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New Zealand Society of Actuaries Conference 2010
21 - 24 November • Blenheim



A NZ Actuary in OZ

Perspectives on the Australian prudential framework from someone who wears both AA and EPR hats

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Introduction

This paper focuses on my perspectives of the Australian prudential environment as it relates to statutory actuarial roles in Australia and how things might be for a NZ based GI actuary in the new prudential regulatory environment in NZ from late 2010 onwards. The Reserve Bank of New Zealand (“RBNZ”) will take up a similar regulatory role to the Australian Prudential Regulation Authority (“APRA”).

This paper does not look at all areas of prudential supervision as some of the areas have little or no direct actuarial involvement as far as I am aware.

I currently hold two Appointed Actuary roles and two External Peer Review roles to APRA-regulated general insurers. I have previously held a number of other statutory roles but those roles have either been re-allocated to other staff at the firm I work for or the insurers concerned have been part of M&A activities. I also carry out a number of annual audit reviews for non-APRA regulated entities. Consequently my observations in this paper are based to a degree on my experiences in these roles.

Some actuaries who currently fulfil the traditional valuation and/or pricing roles may feel a bit of apprehension at the prospect of having to report on many other aspects of an insurer’s operations in a Financial Condition Report (“FCR”). Consequently I have included a few comments relating to some of the less familiar areas covered in FCRs.

The purposes of this paper are to:

- Provide a brief overview of the history of prudential regulation in Australia since the collapse of HIH Insurance in 2001;
- Provide some insight into what the new regulatory regime might be like based on recent Australian experiences;
- Provide some insight into what the changes to the Australian regulatory regime planned for 2012 might entail (which may be of interest to NZ actuaries should similar changes occur in NZ in future);
- Provide some ideas behind the motivation for regulatory change and the content of Financial Condition Reports;
- Give some personal views on how some of the more difficult aspects of increased regulation can be managed;
- Underline the importance of actuaries in the regulatory reform of the NZ insurance market.

The views expressed in this paper are my own and do not necessarily reflect those of my employer.

A brief history of the Australian regime

2002 - 2005

The GI Appointed Actuary concept, in more or less the form it is in today, started in Australia in 2002¹ with the release of a number of general prudential standards. These formally required the appointment of an Approved Actuary by (just about) every insurer to conduct, among other things, valuations of insurance liabilities (at least annually).

ILVRs and GPS210/PS300

Insurance Liability Valuation Reports (“ILVRs”) were required for prudential reporting purposes under the [former] prudential standard GPS 210² that documented, among other things:

- the central estimates of liabilities (using risk-free discount rates);
- risk margins that, when added to the central estimate of liabilities, increased the probability of adequacy of the resulting provision to 75% (other probabilities of adequacy are allowable for financial reporting purposes);
- support for choices of methods and assumptions used to estimate insurance liabilities;
- various other key items pertinent to any actuarial report (addressee (the insurer Board), scope, date, terms of reference etc);

The actuarial professional standard governing liability valuation work (PS300) was subject to a number of upgrades during this time to ensure, among other things, consistency between the prudential reporting requirements and the professional actuarial reporting requirements.

Approved Actuary - criteria

Early on, actuaries responsible for signing ILVRs were “Approved” rather than “Appointed” reflecting the fact that the Australian Prudential Regulation Authority (“APRA”) gave approval for such an appointment.

The requirements for approval were based around:

- professional qualifications (FIAA or equivalent);
- relevant experience (at least 5 years in the same or similar roles);
- appropriate character (no past/pending criminal proceedings/bankruptcy);
- Australian residency (not citizenship!).

Other key prudential standards affecting actuaries

Simultaneously, APRA also released a number of other prudential standards relating to:

- measurement of insurers’ capital base and minimum capital requirements (“MCR”);

¹ i.e. shortly after the collapse of HIH Insurance in March 2001

² <http://www.apra.gov.au/General/upload/GPS-210-Liability-Valuation-for-General-Insurers-Jul-2002.pdf>

- the requirement to have formal documentation of their risk management strategy (“RMS”), reinsurance management strategy (“REMS”) and a [3-year] Business Plan.

The measurement of capital base and the MCR are conceptually similar to what they are today and to what NZ is currently considering.

By “conceptually similar” I mean:

- there were clearly defined rules around which assets can (and cannot) be included in the measurement of the insurer’s capital base (“admissible capital”);
- the MCR consisted of the sum of [three] risk charges:
 - an insurance liability risk charge (a specified factor *times* net liability estimate for each class);
 - an asset risk charge (a specified factor *times* asset value for each asset class);
 - an insurance concentration risk charge (the loss in respect of a 1 in 250 year event net of reinsurance arrangements and a reinstatement premium based on exposure at the balance date);

with the total subject to a minimum of \$5m (which would therefore impact “small” insurers).

There is also scope for insurers to develop their own Internal Model Based (“IMB”) approach (as an alternative to the risk charge factor based approach) to capital requirements but this avenue is, in practice, only feasible for the largest insurers in the Australian market.

I understand no insurers in Australia have, as yet, got a fully approved IMB approach in place although a number are close (it is reasonable to expect that APRA will always benchmark results to the factor based approach in any case).

Standardised measurement of capital position

The most common standardised measure of capital/solvency position in use in Australia at present is the “MCR coverage ratio” (being admissible capital divided by MCR).

Separate rules are applied to Lenders Mortgage Insurers (not discussed here).

While there was no formal requirement for insurers to use their Approved Actuaries to carry out MCR coverage calculations, many AAs were involved in preparing a set of budget forecasts for insurers (i.e. projections of balance sheets and revenue accounts) for the business planning requirements specified in the prudential standards. These forecasts included projected MCR coverage ratios as part of the “proof” that the business plan was consistent with maintenance of adequate capitalisation during the 3-year planning period.

2006 – 2010

GPS210 upgraded to GPS310, FCRs and EPRs introduced

Many of the current general prudential standards were upgraded and/or introduced during 2006 through 2010 to clarify APRA's expectations in a number of areas such as:

- Risk management for insurance groups;
- Maintenance of, and content of, Business Plans (especially capital management);
- Updating of specified capital factors used to determine asset risk and liability risk charges;
- Fit and Proper requirements and the development of Fit and Proper policy.

From an actuarial perspective there were two highly significant developments for 2006:

- Financial Condition Reports ("FCRs");
- External Peer Reviews ("EPRs");

and these were dealt with in a single APRA prudential standard (GPS310³, replacing the previous GPS210) and two new actuarial professional standards from the Institute of Actuaries of Australia (PS305⁴ for FCRs and PS100⁵ for EPRs).

In addition "AA" now stood for "Appointed Actuary" rather than "Approved Actuary" (as insurers could now *appoint* their AA without seeking formal *approval* from the regulator; their Fit and Proper policy (prepared in accordance with GPS 520⁶) is intended to deal with what would otherwise have been APRA's requirements for AAs).

FCRs

The requirement for the Appointed Actuary to be the signatory on a Financial Condition Report (produced at least annually) was the single biggest expansion of the statutory role of the general insurance AA since the advent of the AA concept for ILVRs.

The catalyst for the introduction of FCRs for general insurers was undoubtedly the HIH Insurance collapse in March 2001 (discussed briefly later in this paper) and the Institute of Actuaries of Australia's recommendations shortly thereafter to introduce FCRs (life insurance had already had FCRs for a number of years).

Subsequently, the general insurance AA went from being a relatively "comfortable" role, focussed on making recommendations on what level of technical provisions insurers should hold, to a far wider reaching role of providing comment on a broad range of risks faced by the insurer under the headings:

- Recent experience and profitability;
- Adequacy of past technical provisions;
- Pricing and claims management;

³ <http://www.apra.gov.au/General/upload/Final-GPS-310-July-2008.pdf>

⁴ <http://www.actuaries.asn.au/library/standards/PS305FinancialConditionReportsforGIMarch06.pdf>

⁵ <http://www.actuaries.asn.au/library/standards/PS1001.PDF>

⁶ <http://www.apra.gov.au/General/upload/Final-GPS-520-July-2008.pdf>

- Reinsurance arrangements;
- Investments;
- Capital management;
- Operational risk management;

and hence to the overall financial condition of the insurer as at the balance date (but with a view to at least the next three (3) financial years).

The genesis for this list of items is covered later in the paper where a brief overview of the HIH Insurance collapse is considered.

FCRs finalised late and not yet subject to any formal review

One somewhat notable aspect of the FCR process from my point of view is that, for a 31 December balance date, the FCR generally gets finalised in March or April (and no later than 4 months after the balance date i.e. 30 April), long after audit clearance has been given by the Appointed Auditor.

I have never received any formal feedback on my FCRs from the Appointed Auditor and for one of my AA roles I have completed all 4 annual FCRs (i.e. since FCRs were first required). Conversely I have never been asked by Appointed Auditors I work for from time to time to formally comment on an insurer's FCR.

However, the FCR has been the main discussion document in tripartite discussions between APRA, the insurer and me (as AA), far more so than the ILVR although I include the Executive Summary to my annual ILVR in the annual FCR.

A broad scope for FCRs

My comments above did intentionally imply a position of some "discomfort" for AAs (on average) with the broad scope of the FCR.

As an actuary who has held both reserving and pricing roles I was initially reasonably comfortable providing commentary in these areas and I didn't feel too uncomfortable about providing some basic investment strategy commentary – especially in relation to duration matching and immunisation generally.

In fact, in these areas, some things that could perhaps be regarded as "text book" actuarial knowledge have actually proven to be of some value to smaller insurers who have limited in-house actuarial (or equivalent) capability.

For example, many insurers argue that, because cash flow matching of claim run off liabilities with fixed interest assets is not always readily achievable, they will "quasi match" claim cash flows with, say, the first [5] years' cash flows using fixed interest assets (of varying credit grades) and then use equity/property to match the longer term claim cash flows.

There are a number of reasons why the events in the latter half of 2008 saw this approach provide less “immunisation” from yield curve movements than perhaps might have been hoped for:

- Projected future claim payments included in the AA’s assumption basis for the insurance liability valuation were probably used in forming a view on the first [5] years’ claim cash flows to be matched. These projected payments generally consist of either:
 - uninflated payments (in balance date dollar levels) with a future inflation allowance (typically using results provided by an economic forecasting firm);
 - payments that include an implicit allowance for inflation based on an “average” of past inflation (by virtue of past payments not being inflation adjusted to the balance date);

The actuarial valuation model drives the payment projections. However, the “accuracy” of estimates of the individual cash flows (even if general levels of future wage and price inflation could be predicted perfectly) is arguably significantly less than the Discounted Mean Term (“DMT”) implied by the full set of estimated run off cash flows. This raised some doubt with the practice of reliance on the first [5] years’ projected cash flows versus the remainder. This could be a more significant issue in NZ than at present if NZ insurers start writing more long-tail business in the future (e.g. as part of competition for workers’ compensation insurance, if such changes ever proceed);

- The approach of supposedly matching claim cash flows (invariably discounted at *sovereign debt* yields under accounting, prudential and actuarial standards) with coupon/maturity cash flows from *non-sovereign debt* assets partially broke down as:
 - yields on non-sovereign debt actually rose (in many cases) in the latter half of 2008 (causing non-sovereign debt asset values to fall);
 - yields on sovereign debt fell significantly (causing discounted liability estimates to rise).

This contrasted with the “normal” market conditions whereby non-sovereign debt of a given credit quality maintains a relatively constant yield margin above sovereign debt;

- Equity assets also fell in value during the latter half of 2008;

This illustrates some of the risks of using a quasi-matching approach like that described above.

Unfamiliar territory

Initially I certainly had some reservations about providing commentary in the other prescribed areas, most notably those around operational risk and I am aware of similar sentiments from some other actuaries.

Operational risk

Even defining operational risk is problematic and it often ends up being thought of as all residual risk that is not insurance, investment and strategy related – probably about as helpful as defining a dog as a domestic pet which is not a cat.

APRA's current definition of operational risk is:

“the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”

As operational risk eludes definition (to some extent) I will discuss some elements of it briefly.

Some examples (many of them also provided by APRA) of losses arising out of operational risk exposures include:

- fraud, either by staff or from external sources;
- failures in computer systems and administrative processes, whether from in-house or outsourced delivery;
- legal risk (excluding strategic risk and reputation risk);
- mis-selling of products;
- lack of effective management of distributors and other third parties, where they are integral to the insurer;
- manipulation or concealment of financial information;
- binding of risks outside reinsurance treaty terms and conditions (or outside of underwriting authority generally);
- failure to provide customers with sufficient product information;
- external events causing damage to the insurer's premises, equipment or people – e.g. terrorism, vandalism, earthquakes, fires and floods.

It is probably fair to say that most actuaries (myself included) would rate their knowledge and expertise relating to these risks as relatively less than risks associated with insurance liability valuations and premium rating.

How insurers deal with operational risk

Most insurers attempt to deal with the broad range of potential operational risks by:

- the identification of [operational] risks and maintenance of a risk register (“maintenance” implying that meetings are regularly⁷ held to review and update the register with new risks or a changed view of any existing risk – that is, there is a “learning and response loop”);
- some attempt to quantify the risks in terms of estimated probability of occurrence and estimated severity if it does occur (and perhaps presented on “likelihood-severity” axes) and development of risk mitigation/elimination approaches;
- undertaking regular internal audits around the identified risks. Some (larger?) insurers may have already begun formally collecting loss data in relation to operational risk to feed back into risk quantification/management processes;
- maintaining an Operational Risk Management Statement (“ORMS”) document which provides the over-arching view of the operational risk framework, although this document is not mandatory under the current regulations;

Outsourcing and business continuity risks are separately dealt with under two specific prudential standards (GPS 231 and GPS 222 respectively);

The mandatory Risk Management Strategy (“RMS”) document is the umbrella document to a range of subsidiary documents which can include an ORMS along with other key non-operational risks (credit risk, investment strategy risk etc);

Ideally insurers will eventually be able to meaningfully quantify the impact of operational risks and incorporate that quantification of risk into the allocation of capital across the business.

Actuaries are also increasingly being encouraged to broaden their involvement in risk management generally. The Institute of Actuaries of Australia (and the UK Institute) now offers a course and examination in Enterprise Risk Management (“ERM”) which leads to qualification as a Chartered Enterprise Risk Actuary (“CERA”).

The AA’s role in commenting on unfamiliar territory

While an understanding of, and commentary around, operational risk is in general an area for ongoing improvements in future FCRs, I currently see the AA role as one of:

- casting a reasonably informed “risk professional” eye over the operational risk framework in place, making sure the risk management framework appears to cover all the key bases;
- talking with the insurer personnel responsible for particular operational risks to ensure that they are reasonably across the management of risks they are responsible for;

⁷ In addition, special reviews in light of exceptional events are also a key part of operational risk management

rather than necessarily feeling obligated to provide any deep, expert insights into operational risk strategy.

The same applies to other “unfamiliar territory”.

For example, if an insurer considers writing a new line of business I would expect that the AA would be involved in assisting the insurer to identify specific risks associated with the new class and how writing the new class integrates into the existing risk management and capital management frameworks.

Consideration might be given to some or all of the following:

- data capture and system requirements/issues;
- required staffing levels for underwriting and claims management;
- expenses;
- underwriting capability;
- product design;
- premium rating and rating models;
- reinsurance programmes;
- capital requirements;
- change management;

any or all of which could have operational risk implications.

I also have a standing invitation to attend Audit and Compliance Committee (“ACC”) meetings at which the internal audit process (which has a focus on operational risks) is a permanent agenda item. It is rare that I don’t attend these meetings.

The larger proportional reinsurers also conduct regular reviews of underwriting and claim files and this reinforces the efficacy of the internal audit process. These reinsurer reviews are included in the ACC meeting papers and I always make a point of reading the ACC meeting papers in full.

In the areas of operational risk, it is invariably the case that little or no detailed and/or credible volume of loss data exists to undertake any meaningful quantitative analysis (in the usual actuary way). This may change as operational risk gets increasing focus in capital reforms in Australia (due in 2012 and discussed below).

Reinsurance

Similarly, in the area of reinsurance programme design, I certainly don’t profess to have catastrophe modelling expertise nor do I see it as my role to make recommendations around reinsurance programmes generally.

I take the view that it is more my role to look at the insurer’s approach to reinsurance programme design and confirm that the appropriate process and modelling is undertaken in order to select a programme (e.g. do they use a well respected reinsurance broker to carry out catastrophe modelling for insurance risk concentration purposes, recommend a programme and then the insurer follows

those recommendations to a high degree or gives clear reasons why they have taken a different approach).

Keep it simple

Some useful but simple things I can do are look at how their reinsurance programmes respond to particular experience.

For example, for a given class of business, one would expect the net loss ratio (net claims/net premiums) to be higher than the gross loss ratio (gross claims/gross premiums) if there is non-proportional reinsurance purchased and no large and/or catastrophe claims.

However, if the net loss ratio is higher than the gross loss ratio and there is significant large/cat claim activity it does suggest some potential issues with the reinsurance programme:

- the insurer's retention might be too high; and/or
- the reinsurance recovery is small in relation to ceded premium (i.e. the reinsurance might not be good value for money);

If the gross, net and combined reinsurance loss ratios are decomposed into large and non-large claims (however defined) this helps highlight this phenomena. This exercise can be a simple corollary to the insurance liability valuation results and provides feedback on the efficacy of the reinsurance arrangements. While not a conclusive test by any means it is a useful conversation catalyst.

In many ways you can view yourself as a facilitator who has responsibility for collating an overall view of risk and risk management – as per the spirit of paragraph 122 of the NZ solvency standard (dated 28 July 2010):

“The appointed actuary may need to deal with issues that are not within the relevant skills and experience of the actuary. In this situation the actuary will need to utilise the skills and experience of others and may rely on other relevant experts provided adequate disclosure is included on the nature of that reliance”.

The AA should always clearly state in the FCR where they have relied on the expertise of another actuary or any expertise of a non-actuarial nature.

Other positives of FCRs for actuaries

Perhaps the biggest positive aspect of the FCR for an AA is the wide range of people you meet inside the insurer – particularly useful when you are not an “in-house” AA.

The opportunity to also talk to underwriting managers and claims staff and establish and extend the regular dialogue around their issues and how their piece fits into the overall business picture has been invaluable to me.

This broader linkage with an insurer helps to elevate you from a “tradesperson” who gets called up as and when needed (e.g. for an ILVR) to more of a “trusted adviser” who will be in regular contact

as many staff realise actuaries have a lot to offer their business – they call on you regularly and are always receptive to you calling on them.

The FCR process can be a useful platform from which to identify and elevate issues with management that can help improve their business. I do not believe the situation is so very different for an in-house AA and in general this broader role gets the AA out of a real or perceived silo.

The real challenge with FCRs is to take it from being a compliance piece, paraphrasing the existing corporate documents (Risk Management Strategy, Reinsurance Management Strategy, Business Plan etc) into something which is:

- a useful summary document for a new Non-Executive Director (and perhaps an investment analyst, even if it isn't used for that purpose);
- something that the Board sees true value in receiving because they are getting some independent, objective insight into the risks their business is facing.

Making recommendations

One of the key aspects of the FCR from the regulator's perspective is around formal recommendations. The regulator will generally want to see recommendations acted upon expediently or be given very good reasons why they are not.

Without doubt an AA is obligated to make recommendations around issues that are a clear threat to the financial condition of the insurer.

However, I believe an AA should be careful about making recommendations "willy nilly".

If an insurer is doing something "sub-optimal" that is significant (or could become significant) it is definitely appropriate to discuss that issue with the insurer and get some agreement with senior management about how it is documented in the FCR.

In my view, the general "tone" of such disclosure should be more in the nature of

"Options available to XYZ insurance include investigating whether ..."

rather than

"I recommend XYZ insurance do ..."

unless you know they are seeking a recommendation.

A professional standard (PS305)

The Institute of Actuaries of Australia made submissions to the HIH Royal Commission in July 2002 around the production of FCRs. Subsequently, in early 2003, the Commissioner recommended to the Australian Government that APRA require production of an FCR at least annually (to bring it into line with the life insurance industry). The Australian Government accepted this recommendation.

Concurrently the Institute set up a taskforce charged with production of a professional standard for FCRs.

After a series of discussion papers and drafts were circulated the standard was released in early 2006 and this standard (PS305) has remained unchanged since.

What responsibility for FCRs says about actuaries

As has been discussed above, the FCR is:

- a comprehensive summary of the insurer, their operations and approach to risk and capital management;
- the key document in reviews and visits to insurers by the regulator;
- signed off by the Appointed Actuary;

Clearly, the community must hold actuaries in high esteem to give them overall responsibility for authoring and signing such a significant report.

Collapse of HIH Insurance

The collapse of HIH/FAI in Australia was probably the prime catalyst for the production of an annual FCR as the regulator (APRA) felt the need to put in place safeguards against such a calamity ever occurring again.

It is worth briefly reflecting on the key elements and consequences of the HIH collapse:

- When HIH finally collapsed in March 2001 it is estimated that losses exceeded **\$5 billion** (Australia's largest ever corporate collapse across any sector);
- The pattern of losses occurring in the years and months leading up to March 2001 was typical of other major institutional collapses in that the problems accelerated in the period leading up to the collapse being formally recognised. HIH wrote a lot of long-tail business (including significant exposure in foreign jurisdictions) which means it received sizeable quantities of premium upfront (to improve cash position) but this was ultimately totally inadequate to fund the ensuing insurance liabilities;
- The factors attributed to the collapse include (in no particular order):
 - Rapid expansion (by acquiring over-priced businesses in the US, UK and Argentina (and Australia) much of it long-tail casualty business it had little prior experience with in foreign jurisdictions);
 - unsupervised delegation of authority;
 - extensive and complex reinsurance arrangements;
 - under-pricing, under-reserving⁸ and false reports (including data);
 - ineffective auditing processes and audit independence issues;
 - reckless management and incompetence;

⁸ Viewed by many as the prime reason for the collapse

- a domineering CEO and an ineffective Board and chairman;
- fraud, greed and self-dealing;
- jail sentences for senior executives and extensive additions to APRA's "black-list" (Disqualification Register), including HIH's external actuarial adviser;
- unpaid claimants, unprotected policyholders, unlicensed and/or unpaid tradespeople (e.g. builders and smash repairers) and losses for pensioners and shareholders;

The last bullet serves to remind us of the breadth of who ultimately ended up feeling most of the pain of [a \$5 billion] insurer collapse.

A quick scan of the factors believed to drive the HIH collapse (above) and you can see the genesis of the items covered in a FCR⁹ and perhaps why it would be an actuary that takes ultimate responsibility for authoring and signing the FCR.

If you read about the HIH saga it is pretty sobering stuff. If you're an AA preparing a FCR in the future it won't do you any harm to help put the importance of your role in perspective by having some familiarity with this case.

You may not be the AA to an insurer the apparent size of HIH but to the individual stakeholders in your insurer you matter just as much.

Summary of FCRs

Overall, in my opinion, the FCR is a good thing for actuaries and insurers as it gets actuaries better connected across the business and across a wider range of risk issues. Actuaries are definitely able to add value to the risk and capital management framework.

I believe the quality of FCRs will continue to improve as the process continues to evolve and be challenged by all key stakeholders.

New Zealand has an obvious reference point for the production and content of FCRs in that the Australian environment has prudential and professional standards for this important document.

⁹ See the items covered in an FCR at the start of this section (above)

EPRs

An External Peer Review (“EPR”) was also a new requirement of the revised APRA prudential standard dealing with audit and actuarial reporting (GPS310).

The EPR actuary is required to carry out a review of the AA’s Insurance Liability Valuation Report. The terms of reference of the review are effectively laid out in the actuarial professional standard produced for EPRs (namely PS100) which aligns closely with the requirements for EPRs under APRA’s prudential standard GPS 310.

Prime cause of HIH collapse

Given that under-reserving and the control process around the insurance liability valuation is believed by many to be the prime cause of the collapse of HIH/FAI it is perhaps no surprise that APRA was keen to make doubly sure that insurers and reinsurers were adequately reserved.

Some of the key elements of the chronic under-reserving of HIH/FAI relate to:

- falsified and missing claim data which was either not detected or not questioned sufficiently by both the auditors and HIH’s consulting actuary;
- dubious actuarial assumptions (e.g. superimposed inflation on bodily injury claims¹⁰);
- no actuary being engaged by the auditor to assist in the audit process and the blind acceptance of the actuary’s reports by the auditor (the auditor was also cited for independence issues);

APRA was also cited for not being proactive enough in relation to the HIH collapse and undoubtedly this was a catalyst to put additional security around the reliability of AA’s insurance liability valuations by requiring an annual EPR to be conducted on liability valuations.

History of actuarial involvement in audits

Actuaries employed by audit firms have had a long history of involvement in audits of insurers’ financial statements and this has often involved receipt and review of ILVRs from AAs. However, there are no actuarial professional standards governing the scope of such audits and no formal “rules” around audits as they relate to actuaries assisting Appointed Auditors.

In particular:

- there is no requirement for formal communication between the AA and the actuary assisting the auditor (sometimes auditors do not even engage the services of actuaries every year – or ever);
- there is no requirement for a formal report from the audit actuary to the Board of the insurer covering the specific issue of the AA’s ILVR;

¹⁰ A “popular” assumption for actuaries to get het up over – see also British Actuarial Journal, Volume 8, Part V, No. 39, Pages 837 – 839

- it is not mandatory for the auditor to provide the AA with a copy of the audit actuary's report or memorandum relating to the ILVR (and in many cases the auditor does not do this).

EPRs look like a positive

At first glance the concept of an EPR appears to be positive as it should have addressed:

- the communication (or lack thereof) between the AA and an actuary reviewing the ILVR;
- the lack of a formal report to the Board of the insurer giving detailed insight into the reasonableness of the recommended provisions for the financial accounts.

I have conducted a number of EPRs myself and my ILVRs have also been the subject of EPRs. I am also aware of the "outcomes" in relation to some of my colleagues' ILVRs and those of a few other peers.

However EPR experience has been mixed

Overall, the experience of EPRs has been mixed and in cases where the EPR experience has been unfavourable it isn't always clear whose "fault" it is.

Firstly, EPRs were always going to be tricky situations to negotiate as actuaries' egos, professional reputations and desire to protect their "turf" were challenged (or perceived to be challenged).

"Bad" news

Some of the more undesirable outcomes (some inter-related) I am aware of have included:

- EPR reports that exceed the length of the corresponding ILVR. I understand there have been instances of circa 30 page ILVRs and circa 100 page EPRs on the same ILVR. However, I have also heard rumours of some particularly short EPRs too – and this just diminishes the value of an EPR;
- "Nit-picking" by EPR actuaries over trivial issues and conversely overly defensive attitudes by AA's around any questioning/comments they have received from EPR actuaries;
- "Scaremongering" by EPR actuaries – excessive commentary in EPR reports around many issues which are not deserving of comment;
- Draft EPR reports being provided to insurers without first being discussed with the AA, as is the intended "etiquette", with the draft EPR containing factual inaccuracies and/or overstatements of importance;
- Resentment by insurers of having to have an EPR conducted (at their expense) and the consequential attitudes shown towards the EPR actuary (in the worst cases "fanned" by a similarly disposed AA);

However, I suspect that over the last 4 years most of this behaviour has diminished and, if EPRs are introduced into NZ in the future, the NZ actuarial community would do well to pre-empt this kind of behaviour, which does little to enhance the profession.

“Good” news

However, it has not been all bad news.

I have certainly benefitted from some of the EPR work on my ILVRs and I’d like to think the same was true in respect of my EPRs. Some AA’s have been kind enough to say they have.

In my opinion, the quality of ILVRs generally has been improved most notably in areas such as:

- Adequate documentation of the development of key actuarial assumptions and the rationale for choices of particular methods;
- A wider range of sensitivity tests of the impact of varying key assumptions on valuation results. That is, the assumptions the valuation results are most sensitive now appear to be more frequently identified and sensitivity tested (rather than a narrow range of relatively unimportant tests).
- Better reconciliations of results between successive [annual] valuations (also supported in revisions of PS300) whereby it is possible to separately identify the effects of:
 - Changes in valuation results due to experience (which relates to the latest financial year, is “factual” and is outside the control of the AA);
 - Changes in valuation results due to revisions of the actuarial assumptions (which relate to future years, are the AA’s judgements and represent the AA’s response to experience in the latest financial year¹¹);

The reconciliation is arguably the “first port of call” for either an audit or an EPR as it summarises the overall story of the latest financial year. A proper reconciliation makes for an easier audit/EPR as well as acting as a key control for the AA.

- Moving away from reliance on (possibly dated) benchmarks which have only a tenuous relationship to the portfolio in question (e.g. the well known Tillinghast risk margin paper from 2001).

One particularly useful aspect of the AA/EPR relationship is the EPR actuary can actually be an ally to the AA if the AA is under pressure from the insurer to take a more optimistic view of future experience (as represented by their actuarial assumptions).

¹¹ Or recent financial years if such experience had lower credibility previously

Similarly, in the case of an external AA (i.e. consultant), the AA may wish to undertake a particular piece of analysis which the insurer is reluctant to support. In these circumstances the EPR actuary may again provide support to the AA in the case for conducting the work.

I am also aware of a small number of situations where the AA simply wasn't doing a good enough job and the EPR process brings this more explicitly to the insurer's attention. Typically this occurs after repeated adverse EPR outcomes where no real effort has been made by the AA to rectify issues that it was agreed by all parties needed addressing.

Audit versus EPR

Clearly the audit process and the EPR process have a lot in common in that to some extent they are both reviews of an ILVR with the purpose of establishing the reasonableness of the valuation results. However, the EPR is a more detailed examination of the whole process of liability valuation whereas audit is really focused on establishing the accuracy of the liability estimates.

The extra components of an EPR from my perspective are:

- Formal communication with the AA throughout the review;
- Consideration of the AA's valuation controls;
- A more in-depth look at methods and assumption development;
- A formal report to the Board of the insurer on the EPR actuary's findings which is compliant with a professional standard and a prudential standard.

Boards often request the presence of EPR actuaries at the Audit and Compliance Committee meeting when the accounts are signed off.

Are EPRs necessary?

So, given that the new regulatory regime for NZ insurers does not currently include EPRs do I think EPRs are a good idea?

To be fair, there are pros and cons (as ever) and some perceived conflicts of interest:

- Consulting actuaries annexed to a large audit firm arguably have a "captive market" in that EPRs are commonly undertaken by the audit firm (although this is neither a requirement nor does it always happen). You might therefore expect actuaries working for audit firms to be in favour of EPRs because they have some advantage in that there is undoubtedly some common ground for audits and EPRs and insurers can benefit from synergies of having the same actuary doing both reviews.
- Consulting actuaries not annexed to large audit firms arguably have a disadvantage in getting access to this work and might have lesser interest in the introduction of a "market" for services where they start on the back foot.

So as a consulting actuary working for a “big 4” accounting firm you perhaps won’t be surprised to find that I am indeed in favour (sort of).

But not because of the captive market aspects of the job, but genuinely because it has clearly improved ILVRs and Boards do, in my experience, get comfort and value from EPRs^{12 13} – I suspect because it is a comfort to get truly independent advice in writing and because they get visibility of the actuary who has reviewed their AA’s ILVR.

How to tackle EPR related problems

I believe that many of the undesirable outcomes noted in Australia over the last 4 years can be largely avoided in NZ simply by the NZ profession noting the Australian experience and working with its members to learn from Australia’s problems and anticipate these issues.

Some suggestions I have are:

- Be pro-active, regardless of whether you are an AA or EPR actuary, and make contact with the “other side”, the earlier the better. An audit and/or EPR is probably the actuarial equivalent of a visit to the dentist and a proactive attempt by both actuaries to establish a good working relationship could be the anaesthetic. Face to face meetings are a good idea at the start and end (and as required on the telephone in between) while you get used to what each other has to do. If you are an AA planning changes to your valuation approach, perhaps talk it through with the EPR actuary before you start the work – they may even have some useful input.
- If you are a bit of a “nit-picker” and you are doing an EPR, try having verbal (i.e. not email¹⁴) conversations with the AA about the issues that worry you (apparently more than anyone else) and see if you can’t just focus on the ones (if any) that have material financial consequences. Remember also to share your first draft EPR report with the AA *before* you send it to the insurer to make sure your report is accurate and to greatly increase the chances that you have broad support from the AA. Sometimes a simple change of wording (with the same ballpark meaning) is the difference between souring a relationship with the AA or not.
- If you are a defensive AA and don’t like any form of critique of your work (real or perceived) just try and put yourself in the shoes of the actuary doing the EPR – if they are a reasonable person then let them do their job, they also have a professional reputation to preserve and if your work is so good then there shouldn’t be anything to worry about in any case. If you are not providing adequate documented evidence in your ILVR around the methods and/or assumptions you have chosen then how do you expect the EPR and/or audit actuary to sign off on what you have done? Shore up your ILVR appendices with the detail you would expect to see if you had to review similar work yourself.

¹² In both cases in my experience – where my ILVR is EPR’ed and where I have EPR’ed another AA’s ILVR

¹³ Are D&O insurers sufficiently sophisticated to recognise the value of EPRs as a sign insurer Boards are monitoring risks?

¹⁴ Email is an entirely appropriate follow up activity to confirm and document understanding of a conversation.

- Remember that when EPRs start up everyone is new to the situation (as far as I am aware there are only a few actuaries based in NZ who are regularly part of audits of insurers) and you owe it to your fellow professionals to cut them some slack while they adjust to the new environment.
- If the AA and EPR actuary get along it seems unlikely to me that an insurer will be so resentful of the work. It's a really bad look for the profession if the AA and EPR actuary are still squabbling at or near to the Board meeting where the EPR report is considered.

No guarantees

None of these approaches guarantee a smooth process and your best efforts may only be rewarded with ongoing indifference to your attempts to improve the situation (and both sides may see it like this).

You can reasonably expect the audit/EPR situation to be most difficult when there is ongoing contention (i.e. year after year) about the reasonableness of a valuation basis and where it is difficult for either side to provide any conclusive evidence one way or the other.

Undoubtedly, challenging an AA without conclusive evidence (even if they don't have any either) is something you don't want to enter into lightly, if at all. It is perhaps better to just let the emerging experience speak for itself amidst a series of strong but un-emotive "health warnings".

Maybe every second year is enough

In my view, unless the insurer has been subject to major changes in its business, key personnel and/or solvency position, I believe an EPR report every second year would suffice (so long as there is continuous actuarial involvement in the annual audit).

I suspect this view might be shared by some insurers in the Australian market as both APRA and the Institute of Actuaries of Australia have undertaken surveys with results suggesting that many insurers believe valuation reports are "over-checked" (with the ILVR internally peer reviewed by a colleague of the AA and audited in any case).

The RBNZ should be able to determine whether (or not) an insurer needs an EPR in any two consecutive years.

Proposed changes – 2010 onwards

Both NZ and Australia will have “new” prudential regulatory environments in the near future and so here I present partial summaries of the expected prudential regimes in NZ from 2010 onwards (with transition arrangements of up to 3 years) and Australia from 2012 onwards.

This section of the paper focuses on, and attempts to summarise, just those aspects of most relevance to actuaries (hence “partial”).

Coincidentally, in Europe, the implementation of Solvency II is also expected in 2012. Solvency II appears (on the surface in any case) to have many elements in common with the proposed Australian and NZ reforms. Hence there is some evidence of partial global harmonisation of regulatory supervision.

Hopefully there is nothing “Mayan” in this timetable.

Overview

There are two key components to the measurement of capital under the new regimes:

- Applying the regulator specified approach to work out the statutory minimum capital for any given insurer under the regulations;
- Determining how much capital the insurer actually has (and is allowed to count towards the total).

Provided the latter is [sufficiently] greater than the former, the insurer is deemed technically solvent and can continue operation.

However, this assessment of capital adequacy is not a static “one-off” process. Assessment of capital adequacy becomes a key part of an ongoing and dynamic process which can be termed “capital management”.

Typically insurers will want to ensure their plans fit in with maintenance of adequate capital over the planning period and so these same calculations of capital adequacy then extend to projections of financial position.

Stress testing of projected outcomes to different assumptions being borne out provides insight into which factors and actions pose the greater threats to future solvency but can also provide insights into which actions represent an opportunity.

As usual, the only certainty is that the assumptions made at an earlier date will not be borne out exactly.

Consequently, it is appropriate to have target levels of capital and also some key “triggers” and these feed in to what can more broadly be termed “risk appetite”.

Examples include:

- a low-end level of capital (above the statutory minimum) which triggers an action to restore the solvency position to something that is more acceptable to the insurer and to the regulator;
- a high-end level of capital above which it becomes appropriate to repatriate capital (e.g. via dividends) as excessive capital is too hard to service (i.e. profits being generated do not provide an adequate return on capital).

I now look at these various components of capital management in a little more detail. These are:

- statutory minimum capital – understanding the approach;
- actual levels of capital – including what cannot be counted towards actual capital;
- business planning and projections – including setting targets and triggers.

The brief discussions that follow include comparisons of Australian and New Zealand regulatory regimes throughout. The discussions do not cover every item of detail – the discussions are more about a brief exploration of principles.

Statutory minimum capital

The proposed Australian and NZ capital requirements post-2012 both appear to be focussed around the concept of a minimum amount of regulatory capital required by an insurer.

- NZ is currently calling this the Minimum Solvency Capital (“MSC”);
- Australia currently calls this the Minimum Capital Requirements (“MCR”) but will change this to Prudential Capital Requirements (“PCR”) for 2012 onwards.

NZ regime 2010 onwards, Australia currently (more or less)

In NZ, as is largely the case for insurers in Australia at present (i.e. until 2012), the statutory minimum capital will be calculated by:

- applying regulator specified risk charge factors to net insurance liabilities and assets (predominantly investments and reinsurance recoveries¹⁵);
- adding an allowance for insurance risk concentration (e.g. for a property insurer this will be based on natural catastrophe events, for non-property on adverse accumulation scenarios) ;
- adding an allowance for movements in interest rates (“mismatching” risk)¹⁶;
- adding an allowance for foreign currency exposures;
- adding an allowance for asset concentration risk (may be \$0 if assets not concentrated);

¹⁵ NZ only considers reinsurer counterparty credit ratings and not whether the reinsurer is RBNZ regulated or not

¹⁶ Not currently part of Australian MCR but a similar approach is planned for the post-2012 PCR

with the total of all risk charges subject to a minimum dollar amount (therefore impacting the smallest insurers particularly).

In Australia APRA does (and will) allow an insurer to build its own model of its capital requirements - the Internal Model Based (“IMB”) approach. However, APRA needs to be convinced that the model is an integral part of all risk and capital management decision making and “culture” within the insurer before giving full approval. In any case, it seems reasonable to expect that APRA would benchmark any output from the IMB approach to the corresponding risk charge factor based result (as applicable to the majority) and seriously question any significant departures.

The NZ solvency standard does not appear to make specific reference to IMB approaches although the “Special Circumstances” outlined in paragraphs 95 and 96 (section 3.6) of the NZ solvency standard (dated 28 July 2010) might include IMB approaches – most likely handed down from a larger offshore parent(?)

Solvency II in Europe also envisages the use of dual factor-based and IMB approaches to setting statutory minimum capital requirements.

Australia 2012 onwards

A number of changes to the statutory minimum capital are planned for Australia from 2012 onwards. The more important of these are:

- replacement of the existing “factor *times* asset value” approach to many asset risk charges;
- significant increases in complexity around the insurance concentration risk charge which include, for property insurers, a “horizontal” loss component as well as a “vertical”;
- introduction of an explicit formula for operational risk;
- introduction of a formal “supervisory adjustment” (set at APRA’s discretion);
- possible introduction of a gross risk margin and hence a risk margin on the reinsurance recovery asset (which gets loaded by the relevant risk charge);

There are also a number of minor “tweaks” to the insurance risk charges but they remain broadly similar to their current values (which in turn are broadly similar to the corresponding NZ factors).

While these changes in Australia are not expected to impact NZ directly, the RBNZ may make similar changes to the NZ regulatory regime in the future so it may be of some interest to sample the flavour of these pending changes.

Asset risk charges

An APRA technical paper released on 12 July 2010¹⁷ indicated that the total asset risk charge will, from 2012, be based on the results of a series of eight (8) specific balance sheet stress tests which will be combined using a correlated sum approach.

The stress tests are based on:

1. movements of assets and liabilities when the real interest changes by specified amounts;
2. movements of assets and liabilities¹⁸ when inflation rates change by specified amounts;

¹⁷ http://www.apra.gov.au/Policy/upload/GLI_TP_LGICR_062010_ex.pdf

¹⁸ Not for GI companies as liabilities are already deemed to include allowance for inflation

3. a factor applied to foreign currency exposures (25%, to both foreign assets and liabilities);
4. factors applied to derivative exposures (interest rate, currency and equity index);
5. increases to dividend yields for listed equity assets and a factor applied to unlisted equity asset values (45%);
6. increases to rental yields for property assets;
7. increases to credit spreads on fixed interest assets;
8. factors applied to reinsurance and non-reinsurance recoveries, unpaid premiums etc and any other similar asset subject to default risk not covered in earlier tests (i.e. largely unchanged from the existing approach);

The results are then combined with an APRA-specified correlation matrix to give a “diversified” total asset risk charge (as APRA recognise that these adverse stresses are not perfectly correlated).

In addition, the diversified total asset risk charge is then combined with the total insurance risk charge using a single APRA-specified correlation factor.

The APRA-specified correlation matrix for combining the 8 asset risk charges and the APRA-specified correlation factor for combining the diversified total asset risk charge and total insurance risk charge will provide some “discount” to the overall level of statutory minimum capital required.

The stated intention of these changes is to improve the sensitivity of statutory minimum capital requirements to risk.

Arguably the new approach to asset risk charge calculation will improve risk sensitivity relative to the current approach to calculating asset risk charges in some areas.

Issues

There are some issues with the new asset risk charge approach, most notably the complexity and therefore time and cost associated with many of the calculations - the real interest rate and inflation stress tests in particular. This could also be an issue for NZ insurers.

The time and cost associated with notionally repricing each fixed interest asset at a different yield to the current yield could be significant. This will particularly impact insurers who have multiple external fixed interest managers as results from different asset managers will require consolidation. The effects will be compounded when [quarterly] projections of the statutory minimum capital levels are required as part of normal business planning and capital management.

Simpler approaches could (and probably should) be taken using well known approximate rules related to asset price movements under a given movement in yield (e.g. price movement \approx - DMT *times* change in yield) which could be more readily incorporated into projection models and would give materially similar answers.

The interest rate stress tests as proposed do not, in any case, deal with the scenario that occurred in late 2008 when government debt yields (used exclusively for discounting liability cash flows) fell sharply while yields on corporate and other non-government debt actually rose (as discussed earlier in this paper). Therefore, I personally see little gain from the spurious accuracy of repricing each individual asset given the logistic problems it will inevitably give rise to.

Insurance concentration risk charge

The existing APRA rules relating to concentration of insurance risk are based on a 1 in 250 year event (i.e. an event at the 99.6th percentile of possible outcomes).

For a property insurer this generally translates to a large earthquake centred in a significant metropolitan area, extreme weather or weather related events (e.g. floods, bushfires) or similar. There exist a range of specialised catastrophe models that produce estimated losses for a given insurer which will drive the (cat) reinsurance programme (although I understand these models have tended to underestimate Australian event losses in recent years).

For a non-property insurer there is more reliance on trying to construct extreme scenarios, generally based around a major economic downturn. For example, for a PI/D&O insurer, scenarios might focus on corporate collapses (e.g. major financial institutions), the accompanying shareholder class actions (and perhaps the shareholders also sue their financial advisers, accountants etc) and perhaps some fall out for valuers, architects, engineers etc if property investments are involved.

Both of these situations are referred to as “vertical” losses because of the way they impact the insurer’s reinsurance programme.

Under APRA’s proposed revisions to the insurance concentration risk charge there are two notable additions:

- horizontal loss accumulations (based on the larger of four 1 in 6 year events or three 1 in 10 year events);
- for insurers with both property and non-property accumulations, wherever the property accumulation and the non-property accumulation are within 30% of each other these must be combined using a “square root of sum of squares” approach.

Some issues with these two changes include:

- existing accumulation models are not focussed around the 1 in 10 or 1 in 6 year loss levels (and some perils may not be included within existing accumulation models) and in any case it isn’t clear whether the existing insurance risk capital charges already allow for these accumulations to a degree (i.e. a suggestion of double counting);
- If an insurer has property accumulations of “X” and non-property accumulations of “0.7X” then if that insurer increases the property accumulations “a bit” then the non-property accumulation falls below the threshold which would otherwise force it to be combined using the “square root of sum of squares” approach.

Operational risk charge

NZ’s proposed risk charge factors will be similar to what currently exists within Australia (that is, an implicit allowance for operational risk within the insurance risk and asset risk charges). There is no explicit risk charge focussed on just operational risk in the NZ solvency standard (dated 28 July 2010).

APRA on the other hand have heralded the introduction of an explicit formula for operational risk.

At this stage the proposed formula is a simple function of Gross Earned Premium and Gross Insurance Liabilities and is unlikely to provide much insight into true levels of operational risk.

Issues

The General Insurance Practice Committee (“GIPC”) capital taskforce made a submission to APRA in 2010 expressing concerns with the formula approach to operational risk measurement – most notably around the dilution of risk sensitivity caused by the formula approach. However, APRA remains committed to the formula approach – a formula similar to one also being adopted in Europe under Solvency II.

In my opinion:

- operational risk is more of a qualitative matter and not effectively amenable to a rigid formula approach;
- a formula for operational risk seems about as helpful as a formula for love – some things are better assessed on a case by case basis!
- a better place to assess operational risk is under the supervisory adjustment.

Supervisory adjustment

It is APRA’s view that the formula driven approach to assessment of statutory minimum capital requirements needs to be supplemented by some regulator discretion. Prima facie this seems a reasonable approach.

Under existing Australian regulations, while insurers routinely calculate their Minimum Capital Requirements (“MCR”), APRA generally insists on a minimum margin above MCR. At present I understand that for most insurers the level of capital held must be more than 120% of MCR if the insurer doesn’t wish to invite especial interest in them by APRA. In that sense, there is a “supervisory adjustment” already. For some insurers, APRA may require the MCR coverage to be higher than 120%.

However, in the new regime from 2012 onwards, APRA is now proposing to formalise a little more objectively the determination of any supervisory adjustment.

The supervisory adjustment could be either:

- An additional amount of capital (determined by APRA); and/or
- An increase in the proportion of higher quality capital.

It is reasonable to expect that APRA would be seeking to apply the supervisory adjustment in a consistent fashion across the industry. To improve the objectivity in their approach to determining the supervisory adjustment they are expected to include such measures and processes as:

- APRA’s PAIRS¹⁹ assessment derived from APRA’s risk assessment model;

¹⁹ Probability and Impact Rating System - http://www.apra.gov.au/PAIRS/upload/PAIRS_Final_May_2008_External_Version.pdf

- APRA's SOARS²⁰ assessment based on APRA's structured approach to determining appropriate supervisory response;
- the length of time the insurer has been operating;
- whether the insurer is in, or appears likely to be in, financial or operational difficulty;
- whether the insurer is deemed by APRA to have a disproportionate exposure to a particular type of risk;
- whether particular risks faced by an insurer are adequately dealt with by the capital standards;
- how the insurer has addressed risks in its own capital management plan; and
- the adequacy of an insurer's own capital assessment and management processes.

It appears the circumstances under which APRA would apply a supervisory adjustment are when they view the risk charge factor based requirement as not adequately addressing particular risks including:

- reputational and/or strategic risks;
- poor corporate governance and/or risk management systems;
- high levels of operational risk.

It appears that the supervisory adjustment would be strictly non-negative. This is an interesting feature of the supervisory adjustment as APRA clearly believe it is possible to "under-cook" the regulatory capital requirements with the factor based approach yet apparently don't believe it is possible to "over-cook" them.

However, no insurers will be permitted to disclose the supervisory adjustment component (\$0 or otherwise) of their Prudential Capital Requirements ("PCR").

At the 30 June 2010 Insurance Council of Australia seminar in Sydney there was some discussion around the issue of supervisory adjustment disclosure, with APRA indicating that in their view (which they did not elaborate on) the benefits of non-disclosure outweighed the benefits of disclosure.

One member of the audience (possibly an investment analyst) clearly disagreed and strongly expressed the view that it was in the public's best interest to be aware of which insurers were subject to the supervisory adjustment, and which insurers were not, in considering whether to purchase a policy or perhaps invest in the insurer.

On the other hand, one can imagine that APRA would not want to unnecessarily "spook" the market and actually cause an insurer to suffer the very consequences it is actively trying to avoid.

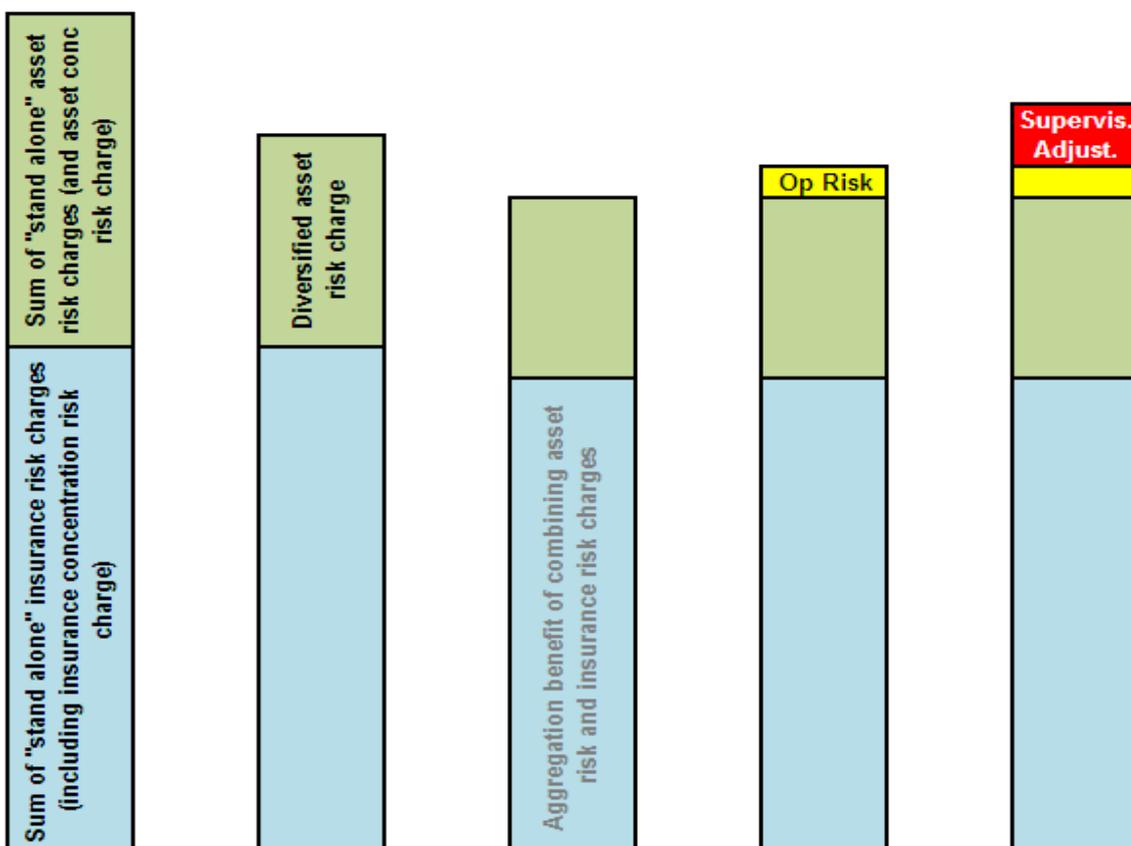
²⁰ Supervisory Oversight and Response System - http://www.apra.gov.au/PAIRS/upload/SOARS_Final_May_2008_External_Version.pdf

Conversely, some insurers with no supervisory adjustment might seek to overplay the importance of a \$0 supervisory adjustment.

At the end of the day, the supervisory adjustment is nothing more than a mechanism whereby the regulator can incentivise insurers to improve their risk and capital management strategies and it seems possible, at least in theory, that any insurer could, by taking the right measures, have a \$0 supervisory adjustment.

Summarising the construction of Australian Prudential capital Requirements (“PCR”)

The following figure (not to scale) summarises the assembly of the new PCR:



Related issues

Target probability of sufficiency

While the intention of the statutory minimum capital requirements in Australia is to universally target something approaching the 99.5% probability of sufficiency over a 12 month period²¹, NZ does not appear to have made specific mention of the overall target probability of adequacy provided by the Minimum Solvency Capital.

That is, in Australia, the statutory minimum capital requirements should provide an additional margin over and above the technical provisions to secure the insurance (and other) liabilities of the insurer with a probability of adequacy of 99.5%²¹ for 12 months (i.e. a 1 in 200 year event).

²¹ Although the Australian insurance concentration risk charge currently targets a 99.6% probability of adequacy (1 in 250 years)

However, a quick comparison of the insurance risk charges (by line of business) and the asset risk charges (by asset class) suggests the NZ standard is targeting a broadly similar level of regulatory capital adequacy as the charges are similar for both NZ and Australia²².

The 99.5% probability of sufficiency level is arguably a fairly esoteric target but nevertheless it is clear the intention is that events or circumstances which exhaust the statutory minimum capital should be very rare.

I understand a 99.5% probability of sufficiency broadly relates to a Standard & Poors “BBB” rating (“triple B”).

Factors vary according to risk

For the insurance risk charges and asset risk charges (including reinsurance recoveries) the broad aim of the factors is to require higher levels of capital for more risky assets and more risky classes of insurance.

For example, for NZ asset risk charges:

- the risk charge applied to government debt is 0.5% of the face value of the asset holding;
- the risk charge applied to unlisted equity is 35% of the face value of the asset holding;

For example, for NZ insurance risk charges:

- private motor outstanding claims liabilities attract a 9% charge on the 75th percentile provision;
- professional indemnity outstanding claims liabilities attract a 15% charge on the 75th percentile provision;

In general, the NZ insurance risk charge applied to premium liabilities is around 1.5 times the corresponding charge applied to outstanding claims liabilities in the same class.

Details are provided in Table 1 and Table 2 of the NZ Solvency Standard (dated 28 July 2010).

These factors are similar in magnitude to those currently in force in Australia which suggests that the NZ and Australian (currently) regimes are broadly comparable in terms of minimum capital requirements.

²² The NZ factors are for direct insurance only – there are no separate factors for inwards reinsurance (proportional or otherwise)

Admissible capital (or the actual capital that can be counted)

In both regulatory environments there are restrictions on what can be included in the determination of actual capital for solvency assessment purposes (i.e. admissible capital).

I am not an expert in these matters and so I present minimal (and possibly incomplete) information here.

The types of assets excluded (i.e. inadmissible assets) appear to be broadly similar across both jurisdictions and include items such as:

- Intangible assets (e.g. goodwill);
- Deferred tax assets and future tax benefits;
- Dividends declared but not paid;
- Surpluses in defined benefit superannuation schemes;
- Assets not held at fair value or for which fair value cannot reliably be determined;
- Equity investments and subordinated loans to related parties (to avoid double counting);

In both jurisdictions there are various limits on what some forms of capital can contribute to total admissible capital. Australia currently uses a system of capital “tiers” based on capital quality and various sub-limits within tiers (see APRA’s GPS 112²³).

The details of what can and cannot be included in admissible capital for NZ insurers are set out in paragraphs 27 and 28 of the NZ solvency standard (dated 28 July 2010). These items can be compared to those in APRA’s GPS 112.

In Australia, as noted earlier, the statistic most commonly used to measure solvency position is the solvency ratio “admissible capital divided by the minimum capital requirement”. For most Australian insurers the target range for the solvency ratio seems to be above 150% but generally not above 250%.

For a small insurer who is affected by the dollar floor (\$5m in Australia, \$3m for non-captive insurers²⁴ in NZ) the solvency ratio will generally be 100% and therefore may be difficult to compare to larger insurers’ solvency ratios.

Certainly, insurers in Australia publish solvency ratios in their annual reports and AAs are required to disclose past, current and projected future solvency ratios (projected out at least 3 years) in the FCR under PS305 and GPS 310.

According to the NZ solvency standard dated 28 July 2010 (paragraph 25) NZ insurers and NZ AAs will be obligated to do much the same (minimum of six-monthly intervals).

²³ <http://www.apra.gov.au/Policy/upload/GPS-112-final-June-2010.pdf>

²⁴ For captive insurers regulated by the RBNZ the statutory minimum capital is \$1m

Business Planning and Projections

A model of the business

As part of the ongoing maintenance of the insurer's Business Plan (currently a statutory requirement in Australia) the insurer undertakes an annual re-projection of where their business is headed. The statutory minimum term of the projection in Australia is currently the next 3 financial years.

The insurer needs to build and maintain a model of their business which includes *ex-ante* assumptions for a range of items including:

- Gross written premium income by line of business and growth rates thereon;
- Premium earning patterns;
- Commissions and other acquisition costs;
- Gross undiscounted ultimate loss ratios by line of business and year;
- Claims handling expenses, policy administration and other management expenses;
- Reinsurance cessions by line of business (and for aggregate covers) and exchange commissions;
- Payment patterns by class (for discounting and outstanding claims projections);
- Investment income;
- Other income;
- Dividend policy;

The result is a projection, starting at the latest balance sheet, of the next three years' profit and loss accounts, statements of cash flows and balance sheets (possibly at quarterly intervals).

Having undertaken that projection, the relevant minimum capital requirements can be determined at each point in the projection (e.g. quarterly for 3 years) and compared to the projections of actual admissible capital (so that the projected MCR coverage position can be forecast and checked against various targets and triggers – see below).

Furthermore, other key measures can be determined as out-workings of the projection, not least of which are:

- Forecasts of profit by line (and in total);
- Return on regulatory and actual capital by line (and in total);

although to be able to calculate the return on capital by line you need a means of allocating capital to lines of business.

Stress testing

The above projection can be viewed as a "base case". The insurer would then need to apply a series of stress tests to determine what the likely outcome of particular departures from the base case would be as well as to test the resilience of the insurer's capital (and profitability) to a range of scenarios (or combinations thereof).

More sophisticated insurers (i.e. usually bigger ones) can incorporate stochastic elements to this modelling (i.e. a DFA model) and in the extreme case you have the full Internal Model Based ("IMB") approach touched on earlier.

The principal advantage of stochastic approaches is that the probability of particular events can be estimated (as opposed to stress tests where all you can do is observe an outcome without knowing what the chances of an outcome at least that extreme actually are).

The principal disadvantage of these more complex approaches is that they are more costly to build and maintain and perhaps prohibitively so for small insurers.

Targets and triggers

Having considered the results of various stress tests the insurer will have a view on how far the solvency ratio can fall and rise in a range of scenarios.

This can be used to help establish some of the key capital management “targets and triggers” such as those illustrated in the following example:

- The target long-term average solvency ratio is 200%;
- Solvency is to be maintained above 130% at all times;
- When solvency ratio drops below 150% immediately implement a plan to restore solvency ratio to the target level in a specified time frame;
- When solvency ratio exceeds 250% implement a plan to pay dividends and/or look for acquisitions;

In the example above where the solvency ratio decreases below 150% the insurer needs to have documented the details of the plan to restore the solvency ratio to above the 150% level and back up towards the 200% target.

Such a plan could include any or all of the following:

- Investment in lower risk assets (e.g. divestment from equity and property);
- Decreasing the weight on riskier insurance classes;
- Buy more and/or restructure reinsurance protection;
- Suspend dividends;
- Raise capital²⁵;

This [short] list is illustrative not exhaustive.

ICAAP reports

Under the current Australian capital management framework for general insurers, APRA requires insurers to document their approach to capital management within the Business Plan document (see also GPS 110, GPS 220 and GPG 110). The AA would typically provide an overview and commentary thereon in the annual Financial Condition Report.

Under the proposed amendments to the Australian framework APRA is seeking to strengthen supervision around capital management. Insurers will be expected to formally document their Internal Capital Adequacy Assessment Process (“ICAAP”) and APRA will require separate documentation of the insurer’s process in an ICAAP report.

²⁵ Probably a last resort

The ICAAP report would be submitted to APRA on an annual basis and appears to require broadly similar subject matter to that which is already required within the Business Plan (including the 3-year projections of capital position) although with significantly more explicit and detailed articulation than currently.

While APRA is yet to disclose much in relation to ICAAP report content, some areas included in ICAAP reports might be:

- links between capital management and risk management strategies generally;
- economic capital versus regulatory capital for different business segments;
- links to risk appetite and limits;
- governance arrangements;
- areas where regulatory capital factors are not appropriate for the line of business (e.g. the “other” classes risk charge factors);

ICAAP reports for ADIs

It is worth considering how APRA already uses ICAAP reports for Authorised Deposit-taking Institutions (“ADIs”) given APRA’s stated aim of harmonisation of regulation across industries²⁶.

In a December 2007 information paper²⁷ in relation to ICAAPs for ADIs APRA indicated that:

- The ICAAP report is an essential input into the annual APRA supervisory review which will determine any supervisory adjustment;
- Insurers would do well to ensure their ICAAP report addresses issues in a manner directly comparable to the requirements of the PAIRS and SOARS tests;
- Where an insurer is part of a Level 2 insurance group the ICAAP report will need to articulate the capital management processes as they relate to the Level 1 and Level 2 entities;
- Other than the goal of ensuring each insurer is adequately capitalised, APRA’s main goal is to provide each insurer with an understanding of how, through taking particular actions, they can reduce APRA’s view of the need for supervisory adjustments;
- The need for a supervisory adjustment will be assessed quantitatively to the extent possible but a qualitative and judgemental element is inevitable and necessary;

The onus should be on the regulator to explain to the insurer how it arrived at the overall supervisory adjustment (although it might be unreasonable to expect that separate allowances for each component of the supervisory adjustment will be provided).

The ICAAP report appears to be an area where AAs could get more formal involvement in capital management for insurers and reinsurers.

²⁶ ICAAP reports for ADIs have been required since 2008 in Australia

²⁷ http://www.apra.gov.au/ADI/upload/APRA_IP_PillarII_122007_v3.pdf

Summary

Changes to the NZ regulatory environment bring it conceptually into line with where Australia currently is in many areas, as it relates to actuaries.

The more important alignments include:

- Fit and proper policies for key positions (including AAs);
- Financial Condition Reports produced at least annually by Appointed Actuaries (although no clear terms of reference for NZ FCRs and actuarial professional standards as yet);
- Minimum solvency capital requirements based on a risk charge factor approach;
- Limits on what constitutes admissible capital (for comparison with minimum regulatory capital);
- Formal documentation of risk management strategy and disaster recovery planning;

There are a number of areas where the proposed NZ standards do not align with the Australian prudential regime (current and/or proposed) including:

- No External Peer Reviews (and an associated actuarial professional standard) required for NZ as yet;
- Proposed APRA reforms for 2012 onwards will introduce explicit operational risk charges and supervisory adjustments to minimum regulatory capital requirements whereas NZ will adopt an implicit allowance similar to the existing regime in Australia.
- Proposed APRA reforms will increase focus on risk and capital management with the introduction of ICAAP reports which may involve AAs and other actuaries;

This could change in New Zealand in the near future.

The role of actuaries in the prudential reforms of the NZ insurance sector is significant with the authoring and signing of FCRs being especially noted. There is undoubtedly also scope to get involved in building business models for capital management purposes.

In my view, there is no professional group more suitable for taking sole responsibility for the FCR than actuaries and there is no need to “worry” excessively about areas not previously focussed on by actuaries (e.g. operational risk management, as noted in this paper). However, some thought about the “tail” of possible outcomes in the operation of insurers and reinsurers, with particular reference to the well documented collapse of HIH in Australia, should provide NZ actuaries with the necessary reminder as to just how important their actions, conduct and professionalism are to the wider NZ community.