



**ASSOCIATION ACTUARIELLE INTERNATIONALE  
INTERNATIONAL ACTUARIAL ASSOCIATION**

September 14, 2004

The Morris Review  
Room GC/08  
1 Horse Guards Road  
London SW1A 2HQ  
United Kingdom  
(Email: [morris.review@hm-treasury.x.gsi.gov.uk](mailto:morris.review@hm-treasury.x.gsi.gov.uk))

Dear Sir,

**Re: Morris Review of the Actuarial Profession**

The International Actuarial Association (IAA) appreciates the opportunity given to comment on the Morris Review of the Actuarial Profession released March 2004. I am very pleased to submit the attached public statement of the IAA, a response prepared through our Committee on Professionalism, the members of which are listed in an appendix to this statement by name and association, in collaboration with member associations of the IAA. The Full Member associations of the IAA are also listed in an appendix to this statement.

If upon reading these comments you identify any points that you would wish to pursue, please do not hesitate to contact the chairperson of the Professionalism Committee, Jean-Louis Massé, or any of the other members of the committee. The IAA will be pleased to develop these ideas further with you.

Yours sincerely,

Yves Guérard  
Secretary General

Attachments:

*IAIS Guidance Paper – The Use of Actuaries as Part of a Supervisory Model*  
*Back to Basics: Critical Financial Sector Professions Require in the Aftermath of an Asset Bubble*  
*IAA Paper – The Function of the Actuary in Prudential Supervision*

cc: Jean-Louis Massé, Chairperson, Professionalism Committee

**A PUBLIC STATEMENT OF THE INTERNATIONAL ACTUARIAL ASSOCIATION  
IN RESPONSE TO THE *MORRIS REVIEW***

**September 14, 2004**

The International Actuarial Association (IAA) appreciates this opportunity to respond to the *Morris Review of the Actuarial Profession: A Consultation Document* (the *Morris Review*). The IAA is an international association of actuarial associations, with fifty full member associations, twenty-four associate member associations, and several institutional members. The members of these actuarial associations account for over thirty-five thousand actuaries in over seventy countries, which represents more than ninety-five percent of all actuaries around the world.

The IAA is structured as follows. Its Council is the governing body. Each full member association has a right to vote at Council. The limit of four votes to the largest associations and the rule of an eighty percent positive vote for key decisions provide a delicate equilibrium in the representation of various points of view. The president is elected for a one-year period and is usually selected to assure that all large regions around the world are represented on a three-year rotation basis. Committee chairpersons are nominated for a fixed term. Full member associations can nominate representatives to most committees, subject to Council approval.

The IAA has a number of committees such as education, financial risks, insurance accounting, insurance regulation and solvency, pensions, and employee benefits, professionalism, social security, and supranational relations. The IAA also has six member-focused sections, namely, the section for Actuarial Studies In Non-life Insurance (ASTIN), the section for Actuarial Approach for Financial Risks (AFIR), the International Association of Consulting Actuaries (IACA), the IAA Health section (IAAHS), the Pensions, Benefits, Social Security section (PBSS) and the Actuaries Without Frontiers section (AWF). The IAA statutes embody a principle of “subsidiarity”, which means that the IAA’s role and activities complement those of its member associations.

The IAA’s stated objectives include promotion of “high standards of professionalism within the worldwide actuarial profession to ensure that the public interest is served”. To that end, the IAA requires its full member associations to have, among other things: a code of professional conduct for the association’s members that emphasizes integrity and competence to practice; a formal discipline process; and an appropriate due process for the adoption of standards of practice. At a minimum, member associations’ codes of conduct must be at least as rigorous and comprehensive as the Principles of the “Groupe Consultatif”, which is similar to the rules and code of professional conduct of the Canadian and U.S. professions and those of other countries. The IAA also maintains educational guidelines to assist its member associations to establish appropriate educational requirements for their members.<sup>1</sup> The IAA routinely issues public statements on topics with actuarial implications, often in response to requests from international bodies.

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<sup>1</sup> Additional information about the IAA appears on our Web site, [www.actuaries.org](http://www.actuaries.org).

The IAA is committed to supporting effective supervision of all financial institutions, including insurance companies, pension schemes (public and private) and social security programs. The IAA works directly with the international community of insurance and other relevant supervisors to foster strong regulatory and solvency management through the adoption and implementation of legislation and regulation that establishes and maintains appropriate roles for actuaries in the oversight of and advice to financial institutions. The IAA also works with its member associations to encourage promulgation and enforcement of conduct, qualification and practice standards that promote a high level of professionalism for all actuaries, including those who fulfil statutory roles.

The financial systems of countries vary significantly around the world depending on a variety of factors, including: the size and strength of a nation's economy; the complexity of its financial markets; the sophistication of its financial reporting systems; its cultural values; availability of education for its aspiring professionals; and the structure of its legal system. Typically, well-developed economies and strong regulatory systems make greater and more sophisticated use of actuaries than do countries with developing economies in some cases and less effective governmental supervision of financial institutions. Consequently, actuaries play significantly different roles around the world within their countries' financial systems.

This response is structured with the intent to be consistent with the *Morris Review* consultative document, and is intended to provide an overall response to the consultative document, rather than specific answers to each of its questions. The IAA defers to its member associations to respond to the *Morris Review*'s specific questions with information about actuarial practice in their respective countries and, particularly, to the Institute and Faculty of Actuaries to provide information specific to U.K. practice. Nevertheless, we would be pleased to provide further discussion of the issues referred to or that are relevant to the *Morris Review*.

## ***Chapter 1 — The Role of Actuaries, the Profession and the Actuarial Services Market***

### ***The Scope of the Actuarial Role***

The attached IAA paper titled, *The Function of the Actuary in Prudential Supervision*, provides an overview of the IAA's views on the scope of the roles of actuaries in insurance company supervision.<sup>2</sup> Particularly in developed countries with well-established professional associations, actuaries are trained in the evaluation of the financial implications of contingent events, techniques and application of: actuarial and financial mathematics; probability and mathematical statistics; fundamental concepts of both microeconomics and macroeconomics; accounting and financial statements of companies; principles and application of modelling, at times stochastic modelling (particularly of risks associated with actuarial work); application of actuarial principles to the valuation, appraisal, selection and management of investments; application of principles of actuarial planning and control to the operation of risk-related programs of financial entities; professionalism; capital management; risk analysis; and principles of company management. Their training provides actuaries with a uniquely sophisticated and broad understanding of the risks associated with various types of insurance that, properly applied, can

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<sup>2</sup> This paper was presented to the International Association of Insurance Supervisors (IAIS) in late 2002.

greatly enhance the ability of insurers to design, market and deliver products that can appropriately serve consumers while maintaining the solvency of individual companies and the insurance industry as a whole.

In many countries, actuaries are asked to fulfil specific statutory roles with respect to the solvency of insurance companies or the suitability of particular insurance products. The International Association of Insurance Supervisors (IAIS) addressed the desirability of reserving statutory roles for actuaries in its October 2003 paper, *The Use of Actuaries as Part of a Supervisory Model* (attached, and referred to hereinafter as the *IAIS paper*).<sup>3</sup> The *IAIS paper* comes to a number of conclusions that are relevant to the *Morris Review*, beginning with its initial conclusion that the application of actuarial expertise “is a key component in the operation of insurers, insurance markets and insurance supervisory authorities”. The paper demonstrates that in many countries insurance regulators who have worked with actuaries in reserved statutory roles acknowledge the significant value actuaries bring to the operation and supervision of the insurance industry. We agree with the IAIS’s observations in this regard.

It is important for actuaries functioning in reserved statutory roles to have appropriate oversight, with a statutory model that defines and limits the responsibilities and rights of the actuary, while requiring participation of management and other professionals can provide such oversight. While actuaries bring to the insurance industry valuable and in many cases unique skills and experience, they typically do not have direct control or final authority over all actions used to protect the interests of policyholders and beneficiaries, either with respect to company solvency or with respect to policyholders’ reasonable expectations generated by a company’s marketing materials or exercise of contractual discretion.

Company management, who remains primarily responsible for the business practices and success of a financial institution, can benefit from actuarial advice. In addition, their reliance on actuaries can be far more beneficial when those actuaries work closely with other professionals who advise management through the application of skills that complement those of the actuary. Further, actuaries’ education, absent other training or work experience, typically does not qualify them to practice in other profession’s fields such as accounting, economics, investment counselling, or law without other applicable education and experience. The *IAIS paper* recognizes that, when reserving statutory roles for actuaries, it is important to provide the actuary with clearly defined tasks and responsibilities as well as rights and obligations under law, and we believe the roles of all professionals advising a company should be similarly defined. The *IAIS paper* also concludes that the roles of actuaries and external auditors, and the relationships between them, are enhanced by clear definition of their respective responsibilities.

The importance of effective regulatory involvement must also be stressed. It is important that the roles and responsibilities of the insurance regulator be clearly defined. As the *IAIS paper* indicates, when the actuary functions in a statutory role, “the supervisor should not merely accept the work of the actuary without further scrutiny, but should have access to actuarial resources to review and interpret the advice of the responsible actuary.” Thus, while supervisors benefit from the expertise of actuaries functioning in statutory roles, the supervisors should retain the

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<sup>3</sup> The IAIS’s conclusions are listed in the Appendix to this document.

responsibility to understand and respond to that advice, particularly in countries with developed economies and well-developed regulatory infrastructures.

Peer review has developed at different speeds in different countries, with different approaches used among the actuarial practices. The IAA has only recently started collecting details of various practices among national associations and has not yet developed a generally accepted view on the topic.

We refer later to the contributions of actuaries in the areas of pensions, social security, and risk management. Although there are differences in the way these areas are structured and regulated, many of the comments made above are equally applicable to other areas in which actuaries practice.

### ***Accountability of Actuaries***

Actuaries belonging to full member associations of the IAA are subject to professional codes of conduct that specifically require the actuary to provide professional services with integrity, skill and care consistent with the public interest. These codes also address conflicts of interest. Failure to comply with this requirement subjects the actuary to the discipline process of the actuary's national association.

Actuaries are accountable to their professional associations if they act without integrity, skill and care, and they are in addition accountable to their clients, employers (including pension sponsors and administrators) and regulatory supervisors. If actuaries act consistently with their duty of integrity, skill and care on behalf of honest and accountable management and under the oversight of skilled regulators, they are unlikely to act contrary to the public interest. However, if an actuary negligently or intentionally engages in misconduct and, thereby, causes foreseeable injury to third parties to whom the actuary owes a legal duty, the actuary faces appropriate legal action as well as penalties from the actuary's membership organization.

The actuarial profession also has a collective responsibility to the public interest that is served both by setting and enforcing high professional standards for its members and by advising public policy makers when laws, regulations, or customary practices can have negative actuarial implications that could be harmful to the public interest.

### ***The Profession's Public Policy Role***

The actuarial profession maintains relationships with makers of public policy in order to expand the horizons of actuarial knowledge, to promote the work of the actuarial profession, encourage innovation, and explain to public policy makers the actuarial implications of proposals that will affect the public interest. Many of the IAA's member associations engage in ongoing dialogue with national public policy makers and the IAA itself actively cultivates relationships and dialogue with public policy makers at the international level. The IAA has relationships with many international and supranational organizations, for example:

Asian Development Bank	International Monetary Fund
Financial Accounting Standards Board	International Social Security Association
International Accounting Standards Board	Organisation for Economic Cooperation and Development
International Assn. of Insurance Supervisors	United Nations Organisation
International Federation of Accountants	World Bank
International Labour Organization	World Health Organisation

These contacts have permitted the IAA to work with public policy makers at the international level on a number of projects, including:

- ◆ With the IAIS, preparation of a report on insurer solvency assessment;
- ◆ Discussion of the solvency II project of the European Union Commission and the Committee of European Insurance and Occupational Pension Supervisors;
- ◆ Issuance of practice guidelines for Social Security programs worldwide that have since been presented to the International Social Security Association;
- ◆ Participation in the International Accounting Standards Board's work to develop international accounting standards for insurance and pensions;
- ◆ With the World Trade Organization, promotion of the application of professional actuarial services across national boundaries;<sup>4</sup> and
- ◆ With the Organisation for Economic Cooperation and Development on assisting with the Core Principles, Recommendations and Guidelines for pension provisions.

All of these activities serve the public good while promoting the use of actuarial services.

### ***Entry Into the Profession***

Although a handful of large international actuarial consulting firms hire a sizeable proportion of actuaries around the world, at least an equal number work for insurance and re-insurance companies, funeral insurance companies, pension and health plans, social security organizations, governments, universities, or as self-employed consultants. We have seen no evidence that large consulting firms have any significant impact on the content of actuarial education. Rather, the education guidelines developed by the IAA and the syllabi of national actuarial organizations are designed to give actuaries the education needed to meet the demands of actuarial practice. It can take a significant length of time to complete the education process.

Our member associations continually seek to maintain a proper balance between academic and practical experience, an appropriate breadth of topics in the entry syllabus, and the extent of specialization consistent with providing valuable professional services to their members' clients,

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<sup>4</sup> The IAA has developed a list of other organizations with which it is seeking to further develop relationships. For a fuller discussion of the IAA's public policy activities and contact lists, please refer to our Web site, [www.actuaries.org](http://www.actuaries.org).

employers and the ultimate consumers of actuarial work products. However, given the complexity and importance of actuarial science and the potential for significant injury to corporate entities and to individual members of the public if actuaries are not properly trained, it is essential that actuaries be thoroughly educated in all of the areas needed for successful practice.

Actuarial education is approached several ways around the world, through examinations by sponsoring associations, university-based education, or both. In recent years, the IAA has been working on minimum core syllabus guidelines for full member associations. These guidelines reflect the desire of the profession to set high standards of education, as well as the need to have a sufficient breadth and depth of training for actuaries to meet the needs of current and future employers of actuaries. We expect to see universities in many countries become increasingly involved with actuarial entry-level and continuing education, and note with interest the development of university courses over the Internet. Recognizing the particular needs of emerging market economies, the IAA has created a fund financed almost exclusively by actuarial associations and dedicated to the support of international activities promoting the actuarial education and the profession in actuarially developing countries.

As important as entry-level education is to the future practice of the actuary, continuing professional education can be just as, if not more, important. Keeping current with new development in actuarial science and in the industry in which actuarial services are provided is a necessary requirement for the provision of valuable professional services. All IAA member associations play a role in providing or encouraging their members to participate in such activities.

### ***The Market for Actuarial Services***

The market for actuarial services differs from country to country, but there are a few developments that may significantly impact the demand for actuaries over time:

- ◆ International accounting standards for financial institutions;
- ◆ International norms for measuring insurer solvency;
- ◆ International standards for funding and accounting for pension and benefit plans;
- ◆ International guidelines for the review of Social Security programs;
- ◆ Increased ability of professionals to practise across national borders;
- ◆ Increased use of actuarial services by supranational organizations;
- ◆ Convergence in the worldwide actuarial profession of standards of conduct, practice and qualification as well as educational requirements;
- ◆ Convergence of insurance and banking (ex. Bancassurance);
- ◆ An ageing population, and
- ◆ Technological developments that allow the development of more sophisticated models to measure risks.

We have observed a worldwide consolidation that is reducing the number of large professional firms, not only of actuaries but also of accountants, lawyers, and other professionals. New smaller firms are created and the market for actuarial services continues to expand. The IAA is not aware of significant restrictions on competition for actuarial services or restrictions to “consumer” switching between actuarial service providers.

Both in-house employees and external advisers provide a broad range of actuarial advice to their employers or clients. A pension plan sponsor may hire an external actuary for specialized projects (e.g., comparative studies or particular national or international expertise) and an internal actuary for more routine work. An insurer may hire an internal actuary because its product needs are highly specialized. An external actuary may be hired to provide a ‘second opinion’ or for his/her wider experience in similar projects. A client may prefer an internal actuary because there is enough work for an actuary full time and it increases the level of competence and professionalism internally in dealings with governments, boards of directors, management, unions, and other publics. We are not aware of systemic difficulties experienced by employers in recruiting in-house actuaries.

Strong competition for clients exists between actuarial firms, so of necessity, actuaries must show competence, innovation, and ability to serve clients satisfactorily. The codes of conduct limit practices that harm the public interest. Nevertheless, we do not believe the profession’s rules or conventions inappropriately restrain competition or violate the antitrust or competition laws of the countries in which actuaries practise.

### ***International Comparisons***

As can be seen, the actuarial profession is truly international. Among IAA members, the U.K. actuarial profession is well respected within the IAA for its education and professionalism and its members have taken a leading role in many of the IAA’s activities. It is a recognized world leader in the development of actuarial science and education.

Certain actuarial functions can readily be performed across national boundaries. Other functions, typically those prescribed by statute, are best performed by an actuary with specific knowledge of local laws, professional standards, customs, and language.

The IAA has developed model mutual recognition agreements and mutual discipline agreements to facilitate the ability of actuaries to practice across national boundaries. The Groupe Consultatif Mutual Recognition Agreement covers the actuarial profession throughout the European Union plus some additional countries, and a number of bilateral mutual recognition agreements are already in place between associations from the U.K., Australia, Canada, India, Ireland and the U.S. Most actuaries from South Africa are members of the U.K. profession. We expect the number of mutual recognition agreements to grow substantially once greater convergence in actuarial education has been achieved post-2005. All of these developments encourage competition in actuarial services by facilitating cross-border practice.

As the *Morris Review* examines the international actuarial profession, it may wish to examine: the quality and quantity of standards of conduct, practice and qualification in various countries; the regulatory responsibilities and protection under the law afforded the appointed actuary; the rapport between the actuarial profession, the accounting profession, the auditing profession, the industry and the regulators; the private and confidential guidance offered to the practising actuary (insurance, pensions and other fields) by the profession; and the actuarial education delivery system.

### ***Other Professions***

The IAA encourages convergence of national practices around the globe in the financial services industry, and agrees that a study of best practices across professions could be extremely beneficial. It should be recognized that most other professions are much larger and may be differently constituted from the actuarial profession because of the nature of their respective professional responsibilities.

Forthcoming European Union directives on solvency and International Financial Reporting Standards are examples of international developments that will impact the insurance industry practices and those of its professionals, including actuaries and regulators. The outcome of these discussions is likely to bring something new for all and the sharing of best ideas and practices is likely to be an improvement in most instances.

## ***Chapter 2 — The Current Regulatory Framework of the Actuarial Profession***

### ***The Regulatory Role of the Profession***

The *IAIS paper* thoroughly addresses the issues to be considered regarding the statutory role of actuaries. Its main conclusions are listed in appendix. Different countries have different legal and regulatory systems. The attached paper by World Bank author Michael Pomerleano titled, *Back to Basics: Critical Financial Sector Professions Required in the Aftermath of an Asset Bubble*, addresses the effects various legal systems have on the establishment of robust professions.

We are well aware that a code of conduct carries little weight unless the profession vigorously enforces it. Other means of enforcing good professional conduct certainly exist (such as the courts), but most actuaries view the censure of their peers to be a very significant penalty that impacts not only their future careers, employment opportunities and reputation in business dealings but the esteem in which they are held in the actuarial community. Consequently, the existence of self-regulation can have a significant positive impact on actuaries' conduct.

The IAA believes that professional bodies should continue to regulate themselves and, as mentioned in its paper referred to earlier, *The Function of the Actuary in Prudential Supervision*, the IAA encourages local actuarial associations to develop codes of conduct, discipline processes and nation specific standards of practice for actuaries working in their countries.

### ***The Role of the Appointed Actuary***

The appointed actuary plays a unique and important role in protecting the solvency of an insurer. The actuary needs to evaluate the liabilities and the assets in order to provide an opinion on the overall financial condition of the insurer. It can be difficult for non-executive directors of insurers to understand the complexities of actuarial analysis. It is therefore critical that actuaries hone their communication skills to educate intelligent laypeople, whether members of senior management or company directors, to understand complex actuarial matters in order to make judicious business decisions for the good of the various stakeholders. It may also be beneficial for such individuals to obtain some background in actuarial concepts. Actuaries normally should be able to explain their work so that an intelligent layperson acting with due diligence can understand the broad concepts, conclusions and reasoning involved even if the specific technical details of the work are beyond the skills of the actuary's audience.

Regarding accounting for insurance liabilities, we would like to point out that we expect the IASB to develop within the next several years International Financial Reporting Standards based on the principles of the prospective value for both assets and liabilities, sometimes referred to as fair value. We believe that this will be relevant to the way in which insurance supervisors might consider developing reporting methods in the future.

### ***The Role of the Scheme Actuary***

The training that qualifies actuaries to provide unique services to insurers also qualifies them to provide services to pension and benefit plans as well as social security programs, and it is appropriate to reserve a statutory role for them to do so. We believe that the obligation for pension actuaries to communicate with pension trustees and sponsors is comparable to the obligation for insurance actuaries. We note that, worldwide, peer review appears to be less common in pension practice than it is in the insurance industry, particularly in countries with smaller actuarial associations, and that it may be beneficial to encourage its use. The *Morris Review* may wish to note developments in this area in some jurisdictions, such as Austria, where external peer review is mandatory for pension fund certificates, or Australia and the United States, where peer review of the work of pension actuaries is being introduced on a firm-by-firm basis.

### ***General Insurance and the Role of the Syndicate Actuary***

Due to the ever-increasing complexity of liability valuation, asset/liability management, reinsurance arrangements, and capital management, as well as the emergence of new risks such as terrorism, we believe there is a need for a reserved role for the actuary in general insurance. Indeed, such statutory roles have been reserved for general insurance actuaries in some jurisdictions, for example, Australia, Canada, Ireland, and the United States. Although, as the *IAIS paper* observes, there has been a longer tradition of actuarial involvement in life insurance than general insurance, the *IAIS paper* draws little distinction between the two practices in contemplating a statutory role for the actuary in insurance.

### ***Investment***

Actuaries are increasingly bringing their risk identification, quantification, and management skills to investments, a new practice area for actuaries in many countries. We believe that it is appropriate for the profession to promote skills in investment and financial risk in actuaries worldwide. One of the six sections of the IAA, named Actuarial Approach for Financial Risks (AFIR), has the objective of promoting actuarial research in financial risks and problems.

### ***Maintenance of Professional Competence***

Many of the IAA's member associations have had continuing professional development programs in place for some time. We recognize the crucial importance of maintaining professional skills and keeping current with advances in actuarial science and we believe it is essential for actuaries to participate actively in continuing professional development on an ongoing basis. The IAA encourages its member associations to promote continuing professional development and will work to facilitate communication about continuing education opportunities available to actuaries around the world.

### ***Whistle-blowing***

An actuary functioning in a statutory role may find a Board of Directors less than responsive to actuarial advice. In such a situation, the *IAIS paper* observes that it may be appropriate to require the actuary 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. As the IAIS states, "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."

Another alternative may be to require the actuary to report adverse developments to the company's Board of Directors, or to pension fund trustees, who, after having been given an opportunity to address those developments, might be required to report to the supervisory authority if the adverse developments were not corrected. This approach recognizes the oversight responsibilities of the Board of Directors or the trustees while maintaining a reporting responsibility for the actuary.

### ***Standard-setting***

The U.K. profession is best able to address the development of standards that are specific to U.K. practice. However, the IAA is working to supplement nation-specific standards of practice with international guidance on practice that is not nation-specific, for example, practice under International Financial Reporting Standards. Similarly, in response to calls from the International Social Security Association and the International Labour Organization for guidelines for actuarial practice in relation to social security programs, the IAA has developed such guidelines for actuaries involved in this practice area. These examples demonstrate that the IAA appreciates the importance of providing practising actuaries with professional standards and other technical guidance that take appropriate account of the public interest.

In its development of guidelines for insurer financial reporting, the IAA has maintained a close relationship with the IASB and obtained their input. We would observe however that we are not aware of many instances where input from outside the profession is sought in standards setting by member associations. The IAA has not formulated an official position on this matter yet.

The IAA recently updated its due process to adopt practice guidelines and standards with the view to speed up, and at times fast-track the process in cases of urgency.

### ***Openness, Peer Review, and Audit of Actuarial Work***

The IAA cannot overemphasize the importance of actuaries having strong communication skills, if only because of the unusual complexity and financial implications of most actuarial work. It can be a challenge for the practising actuary to strike the appropriate balance between providing relevant and informative disclosure without oversimplifying the technical complexities of the work. The IAA seeks to provide a forum for leaders of the profession from around the world to meet together and share best practices to encourage actuaries actively to develop their communications skills.

Our comments on peer review can be found in the above section titled ***The Scope of the Actuarial Role***.

### ***Monitoring, Complaints and Disciplinary Schemes***

As we have stated above, rigorous enforcement is essential to the credibility of any code of conduct. Discipline practices within the actuarial profession vary among the membership organizations, but the IAA considers the existence of an effective discipline process within an actuarial association sufficiently important to require it as a precondition of full IAA membership.

Regulators and auditors separately monitor the work of actuaries. We believe that it is appropriate and advisable for them to use actuarial advisors to support their monitoring activities.

On the question of whether the discipline should be undertaken by the regulators, we observe that the regulator, who might be a complainant or an accuser in a case, might find itself in a position of being “judge and party” if the discipline was undertaken by the same regulator. We are aware that some regulators would rather not be involved in the professional discipline process and would prefer to leave it to the profession in order not to impede future relations between the regulators and the actuarial practitioners.

On the question of whether the regulators make appropriate use of actuarial expertise to supervise the work of actuaries, the IAA public response to the IAIS referred to earlier reaffirms the IAA’s unequivocal support for the use of actuarial expertise by regulators.

### ***Chapter 3 — Roles and Responsibilities of the Government Actuary's Department***

Different employers of actuarial services have different reasons for using in-house actuarial services versus using external actuarial services, as we illustrated in the earlier section titled ***The Market for Actuarial Services***. The variety of reasons is even greater for governments than for private sector employers. Different countries have different arrangements in place to provide their governments and public sectors with objective actuarial advice and support. The Government Actuary's Department approach used in the UK is one model that, with some variations, is also used in other countries.

Whatever the approach, the IAA believes that it is important that governments be aware of the availability of professional advice and actively seek relevant actuarial input on policy issues and decisions, particularly in relation to insurance, pensions, social security and other areas where there is a need for advice on the management of financial risks resulting from future events.

Actuaries employed by governments often participate actively in professional organizations and thereby enhance the individual and collective development of the profession. The IAA itself has benefited from their participation.

#### ***Conclusion***

The IAA appreciates this opportunity to contribute to the *Morris Review*. Please do not hesitate to call upon us for any additional information or assistance by contacting the Chairperson of the IAA's Professionalism Committee, Jean-Louis Massé, through the IAA Secretariat ([secretariat@actuaries.org](mailto:secretariat@actuaries.org)).

September 2004

## APPENDIX

### Conclusions of the IAIS in *The Use of Actuaries as Part of a Supervisory Model*

1. The application of actuarial expertise is a key component in the operation of insurers, insurance markets, and insurance supervisory authorities.
2. The roles of actuaries and external auditors, and relationships between them, are enhanced by a clear definition of their respective responsibilities.
3. The decision on the use of a responsible actuary in an official capacity as part of a supervisory model should give due regard to the need to ensure effective supervisory oversight and management accountability.
4. Where a responsible actuary model is adopted, the actuary should have clearly-defined tasks and responsibilities, as well as rights and obligations under the law. These tasks and responsibilities can change over time.
5. In the event that the use of a responsible actuary in the supervisory model is not adopted, then the supervisor has to have access to sufficient actuarial resources to perform detailed and quantitative reviews, as required.
6. The decision to adopt an official role for actuaries should take account of the availability of suitably qualified actuaries and the extent to which the profession is well organised.
7. Where the use of a responsible actuary model is adopted, the supervisor should not simply accept the work of the actuary without further scrutiny, but should have access to actuarial resources to review and interpret the advice of the responsible actuary.
8. The appointment of a particular responsible actuary should be subject to supervisory review and the supervisor should have the capacity to have an unsatisfactory appointee removed from the position.
9. Where a responsible actuary model is in place, there should be some criteria regarding who may qualify for appointment as a responsible actuary. These criteria may be based on qualifications, professional experience, and membership in a professional association or a combination of these elements. In addition, factors such as the personal and professional ability to function in the position should be considered.
10. Where a responsible actuary model is in place, consideration should be given to potential conflict of interest situations. It is preferable that the person appointed as a responsible actuary not be permitted to hold this position at the same time as being a chief executive officer.

11. Where a responsible actuary model is in place, there should be some avenue available for a responsible actuary to be removed at the initiative of either the insurer or the supervisor. Removal may be required where the actuary fails to perform adequately the required functions and duties or does not meet eligibility or fit and proper criteria. The supervisor should be promptly informed in cases where the insurer removes the responsible actuary.
12. A supervisory model that makes use of an actuary should take into account the extent to which the actuary is subject to professional standards of practice, qualification standards, and obligations on professional conduct.
13. The nature of the professional associations should influence the supervisor's dependence on a responsible actuary. For instance, where professional codes of conduct, standards of practice and disciplinary procedures are in place, the supervisor may place greater reliance on these persons. The professional associations can also provide a forum for development of technical aspects of the actuarial role. In any event, the supervisor has a role to ensure that practices are adequate and subject to review.
14. Where a responsible actuary model is in place, the role of the actuary should be defined in terms of the types of advice that the actuary is required to give the insurer, for various lines of business. The actuary should provide advice on the level of technical provisions. Consideration should also be given to other areas where advice of the actuary will be valuable, such as: levels of premiums; adequacy of risk assessment; reinsurance arrangements; investment policies; statistical inference; and stress testing of the future financial condition of the insurer.
15. Where a responsible actuary model is in place, there should be a requirement for the actuary to prepare a written report on the technical provisions and for that report to be provided to the insurer and made available to the supervisor. Consideration should also be given to requiring the actuary to prepare reports on other areas of advice.
16. Where reports or advice on particular aspects are provided, the supervisor should have the ability to act independently of the actuary's advice.
17. Where a responsible actuary model is in place, consideration should be given to whether whistle-blowing requirements should be imposed on actuaries. The existence of such obligations may both increase the confidence of the supervisor and provide a direct link between supervisors and actuaries. In fulfilling such obligations, the actuary should have protection under the law.

## APPENDIX

### Professionalism Committee of the International Actuarial Association

Jean-Louis Massé  
Simon Van Vuure

Chairperson  
Vice-Chairperson

#### Members

Andris Barlots	Latvijas Aktuaru Asociacija (Latvia)
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Aisling Kennedy	Society of Actuaries in Ireland
Tarmo Koll	Eesti Aktuaaride Liit (Estonia)
Hillevi Mannonen	Suomen Aktuaariyhdistys (Finland)
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Neil A Parmenter	Society of Actuaries (United States)
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George Psaras	Cyprus Association of Actuaries
Gottfried Rey	Association Suisse des Actuaire (Switzerland)
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Roland Van Den Brink	Het Actuarieel Genootschap (The Netherlands)
Harry Wide	Svenska Aktuarieföreningen (Sweden)
Masaaki Yoshimura	Institute of Actuaries of Japan

## 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 Actuaire Belges (Belgique)  
Instituto Brasileiro de Atuária (IBA) (Brazil)  
Canadian Institute of Actuaries/Institut Canadien des Actuaire (Canada)  
Cyprus Association of Actuaries (Cyprus)  
Česká Společnost Aktuárů (Czech Republic)  
Den Danske Aktuarforening (Denmark)  
Egyptian Society of Actuaries (Egypt)  
Eesti Aktuaaride Liit (Estonia)  
Suomen Aktuaariyhdistys (Finland)  
Institut des Actuaire (France)  
Deutsche Aktuarvereinigung e. V. (DAV) (Germany)  
Hellenic Actuarial Society (Greece)  
Actuarial Society of Hong Kong (Hong Kong)  
Magyar Aktuárius Társaság (Hungary)  
Félag Islenskra 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)  
Latvijas Aktuaru Asociācija (Latvia)  
Lebanese Association of Actuaries (Lebanon)  
Persatuan Aktuari Malaysia (Malaysia)  
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 Aktuariuszy (Poland)  
Instituto dos Actuários Portugueses (Portugal)  
Academia de Actuarios de Puerto Rico (Puerto Rico)  
Singapore Actuarial Society (Singapore)  
Slovensko Aktuarsko Drustvo (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 Actuaire (Switzerland)  
Actuarial Institute of the Republic of China (Taiwan)  
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)

**INTERNATIONAL ASSOCIATION OF  
INSURANCE SUPERVISORS**



**THE USE OF ACTUARIES AS PART OF A  
SUPERVISORY MODEL  
GUIDANCE PAPER**

**October 2003**

[This document was prepared by the Solvency Subcommittee in consultation with members and observers.]

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## **The Use of actuaries as part of a supervisory model guidance paper**

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### **1. Introduction**

1. This paper considers the use of an actuary as part of an insurance supervisory model. In some jurisdictions where use is made of an actuary in the supervisory model, this use is referred to as an ‘appointed actuary’ or a ‘responsible actuary’ system. While this system may have variations, it is essentially based upon the mandated use of an actuary by insurers, with that actuary having specified reporting or certification responsibilities to both the insurer and the supervisor.

2. It is noted that, even where there may not be a specified role in the insurance laws or regulations, supervisors look to actuaries within insurers as important contributors to the supervisory process. The paper draws some generally applicable conclusions, but when considering the specific role of an actuary, which may be set out in regulations, the term ‘responsible actuary’ is used.

3. Regardless of the roles actuaries may play within the supervisory model of a particular jurisdiction, nothing in this paper should be taken to suggest any reduction in the responsibilities that appropriately fall on an insurer’s management, directors or external auditors.

4. This paper has two main objectives.

- First, the paper represents the results of a survey of current practice and the discussions of the IAIS Subcommittee on Solvency, Solvency Assessments and Actuarial Issues (Solvency Subcommittee).
- Second, for those jurisdictions that are considering the introduction, expansion or reform of a responsible actuary system, the paper may be of assistance in identifying issues to be considered as the system is developed and implemented.

The paper draws a number of conclusions, which are set out throughout the text.

## 2. Methodology

5. The paper has been developed as a guidance paper. In preparing the paper, a survey of several jurisdictions represented on the Solvency Subcommittee was conducted. Where comments are made in this paper based on the survey, reference is made to ‘responding jurisdictions’. The paper was then circulated as a draft for comments to the various committees and the membership of the IAIS and these comments were considered as the paper was finalised.

6. In addition, useful current papers were provided by members of the Solvency Subcommittee reflecting the recent work in this area done by the EU and the OECD. A table of references is also provided at the end of this paper.

## 3. The role of actuaries in insurance

7. The *Issues paper* prepared by the Solvency Subcommittee includes a discussion of insurance risks and risk assessment for insurers and the role of actuaries in these areas. That paper, released in March 2000, noted that different regulatory traditions ascribe different levels of professional responsibility to the actuary. In particular, the *Issues paper* stated that:

- “Regardless of regulatory traditions, the role of the actuary, both within the insurance companies and in the position of supervisor, is critical to the maintenance of financially sound insurance companies. Dependant on traditions within the different jurisdictions, however, the term ‘actuary’ in this context does not necessarily relate to membership in certain professional associations, or to certain university degrees. What is essential, is to ensure that the insurance undertakings possess the competence and qualifications required for risk identification and control. Mathematicians and economists with insight in and experience from the insurance business may play this part as well as “actuaries” in the narrow sense of the word”.

8. It is common for actuaries to have some level of involvement in insurance. There is a longer tradition of this in life insurance than in non-life insurance. There is, of course, variation in where these actuarial skills are drawn from. For instance, some insurers have actuaries as employees, while others employ consultants. Actuarial expertise is also not limited to the insurers and to the auditing and consulting firms alone. Typically, supervisory authorities also have actuarial staff, the number of which may vary depending upon the availability of qualified and experienced actuaries, costs and the supervisory model. Some choose to hire staff with a mathematical background and help them to train as actuaries, while others prefer to use consulting actuaries.

### Conclusion #1:

The application of actuarial expertise is a key component in the operation of insurers, insurance markets and insurance supervisory authorities.

### The definition of ‘actuary’

9. In this paper we have adopted the definition of actuary as set out in the *IAIS Glossary*. The glossary states:

- “An actuary is a professional trained in evaluating the financial implications of contingent events. Actuaries require an understanding of the stochastic nature of insurance, the risks inherent in assets and the use of statistical models. These skills are often, for example,

used in establishing premiums and technical provisions for insurance products, using the combination of discounted cash flows and probabilities.”

10. Actuarial skills are used to assess risk, determine the adequacy of premiums (tariffs) and establish technical provisions for both life and non-life insurance. These skills include a detailed understanding of the probabilities of insurance risks, (e.g., mortality, morbidity, claim frequencies and severities), the use of statistical models, the use of discounted cash flows, understanding and assessment of the use of derivatives and an understanding of volatility and adverse deviation. After appropriately applying these skills, actuaries provide advice and, where members of management, participate in decision-making.

### **The relationship between external auditors and actuaries**

11. While the focus of this paper is on the role and use of actuaries, it is important to note the role of external auditors in the supervisory model.

12. The financial statements of an insurer, which may include amounts determined by an actuary, are the responsibility of management. The primary role of an external auditor is to express an opinion as to whether the financial statements have been prepared in accordance with the identified financial reporting framework. This opinion helps to establish the credibility of the financial statements and may be relied upon not only by supervisors, but also by shareholders, policyholders, rating agencies and tax authorities. The involvement of an actuary in the preparation of an insurer’s financial statements, whether under a responsible actuary model or otherwise, should not lessen either the responsibility of management to produce reliable financial statements or the responsibility of the external auditor to express an opinion on such financial statements.

13. In auditing the financial statements of an insurer, the external auditor must address the technical provisions established by the insurer. It is important to have reliable data as the basis for calculating technical provisions. The external auditor plays an important role in ensuring the reliability of the data. The calculation of these provisions generally requires special expertise, methods and techniques, which are provided by an actuary. In some cases, actuaries are employed within auditing firms. The external auditor, if not possessing this expertise, may engage an actuary to review the methods, techniques and calculations underlying the insurer’s provisions; in some jurisdictions such a review is required. This independent actuarial advice enables the auditor to reach an informed conclusion regarding the appropriateness of the insurer’s provisions. While external auditors and actuaries may be subject to different legal frameworks across jurisdictions, the work of an external auditor and an actuary are closely linked.

14. In particular, the relationship between actuaries and external auditors is enhanced by:

- clear definition of roles of the actuary and the external auditor
- arrangements for formal communication between the actuary and the external auditor.

The relationship between the actuary and the external auditor might be set out in law, regulations or professional guidance. For example, in Canada, there is an agreement between the actuarial profession and the accounting profession that there be annual formal letters between the actuary and the external auditor specifying the work for which each is responsible.

**Conclusion #2:**

The roles of actuaries and external auditors, and relationships between them, are enhanced by a clear definition of their respective responsibilities.

#### **4. Issues to be considered regarding adoption of a responsible actuary model**

15. This section considers issues that are relevant in considering whether it is appropriate and feasible to adopt a responsible actuary model in a particular jurisdiction. Here we are considering the responsible actuary as someone with individual official responsibilities, or a defined role set out in the insurance regulation. The responsible actuary model is not the only model available to address actuarial matters as part of the supervision process. There are other models without the legislative requirement for a responsible actuary, where there is a different distribution of responsibilities and a greater emphasis on actuarial skills within the supervisory authority.

16. A key issue in considering the adoption of a responsible actuary model is the supervisory philosophy. The organisation of the supervisor also influences the role of actuaries in insurance supervision. Other issues, such as the state of the insurance market in a particular jurisdiction and the development of the actuarial profession in the jurisdiction, may also influence whether the responsible actuary model is adopted.

##### **Philosophical position**

17. At one end of the regulatory spectrum are those supervisory models that utilise a responsible actuary model. The Canadian approach is one such example.

18. The approach in Canada involves a continuously appointed, individually named person who, under the relevant legislation, is required to carry out an annual valuation of the liabilities of the insurance business. The responsible actuary must annually calculate the technical provisions and certify that they are calculated in accordance with actuarial practice generally accepted in Canada, including the use of appropriate assumptions and methods, that they make appropriate provision for all policyholder obligations and that the consolidated financial statements fairly present the results of the valuation. The responsible actuary must also provide an annual certificate, which details the amount of the required minimum solvency margin. The responsible actuary is also required to perform annual stress testing of the insurer's future financial condition.

19. Under the Canadian approach, the responsible actuary is clearly expected to act as a front-line controller of prudential financial management. The link to the insurance supervisor is through the legislative duty to 'whistle-blow', to the Board and the insurance supervisor, if the management of the insurer insists on pursuing a strategy which the responsible actuary believes may have a serious adverse impact on the insurer.

20. Under the Canadian system, the responsibilities of the actuary are spelled out in legislation and direct requirements of the insurance supervisory authority. A detailed body of professional guidance issued and enforced by the local professional body supports these requirements. Deregulated insurance markets place additional demands on the actuarial profession, leading to effective solutions along the lines of the responsible actuary system and its variants. It seems likely that solutions of this general type will become increasingly widespread throughout the world, necessitating high levels of actuarial education and professionalism, and requiring the active support and involvement of

professional associations of actuaries in each country. The role of the actuary in Canada has progressed steadily away from the historic evaluation of the liabilities, to also monitoring the adequacy of assets to meet the liabilities on a continuous basis. This expanded role includes providing a forward-looking report to the Boards of Directors on stress and scenario testing of a firm's current and future financial condition and playing a key role in the identification of risk and its successful management. The responsible actuary acts as an additional front-line control, which makes it possible to reduce the degree of direct supervisory oversight, replacing it with a degree of oversight of the fitness and propriety of the actuary and the effectiveness of the functioning of the actuary in the required role.

21. Alternatively, at the other end of the spectrum are those systems that do not mandate the use of an actuary. As indicated above, not all jurisdictions make use of an actuary as an explicit part of the supervisory model. Notable jurisdictions in this group are France and Spain. While most EU countries have adopted some form of a responsible actuary model, some have a different actuarial tradition. In particular, the French and Spanish approaches emphasise the importance of direct supervisory overview.<sup>1</sup>

22. A number of reasons are put forward in favour of not adopting a responsible actuary system. It is important to recognise the validity of these reasons because they clearly illustrate the consequences that would follow for the supervisory system as a result of a decision to adopt or not to adopt such a system.

23. For example, in France, the actuary of the insurer may approve the mortality tables used, but plays an otherwise relatively limited official supervisory role. Responsibility for the proper pricing of products, establishing prudent technical provisions and exercising sound and prudential overall financial management rests with the insurer's chief executive and the Board of Directors. The French supervisory approach strongly supports the use of actuarial skills by insurers in carrying out this responsibility, and allows the insurer the choice of using internal staff or outsourcing this function.

24. Under the French approach, the supervisor looks to the actuary within the insurer as a particular point of reference for supervisory questions and for the resolution of issues that it wishes to raise with the insurer.

25. The French supervisory approach considers the use of a responsible actuary system as lessening the powers of supervisors and restricting the relationship between the supervisor and the insurers. Direct supervision is exercised through a strong level of on-site inspection carried out by technically skilled supervisors, with accounting and actuarial skills, who not only review the financial statements, but also pay extended visits to the insurers to review their systems and controls, approve their technical bases and methodologies and audit a sample of their calculations.

26. There is a range of ways in which the responsible actuary system can be implemented. Many jurisdictions with a responsible actuary system also make extensive use of on-site inspections in the same manner as those jurisdictions that do not have a responsible actuary system.

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<sup>1</sup> France refers to this approach as "the two-actuary model". However, it should be noted that the responsible actuary model also makes use of actuaries in both the insurer and the supervisory authority.

**Conclusion #3:**

The decision on the use of a responsible actuary in an official capacity as part of a supervisory model should give due regard to the need to ensure effective supervisory oversight and management accountability.

27. Even after making a decision in favour of a responsible actuary model, it is then necessary to consider just what role and tasks are to be covered.

**Conclusion #4:**

Where a responsible actuary model is adopted, the actuary should have clearly-defined tasks and responsibilities, as well as rights and obligations under the law. These tasks and responsibilities can change over time.

**Conclusion #5:**

In the event that the use of a responsible actuary in the supervisory model is not adopted, then the supervisor has to have access to sufficient actuarial resources to perform detailed and quantitative reviews, as required.

**The nature of the insurance market in the jurisdiction**

28. A second, more practical, issue is the nature of the insurance market in the jurisdiction.

29. In some markets, there are a great number of insurers, while others have only a small number of insurers. The larger the number of insurers, the greater the tendency for the supervisor to make more formal use of actuaries, as this can assist the supervisor to more effectively allocate resources. However, even if the number of insurers is small, should the insurers be large and have complex operations, the supervisor would have more need for the assistance of actuaries than if the insurers were small and had simple operations.

30. The number of insurers and the nature of their operations may mean that there are practical issues to be overcome should a responsible actuary system be adopted. In some jurisdictions, a larger number of insurers may make it difficult to initially find sufficient adequately qualified and experienced actuaries to carry out the role.

**The desire of the supervisor to encourage change**

31. A third issue, which is also practical in nature, is the desire of the insurance supervisor to encourage the greater use of actuaries. The Solvency Subcommittee believes that the use of actuarial skills and advice can enhance the assessment of risk in an insurer, irrespective of the supervisory model used.

32. The supervisor may introduce an official role for an actuary in order to encourage insurers to make greater use of actuarial techniques. The supervisor can do so, and enhance the role of actuaries, by requiring reports to be signed or co-signed by an actuary, and by encouraging the involvement of the actuary in meetings and dialogues between supervisors and insurers.

## **The development of the actuarial profession in the jurisdiction**

33. Another key issue in the decision to adopt the use of a responsible actuary model is the state of the actuarial profession, relative to the industry, in the particular jurisdiction.

34. A practical issue is the availability of suitably qualified and experienced actuaries in the jurisdiction. In some jurisdictions, the number of actuaries available to carry out an official role is limited. This could lead to immediate practical constraints on any proposal to implement a responsible actuary system. One way to address such a situation may be to allow actuaries from other jurisdictions to carry out an official role, provided that the actuaries have suitable qualifications and experience relating to the jurisdiction. In such a situation, the actuaries should be available to participate in discussions with the supervisor and to be consulted effectively.

35. Several responding jurisdictions place considerable reliance on the fact that the market has operated with actuarial advice for some time and that the profession is well organised. This issue is considered in more detail below.

36. The use of methods to enhance the quality of work of responsible actuaries, such as: practising certificates, peer reviews, disciplinary procedures, continuing professional development and others, may be required by the professional actuarial association or by the supervisory authority.

37. The decision to implement a responsible actuary system can, of itself, have an effect on the availability of actuaries in the jurisdiction. The reinforcement of the role of the actuary through the assumption of higher responsibilities could make the profession more attractive to those who may consider joining the actuarial profession in the jurisdiction, which could itself be an objective.

### **Conclusion #6:**

The decision to adopt an official role for actuaries should take account of the availability of suitably qualified actuaries and the extent to which the profession is well organised.

## **Actuarial advice does not eliminate the need for supervisory oversight**

38. A risk in adopting a responsible actuary model is the potential for the supervisor to simply accept the advice of the actuary without undertaking any independent assessment of the actuary's work. The supervisor should still have access to actuarial resources, or other resources, that are able to critically assess the work of the responsible actuary, including the assumptions and methods used and conclusions reached, and should not simply accept the actuary's advice without scrutiny.

39. This requirement for scrutiny may be influenced by the level of actuarial expertise available within the supervisory authority. For instance, the EU Insurance Committee has found that while the supervisors of some member states employ or have access to actuaries with experience in the insurance industry, other supervisors may have to limit their recruitment to persons with a more general background in mathematics, statistics and economics. In almost all member states, it is reported to be hard to recruit experienced actuaries, since it is difficult to compete with the private sector. The IAIS Core Principles support the need for a well-funded supervisory authority to reduce this problem.

40. In several jurisdictions, it is noted that the supervisor can call for an independent actuarial report to be made at the cost of the insurer. This can assist in addressing the problem of availability of resources within a supervisory agency.

**Conclusion #7:**

Where the use of a responsible actuary model is adopted, the supervisor should not simply accept the work of the actuary without further scrutiny, but should have access to actuarial resources to review and interpret the advice of the responsible actuary.

## **5. Issues to be considered regarding the use of actuaries**

41. The use of actuaries as part of the supervision of insurers is fairly widespread. The actual model used in jurisdictions does vary, however. This section discusses a number of issues that are particularly relevant when a responsible actuary model is used, although many will also have a wider application to all jurisdictions where there are actuaries within the industry and the supervisory authority.

### **The requirement to have a responsible actuary**

42. In almost all jurisdictions where there is a requirement for a responsible actuary, there is a legislative requirement to have a responsible actuary for life insurance. This requirement in these jurisdictions is often long standing and reflects industry practice, as well as having statutory support.

43. In several of these jurisdictions, the actuary proposed as the responsible actuary cannot be confirmed until the consent or approval of the supervisor is provided. Whether or not the system has a requirement for the supervisor to approve the appointment of an actuary may be based on philosophical or practical considerations. In particular, the key philosophical consideration is whether the supervisor believes that pre-approval of the appointment of individuals to various positions by insurers is appropriate. Practical considerations include the volume of approvals that may be required and the ability to define a set of criteria regarding qualifications, experience, and membership in a professional association that can be reasonably relied upon by the supervisor. An alternative supervisory approach to prior approval of the responsible actuary may be to rely on notification of appointment. In either case, the supervisor should have the ability to require replacement of the responsible actuary, if necessary.

44. While the requirement to have a responsible actuary in non-life insurance is less prevalent, some jurisdictions do have this legislative requirement. This requirement appears to be a growing trend, with some jurisdictions requiring approval of the appointment of the responsible actuary.

45. Even where a responsible actuary is not required in non-life insurance, the supervisor should review the technical provisions of the insurer, using actuaries or other staff employed by the supervisor or an independent actuary. In all cases, the role of actuaries in reviewing technical provisions is an important part of the supervisory model and involves oversight both within the insurer and in the supervisory authority.

46. While there is some consensus on the requirement to use an actuary, the role of the actuary differs across jurisdictions. For instance, some jurisdictions require the actuary to 'certify' or 'attest' to particular things, while others require the actuary to provide 'advice' only. Sometimes, in addition, a supplementary report must be prepared describing the actuary's analysis, methods, assumptions, conclusions, etc. This is further discussed below.

**Conclusion #8:**

The appointment of a particular responsible actuary should be subject to supervisory review and the supervisor should have the capacity to have an unsatisfactory appointee removed from the position.

**Definition of suitable candidates**

47. In all responding jurisdictions, the requirements regarding who could be appointed as a responsible actuary are defined in the supervisory rules or legislation.

48. The criteria for a responsible actuary in responding jurisdictions include:

- Qualified by specified initial and ongoing educational requirements
- Membership in the local professional body at an appropriate level
- A minimum specified period of relevant practice as an actuary since qualification at that level
- A requirement that the responsible actuary be a resident of the jurisdiction (in some cases).

49. In some cases, actuaries who do not meet the standard criteria set out in the regulations or supervisory rules may be subject to separate approval by the supervisor on a case-by-case basis. However, the actuary should always be subject to the general fit and proper requirements that are applicable to others.

50. The existence of criteria for a responsible actuary ensures that persons with responsibility for providing advice on actuarial matters, such as the level of technical provisions, have appropriate qualifications and expertise and are capable of fulfilling the roles and responsibilities of a responsible actuary, to whatever extent is prescribed, with competence and integrity. Employing a minimum level of criteria ensures that the use of an actuary in the supervisory model is not undermined and contributes to confidence in the system.

51. Where membership in the local actuarial body is part of the criteria, then the supervisor needs to understand how the membership criteria are determined. In addition, membership criteria for a professional body may change explicitly or implicitly (for example, through a mutual recognition of qualifications earned in other associations). The supervisor needs to be able to monitor these changes and adopt criteria that may be more limiting than those of the professional body, if this is felt necessary and appropriate.

**Conclusion #9:**

Where a responsible actuary model is in place, there should be some criteria regarding who may qualify for appointment as a responsible actuary. These criteria may be based on qualifications, professional experience, membership in a professional association or a combination of these elements. In addition, factors such as the personal and professional ability to function in the position should be considered.

## **Avoiding conflict**

52. In many jurisdictions, there is a limitation on the positions that someone appointed as a responsible actuary can hold. The rationale for this is to avoid any potential conflict of interest that may result from a responsible actuary also holding an executive position within the insurer.

53. In particular, when an actuary also holds the position of chief executive officer of the insurer it is considered less than ideal that this person should also be the responsible actuary. Some jurisdictions have an explicit prohibition on this situation, while others are able to enforce such a requirement without explicit legislative support.

54. Some responding jurisdictions also prohibit the responsible actuary from being a director of the insurer. In support of this argument, it is considered that an actuary who is also a director may be faced with substantial conflict if obliged to act as a 'whistle-blower'. On the other hand, some jurisdictions find that the opportunity for an actuary to also be a director raises the status of the actuary in the insurer. In some jurisdictions, there is also prohibition on the actuary being a chief financial officer.

55. In all responding jurisdictions, however, the actuary can be an employee of the insurer.

56. In almost all responding jurisdictions, the actuary can be a consultant, and in almost all of these, the actuary can be appointed for more than one insurer.

57. In addition to these limitations on the roles the responsible actuary can hold, some jurisdictions also require the actuary to disclose certain information, either to the supervisor or publicly, in an attempt to limit the risk of conflicts of interest. Examples of this would include the full disclosure, by the actuary, of potential, perceived or actual conflicts, or of the basis and level of remuneration from the insurer. Internal control mechanisms, such as an internal audit function, should be in place to identify any such conflicts.

58. There are also cases where an actuary of an insurer is also a policyholder of that insurer and may thus be ordinarily entitled to participate in the allocation of shares in an insurer on demutualisation. In such cases, where this is material, it may be prudent that the actuary advising on a demutualisation either seek to be excluded from the effects of such advice or not actually provide the advice.

59. As highlighted above, the supervisor would also have a role to play here, particularly in situations where the actuary is an employee of the insurer. The supervisor should actively assess the work of an actuary, or have access to resources such as an external actuary that can provide a peer review, to ensure this situation does not result in actuarial advice that is inappropriately biased.

### **Conclusion #10:**

Where a responsible actuary model is in place, consideration should be given to potential conflict of interest situations. It is preferable that the person appointed as a responsible actuary not be permitted to hold this position at the same time as being a chief executive officer.

## **The removal of a responsible actuary from the position**

60. Situations may arise where it is prudent for a responsible actuary to be removed from this position. Circumstances such as when an actuary fails to adequately perform required functions and duties, does not meet eligibility or fit and proper criteria, or is subject to conflicts of interest, are

examples of cases where removal may be warranted. Inadequate or inappropriate advice, if accepted by a Board, can potentially undermine the financial stability of an insurer and ultimately threaten the interests of policyholders.

61. Some supervisors have the ability to remove an actuary directly, while others can do this through the insurer.

62. In all responding jurisdictions, the actuary can be removed by the Board of the insurer (or senior governing body) and, in some cases, by the senior management. In the event that an insurer removes the actuary, it is usual for the supervisor to be made aware of the reasons for the change of responsible actuary. The supervisor should be able to address any concerns that may arise when an insurer removes a responsible actuary in an attempt to frustrate the role of the actuary or the actuary's advice. In cases where an actuary has been removed, it is also important that the new actuary communicate with the former actuary to determine whether there was any professional reason for the change.

**Conclusion #11:**

Where a responsible actuary model is in place, there should be some avenue available for a responsible actuary to be removed at the initiative of either the insurer or the supervisor. Removal may be required where the actuary fails to perform adequately the required functions and duties or does not meet eligibility or fit and proper criteria. The supervisor should be promptly informed in cases where the insurer removes the responsible actuary.

**Professional associations**

63. Professional actuarial bodies or associations can play a role in the development of a responsible actuary model. A well-organised actuarial profession will be characterised by several features, some of which are of particular relevance to the effective use of actuaries in the supervisory model.

64. The profession will ideally be defined by the existence of an actuarial professional body, which defines membership standards with reference to educational standards, professional competence and experience. One measure of the state of development of the profession is whether the professional body is able to meet the criteria for membership in the International Actuarial Association.

65. Further, the actuarial professional body can play the following additional roles:

- Provide support, resources and expertise to develop standard tables (e.g., mortality) which can be used as input in the development of suitable assumptions for valuation of technical provisions
- Provide research into the financial aspects of insurance
- Contribute to the development of professional standards of practice to ensure that the proper actuarial skills and procedures are applied and are the basis of the advice rendered and for all relevant issues to be addressed in preparing reports
- Provide a mechanism for peer review of the work of the responsible actuary<sup>2</sup>

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<sup>2</sup> Peer review of the work of a responsible actuary is done by another senior and appropriately qualified actuary to ensure it complies with professional standards. It involves the sharing of best practice and experience from a wider range of sources than might otherwise be available to a responsible actuary. It provides an external and

- Require all members to adhere to a code of professional conduct, which emphasises ethical, honest and professional behaviour
- Establish requirements for each member to possess the appropriate qualifications (e.g., both basic and recent experience and training) before accepting an assignment, to ensure the quality of the professional advice rendered
- Provide continuing professional development opportunities to its members
- Provide a mechanism to hear complaints and administer discipline, so that members who fail to act in a proper manner are subject to appropriate sanction.

66. It is recognised that these various functions may be performed through one or more professional associations or through other arrangements made involving the members of the profession.

**Conclusion #12:**

A supervisory model that makes use of an actuary should take into account the extent to which the actuary is subject to professional standards of practice, qualification standards and obligations on professional conduct.

67. All responding jurisdictions have local actuarial associations within the jurisdictions. Some of the associations conduct their own examinations. Most associations have documented standards of practice and professional conduct that members are bound to follow.

68. Most associations also have disciplinary procedures should a member not satisfy the prescribed standards.

69. In some cases, the supervisor does not have an explicit power to make a complaint against an actuary to the professional body. It is desirable that the supervisory authority have the capacity to make a complaint, either formally or informally, without substantial risk of legal action being taken against it.

70. In drafting or redrafting their own rules, the professional associations consult directly with the regulator in several responding jurisdictions, and indirectly in others. In many cases, this consultation may include the supervisory authority collaborating with or being part of working committees of the professional association.

71. It is important that prudent actuarial valuation standards and practices be adopted. The need for the supervisor to assess those standards is an important prerequisite. The degree to which these standards are developed and implemented, and the existence and effectiveness of a professional code of conduct and a professional discipline system within the actuarial profession, will determine the reliance that can be placed upon the actuary in a supervisory system. The supervisor has a role in assessing the prudence of the standards. There are a number of ways that this can be achieved including:

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independent review, which should give comfort that the actuary has fulfilled the responsibilities to the insurer and the supervisory authority.

- having sufficient actuarial resources available within the supervisory authority to review the responsible actuary's work
- maintaining close relations with the actuarial profession
- having the authority to provide directions regarding the actuarial valuation practices
- requiring peer review of the work of the responsible actuary
- being able to engage an independent actuary to conduct a review of the responsible actuary's work
- having the capacity to lodge a complaint with the professional association when the responsible actuary's work or behaviour is found not to be in compliance with professional standards
- having the authority to replace the responsible actuary.

In the event that an official role does exist but the actuarial profession does not provide each of these elements to the satisfaction of the supervisor, then it is necessary for the supervisor to take alternative steps to ensure that the necessary elements are developed or for such requirements to be imposed directly by the supervisor.

**Conclusion #13:**

The nature of the professional associations should influence the supervisor's dependence on a responsible actuary. For instance, where professional codes of conduct, standards of practice and disciplinary procedures are in place, the supervisor may place greater reliance on these persons. The professional associations can also provide a forum for development of technical aspects of the actuarial role.

In any event, the supervisor has a role to ensure that practices are adequate and subject to review.

## **6. The specific role of a responsible actuary**

72. This section considers the particular tasks that are required of the actuary under a responsible actuary model.

### **Requirements to provide advice to the insurer**

73. Precise requirements for the actuary to provide advice on various matters vary from jurisdiction to jurisdiction. In addition, there is also variation in the extent to which the actuary may rely on subordinate actuaries and others for such things as data accuracy, assistance in performing supporting studies, etc. These requirements and limitations are locally established by legislation, regulation, professional standards of practice, or custom.

74. In all responding jurisdictions that require the use of a responsible actuary in life insurance, there is a requirement that the actuary provide advice on the establishment of the technical provisions.

75. In life insurance, requirements to provide advice on other aspects vary. For example, some jurisdictions may require the actuary to provide advice on items such as: the premiums to be charged

(the level of tariffs); the terms and conditions of insurance contracts; the risk assessment policies; the adequacy of reinsurance arrangements; the investment policy; and most require the actuary to provide advice on the determination of the allocation of profits, distributions or bonuses to participating life insurance policyholders. Transfers of profit, or the distribution of capital back to shareholders, may also be subject to a requirement for actuarial advice. In many cases, this advice is required to be formal and in writing.

76. Although not a common regulatory requirement in responding jurisdictions, the responsible actuary is sometimes seen as having an important fiduciary role to represent the interests of the policyholders, particularly the participating policyholders, when decisions are taken within the insurer.

77. In most responding jurisdictions that require the use of a responsible actuary in non-life insurance, there is a requirement that the responsible actuary provide advice on the establishment of the technical provisions.

78. With respect to non-life insurance, requirements to provide advice on other aspects vary. Some jurisdictions require the actuary to provide advice on: the premiums to be charged (the level of tariffs); the risk assessment policies of the insurer; the adequacy of reinsurance arrangements; and the risk control, particularly by means of claims statistics.

79. In some jurisdictions, the responsible actuary is required to do stress testing and provide results regarding the potential impact on the current and future financial condition of the insurer to management, the Board of Directors and the supervisor.

80. The responsible actuary should have direct access to the insurer's Board of Directors, as necessary.

81. It is also possible that the actuary may be used to provide advice on emerging risk management issues or on particular accounting issues.

#### **Conclusion #14:**

Where a responsible actuary model is in place, the role of the actuary should be defined in terms of the types of advice that the actuary is required to give the insurer, for various lines of business. The actuary should provide advice on the level of technical provisions. Consideration should also be given to other areas where advice of the actuary will be valuable, such as: levels of premiums; adequacy of risk assessment; reinsurance arrangements; investment policies; statistical inference; and stress testing of the future financial condition of the insurer.

#### **Requirements to provide written reports**

82. In line with the variation in the types of advice to be provided, the extent of reports to be provided also varies. The preparation of a report provides transparency and accountability, particularly if the report is written in a manner suitable to the needs of its target audience; the assumptions, methodologies and recommendations can be scrutinised and questioned. This enables the Board of an insurer to make informed decisions and allows the supervisor to ensure certain standards and practices are being followed.

83. In all responding jurisdictions that require the use of a responsible actuary in life insurance, there is a requirement that the actuary prepare a report and make it available to the supervisory authority in relation to the establishment of the technical provisions and, in most cases, in relation to the determination of the allocation of profits or bonuses to participating life insurance policyholders.

Some jurisdictions require that the actuary prepare a report in relation to the impacts of alternative scenarios on the current and future financial condition of the insurer. It is noted that the report is often prepared as a report to the insurer, with a copy sent to the insurance supervisor. The supervisor may have the power to override, or not accept, the whole or a part of the content of the actuary's report.

84. Some responding jurisdictions require a report to be prepared and submitted in relation to the premiums to be charged (the level of tariffs). Only one responding jurisdiction requires the actuary to provide a report on the terms and conditions of policies. In each of these jurisdictions, the supervisor can override the actuary's report. In other jurisdictions, there is no requirement that a report be submitted; however, a written report still needs to be prepared for the insurer and the supervisor may still override the actuary's advice. This ability to override the actuary's advice or report provides the supervisor with an additional supervisory tool to ensure it is satisfied in respect of prudential matters.

85. In all responding jurisdictions that require the use of an actuary in non-life insurance, there is a requirement that the actuary prepare a written report and make it available to the supervisor in relation to the establishment of the technical provisions.

**Conclusion #15:**

Where a responsible actuary model is in place, there should be a requirement for the actuary to prepare a written report on the technical provisions and for that report to be provided to the insurer and made available to the supervisor. Consideration should also be given to requiring the actuary to prepare reports on other areas of advice.

**Conclusion #16:**

Where reports or advice on particular aspects are provided, the supervisor should have the ability to act independently of the actuary's advice.

**Whistle-blowing roles**

86. In some jurisdictions, the responsible actuary has a direct obligation to 'whistle-blow', that is, an obligation to report to the supervisor any matter that the actuary thinks requires action to avoid the contravention of regulatory requirements or to protect the interests of policyholders. In other jurisdictions, the actuary has an obligation to whistle-blow should the actuary believe that the insurer has failed to take appropriate action, but must first report the matter to the Board and then to the supervisor. The system of whistle-blowing provides an additional level of confidence for the supervisor.

87. In some jurisdictions, the actuary has protections under the law in relation to prosecution. This qualified privilege is designed to ensure that the actuary provides full and frank information to the supervisor without fear of litigation. This protection may extend beyond the strict obligations of the statutory whistle-blowing requirements.

88. The whistle-blowing requirement should be accompanied by a requirement that the insurer provide all necessary information to the responsible actuary to enable the actuary to carry out this role.

89. The scope of the whistle-blowing role is usually closely defined.

**Conclusion #17:**

Where a responsible actuary model is in place, consideration should be given to whether whistle-blowing requirements should be imposed on actuaries. The existence of such obligations may both increase the confidence of the supervisor and provide a direct link between supervisors and actuaries. In fulfilling such obligations, the actuary should have protection under the law.

**7. Future developments**

90. As noted at the outset of this paper, the use of actuaries in life insurance has long been commonplace, while the use of actuaries in non-life insurance is less widespread. As there is a move towards the increased use of actuarial skills in non-life insurance, this will necessitate greater professional development, experience and expertise in this growing area.

91. Developments in actuarial and mathematical practices, including the growth of risk modelling, will have effects on the work of supervisory authorities and on auditors. There is a need for increased knowledge, skills and expertise in these practices, to ensure supervisory authorities keep pace with these developments and can fully understand their implications.

92. Although there are many national aspects of insurance markets and their actuarial issues, experience shows that the international exchange of ideas and information in this area is valuable and of increasing importance. Not only can this exchange of information assist in the development and improvement of supervisory systems, but it may also assist in moving towards the development of harmonised principles and practices internationally. Greater interaction among the supervisors and practitioners is necessary to keep abreast with international trends and practices.

## Appendix A: references and contributors

### References

- Conference of the Insurance Supervisory Authorities of the Member States of the European Union (by Bjorn Palmgren), *Actuaries and Actuarial Methods in Insurance and Pension Supervision in the European Economic Area*, 19 (8?) February 2001
- European Union (EU) Insurance Committee, *The role of the actuary, statutory auditor and rating agency in insurance supervision*, MARKT/2062/99-EN
- International Association of Insurance Supervisors (IAIS) Glossary of Terms
- IAIS Subcommittee on Solvency, Solvency Assessment and Actuarial Issues, *Issues Paper*, 15 March 2000
- Organisation for Economic Co-operation and Development (OECD), *Comparative Tables on Actuaries*, 12 November 1996
- Responses to the IAIS Subcommittee on Solvency, Solvency Assessment and Actuarial Issues (IAIS Solvency Subcommittee), *Survey on Applying an Appointed Actuary System*, 19 February 2001

### Contributors

The following member jurisdictions of the IAIS contributed to the paper by way of response to the IAIS Solvency Subcommittee survey and written comments on the paper:

Australia, Canada (OSFI and FSCO), Chile, Chinese Taipei, Denmark, France, Germany, Guernsey, IAA, Japan, Malaysia, Norway, Spain, Sweden, Switzerland, Uganda, United Kingdom, United States and the World Bank. The US response reported the general practices among the various states, noting that they were widely followed but not fully uniform.

# **Back to basics: critical financial sector professions required in the aftermath of an asset bubble**

by  
Michael Pomerleano<sup>1</sup>

**Abstract:** The paper addresses the financial reorganization and corporate restructuring required in the aftermath of an asset bubble. Although much has been written about macroeconomic policies—monetary and fiscal measures—to abate and respond to bubbles, too little attention has been given to the micro-structural impediments that afflict countries in need of restructuring. The limited micro treatment has focused on the prerequisite infrastructure—effective bankruptcy law and a framework to support out-of-court corporate restructuring efforts—and has ignored the fundamental impediments to restructuring—the lack of professional financial services skills and the limited availability of market-based instruments for managing real estate and corporate restructuring. This paper focuses on the professional skills needed during restructuring.

Many countries experienced asset bubbles in the late twentieth century. Asset bubbles occurred in Norway, Finland, and Sweden in the 1980s. Real estate and stock prices rose meteorically in Japan in the 1980s, only to collapse precipitously in the 1990s. In mid-1997, real estate bubbles occurred in Malaysia and Thailand, and an equity market bubble occurred in Malaysia.

This paper advances the hypothesis that the buildup, duration, and severity of bubbles in equity and real estate markets, as well as the restructuring that occurs in the aftermath of such bubbles, are related to the availability of skills in financial sector services. Countries that have capable professionals such as appraisers, analysts, and insolvency experts have recognized and responded more swiftly to asset bubbles than countries with a limited base of financial sector skills. The same is true of countries that have a wide range of investment and risk management mechanisms. Such mechanisms—a secondary market for debt, corporate financial restructuring funds, corporate restructuring vehicles, real estate investment trusts, and securitization—help to transfer liquidity, market, and credit risks and thereby dampen the volatility of the financial system. However, the development and implementation of such instruments rests on a solid base of human capital. Therefore, this paper focuses on the need for financial sector skills and professions—insolvency experts, appraisers, financial analysts, and actuaries.

## **1. The context—theoretical and empirical evidence**

In the end, conventional macroeconomic responses are not sufficient in the absence of complementary micro-level restructuring. According to theoretical and empirical evidence in the academic literature, limited financial sector skills play an important role in precipitating price bubbles and in delaying restructuring in the aftermath of a bubble.

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Allen and Gale (2000) offer theoretical evidence on the contribution that limited financial sector skills and the ensuing lack of transparency make to the formation of asset price bubbles. They develop a model based on an “agency problem” and the amount of credit provided for speculative investment. Their model suggests that lack of transparency and exacerbation of the agency problem are instrumental in the buildup of asset price bubbles. Investors in real estate and stock markets borrow from banks. Risk is shifted if the ultimate providers of funds—banks—are unable to analyze their investments due to lack of financial sector expertise and opacity. The shifting of risk increases the return to investment and causes investors to bid up prices above their fundamental value.

Allen and Gale’s hypothesis is supported by evidence from Indonesia, Sweden, Thailand, and other countries that liberalized their financial systems rapidly without building adequate regulatory and supervisory infrastructure and without developing a sufficient base of skills. The crisis in Sweden was preceded by the rapid expansion of credit following the deregulation of financial markets; in the span of five years, private borrowing grew from 85 to 135 percent of gross domestic product. Sheltered prior to liberalization, Sweden’s financial system did not have a base of skills or experience for assessing and evaluating risks. As a result, credit was used for speculation in real estate and other financial assets. At the peak of the crisis, bank loans to real estate, or collateralized by real estate, accounted for more than 60 percent of all loan losses. The real estate speculation in Sweden culminated in a bubble that burst in 1990–91. Indonesian, Malaysian, and Thai banks also misdirected credit and built up a large exposure to real estate, a key factor precipitating the Asian crisis.

Limitations on the availability of skills in the financial sector affect stock valuations as well. Pomerleano and Zhang (1999) examine the relationship between corporate fundamentals and stock market performance in Asia. Using corporate and stock market data, they demonstrate not only that Southeast Asian corporate equities earn poor risk-adjusted returns but also that these returns do not, on average, cover the cost of capital. In this respect, capital markets in Asia do not allocate capital effectively. This may reflect both the lack of disciplined corporate budgeting processes and the lack of market analysis in emerging markets.

Fischer (2001) describes the importance of corporate restructuring in the aftermath of a crisis: “At this stage, bank and corporate debt restructuring should be closely coordinated, but often are not because of lack of *capacity*, data, and sheer complexity of the banks ... Bank restructuring cannot take place in isolation from corporate restructuring.” Further, there is increasing acceptance that corporate restructuring requires a broad set of instruments and institutional arrangements. For instance, a legal-administrative framework must exist to deal with insolvency (creditor rights, collateral recourse), and the tax structure must avoid perverse incentives that encourage excess leverage and discourage debt restructuring (see, for instance, Sundararajan and Seelig 2001).

Mako (2001) offers several prerequisites for effectively restructuring distressed companies in a systemic crisis:

- Strong legal protection in the bankruptcy law for creditors and an ability to impose losses on debtors

- An efficient framework to support out-of-court corporate restructuring efforts
- Government imposition of losses on shareholders of local financial institutions and government pressure to revalue assets
- Flexibility and readiness to lay off workers and accept foreign control over companies
- Removal of tax, legal, and regulatory impediments to corporate restructuring
- Creation of a central body responsible for driving financial sector restructuring and making adequate corporate restructuring a condition for bank recapitalization
- Sufficient professional capacity to conduct due diligence, structure and negotiate workouts, conclude asset sales, and manage converted equity
- Crisis efforts to resolve immediate corporate distress, supplemented by measures to promote long-term corporate health (for example, improvements in financial disclosure and audit standards, corporate governance practices, and cross-guarantees).

I complement these prescriptions by focusing on financial sector services.

## **2. Critical skills and professions**

Two diametrically opposed experiences illustrate the need for expert financial professionals. First, the success of Sweden in restructuring can be attributed to the swiftness of the response and the use of strict valuation rules from the onset of the restructuring process (Heikenstein 1998). All banks had to mark-to-market their real estate assets, and the Bank Support Authority hired expert professionals to ensure that banks did not overestimate or underestimate their value. As a result of the regulatory discipline applied, the mop-up was rapid.

In contrast, other crisis countries have been slow to dispose of bad property loans, and a huge oversupply exists due to excessive investment in the property sector. In Japan and Thailand, the lack of expert appraisers hinders rapid valuations and transparent market transactions. In the absence of credible valuations and market mechanisms for disposing of property and the presence of legal and tax distortions, the number of transactions has been minimal. Due to lack of credible valuations that reflect market values, rents and real estate prices have dropped slowly despite high vacancies and further increases in supply (Eschweiler 1999a). Therefore, adjustments in the property sector in Japan and Thailand are lagging, which slows their recovery. In short, the absence of skills and of market-based financial instruments that price risk and value assets leads to distorted price signaling.

When a country's financial system relies heavily on banks, systemic vulnerabilities increase. The Asian financial crisis provides ample evidence. Chairman Greenspan (1999) captured this message in his so-called "spare tires" speech: "This leads one to wonder how severe East Asia's problems would have been during the past eighteen months had those economies not relied so heavily on banks as their means of financial intermediation ... Had a functioning capital market existed, the outcome might well have been far more benign ... The lack of a spare tire is of no concern if you do not get a flat ... East Asia had no spare tires."

Non-bank financial institutions—capital markets, insurance companies, pension funds, and others—are an integral part of the financial system, providing an alternative to banks for mobilizing and allocating savings, for managing risk and liquidity, and for facilitating government debt management. The non-bank financial sector reduces the financial vulnerability

of enterprises through better access to equity markets and less dependence on short-term bank debt, through the refinancing risks of governments in a domestic public debt market, and through the banking system's term transformation risks. Essentially, financial markets with depth and breadth are able to manage crisis better than markets without them. Development of non-bank financial institutions, such as insurance schemes and collective investment instruments, requires a high level of professional expertise. The strong correlation among the base of skills, the growth of non-bank financial intermediation, and the stability of the financial system suggests that poor prevention and weak response to financial crisis are linked to inadequate skills and human capital in the financial services sector.

One set of available data covers employment in the financial services sector as a percentage of total employment (see table 1). Despite the difficulties in measuring the differential in skills across countries and adjusting for productivity, there is evidence that financial sector services play a small role in many emerging market countries. Employment in finance, insurance, real estate, and business services as a percentage of total employment is much lower in Indonesia, for example, than in the United States. In the Tiger economies, the former growth model emphasized production and exports and did not promote services (Eschweiler 1999b).

Table 1. Employment in finance, insurance, real estate, and business services as a percentage of total employment, by country, 1997

<i>Country</i>	<i>Share of total employment</i>
Indonesia	0.754
Philippines	2.442
Malaysia	5.219
Japan	8.769
United States	11.399

*Source:* United Nations (1997).

Functioning, complete markets require a base of professional financial skills. However, recognition of the need often grows only out of crisis. In the United States, for example, the savings and loan debacle in the 1980s, which cost taxpayers \$200 billion, prompted creation of the certification process for appraisers just 10 years ago. The regulation was in direct response to evidence of appraisal problems and misconduct inside U.S. financial institutions. According to evidence brought to light in the U.S. Congress, fraud and self-dealing by officers, directors, and insiders caused or contributed to half of all financial institution failures. Faulty or fraudulent real estate appraisals were used systematically to overvalue collateral and to make unsafe real estate loans. In response, the Appraisal Subcommittee of the Federal Financial Institutions Examination Council (ASC) was created to oversee appraisers and to ensure that they are sufficiently trained and tested, are competent, independent, and ethical, and use uniform, high professional standards. The United States is not perfect; it just experienced and responded to its crisis earlier than other countries.

Critical professions that are lacking and whose absence impedes the process of restructuring include insolvency experts, lawyers, accountants, appraisers, financial analysts, and actuaries. The following paragraphs discuss some of these professions in detail.

Table 2. Appraisal, actuarial, and insolvency professionals, by country

<i>Economy</i>	<i>Appraisers</i>		<i>Insolvency experts</i>		<i>Actuaries</i>	
	<i>Number per million population</i>	<i>Number</i>	<i>Number per million population</i>	<i>Number</i>	<i>Number per million population</i>	<i>Number</i>
Argentina	—	—	0.92	34	4.54	168
Australia	—	—	31.57	606	—	—
Austria	—	—	2.84	23	—	—
Belgium	—	—	0.68	7	—	—
Brazil	29.39	5,000	—	—	2.40	408
Canada	—	—	34.89	1,071	—	—
Czech Rep.	535.37	5,500	1.56	16	—	—
China	10.64	13,420	0.01	8	0.01	8
Finland	28.96	150	—	—	18.73	97
France	29.74	1,750	2.53	149	21.78	1,282
Germany	97.38	8,000	0.99	81	20.22	1,661
Hong Kong (China)	159.46	1,084	—	—	29.27	199
Hungary	—	—	2.20	22	12.87	129
India	0.34	350	0.03	33	0.11	111
Indonesia	6,665	1,400	0.02	4	0.03	7
Israel	—	—	0.16	1	—	—
Italy	—	—	0.80	46	—	—
Japan	44.96	5,700	0.04	5	6.73	853
Korea, Rep. of	36.47	1,724	0.02	1	0.23	11
Lithuania	126.01	466	—	—	—	—
Malaysia	21.50	500	1.12	26	—	—
Mexico	30.62	3,000	0.02	2	1.95	191
New Zealand	—	—	49.86	191	—	—
Nigeria	—	—	0.03	4	—	—
Norway	—	—	2.00	9	—	—
Pakistan	—	—	—	—	0.10	14
Philippines	—	—	0.01	1	0.90	68
Poland	77.62	3,000	0.28	11	0.10	4
Romania	—	—	0.62	14	—	—
Russia	27.48	4,000	—	—	—	—
Singapore	129.17	519	2.74	11	20.41	82
South Africa	—	—	7.13	305	—	—
Spain	—	—	0.30	12	—	—
Sweden	56.38	500	1.58	14	27.74	246
Switzerland	—	—	0.84	6	48.05	345
Thailand	—	—	0.13	8	0.21	13
United Kingdom	334.79	20,000	27.02	1,614	79.75	4,764
United States	284.14	80,000	6.54	1,841	53.16	14,968

— Not available.

*Source:* For insolvency, INSOL membership database; for appraisers, the International Valuation Standards Committee; for actuaries, the International Actuarial Association.

**Insolvency experts.** Insolvency practitioners are needed to analyze the business and financial viability of a real estate project or a company and to choose between restructuring and liquidation. They require expertise to negotiate approval of, implement, and monitor the restructuring plan and to manage operations of the company. If liquidation is needed, insolvency practitioners arrange for the orderly disposition of the company's assets and the creditor's claims. Their expertise and integrity must be above reproach.

The International Federation of Insolvency Professionals (INSOL) is a worldwide federation of national associations for accountants and lawyers who specialize in insolvency. The members are engaged in formal insolvency proceedings, advise creditors and businesses, and restructure

businesses in financial difficulty. INSOL International currently has 29 member associations worldwide with more than 8,000 professionals. The quantitative data in table 2 indicate the disparity of skilled professionals available in Japan (five members), Canada (1,071 members), and the United States (1,841 members).

Table 3. Qualification requirements of insolvency experts, by country

<i>Country</i>	<i>Qualification requirements</i>	<i>Source</i>
Canada	Membership requirements include the association's standards of admission, prescribed course of study, and passage of required examinations. In 1997 the National Insolvency Qualification Program was created to harmonize qualification requirements.	Canadian Insolvency Practitioners Association (CIPA)
New Zealand	Government is opposed to occupational registration, so there is no registration of insolvency practitioners. The following cannot qualify for appointment: persons under 18 years of age and creditors, shareholders, directors, auditors, or receivers of the company.	INSOL New Zealand
Switzerland	Insolvency is not a specialized profession. Activities are performed mostly by other specialized professions (lawyers, accountants).	Swiss Bankers' Association (SBA)
United Kingdom	Insolvency experts are licensed and regulated by one of eight recognized professional bodies (for example, the Institute of Chartered Accountants in England and Wales plus the Secretary of State for Industry).	Association of Business Recovery Professionals

With regard to qualifications and regulation, the requirements vary among local organizations and from country to country (see table 3). For instance, in the United Kingdom, any of seven recognized bodies can authorize an insolvency practitioner to act. INSOL International is the international umbrella organization for member associations from 26 countries. Memberships in the local associations typically are made up of qualified accountants or lawyers. In general, accountants tend to take insolvency appointments in the common law system, and lawyers tend to lead in the civil law system and in the United States. However, overall, there are considerable differences in the training and licensing of insolvency professionals. In a very few nations (United Kingdom, Canada, Australia, and some others), insolvency practitioners are examined, licensed, and regulated either by their professional bodies or by the state. In other countries, such as France, the list of court-approved liquidators and administrators is very restricted. In the vast majority of nations, however, accountants or lawyers who also provide other services carry out insolvency work. Some may specialize in insolvency work, but not possess distinct formal qualifications or accreditation.

In many countries, any remotely qualified person—whether an accountant or a notary—is eligible to be a court-appointed liquidator, as long as the person is disinterested. Often the appointed “expert” lacks ability, independence, or both. For instance, there is no registration of insolvency practitioners in New Zealand. Disqualifications for accepting an appointment are set out in the Companies Act 1993, section 280, and include persons of less than 18 years of age, creditors, shareholders, directors, auditors, or receivers of the company. Similarly, in the People's Republic of China the draft of a new insolvency law only requires the administrator to have not been struck off as a lawyer or accountant within the last five years. The administrator

does not even have to be an accountant or a lawyer.

**Appraisers.** Appraisers are needed to value property, including commercial property (office buildings, retail, shopping centers), industrial property (manufacturing plants, warehouses), residential property (apartment houses, single-family homes), and machinery and personal property. Appraisers reduce the risk involved in property transactions by assigning credible values to property based on a standard method: all participants recognize the methodology, and the valuation is consistent. In many emerging markets, standards of certification are lacking. Therefore, it is important to establish and promote minimum uniform standards of appraisal and minimum qualifications. Professionally recognized training and certification programs can ensure the professional expertise, integrity, and responsibility of appraisers.

The International Valuation Standards Committee (IVSC) is an association comprising professional valuation associations from some 50 countries. A brief look at the quantitative data in table 2 indicates wide differences in the availability of appraisal services in select markets. The frequency ranges from 335 appraisers per million population in the United Kingdom to 0.3 appraisers per million population in India.

The standard methodology for appraisals relies on the market, income, and cost approaches. Perhaps the most striking point is that not all countries abide by appraisal based on market value—for example, the use of comparable transactions in order to establish market value. For instance, in Japan valuations rely on the cost approach. Appraisals of property often are based on the value of land (land price index) and, rarely, the sales comparison and income approach. The reliance on cost basis is due to the lack of data: market data are scarce due to lack of information disclosure and the failure to collect systematically transaction data. Further, property appraisers tend to be architects and engineers, and their bias is to use cost basis for appraisals. Therefore, the real estate market is not transparent.

Moreover, there is no consistent treatment across countries of the appraisal and valuation profession with respect to training and regulation. Similarly, in many countries—for example, Argentina—there are no uniform standards of valuation. In others—for example, France and Mexico—there is no state-appointed or self-regulatory body for the supervision of real estate valuation. In many countries, the regulation and development of the profession usually have followed a crisis of some sort—the savings and loan crisis in the United States, the property crash in the 1980s in Europe, the reform of the centrally planned economies in Eastern Europe, and the recent financial crisis in Asia.

Similarly, the U.K. experience with instilling training and licensing requirements for surveyors is instructional of best practices. The Royal Institution of Chartered Surveyors (RICS) is the premier global professional body that represents, regulates, and promotes chartered surveyors and technical surveyors. In order to become either a technical or professional member of RICS, candidates are expected to complete an approved academic qualification followed by at least two years of structured training in the workplace. On completing the minimum training period, candidates are then assessed via submissions and an interview. Successful assessment allows members to be upgraded to technical or professional membership. After they have been full members for a minimum of five years, they can apply to become a fellow. The members are

bound by the rules of conduct and bylaws outlined in the RICS charter.

Countries in the process of establishing a mortgage lending market and introducing mortgage-based instruments in their capital markets need to improve the standards of valuation. Clearly, appraisal standards should be correctly applied and regulated. This can be accomplished by establishing professional standards of valuation, educational requirements, methodology, ethics, and oversight in developing real estate markets.

**Financial analysts.** Disciplined financial decisionmaking demands expertise. Such financial analysis is employed in a variety of functions—securities analysis, portfolio management, and the budgeting process. Financial analysts practice in a variety of industries, including investment management, banking, and insurance.

Expert financial analysis requires education, standards of professional conduct, and standards of practice. The Association for Investment Management and Research (AIMR) was created to educate and certify investment managers and analysts and to sustain high standards of professional conduct. However, 82 percent of its members practice in North America, while only 8 percent practice in Asia and less than 1 percent practice in Latin America.<sup>2</sup>

**Actuaries.** Actuaries traditionally work in the insurance and employee benefits industries and the health and retirement benefits sectors. They make it possible to share and disperse risks and, in a market economy, help to stabilize the financial system. Nevertheless, actuaries are scarce in developing countries. The International Actuarial Association (IAA) brings together the actuaries in member countries, and its members are actuarial associations worldwide. The IAA is dedicated to the research, education, and development of the profession and of actuarial associations. It reviews and implements the rules for the accreditation of individual members and recommends educational guidelines and a syllabus for an internationally recognized actuarial qualification. Table 2 indicates the wide disparity in the availability of actuaries in the sample countries, while table 4 shows the rigor of training required of them.

Some economies have professions that are properly trained and regulated and have commonly accepted standards of business that produce a strong institutional structure better able to withstand bubbles. But the facts regarding the proliferation of the professions raise intriguing questions. Specifically, why do Hong Kong and Singapore have more financial sector professionals per capita than Japan and Korea? Does that make their economies more immune to crisis and more flexible in their response?

Table 4. Qualification requirements of actuaries, by country

<i>Country</i>	<i>Qualification requirements</i>
Argentina	Examinations, university courses
Brazil	University degree program
Finland	Examinations of other bodies, government examinations
Germany	Examinations, university courses
Hungary	University degree plus 18 months of practice

<sup>2</sup> A caveat with respect to the AIMR is that analysts in other regions might choose membership in domestic organizations.

India	Own examinations
Japan	Own examinations of other bodies
Mexico	University degree program
Singapore	Examinations of other bodies, university degree program
Sweden	University degree program
Switzerland	University degree plus at least three years of qualified professional experience, in line with international guidelines of ASTIN (International Actuarial Association)
United Kingdom	Examinations, university courses
United States	Own examinations of other bodies

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*Source:* International Actuarial Association.

Some economies have a better professional infrastructure than others because of their legal traditions—common law versus civil law. Common law countries, including Australia, Canada, Hong Kong, Singapore, and the United States, are former British colonies and rely on independent judges and juries and legal principles supplemented by precedent-setting case law to respond to evolving circumstances. Civil law countries, which include Indonesia, Japan, Korea, and Latin America, rely on legal codes that contain very specific rules. Therefore, civil law countries are not adept at responding to the changing needs of the economy. They have to pass new rules regarding property valuation and regulation of new financial products such as insurance. Legal traditions affect the development of professions to a remarkable degree. According to La Porta and others (1998), there are a robust negative correlation between the civil law tradition and lack of professions, on the one hand, and a supporting and beneficial impact of professions on the rule of law, on the other hand.

There are two other possible explanations for the differences among countries. First, Japan and Korea, as well as other Asian and Latin American countries, rely on banking financial intermediation. In some of these countries, the savings are channeled largely by directed credit from banks to businesses. In many instances, the credit decisions are made without reference to risk, and an implicit safety net is in place. In such instances, there is less need for professionals to manage risks. Therefore, the lack of professions is a direct result of the savings intermediation process. Second, in Asia and Latin America, groups of affiliated companies—*keiritsu* in Japan, *chaebol* in Korea, *grupos* in Latin America—are integrated both vertically and horizontally, are organized around their own trading companies and banks, and are involved in a variety of industrial, resource, and service sectors. Due to a developed internal market for financial resources, these companies rely less on external markets, so there is less need for the financial skills of external experts.

### **3. Conclusions and policy recommendations: A market-based approach to restructuring**

The process of restructuring the corporate and real estate sectors is neither elegant nor simple. Restructuring is a tedious and demanding process composed of a series of incremental and complementary institutional measures, including the development of financial sector skills and market instruments. Countries, such as Japan, are not likely to restructure rapidly and efficiently because they lack the human capital and market-based instruments to do so. Acceleration of the restructuring process hinges on development of both. Further, ongoing restructuring is the essence of a market economy. It is part and parcel of adapting to a changing situation and to competitive pressures even in the absence of a bubble or crisis. In other words, restructuring is not an event, but rather a process. The need for skills to manage restructuring weighs heavily on

the competitiveness of economies lacking them.

The Asian financial crisis has led to calls for the development of international standards with the intent of strengthening public financial institutions, particularly in areas such as securities and bank regulation. There is an equal need for strengthening the capacity of the private financial sector through international standards, such as the one that IVSC is promoting, as well as nurturing the development of essential professions and improvements in the institutional setting.

What can be done? Effort is required along three dimensions: *regulations* to facilitate the growth of the financial services professions, *incentives* to induce individuals to enter these professions, and *opening* of the financial sector to foreign competition. Governments need to play an active role in all three areas.

The regulatory regime is intended to ensure that practitioners have appropriately high levels of competence and skills, that practitioners have integrity and independence, and that a procedure is available for dealing effectively with enforcement. An effective regulatory regime instills credibility in these professions.

Leadership is needed as well to foster professional associations for appraisers, actuaries, and insolvency experts, among other professions. In the meantime, governments can encourage skills development by outsourcing contracts to licensed professionals in the private sector.

There is ample evidence that the presence of foreign banking, insurance, and securities provides benefits to the countries in which they invest (Litan, Masson, and Pomerleano 2001). Therefore, policymakers could improve the base of financial skills by dropping limitations that restrict foreign entry. Liberalization of entry in the financial services professions offers policymakers a venue through which to import financial sector expertise.

Finally, policy measures directed at developing market-based instruments in distressed debt, corporate restructuring funds, and real estate investment trusts that bring greater transparency, efficiency, and liquidity to emerging markets will be more accepted, and take root, once the core professional expertise is available.

## References

- Allen, Franklin, and Douglas Gale. 2000. "Bubbles and Crises." *Economic Journal* 110 (January): 236–55.
- Eschweiler, Bernhard. 1999a. "Asia's Property Market Is Still Deep." In *Asian Financial Markets*. New York: Morgan Guaranty Trust Company, Economic Research. October 29.
- . 1999b. "Asia's Top Economies Must Focus on Services." In *Asian Financial Markets*. New York: Morgan Guaranty Trust Company, Economic Research. April 30.
- Fischer, Stanley. 2001. "Financial Sector Crisis Management." Remarks before the Seminar on Policy Challenges for the Financial Sector in the Context of Globalization, World Bank, International Monetary Fund, and Board of Governors of the U.S. Federal Reserve System, Washington, D.C., June 14.
- Greenspan, Alan. 1999. "Lessons from the Global Crises." Remarks before the World Bank

- Group and the International Monetary Fund, Program of Seminars, Washington, D.C., September 27.
- Heikenstein, Lars. 1998. Speech by the deputy governor of the Bank of Sweden at a seminar arranged by the Swedish embassy, Seoul, Korea, July 15.
- La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1998. "Law and Finance." *Journal of Political Economy* 106 (6): 1113–55.
- Litan, Robert E., Paul Masson, and Michael Pomerleano, eds. 2001. *Open Doors: Foreign Participation in Financial Systems in Developing Countries*. Washington, D.C.: Brookings Institution Press.
- Mako, William P. 2001. "Corporate Restructuring Strategies: Recent Lessons." Asian Regional Seminar on Financial Reform and Stability, International Monetary Fund, Hyderabad, India, March 29.
- Pomerleano, Michael, and Xin Zhang. 1999. "Asian Corporates and Capital Markets." In Alison Harwood, Robert Litan, and Michael Pomerleano, eds., *Financial Markets and Development: The Crisis in Emerging Markets*. Washington, D.C.: Brookings Institution Press.
- Sundararajan, Vasudevan, and Steven A. Seelig. 2001. "Corporate Financial Restructuring." Paper presented at the Asian Regional Seminar on Financial Reform and Stability: Systemic Issues, International Monetary Fund, Hyderabad, India, March 29.
- United Nations. 1997. *Statistical Yearbook 1997*. New York.



## **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.