



## **INTERNATIONAL ACTUARIAL ASSOCIATION (IAA) THE FUNCTION OF THE ACTUARY IN PRUDENTIAL SUPERVISION**

### **Introduction**

The International Actuarial Association, (“IAA”) is the organization of actuarial associations representing over 95% of the world’s professional actuaries all of whose full members are subject to qualification standards and codes of professional conduct. The qualification standards require a combination of education and experience that assure a unique understanding of the insurance industry, the operations of insurance companies, and the internal and external factors that impact insurance companies.

This paper documents a range of functions in which actuaries can be engaged in the prudential supervision of insurance companies. It incorporates a number of activities that insurance supervisors may call upon actuaries to perform, all of which can be of substantial assistance and value in the regulatory process.

We recognize that the roles that actuaries are expected to perform will vary over time by country, line of business, relationship to the company, and corporate structure and culture. These differences must be taken into account in applying the various comments and recommendations contained in this paper and the reader should not expect that every recommendation can or should be applied in every circumstance. It is hoped, however, that this paper will provide some insights into ways that actuaries may be able to help make the supervision of the business of insurance more effective and more efficient.

We also recognize that various terms related to the business of insurance and corporate governance are used in different ways in different lines of business, countries and cultures and many of those differences cannot be addressed in this relatively short paper. For example, this paper is written from the more common perspective of a Board of Directors having ultimate responsibility over the management of an insurer but we recognize that other models may also be applicable even though they are not addressed herein. Another example is the treatment of policyholders is phrased in terms of “policyholders’ reasonable expectations” but in some jurisdictions the treatment of policyholders is determined in different ways using different descriptive language.

While each of the activities documented in this paper is within the scope of actuarial capability in most jurisdictions, the actuaries in a specific jurisdiction may not yet be in a position to carry out a particular assignment for a variety of reasons such as limited numbers or experience of members, relative maturity of the profession and its members, or inadequate legal framework. Therefore, insurance supervisors should recognize that additional preparation may be required by the local actuarial organization or amendments may be required in applicable legislation, before

actuaries in the jurisdiction can fulfill such responsibilities. The IAA is prepared to assist both the local regulator and the local actuarial association wherever desired.

The evolution of prudential supervision of insurance companies is at different stages in different countries and we recognize that conditions in a particular jurisdiction such as the size and number of companies, the products they sell, and resources available to regulators also determine, in large part, the appropriate regulatory regime. The role of actuaries in that supervision also varies and is evolving everywhere, extremely rapidly in some places. The various functions described in this note represent a range of approaches that we hope that IAA member associations and the regulators with whom they work can utilize to progress toward more effective and efficient prudential supervision. This document will itself evolve as actuarial capability and accepted practice in prudential supervision each develop

The paper also sets out both issues in prudential supervision that the IAA believes should be of particular concern to regulators and significant factors that actuaries consider in evaluating insurers' financial condition. This document should be read in conjunction with the more detailed note, "Insurance Liabilities – Valuation and Capital Requirements," prepared by the IAA's Insurance Accounting Committee as an adjunct to their consideration of the IASC's 1999 Insurance Issue Paper.

This paper is meant to be a basis for broad ongoing dialogues with both the IAA member organizations and with the International Association of Insurance Supervisors ("IAIS") on the involvement of actuaries in the prudential supervision of insurers. In particular, this paper extends the scope of the Committee's response to the IAIS's own paper, "On Solvency, Solvency Assessment and Actuarial Issues," published in April 2000. We are also aware that IAIS has published a draft paper, "The Use of Actuaries as Part of a Supervisory Model." We hope that this paper along with ongoing dialogue may be of assistance in that process.

## **The Importance of Prudential Supervision**

The IAA is committed to the effective supervision of insurers and fully supports the work of the IAIS in raising standards in all aspects of the prudential supervision and management of solvency of insurers. In particular, the IAA continues to promote high standards of actuarial practice in regard to insurance finances. The IAA is doing this by promoting common standards for examining technical competence, for professional conduct and for disciplinary procedures. Clearly, these practices, when implemented in a particular jurisdiction, will need to conform to local laws and regulations. The IAA recommends that the IAIS encourage the convergence of the principles of regulations where practical.

The actuarial profession is especially well placed to support regulators in safeguarding the interests of policyholders. This is partly because the profession's training and practice provides insight and experience in managing the risks which insurance companies face. It is also because, the requirement to serve the public is highlighted in the principles of the profession (IAA Statutes, Article 3).

## Framework for Solvency and Capital Adequacy

The IAA believes that, in order to operate prudently, the total financial requirement for an insurer can best be expressed as the sum of:

- (i) a realistic provision based on the expected value of future experience (described below as the funding criterion) which meets the existing obligations of the company; plus
- (ii) an additional capital sum based on the risks in the insurer's business (generically known as "risk-based capital") and the insurer's immediate business and capital investment plans, and which is intended to provide a minimum defined level of capital adequacy.

The IAA favors this approach because it believes that an insurer's ongoing financial soundness is maintained through a combination of profitable business operations and sufficient capital. Profitable operations indicate that the insurer is building its capital base and is likely to remain in business for the foreseeable future. It also gives some indication of the quality of management. Sufficient capital indicates that the insurer can meet, with a particular level of confidence, the inevitable fluctuations in risk exposures, claim amounts and financial circumstances that may be expected to occur over the runoff of its existing policy obligations, while funding the essential capital requirements of new policies, technological developments and general business initiatives.

The analysis and management of insurance risk have been core skills of the actuarial profession since its earliest days and continue to be central to its scientific development. The IAA sees this process as a key responsibility of the actuarial profession and encourages investigation into the identification, understanding and quantification of the risks inherent in insurance enterprises. It seeks to bring together relevant research and practical experience, both by actuaries and by other related disciplines such as financial economists, accountants and risk managers, as well as work by seismologists, engineers, meteorologists, epidemiologists and the like, in order to provide a coherent risk framework to the insurance industry and its regulators. On the basis of this developing risk framework, the IAA seeks to investigate appropriate structures for risk-based capital measures.

The IAA recognizes that the prudent management of an insurer depends on broad application of risk management techniques; techniques such as the use of dynamic financial models, scenario testing, statistical estimation and credibility analysis to identify the steps management can take to understand, avoid or mitigate adverse outcomes. Actuaries' knowledge of risk analysis techniques, coupled with practical experience in applying them, permits actuaries to play a central role in maintaining the integrity of this process.

Regulators of financial institutions are coming to appreciate the value of comprehensive solvency management to assess a company's financial soundness. The actuarial profession endorses this development. If regulators wish to rely, in the future, on such comprehensive

solvency management, the actuarial profession is well placed to provide professional opinions concerning, and to participate in, the work performed.

Further, the ongoing financial soundness of insurers depends not only on quantitative data but on qualitative analysis as well as an effective business framework. This includes coherent and comprehensive risk management systems, a “fit and proper” regime for directors and executives and strong corporate governance procedures. In many jurisdictions, the actuarial profession has been able to contribute its experience and perspective to help strengthen the design of such qualitative prudential systems.

## **The Involvement of Actuaries**

In the simplest of insurance regimes, supervisory authorities may choose to rely solely on the regular preparation and submission of prescribed financial data based on a formulaic approach. The training and expertise of actuaries can be helpful in such a process, particularly in developing and validating the appropriate formulas, but may not be absolutely essential in the application of the formulae.

However, the growing sophistication and complexity of insurance products and markets make reliance on a formulaic approach as the primary solution increasingly unreliable. Unless innovation is to be curtailed, the evolving insurance industry will generally require a supervisory framework beyond a rigid supervisory structure. In addition, for some products such as general insurance, the dynamics of the claims process render inherently unreliable the use of rigid formulae across all companies. We believe that supervisory authorities can rely upon actuaries’ experience, training and professional integrity to support more dynamic regulatory oversight.

Actuaries, as members of a professional body, must meet high standards of conduct, qualification and practice. They are monitored by their professional colleagues and are subject to disciplinary procedures, a professional process specifically developed to strengthen the level of confidence on the part of insurance supervisors.

Actuarial professional bodies develop codes of conduct that require actuaries to meet high standards of integrity and competence. Codes of conduct also set the priorities by which actuaries must abide, regardless of commercial pressures (although it is strongly recommended that these codes of conduct be underpinned by a supportive regulatory and legislative system).

The IAA has begun developing international standards of practice, particularly with respect to the implementation of international accounting requirements. The IAA also encourages local actuarial associations to develop nation specific standards of practice for actuaries working in their countries. Consequently, professional standards, of both conduct and practice are being established and maintained at all appropriate levels.

The IAA believes that the supervision of insurers is well served by the active involvement of actuaries in a broad range of financial activities including, whenever feasible, management at a senior level within a company or organization. In some instances, when supported by the

appropriate legal framework and safeguards, the IAA has seen great value from the appointment of one actuary as the "responsible" or "appointed" actuary to take professional responsibility for the management of actuarial aspects of the insurer's operations, including the evaluation of the financial risks that could affect the insurer's capital needs. In other cases, we have seen the effective use of more than one actuary to provide the actuarial opinions required by law. The IAA recognizes that accountants, lawyers, experts in particular risks such as seismologists, and other professionals also provide important expertise to the overall management of insurance companies. However, actuaries' unique blend of training, professional standards and practical application enable them to quantify, project and manage the full range of risks making their participation on an insurer's team of management professionals invaluable. This should be the benchmark by which alternative risk control mechanisms are tested and we believe that, for most practical purposes, this makes the presence of a "responsible" actuary an essential component.

### **The Range of Actuarial Involvement in Prudential Supervision**

The "responsible" actuary, where that approach to actuarial involvement in management is adopted, should have direct and regular access both to the Board of Directors of the insurer and to the highest level of executive management. The IAA believes that supervision is best served by involving the actuary in all of the five areas described below. In general, effectiveness is usually diminished by excluding one or more of them. The key areas for which active actuarial participation may be considered valuable are:

- (i) Pricing and product design;
- (ii) Monitoring the expectations of policyholders and potential policyholders where policies allow the management of insurance companies to exercise discretion over contractual terms and conditions.
- (iii) Establishing aggregate policy and claim liabilities;
- (iv) Determining compliance with legal or regulatory capital requirements when applicable and recommending appropriate capital levels; and
- (v) Reporting responsibility directly to the Board and, if statutorily required, to Regulators.

The relevant professional body should assist or provide a process, firstly, to prepare "responsible" actuaries to make sure that they will be appropriately educated and experienced for each of these responsibilities and, secondly, to monitor the discharge of their professional duties.

#### **I. Pricing and product design**

The premium level set by an insurer is the responsibility of the Board of Directors of the insurance company, except to the extent that regulators restrict the premium setting process in the territory concerned. In some corporate structures, the Board often delegates this responsibility to management. Nevertheless, good supervision requires that the Board be advised as to the financial implications of adopting any proposed premium pricing policy. The

responsible actuary should be able to provide advice as to the soundness of the product's structure and whether the premiums are capable of covering the estimated cost of:

- (i) the policy obligations;
- (ii) the capital required to support the operation of the policy;
- (iii) any policy options against the insurer, including the cost of hedging any risks (as desirable). Where risks are unmatchable or uncontrollable, the responsible actuary should be able to bring this to the attention management and the Board and to explain the consequent increase in capital requirements; and
- (iv) front and back office operations.

If the premiums are not capable of covering these costs, it is necessary to demonstrate that the organization can absorb such subsidized pricing without impairing its overall financial soundness.

Actuaries' participation in product design and pricing can help balance the interests of policyholders and shareholders, giving the regulator confidence that insurers are selling policies which are sound in the context of their overall financial strength. This may allow regulators, in some cases, to dispense with the process of requiring prior approval of premium rates or dividend scales.

## **II Safeguarding Policyholder Interests**

Many insurance policies, particularly life policies, permit the insurer to use discretion in applying the terms and conditions relating to benefits that are not guaranteed. Also, outcomes for policyholders can be uncertain, for example, because of future investment conditions. In these circumstances, while others may have direct responsibility for the fair treatment of policyholders, the responsible actuary can, as part of the regulatory requirements, monitor the reasonable expectations of policyholders and how they are treated as the insurer exercises the contractual discretion in the policy. While others might be given this monitoring responsibility, we believe that, in most instances, the responsible actuary is in a strong position to do this work and can be assisted by professional standards of practice.

Policyholders' expectations might arise either through information provided at the time of sale, or through the continuing practice of the insurer. If the responsible actuary believes that the reasonable expectations of policyholders are not being met, this should be brought to the attention of management and the Board, so that:

- (i) promises made are honored;
- (ii) an equitable distribution of policyholder dividends/bonuses occurs consistent with the "reasonable" expectations of policyholders;

- (iii) unit pricing for unit linked policies is accurate and is reflective of expected administration;
- (iv) discretionary interpretations of policies do not unnecessarily disadvantage the policyholder; and
- (v) illustrations to prospective policyholders are not overly optimistic or otherwise misleading.

### III. Establishing Aggregate Policy And Claim Liabilities

The estimation of insurance liabilities, including policy provisions and aggregate claim liabilities, is a major area of focus for actuarial science. For many insurance products, the actuarial training and education programs are the only professional programs designed for this work. Therefore, it is imperative in many situations for an actuary to be involved in the setting of reported insurance liabilities.

Depending on the regulatory expectations, the actuary can be used to do some or all of the following for and on behalf of the Board to determine whether the total assets of the insurer can meet the following criteria:

- (a) **Funding Adequacy:** the total assets backing insurance liabilities and required capital plus future premiums and asset revenues are expected to be sufficient to cover:
  - (i) the current expected value of the contractual and constructive obligations (including benefits and claim administrative costs) under the existing business in force and existing claim obligations, together with appropriate margins for risk;
  - (ii) capital requirements;
  - (iii) risk absorption and hedging;
  - (iv) administrative costs; and
  - (v) the funding of sales activity in the near term.
- (b) **Earnings Capacity:** an assessment of the expected future free cash flows (from all existing and planned new business) should, under reasonably rigorous future scenarios, be adequate at any point in the future to provide for:
  - (i) appropriate incidence of distributable profits;
  - (ii) transferability of policy liabilities; and
  - (iii) advance warning of adverse developments.

#### IV. Determining Appropriate Capital

With their skills and experience in statistics, finance, insurance products and insurance operations, actuaries can advise on appropriate aggregate policy and claims liabilities and the range and likelihood of possible outcomes. Actuaries can also assess, advise and report on the current and future capital needs of insurance operations under a range of circumstances.

- (a) **Dynamic Capital Adequacy Analysis:** Capital should be sufficient under realistically rigorous future scenarios including the impact of operational risk either:
- (i) To supplement available funds to cover the cost of policy obligations and operations; or
  - (ii) To transfer the liabilities to another carrier.

A number of insurance regulators rely on responsible actuaries to undertake these functions in insurance operations as this provides a level of detailed and continuous analysis which the regulators themselves often are not able to provide. When the responsible actuary also supplies a confidential report to management and the Board as well as the regulator, this provides a good mechanism for regulatory oversight and query by the regulator back to the company.

- (b) **Strategic Capital Adequacy:** Total free surplus plus free asset revenues should be sufficient, according to the organization's approved medium term business plan, to finance future expected new business costs and associated solvency requirements.

The involvement of actuaries in general business planning encourages a proper balance of shareholder and policyholder interests from the outset. This in turn fosters a prosperous and financially strong insurance industry, which is in the long-term best interests of the insuring public, without unduly compromising the legitimate financial interests of current policyholders.

#### V. Direct responsibility to the Board and to Regulators

In some countries, the law may enable the supervisor to place a specific duty on the responsible actuary to inform the supervisor when plausible adverse conditions may threaten the solvency of the insurer, the legitimate interests of policyholders or be otherwise hazardous. In those situations, the responsible actuary is usually in a senior executive position and may even be required to hold such a position. However, he or she typically will not have direct control over all the actions to protect policyholders' and claims beneficiaries' interests, either in terms of company solvency or of policyholders' reasonable expectations as to the company's exercise of contractual discretion.



For the responsible actuary to determine whether appropriate action is being taken to protect policyholders and beneficiaries, he or she must have access to the necessary information and the right as well as the responsibility to present his or her concerns first to management and if necessary to the Board.

If the Board fails to take reasonable steps to respond to the responsible actuary's advice, then it may be appropriate that the responsible actuary have the additional legal responsibility to express his or her concerns to the supervisor as a last resort when all other avenues for persuading the insurer's management have been exhausted. Should the law require such regulatory notification, it is a necessary part of this regulatory process that any responsible actuary forced to take this course should have protection from unfair termination of employment (to the extent practical) or from legal action by the insurer or its owners as a result of fulfilling his or her statutory duties.

## **Conclusion**

The enactment of laws requiring the appointment of a responsible actuary, as one of the professionals supporting an insurance company, can greatly strengthen the company's risk and capital management, to the increased security of policyholders and the benefit of the company and regulators.

When supervisors adopt other approaches to prudential regulation, appropriate involvement of actuaries can still enhance the efficiency and effectiveness of the regulatory process. We encourage supervisors to work with the IAA's member associations to determine the appropriate functions for actuaries providing professional services in their jurisdictions.