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INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

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

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

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

Contents

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.[1]

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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[1] 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[2]

[2] 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.

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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.