of Certified Pension Actuaries (Japan)  
Lebanese Association of Actuaries (Lebanon)  
Colegio Nacional de Actuarios A. C. (Mexico)  
Het Actuarieel Genootschap (Netherlands)  
New Zealand Society of Actuaries (New Zealand)  
Den Norske Aktuarforening (Norway)  
Actuarial Society of the Philippines (Philippines)  
Polskie Stowarzyszenie Aktuaruszy (Poland)  
Instituto dos Actuários Portugueses (Portugal)  
Academia de Actuarios de Puerto Rico (Puerto Rico)  
Slovensko Aktuarsko Društvo (Slovenia)  
Actuarial Society of South Africa (South Africa)  
Col.legi d'Actuaris de Catalunya (Spain)  
Instituto de Actuarios Españoles (Spain)  
Svenska Aktuarieföreningen (Sweden)  
Association Suisse des Actuaires (Switzerland)  
Actuarial Institute of the Republic of China (Taiwan R.O.C.)  
Faculty of Actuaries (United Kingdom)  
Institute of Actuaries (United Kingdom)  
American Academy of Actuaries (United States)  
American Society of Pension Actuaries (United States)  
Casualty Actuarial Society (United States)  
Conference of Consulting Actuaries (United States)  
Society of Actuaries (United States)