

# PEER REVIEW PARADOX

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**Abstract:** Using three case studies demonstrating some failures on the part of the actuaries involved, this paper seeks to establish the basic needs for actuarial peer review and to illustrate some of the limitations and practical difficulties that may be encountered when implementing a framework for actuarial peer review.

**Key-words:** actuarial peer review, Morris review of the actuarial profession, Equitable Life Assurance Society, HIH Insurance Group, individual disability income insurance.

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## 1. Introduction

One of the major criticisms levelled at the actuarial profession as part of the Morris Review in the United Kingdom [8] related to the lack of proper peer review mechanisms within the profession and the over-reliance of companies on the advice of a single actuary or group of actuaries. Enhanced use of peer review within the profession was one of the key recommendations arising out of the review. Since that time, there has been considerable activity within the various actuarial bodies around the world to formulate guidelines and implement peer review processes.

This paper will discuss the basic needs for peer review [section 3] using three recent case studies: the failure of the Equitable Life Assurance Society in the UK [section 4], the failure of the HIH Insurance Group in Australia [section 5], and the sizeable cumulative losses made on individual disability income insurance in the US [section 6]. Each of these case studies demonstrated some basic failures on the part of the actuaries involved. Using these case studies, we will attempt to outline the fundamental principles of actuarial peer review and to illustrate some of the limitations and practical difficulties that may be encountered when implementing a framework for actuarial peer review [section 7].

For a profession that has in the past prided itself on its ability to maintain totally divergent opinions on some of its key principles, the transition to a peer review regime may not be so simple.

## 2. What is Actuarial Peer Review?

For the purposes of this paper, we shall define “actuarial peer review” as the review of actuarial work (ie work that draws upon the collective technical knowledge and experience of the actuarial profession) by a suitably qualified actuary with a similar (or possibly higher) level of technical knowledge and experience.

While the word “peer” entails a sense of equality between the reviewer and the person being reviewed, as well as the implication that both parties have entered the highest level of their particular professional circle, we believe that the basic principles of “peer review” are equally (if not more) applicable to situations where the reviewer is more knowledgeable and experienced than the actuary being reviewed. Especially in developing markets where there is a shortage of suitably qualified actuaries, it is recognised that by necessity, actuarial work will often be performed, signed-off or reviewed by an actuary or student who may not necessarily have the optimal level of experience and qualifications.

## 3. Why Actuarial Peer Review?

A number of actuarial analyses [1,6,14] have outlined lofty objectives for introducing formal requirements for actuarial peer review, such as the strengthening and maintenance of confidence in actuarial work and the profession as well as the protection of the public interest by ensuring that actuarial advice is both objective and of the highest quality.

In this section however, we have attempted to reduce the need for actuarial peer review down to its most basic elements. In our view, the need for actuarial peer review rests primarily on the following elements:

### **a. Because actuaries make important decisions**

Obviously, peer review would be unnecessary if actuaries did not make important decisions affecting the lives of ordinary members of the general public. While peer review may occasionally be useful to the actuary who is in two minds on trivial issues, such as whether he should round his answer to 6 or 7 decimal places, the actuarial world could clearly survive without peer review on matters of an immaterial nature.

### **b. Because Actuaries make mistakes**

Human beings (although potentially controversial, we would like to include actuaries within their number), no matter how highly trained or educated, will make mistakes. Where time permits and where the consequences of a mistake are sufficiently material, we would always encourage actuaries to have their work checked for simple mistakes.

**c. Because Actuaries have different levels of knowledge and skill**

The very nature of this point may imply that the reviewer is not a “peer” in the normal sense of the word, but actually an actuary with a greater level of knowledge and experience. Clearly, in order to maintain the high standards of the actuarial profession and its status in the eyes of regulators and the general public, where an actuary performing the work does not have sufficient knowledge, or lacks confidence in his or her own level of expertise, there is a need for material aspects of the work to be reviewed by an actuary with the necessary knowledge and expertise.

The difficulty of course, is in knowing when you do not have the necessary knowledge and expertise. We believe that this is really a separate issue for the profession, centring on the ability of the profession to educate and inculcate adequate standards of professionalism in its members and we have made limited reference to this issue in this paper.

Peer review also provides an opportunity for actuaries to update their knowledge and to be exposed to new ideas or methods. While the updating of skills would usually be enforced by means of Continuing Professional Development (CPD), peer review provides an additional mechanism through which knowledge and skills can be spread amongst members of the profession.

**d. Because Actuaries have differences of opinion or judgement**

This is the area where actuarial peer review truly begins to serve a separate and distinct purpose beyond checking mistakes and ensuring that there is adequate expertise. In recognising the need for peer review, actuarial professional bodies have started to recognise a need to narrow the range of actuarial practice, particularly with respect to the application of formally documented Professional Standards and Guidance Notes.

This is one area in which the introduction of peer review has not necessarily been welcomed. As we shall see in the Equitable case study [section 4], the actuarial professional has sometimes prided itself on the divergence of opinions that individual members may hold on various issues. In some areas, disagreements and debates have been prized as much as Guidance Notes setting out standards of actuarial practice. This is not necessarily illogical as disagreements often form the basis of new innovations and ideas. Some divergence of opinion will be inevitable and indeed is a sign of a healthy profession.

However, in order for the actuarial profession to truly be recognised as the experts in its core practice areas, there needs to be a certain level of concurrence in its most important core principles and practices. At the very least, there needs to be a means of arbitrating between various different opinions to distil a standard belief or practice and provide guidance, much the same way that the law profession has mechanisms to arbitrate on disputes of law and the medical profession actively establishes and updates guidelines for standard clinical practice.

**e. Because Actuaries are not always (or not always perceived to be) impartial and independent**

In some ways, this is an extension of the previous point in that it implies that it is possible for actuaries to hold different opinions or views on the same matter. Many commentators have highlighted that this aspect of peer review should serve to strengthen the credibility and reputation of the profession by addressing the perception that actuaries may be swayed by potential conflicts of interest in performing their duties. Actuaries often have multiple responsibilities and obligations to various different parties: to company management, to shareholders, to regulators, to policyholders and to the public at large. This is a particular problem where much power and decision-making authority is concentrated within the scope of the actuary's duties.

To resolve potential issues relating to the concentration of power and conflicts of interest, independent external peer review can be seen as part of an audit function, ensuring that actuarial decisions and recommendations are unbiased and objective. Independent external peer review is also often seen as one way for the actuary reinforce his or her position and resist undue pressure from any one of the parties that he or she serves.

While we agree that, in the longer term, independent external peer review should strengthen the profession, we would highlight that in the shorter term, independent external peer review may actually undermine the profession if there is found to be widespread disagreement between actuaries and their actuarial peer reviewers.

In some ways, the assertion that the actuarial profession will be strengthened by independent external peer review assumes that the factors calling for peer review outlined in points b to e above are rare or do not exist. If actuaries make relatively few mistakes, if actuaries are all fully up-to-date on their CPD, if there is widespread agreement on core actuarial issues and actuaries are generally found to operate impartially and objectively, then it is likely that independent external peer reviewers will find little to dispute and the credibility and reputation of actuaries will be enhanced.

If however, the process of independent external peer review finds that actuaries often make mistakes, often lack sufficient skill and expertise, often have wildly divergent views or that actuaries are often compromised by conflicts of interest or bias, then in the short term, the actuarial profession may actually be weakened by the revelation that the profession is not quite in the state that it should be. This could potentially be one reasons for the "peer review paradox".

In the remainder of this paper, we have put together some case studies to illustrate some of the practical barriers to actuarial peer review, drawing on the above discussion.

## 4. Case Study 1: Equitable Life Assurance Society, UK

The trials and tribulations of the Equitable Society are well-documented elsewhere, in Lord Penrose's Report [10] as well as in the Morris Review of the Actuarial Profession [8]. However, in our discussion of actuarial peer review, we would like to focus on one particular aspect of the Equitable failure.

### **The Need for an "Estate"**

One of the most contentious "actuarial" practices contributing to the collapse of Equitable was the company's stated policy not to maintain an "estate" of free assets. The absence of an "estate" meant that, when the House of Lords in July 2000 handed down its judgement, finding against the Equitable in the *Hyman* case and its practice of allocating different levels of terminal bonus on policies with and without annuity guarantees so that the guarantee no longer held any value, the Equitable was unable to absorb the impact of this shock and ultimately needed to close its fund to new business and move into run-off. At the time of the decision, it was estimated that the *Hyman* decision would cost the Equitable about £1.5 billion. With assets of approximately £26 billion in its with-profits fund, an estate of less than 10% (somewhat less than the amount that many other offices were holding at the time), would have been able to absorb the impact of the *Hyman* judgement. DO Forfar, in his submission to the Myners Inquiry [4], has pointed out that Scottish Widows, who were similarly affected by the House of Lords' *Hyman* judgement, released about £1.5 billion from its £4 billion estate to comply with the judgement and remained very much solvent.

However, the practices of the Equitable were known to much of the UK profession at the time and indeed had been presented to and discussed openly among the profession in what could be construed as a very public "peer review" process.

In March 1989 and February 1990, Roy Ranson (Appointed Actuary of the Equitable at the time and future CEO) and Chris Headdon (the Equitable's future Appointed Actuary and CEO), presented a paper entitled *With Profits Without Mystery*, to sessional meetings of the Institute [11] and Faculty of Actuaries [12] respectively, outlining in fairly explicit detail, the Equitable's approach to distribution of surplus to policyholders.

Ranson and Headdon characterised with-profits policyholders as participants in a "managed fund", similar to an investment-linked fund except that it allowed for guaranteed benefits, the smoothing of investment returns and the allocation of returns through reversionary and terminal bonuses. Underlying the "managed fund" concept was the belief that the assets of the office are owned by the current generation of policyholders. The implication of this philosophy was that the Equitable targeted payout ratios equal to 100% of asset shares, while asserting that the company did not, nor need to, maintain an "estate".

### **The Reaction of the Actuarial Profession**

Reaction to the paper was mixed. In the discussion following the presentation of the paper to both the Institute and the Faculty, there were clearly some actuaries who supported Ranson and Headdon's approach. However, it appeared that the majority were in disagreement with the views of the Equitable actuaries. With particular respect to the need to maintain an "estate", the following quotations are fairly representative of the views that were expressed:

The scenario may look improbable. However, I believe it is in consideration of the improbable that some of us retain what we would unashamedly call an estate.

- PNC Clark [11]

The philosophy described by the authors is clearly a workable approach to with-profits business. It may have been a contributory factor to the successful period of development which this particular office has experienced; or perhaps it is only been viable because of this success. In different circumstances and for different players, attempting to run a with-profits fund without a significant estate could be a much more difficult path to follow.

- PD Needleman [11]

The difficulty for with-profits business is that a trough cannot be filled from a future peak. Inevitably, and not necessarily inequitably, this leads to a cushion of reserve, whether explicit in the form of investment reserve and solvency margin or implicit in valuation amounts. Whatever it is called, and estate is the accepted term, it undeniably exists both conceptually and in practice.

- NJ Greenwood [11]

Recognition must be given to the likelihood, at some time or another, that the underlying pro rata asset shares will fall below guaranteed payouts and some charge must be retained for this... Having done stochastic modelling it is not difficult to see the need for some free assets, certainly with the current valuation regulations.

- MD Ross [12]

The authors have said that they were 'deliberately provocative' in suggesting that there is no need for an estate. Perhaps I may be forgiven for being deliberately provocative in suggesting that a mutual office wishing to transact significant volumes of with-profits business which does not have a sizeable buffer fund in the form of an estate should seriously consider demutualisation, thus permitting increased average payouts even after allowing for a small distribution to shareholders.

- A Eastwood [12]

### **Actuarial Disagreements**

While the sessional meetings clearly allowed the Equitable actuaries to be subjected to review of their practices by their actuarial peers, the presentation permitted little in the way of follow-up action on the part of the actuarial peer reviewers. Clearly, it was not within the envisaged scope of the sessional meetings for actuaries strongly disagreeing with the approach of Ranson and Headdon to take matters further with the Equitable Board of Directors, with the regulator or with the Equitable's ultimate owners, the policyholders under its mutual ownership structure.

In many ways, it was not (and probably still is not) the practice of the profession to publicly call into question the views or practices of other actuaries. While criticism and debate were perfectly acceptable and even encouraged in the professional forum of a sessional meeting, actuaries operating within the scope of their own company authority were left to make their own decisions. The attitude of the profession at that time is reflected in the following comment from the Faculty Sessional Meeting:

Mr President, if in my remarks I have indicated areas of the paper with which I do not agree, may I say that there are many with which I do... Moreover, I would not wish, in disagreeing with the authors, to do more than recognise the diversity of valid opinion in our profession, a sure sign of its good health.  
- WB McBride [12]

However, another major factor impairing the ability of actuaries to formally question the approach of the Equitable actuaries was the absence of any formal standards of practice or professional standards with respect to the maintenance of an "estate" for with-profits funds. While it can be said that Ranson and Headdon were imprudent in not recognising the need for a buffer to absorb financial market shocks and experience deviations in the face of guaranteed benefits and pricing structures, it is difficult to argue that they violated the core principles of the actuarial profession at that time simply because there was no formal agreement within the actuarial profession's standards of practice that an "estate" should be maintained. The lack of a standard approach to a core aspect of actuarial practice was also highlighted in the sessional meetings:

My third candidate for demystification is the profession itself. This may sound heretical for if actuaries are mystified by with-profits what chance do policyholders and commentators have? When we consider the fact that this paper was written and we listen to the differences of opinion which we have all heard tonight, it is clear that there are many different with-profits philosophies, not all of which can be attributed to differences in business.  
- LJ Gray [12]

The Penrose Report further highlighted the tendency of the Government Actuary's Department (GAD) "to judge according to the lowest common denominator of prevailing current views amongst actuaries..." [10]

### **Implications for Actuarial Peer Review**

Would actuarial peer review have prevented the collapse of the Equitable? This is a difficult question to answer given the many factors contributing to the collapse of the Equitable that extend well beyond the issue of the “estate”.

Going back to the points outlined in section 3, the Equitable was definitely a case where the opinions and judgement of the actuaries within the company were different to those of many others, possibly the majority of the profession. The case also raised some questions concerning potential conflicts of interest in that both Ranson and Headdon served periods as, simultaneously, both the Appointed Actuary and CEO of the Equitable, dominating the sales and marketing approach of the company as well as the technical valuation and distribution of surplus. Both served almost their entire careers within the company and had a vested interest in maintaining the practices that they themselves had introduced and justified. Furthermore, Ranson and Headdon were found in the Penrose Report to be somewhat lacking in their actuarial skills and expertise in that they failed to model the impact of the Equitable’s annuity guarantees on a stochastic basis, relying on deterministic projections that failed to recognise the full impact of the guarantees until they were “out of the money”.

While a formal regime of peer review might have led the Equitable to hold somewhat more of a buffer or “estate” in its free assets, especially given the length of time over which the Equitable maintained its policy of distributing 100% of asset shares, peer review may not have trimmed the company’s annuity guarantees to the same extent. It is also questionable as to whether peer review may have led the Equitable to open a separate bonus class for policies without annuity guarantees sold from mid-1988. What is somewhat clearer is that peer review may have led to the Equitable’s problems being recognised much sooner than they were as it adopted some questionable reserving assumptions and practices to support the continuation of high bonus payouts. However, it is also recognised that, despite access to ample information, the Equitable’s auditors and the UK regulatory authorities failed to recognise the extent of the Equitable’s financial difficulties until it was much too late.

With the benefit of hindsight and in the light of the enhanced standards of life office financial management that exist today, including stochastic asset-liability and option modelling techniques, some of the Equitable’s practices were clearly questionable. However, in the context of the prevailing actuarial practice at the time it would have been somewhat more difficult to predict that the practices adopted by the Equitable would ultimately lead to its downfall.

However, it is clear from the case of the Equitable that proper peer review cannot exist without a profession that is able to boldly and publicly challenge the practices of other members. In the face of very strongly held opinions, such as those of Ranson and Headdon, such challenges seemed improbable without a formal framework for distinguishing between appropriate and inappropriate professional practice. In order to question the Equitable’s practices, the actuarial profession (or the regulatory authorities) would have had to establish guidelines for how much of an estate companies should hold for their with-profits funds, and the circumstances under which this estate might have needed to be higher or lower.

## 5. Case Study 2: HIH Insurance Group, Australia

The collapse in March 2001 of Australia's second largest general insurer, the HIH Insurance Group, with net liabilities estimated at several billion Australian dollars, ranks as one of the largest corporate failures in Australian history. The investigations and recommendations of the HIH Royal Commission, set up in the aftermath of the collapse, have had a profound impact on the regulatory framework for Australian general insurance companies, including the introduction of a number of major changes to the role of actuaries, working in the general insurance industry as well as in other industries.

While the overall reason for the failure of HIH can be summarised in terms of "gross mismanagement", there were a number of aspects of the failure related to areas of the business with significant actuarial involvement. In this section, we have focused on the actuarial aspects of the HIH failure, with a particular emphasis on how actuarial peer review may have prevented or moderated the extent of the failure.

### **Under-Reserving for Claims**

In very simple terms, the immediate cause of the HIH failure was under-reserving for claims, an area that clearly falls within the scope of the actuary's duties. The several billion dollar net liability arose because claims arising from insured events in previous years were far greater than the company had provided for. Underpriced policies written in the past were a drain on the current income of the company. This increasing deficiency led HIH to be more aggressive in the acquisition of new business, including forays into the US and UK markets without any substantial knowledge about the risks being insured, as well as the acquisition of FAI Insurance in 1998. This was a spiral that could not continue indefinitely and HIH was placed in provisional liquidation on 15 March 2001, when the group became unable to pay its debts as they fell due.

With reference to the under-reserving for claims, the Royal Commission report [9] states that, as at 31 December 2000, HIH set its provision for outstanding claims at A\$3.1 billion. Following the demise of HIH, the liquidators engaged an independent actuarial team from KPMG to conduct a review of HIH's claims reserves. KPMG opined that as at 15 March 2001, assessed on a going-concern basis, the value of the outstanding claims liabilities was A\$5.0 billion. Disregarding the slight discrepancy in valuation dates, it follows that HIH's outstanding claims were undervalued by A\$1.9 billion at the time of its demise. Assessing HIH on a break-up (as opposed to a going-concern) basis, KPMG estimated that the extent of the under-reserving increased to A\$2.6 billion and with a prudential margin added to the reserves, this figure rose to A\$4.3 billion. With such significant under-reserving, it is difficult not to question the quality of the actuarial work that had been performed for HIH.

### **Actuarial Standards for Outstanding Claims Reserves**

In Australia, as in other countries, responsibility for the setting of outstanding claims liabilities lies with the company directors, following recommendations from company management. However, it is normal for general insurance companies to engage an

actuary to assist in the setting of these liabilities. Actuarial work for HIH was performed almost exclusively by David Slee, a consultant actuary operating his own small consultancy firm. From the end of 1997 until the demise of HIH, Slee provided six-monthly reports in relation to HIH's outstanding claims liabilities.

From the perspective of actuarial peer review, there are a number of areas where Slee's approach to calculating outstanding claims reserves might have been questioned. Looking firstly at Slee's compliance with relevant actuarial standards, some of the relevant provisions of Professional Standard 300 (PS300) of the Institute of Actuaries of Australia on Actuarial Reports and Advice on Outstanding Claims in General Insurance [5] were as follows:

47. The actuary should not recommend or support a provision which is less than the central estimate of the liabilities.
51. The actuary's report should state the extent of compliance with this standard, the reasons for not complying fully with this standard, and any restrictions on the actuary.
52. The (actuarial) report should deal with:
  - the nature, accuracy and interpretation of the data
  - the analysis of experience
  - the valuation model and key assumptions
  - any changes in the method and key assumptions since the last similar report
  - comparisons of actual experience with that expected under the assumptions in the last similar report
  - the results of the valuation
  - uncertainty of the valuation result.
56. Where the principal requires the actuary to use specific assumptions or the actuary is relying upon an interpretation of legislation, accounting standards or other rulings supplied by the principal or its advisers, the actuary must clearly state the circumstances, discuss whether or not the assumptions are reasonable and consistent with this standard and discuss the implications of divergence from this standard.

### **Central Estimates**

In his work for HIH, Slee was under specific instructions from HIH to determine an unbiased central estimate of outstanding claims which would then be used by HIH to test the aggregate reserve the company proposed to book. Clear references to these instructions were made in Slee's reports. For example, in his report for the 30 June 2000 valuation, Slee referred to a total discounted reserve for the HIH group of A\$2,609 million and wrote:

I consider this to be a fair and reasonable estimate of the liability, with a 50% chance of adequacy in the aggregate... [9]

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In line with paragraphs 52 and 56 of PS300, Slee then qualified his estimate with his underlying assumptions, stating that the 50% adequacy was appropriate”

...on the assumption that certain stop loss premiums are accounted for elsewhere and that the data and information provided to me is considered to be accurate. [9]

If Slee deviated from PS300, it was mainly with respect to the reasonability of the assumptions, case estimates and opinions from HIH that he relied upon in deriving his central estimate of claim reserves. During the Royal Commission, both Richard Wilkinson, a partner of KMPG in London responsible for preparing outstanding claims estimates for HIH’s liquidators, and Estelle Pearson, an actuary from Trowbridge retained by the Royal Commission to provide expert actuarial assistance, criticised Slee’s work in this regard. While Slee had clearly disclosed his reliance on the assumptions and data provided to him by HIH as part of the terms of his appointment, both Wilkinson and Pearson felt that Slee had a professional duty to go much further than he did to verify the reasonableness of these assumptions and data. One example is Slee’s allowance for future claims handling expenses equal to 2% of gross liabilities as instructed by HIH. Both Wilkinson and Pearson felt that Slee should have questioned the reasonableness of this assumption given that this figure was much lower than normal industry standards. Slee was also criticised by Wilkinson and Pearson for his rather “optimistic” assumptions in relation to claim inflation on several portfolios heavily affected by legal and environmental trends. The overall effect was that some of HIH’s portfolios were valued at the “lowest reasonable level” so that in aggregate, the reserves would fall below a “central estimate”. The Royal Commission report concluded that:

It is likely that Slee’s reports would have been improved, and of more use to their readers, had they adopted the techniques advocated by Pearson and Wilkinson. It may well be that the adoption of those techniques would have resulted in changed and more accurate valuations. But it may also be that these are matters of professional judgment on which views will differ. The impression I have from the evidence is that to some extent at least the problems which Slee experienced in preparing his reports were attributable to difficulties which he experienced in relation to the accuracy and flow to him of provisioning information and data. [9]

### **Prudential Margins**

One of the other controversial issues related to HIH’s outstanding claims reserves was the fact the company held a central estimate in its balance sheet, with no prudential margin or provisions for adverse deviations. In preparing his estimates, Slee was under clear instructions from senior management to produce a central estimate with no prudential margin and no allowance for asset-liability mismatching risks. In accordance with PS300, Slee stated the limits on the scope of his engagement very clearly and furthermore, provided warnings to HIH in his reports concerning of the risks of not including a prudential margin. During questioning for the Royal Commission, he explained that if he had been asked to make a recommendation as to

an appropriate reserve or provision (as opposed to a central estimate of liabilities) he would have recommended that a prudential margin be added.

It is much more difficult to criticise Slee's failure to provide for a prudential margin as it was clearly outside the scope of his engagement and disclosed as such in his reports. He emphasised that the scope of his role did not extend to making any recommendation as to the reserve or provision that ought to be booked, with the latter regarded as a separate task, to be undertaken by HIH's management and directors. This view is wholly consistent with PS300 and both Pearson and the Royal Commission concurred with Slee's views on the matter:

I make no criticism of Slee for accepting the instruction to prepare his valuations on a central estimate basis, and therefore without any prudential margin. [9]

A clear duty for actuaries in Australia to provide more detailed commentary on the appropriateness of a company's outstanding claims reserves has only really emerged with the introduction of a Financial Condition Report for general insurance companies subsequent to the HIH collapse. It is interesting to note that David Slee strongly advocated the introduction of Financial Conditions Reports for general insurance companies in a letter written to Actuary Australia in July 2001 [13], after the collapse of HIH but before the Royal Commission hearings.

#### **Responsibility of HIH Managers, Directors and Auditors**

The responsibility for setting the actual outstanding claims reserves clearly rested with HIH's management and directors. Management had given Slee clear instructions as to the type of estimates they required and Slee had clearly stated the limited scope of his work in his report. With respect to HIH's directors, it was their duty to understand and approve HIH's claims reserves based on reports from Slee and from HIH's management. However, the Royal Commission found that, while the directors had access to actuarial reports, they did not appear to try to understand them:

At no time were the actuaries' reports, or even a summary of them, tabled at meetings of the audit committee or the board. Nor was an actuary ever asked to attend a meeting to explain his or her report or answer questions. Any significant discussion of the assumptions on which the actuaries' recommendations were based was uncommon. There was no real understanding of the way the auditors dealt with the actuaries' reports or of the extent to which, if at all, the auditors reached an independent opinion as to the appropriate level of reserves. [9]

The question then becomes one of whether Slee had a duty to ensure that HIH's directors properly understood his recommendations. This appears to stretch the actuary's duties rather too far. Surely it was the board's responsibility to ensure that it had the necessary information and expertise to determine the company's real financial position. As outlined by Pearson in her testimony before the Royal Commission, PS300 does not impose any obligation upon an actuary to follow up on, or consider the use made of his advice.

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For their part as auditors, Andersen abdicated complete responsibility to Slee in respect of his reserve estimates. Andersen had no actuarial expertise of their own and made very little effort to understand or question Slee's work. This is despite the outstanding claims reserves being the single largest item on HIH's balance sheet and despite Andersen's formal responsibilities to verify the integrity of Slee and the work that he performed. Needless to say, Andersen's subsequent demise and its problems with other audit clients are indicative of its role in the HIH collapse.

### **Slee's Independence**

One final issue with implications for actuarial peer review relates to the extent of Slee's independence in his work for HIH. While Slee was not an employee of HIH, it should be noted that he derived a very large proportion of his income from the company. During the period from 1998 to 2000, Slee estimated that between 50% and 80% of Slee Consulting's revenue was derived from HIH. A large part of this revenue was Slee's retainer to provide six-monthly reports in relation to HIH's outstanding claims liabilities. In line with our earlier comments on the advantages of peer review with respect to ensuring independence and the perception of independence, it is possible that the financial dependence of Slee's firm on HIH may have provided Slee with the incentive to act in a less professional manner.

Despite Slee's close relationship with HIH, the Royal Commission did not find that his independence was compromised:

It does not automatically follow that, assessed overall, Slee's independence was so compromised that he could not and did not, in the period under scrutiny, properly carry out the functions of a consulting actuary... The question is whether a combination of factors led to Slee unwittingly bending to the sometimes subtle tensions that might have emerged during his long relationship with HIH.

It comes down to a matter of impression. Overall I have decided against making a finding that Slee was so compromised. There are matters that point in the other direction. But the impression I gained of Slee when he gave his evidence is enough to convince me that I should stop short of what would be an extremely serious finding if made against a professional person. [9]

### **Implications for Actuarial Peer Review**

Would actuarial peer review have resulted in HIH holding more prudent and reasonable outstanding claims reserves? Again referring back to the primary reasons for peer review [section 3], it does appear on the balance of the evidence presented at the HIH Royal Commission, that Slee may have made some mistakes his calculations and that other actuaries, such as Wilkinson and Pearson, would have used different assumptions and methods in the calculation of a central estimate for HIH's reserves. An independent actuarial peer reviewer may well have calculated a higher central estimate for HIH's outstanding claims. Furthermore, some questions were raised concerning the level of Slee's independence given his dependence on HIH for a large proportion of his firm's revenues.

Certainly, the fact that Slee was subsequently suspended for 12 months as a member of the Institute of Actuaries of Australia because he “failed... to meet the requirements of paragraphs 52 and 56 of PS300” [7] suggests that the actuarial community adjudged his conduct to be below par, mostly in relation to his failure to verify the reasonableness of assumptions and data provided to him by HIH. The Australian Prudential Regulation Authority (APRA) was somewhat more damning in its assessment of Slee’s conduct. Following the HIH Royal Commission, APRA disqualified Slee from holding any appointment as an actuary of a general insurer based on “his use of unrealistic assumptions in his capacity as a consulting actuary to HIH to arrive at an unreasonably low estimate of the Group’s claims liabilities.” Despite the Royal Commission’s positive finding regarding Slee’s independence, APRA also found that “Mr Slee allowed his independence to be compromised.” [2]

Nevertheless, it was clear that Slee’s freedom to provide a prudent estimate for outstanding claims reserves was compromised by the terms of reference provided to him by HIH. While he could be criticised for the approach he adopted in calculating a central estimate for HIH’s outstanding claims, it was clearly beyond the scope of his responsibilities to set the final outstanding claims reserves or to recommend an appropriate prudential margin. Slee was never asked to form an opinion as to whether HIH’s outstanding claims reserves were appropriate and hence could ultimately, only have played a minor role in the under-reserving problem at HIH.

The HIH collapse arose out of “systemic” problems with HIH’s management and controls. The company’s senior managers, directors and Andersen as HIH’s auditors were all empowered to ensure the appropriateness of HIH’s reserves and indeed had a legal responsibility to do so. However, each of these parties either abdicated their responsibilities in respect of HIH’s reserves or in the case of some of HIH’s senior managers, went out of their way to ensure that a true and fair picture did not emerge. In any case, the fate of HIH had been sealed years before in the severe underpricing of the business it had written. The emergence of inadequate claims reserves was only the recognition of HIH’s problems and the calculation of more appropriate reserves would only have hastened HIH’s demise, not prevented it.

While actuarial peer review may have changed some of the minor details of the HIH story, we believe that it would have been impossible to change the overall direction of the company in the face of such “systemic” failures. More pertinent to the HIH collapse from an actuarial perspective was the limited scope of the actuary’s role, which restrained his ability to comment more generally on the appropriateness of the outstanding claims reserves. In part, this has now been remedied in Australia with new requirements for the Approved Actuary of general insurance companies to produce a Financial Condition Report, encompassing a much wider view of the company’s overall financial position.

## 6. Case Study 3: Individual Disability Income, USA

The history of individual disability income insurance (IDI) in the United States, particularly over the last 25 years is a fascinating case study on how questionable product and risk management decisions on an industry-wide basis can lead to enormous financial losses.

- Robert W. Beal [3]

At its most fundamental level, disability income insurance, also known as income protection or permanent health insurance, is designed to provide the life assured with a replacement income should he or she become unable to work. However, like many “living benefits” products that provide insurance payments while the life assured remains alive, the product presents significant risk management challenges in terms of product design, underwriting, claims assessment and experience monitoring. In many different markets, despite the oversight and involvement of knowledgeable actuaries, these challenges have often proved unmanageable for insurance companies and disability income business has recorded substantial losses.

Over the period from 1975 to 2000, Robert Beal tracked the fortunes of 70 companies selling IDI business, accounting for at least 95% of the total IDI business written in the US over this period. Looking at a representative sample of 8 of the top IDI carriers in the US, Beal’s analysis [3] shows that the IDI industry in the US made combined statutory losses of more than US\$2.1 billion (or 8.2% of earned premiums) on its non-cancellable (guaranteed premium) IDI portfolios from 1986 to 1998, with 13 consecutive years of losses. Over the same time period, 45 out of the 70 companies tracked by Beal, accounting for more than 40% of the IDI market during the 1980s, exited this line of business, most of them only after registering substantial IDI losses.

### **Definition of Disability**

The reasons for the losses were several-fold, but one of the primary causes related to the introduction of new and untested IDI product design features, often involving the relaxation of fundamental risk management safeguards. One example is the way in which companies modified the definition of disability required to qualify for claims.

Until the mid-1970s, most IDI products provided at best, an “own occupation” definition of disability for the first two to five years of benefit. This meant that, for the first two to five years after the commencement of disability, the life assured would need to be unable to perform his or her own occupation in order to qualify for benefits. In general, the life assured would also need to not be gainfully employed in any other occupation. After the initial two to five year period, the life assured would need to be unable to perform any occupation suited to him or her by education, training and experience for disability benefits to continue.

However, beginning in the mid-1970s, companies began to offer “pure own occupation” definitions of disability. Under these definitions, the life assured would only need to be unable to perform his or her own occupation in order to qualify for benefits. The requirement that the life assured not be working in any other occupation was also

dropped. By the late 1980s, some IDI companies were preparing “specialty letters” to recognise specialists within certain professions, such as heart surgeons within the medical profession or trial lawyers within the legal profession, so that the life assured would be considered disabled if he or she were disabled to the extent of being unable to perform that specialist occupation.

These modifications meant that a heart surgeon for example, who might no longer be able to perform physically demanding heart surgery, could shift to performing other less physically demanding types of surgery or shift into other areas of medical practice, earn a very similar income, and still claim disability benefits. Likewise, a trial lawyer, who might be prevented from performing trial work, could still earn a very decent living as an office lawyer and be eligible for benefits.

### **Liberal Product Design**

Product design liberalisations in other areas were equally, if not more imprudent, including:

- the introduction of 0-day elimination or deferred periods, rather than requiring that the life assured be disabled for at least a few months before benefits would commence;
- the provision of “agreed value” benefits that would remain fixed irrespective of the life assured’s income, which might have dropped well below the level of the disability benefit;
- the payment of disability benefits for the lifetime of the life assured, rather than terminating at normal retirement age in line with the intention to replace employment income;
- the removal of benefit offsets, which meant that disability benefits would not be affected by income earned from other sources, including social security benefits and employment income; and
- the allowance of generous automatic benefit increases which, following the rapid drop in inflation after the 1980s, significantly exceeded increases in the cost of living.

### **The Role of Actuaries**

While it is unreasonable for actuaries to shoulder the entire blame for some of the more reckless product modifications in the IDI industry, it is equally unreasonable for actuaries to protest their innocence in the face of the subsequent huge losses that arose. The introduction of more generous and riskier benefits was often made with little or no adjustment to the premium rates for IDI benefits, an area in which actuaries bore significant responsibilities. As there was no historical experience to use as a basis for pricing these benefits, actuaries would have been forced to rely on their own judgment in projecting future claims costs and appear to have totally underestimated the likely impact of these product design changes.

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Actuaries also failed to recognise the potential impact on claims costs related to changes in the social and economic environment. One of the most significant environmental changes was the downward pressure on the incomes of the medical profession brought about by the reduction of government healthcare subsidies, the expansion of managed care and medical cost control and the spiralling cost of medical malpractice. As doctors were one of the single largest target occupations for IDI business, the reduced financial incentives to continue working in the US medical profession led to a massive increase in IDI claims.

The effect of these product design and socio-economic changes was further exacerbated by the fact that much of the IDI business in the US was written on a “non-cancellable” or guaranteed premium basis. This meant that, even when the adverse trends in IDI claims costs were recognised, there was no flexibility in the product for premium rate adjustments to cushion the impact.

### **Implications for Actuarial Peer Review**

While the story of the US IDI industry does, with the benefit of hindsight, appear to illustrate some failures on the part of actuaries to recognise and take action against flaws in product design and pricing assumptions, it is extremely difficult to see how actuarial peer review might have prevented or mitigated the losses that ultimately arose. The IDI industry was entering uncharted territory with its new product enhancements and in an era of intense competition and pressure to write new business, it would have been extremely difficult for anyone, let alone an actuary, to take a stand against the practices of almost the entire market. Any actuary trying to resist the product design changes or significantly increase premium rates would have had no historical experience to quantify the cost of changes and little basis in actuarial theory or practice to argue against the changes. While in hindsight, many of the product design changes appear to have involved major departures from simple common sense, it is difficult to see how it would have been possible to do anything other than to withdraw from the IDI industry if an actuary or company wished to resist the competitive pressure to follow the market and relax its risk management standards.

This case study then, illustrates another major limitation of actuarial peer review or indeed any type of peer review. In any environment where there are systemic or market-wide pressures to act in a manner contrary to basic actuarial principles or common sense, peer review cannot by itself do anything to resist the pressure. In theory, actuarial peer review works to bring the actions of those at the extremes or fringes of actuarial thinking into line with the majority and mainstream. However, this is fairly useless and can even be harmful if the actuarial mainstream is itself out of line with common sense and sound prudence. In a similar manner, peer review can also be detrimental if the reviewer sits at the extreme of actuarial thinking.

Therefore, for actuarial peer review to have the intended effect of improving general standards, there is a need to ensure that the standard principles and practices of the profession are in themselves sensible and relevant in the context of the actuarial work being performed. The profession must also ensure that, as far as possible, those who perform peer review work have a good understanding of standard actuarial principles and practices.

## 7. Discussion and Conclusions

In discussing the relative merits of actuarial peer review, we would generally divide the review process into several levels or areas:

- Starting at the broadest level, a comprehensive actuarial peer review would encompass a review of the objectives and scope of the actuary's work, including any limitations or shortcomings that might arise from the fact that the scope of the actuary's investigations might not be sufficiently comprehensive to meet his or her stated or implied objectives.
- At the next level, actuarial peer review would entail a review of the actuary's conclusions and recommendations, firstly to ensure that they are consistent with his or her objectives or terms of engagement, and then to ensure that they are consistent with the actuary's results and calculations.
- Lastly, at the most detailed level, actuarial peer review might consider the actuary's work in arriving at his or her final calculations and results.

In our view, it is at the most detailed level that peer review is potentially the most effective in detecting and correcting "non-systemic" problems. However, this is also the level at which overzealous peer review is most likely to lead to inefficiency and unnecessary duplication of work. A focus on the middle layer of reviewing the conclusions and recommendations would appear to be more optimal in terms of maximising the potential benefits of peer review without a creating a disproportionate amount of work. Of course, the level of review required will surely depend on the experience of the actuary being reviewed, with a less detailed review being appropriate as the actuary being reviewed becomes more and more skilled and experienced.

As we have seen, peer review is entirely sensible and useful in dealing with "non-systemic" risks. As outlined in section 3, this may include situations where there are simple mistakes, a lack of knowledge, a difference of opinion concerning actuarial assumptions and methods, or a lack of real or perceived independence on behalf of the actuary. For examples:

- The lack of knowledge among the Equitable's actuaries (but known to other members of the profession) with respect to the benefits of stochastic modelling to quantify the risks and costs associated with providing investment and annuity guarantees;
- The failure of David Slee to delve more deeply into the reasonableness of valuation assumptions and data provided by HIH management; and
- The potential conflict of interest that may arise for a consultant actuary, who while not employed by HIH, derived up to 80% of his revenues from the company.

However, it would only probably be at the broader levels that actuarial peer review might have a more significant impact in preventing or mitigating large "systemic"

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problems. As indicated in the case studies, it is doubtful that actuarial peer review, by itself, could have done much to prevent some of the significant actuarial failures which occurred. In particular, we believe that the power of peer review is limited in the face of “systemic” problems affecting a company, the insurance industry or the actuarial profession, such as:

- The absence of an “official” actuarial position on the use of “estates” in with-profits funds in the UK, such as that of the Equitable Life Assurance Society;
- The comprehensive failure of corporate governance, gross mismanagement and a corporate culture of covering up mistakes in the collapse of the HIH Insurance Group; and
- A top-line focused and brutally competitive insurance industry, willing to push the boundaries of sensible product design with untested changes that eroded the ability of companies to adequately manage the product’s risks in the case of US individual disability income insurance.

Only when the objectives and scope of actuarial work are themselves challenged would the more fundamental problems start to emerge and the appropriate course of action become more evident. For example:

- In the case of the Equitable, this might have involved a challenge to the level of flexibility and responsibility given to the actuaries in distributing surplus and holding an appropriate “estate”;
- In the case of HIH, the idea that an actuary might have been engaged to calculate only a central estimate of reserves with no responsibility in relation to how those central estimates might ultimately be used to set an outstanding claims provision could have been questioned; and
- In the case of US disability income business, the sensibility of continuing to operate in a market with companies leapfrogging each other in relaxing sensible risk management controls might have been a fundamental concern.

Ultimately, as outlined previously, many such “systemic” problems can only be remedied by change at a market-wide level. It is no coincidence that the first two points immediately above have already prompted regulatory changes in their respective countries. In the UK, the introduction of a separate statutory role for a “With-Profits Actuary” and the requirement to set out in writing a set of “Principles and Practices of Financial Management” outlining how with-profits funds are managed have curtailed the flexibility provided to actuaries. In Australia, the introduction of a Financial Condition Report regime is intended to ensure that Approved Actuaries provide a much more comprehensive opinion on the reserves and financial position of general insurance companies. However, the detection of such “systemic” risks and initiation of market-wide changes needs to start somewhere and actuarial peer review appears to be a natural candidate for this role.

As alluded to in the title of our paper therefore, the main thrust of our apparent “Peer Review Paradox” is that actuarial peer review seems to present few answers in respect of the most serious company and industry failures, where the fundamental problems tend to be “systemic” in nature. While not denying the merits of actuarial peer review, it is imperative for actuaries to clearly plan the implementation of peer review regimes to ensure that the framework is sufficiently comprehensive. If actuarial peer review is to achieve its most lofty objectives, actuaries, and the profession more generally, need to be both willing and able to review the appropriateness of the scope and objectives of actuarial work at the broadest possible level. Actuaries also need to be equipped with sufficient consensus in terms of the foundations of actuarial theory and practice, to be able to evaluate and potentially criticise any deviations from these foundations.

Finally, in line with our conclusions and our experience, we would like to offer some simple principles for actuarial peer reviewers and those being reviewed. For those being reviewed, we would encourage a cooperative and open-minded approach to the ideas of the reviewer, with a willingness to explore alternative views, avoiding as much as possible, any tendency to become excessively defensive. For peer reviewers, we would encourage a focus on material issues and broad principles rather than small details, a similar respect for alternative views and honest differences of opinion, but bearing in mind the added perspective of potentially challenging the broader objectives and scope of the actuary’s work. While it is clear that actuarial peer review cannot succeed without an appropriate regulatory framework and a culture that respects corporate governance, it is most dependent on an open-minded profession, willing to share its experiences and engage in honest dialogue with one another.

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