



Institute of Actuaries of Australia

Premium Liabilities

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Abstract

Changes to the Australian Accounting Standards AABS1023 have increased the importance of premium liability assessment for Australian insurance and reinsurance companies. However, premium liabilities have not traditionally received much attention in actuarial assessments. There is little published literature that general insurance actuaries can reference to assist their work.

The most common technique that is encountered, to assess premium liabilities is the “Claims Approach” which is essentially an extension of the outstanding claims valuation. It is based on a review of historical claims experience, with adjustments that are judged necessary where it is thought that historical claims experience may not be predictive of the future experience.

The estimation of premium liabilities also requires a thorough understanding of the accounting accruals to avoid double counting, or omission of items such as reinsurance cost, and unclosed business. It is also important to have a thorough understanding of the details of reinsurance arrangements, terms and conditions of the underwritten policies and the expense structure of the company.

The purpose of this paper is to review the common approaches applied by actuaries to assess the premium liabilities for APRA minimum capital requirement, as well as to highlight some of the factors that should be considered when determining the valuation assumptions. When the revised AASB1023 is implemented, premium liabilities will have an increased chance of directly impacting the insurer’s published profits and losses. This will increase the importance of the premium liability assessment, and it is likely that there will be further development of actuarial techniques to assess and monitor premium liability estimates.

Keywords: Premium liabilities, APRA Prudential Standards, Revised AASB1023, Liability Adequacy Test, Unearned premium

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1. Introduction

1.1. Premium Liabilities

Actuaries have a long and well established role in general insurance companies estimating claims liabilities arising from expired risks, and recommending provisions to hold in the general accounts. A substantial body of literature has been published relating to the various actuarial techniques and dynamic modelling regarding outstanding claims estimation. This is probably due to the effect the outstanding claims has on the insurer's published profit and loss. Little focus has been placed on liabilities arising from the insurer's unexpired risk. APRA currently refers to these as "Premium Liabilities". Traditionally, these liabilities are disclosed in the balance sheet as the unearned premium less deferred acquisition costs and deferred reinsurance costs.

From 1 July 2002, the Australian Prudential Regulatory Authority (APRA) introduced a new regime where the minimum capital requirement for insurance companies is in part determined with reference to insurance liabilities (that is, the sum of outstanding claims liabilities and premium liabilities). APRA requires insurance liability estimates to be determined by class of business and requires insurers to estimate their value quarterly. The assessment of premium liabilities poses new challenges for the actuarial profession. The Prudential Standards for APRA Stage 2 reforms issued in May 2005 have retained the role played by premium liabilities in the determination of the minimum capital requirement.

Currently, premium liability determination primarily impacts the regulatory assessment of capital adequacy. It does not play a direct role in general purpose profit reporting. Hence, the number of stakeholders concerned with the premium liability assessment has been limited. However, changes to the Australian Accounting Standard AASB1023 will alter the current role of premium liabilities.

1.2. Revised Accounting Standard AASB1023

In July 2004, the revised AASB1023 was issued. An amendment was issued in May 2005. This revised accounting standard is applicable to all general insurance contracts and to annual reporting periods beginning on or after 1 January 2005. The main changes to the existing AASB1023 include:

- Definition of an insurance contract.
- The outstanding claims liabilities are specified to include a risk margin. However, compared to the APRA Prudential Standards, there is no prescription on the probability of adequacy such margins should target.

- Introduction of the Liability Adequacy Test.
- Enhanced disclosure requirements in regards to amounts recognised in the balance sheet and income statement, as well as explanations of net incurred claims movement at a business segment level.

The Liability Adequacy Test (“LAT”) is a new component of the Australian Accounting Standards which introduces a greater potential for an insurer’s published accounts to be impacted by the premium liability assessment. The LAT requires the unexpired risk to be carried in the balance sheet for general purpose accounts at the greater of the net unearned premium and the premium liability specified in a similar way to that required by the APRA Prudential Standards. The most significant difference between the APRA and the revised AASB1023 requirements relates to the way that the risk margin is specified. Hence, in future, premium liabilities could have a direct impact on the insurer’s published profits and losses.

1.3. Outline of this Paper

It has been more than three years since premium liabilities have been introduced into the Australian regulatory environment. Together with the revised AASB1023, premium liabilities are increasingly important to the management of insurance and reinsurance companies. It is therefore appropriate to review the common practices adopted in the determination of premium liabilities and more rigorously examine the considerations that are relevant to their assessment.

This paper will examine:

- The impact on the reported liabilities of insurers due to changes in the regulatory environment and the accounting standards
- Current approaches to premium liability assessment
- The guidelines issued by APRA and the Institute of Actuaries of Australia relating to premium liability assessment.
- Issues to consider in the determination of assumptions for the assessment of premium liabilities
- Methods to assess the adequacy of past premium liability estimates
- Risk margins on premium liabilities

2. Impact on the Reported Insurance Liabilities of Insurers

The Australian insurance industry has experienced a number of changes in the regulatory, statutory reporting and market environments over the past few years. This section discusses the changes in each of the above environments and the impact on the reported insurance liabilities of Australian insurers.

2.1. Changes in the Regulatory Environment

From 1 July 2002, APRA introduced a form of risk based capital assessment for determining the minimum capital requirement for Australian insurers and reinsurers. The minimum capital requirement is in part determined with reference to the assessed insurance liability (that is, the sum of outstanding claims liabilities and premium liabilities). More rigorous standards were also introduced regarding the determination of insurance liabilities, for example, insurance liability estimates are required to target a 75% likelihood of adequacy.

The APRA requirement to report unexpired risk as premium liabilities rather than unearned premium has differed from the requirements of the Australian Accounting Standard AASB1023. It also represents a difference from the previous APRA reporting requirements which required the liability to be recognised with reference to the unearned premium. Under the accounting standards, the equivalent of premium liabilities is unearned premium less deferred acquisition cost and deferred reinsurance expense. This difference has created a divergence in the definition of “profit” under APRA reporting, compared to that disclosed in published accounts and profit reporting for taxation purposes. Another difference is the recognition pattern of profit. Under APRA, profits and losses are recognised when contracts are entered into. However, under revised AASB1023, profits are recognised when earned. These differences may be warranted as the purpose of APRA Prudential Standards and accounting standards is different. APRA objective is to regulate the capital strength of insurers, and the accounting standards objective is to provide a fair presentation of profitability and “to provide information useful to users for making and evaluating decisions about the allocation of scarce resources.”

This paper reviews the changes in the insurance liabilities reported to APRA before and after the 2002 APRA Prudential Standards changes. The review separately examines the experience of direct insurers and reinsurers for years ending December 1996 to March 2005. Aggregated across the industry, the paper examines the following ratios:

Premium Liabilities

- Insurance Liabilities as a proportion of Total Liabilities
- Premium Liabilities (or Unearned Premium) as a proportion of Insurance Liabilities
- Premium Liabilities (or Unearned Premium) as a proportion of Written Premium

Source Data

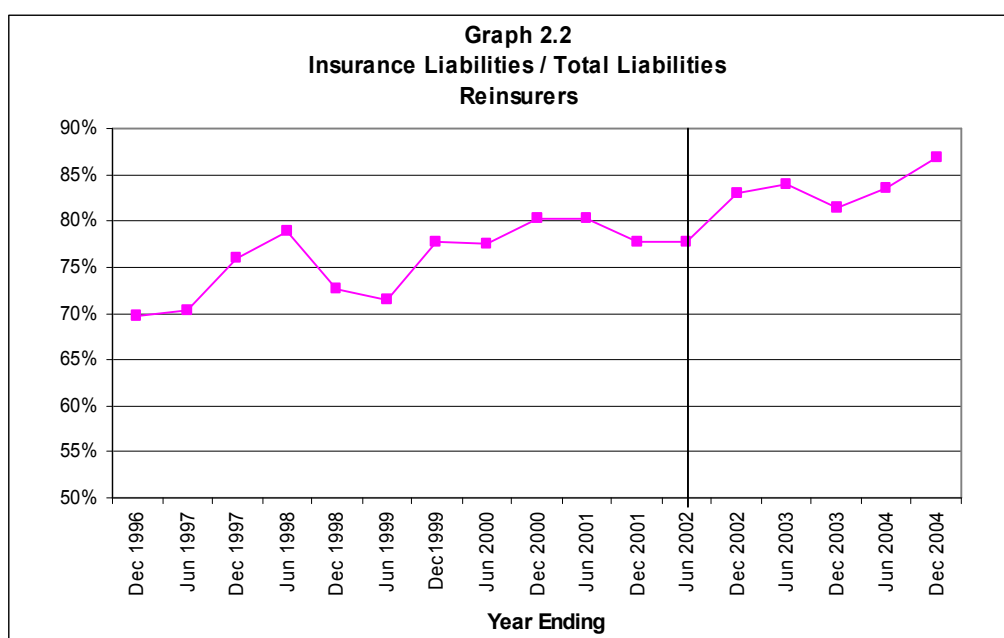
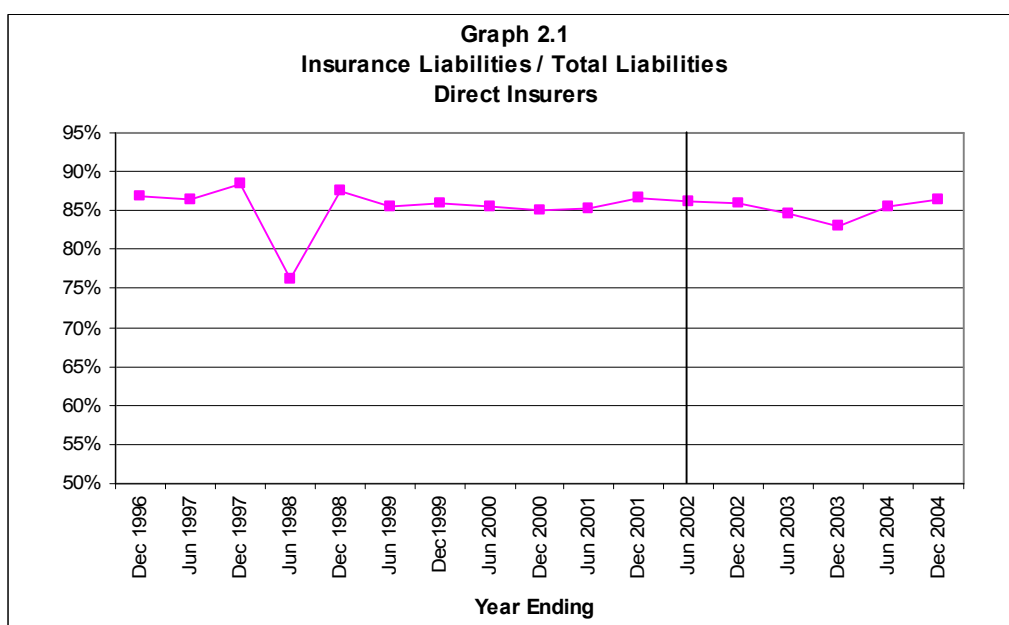
The data used has been publicly available APRA statistics. However, a number of points need to be considered whilst interpreting the results.

- The analysis has been performed on gross figures. This is because statistics on reinsurance are not broken down into amounts associated with outstanding claims and deferred reinsurance expenses.
- Figures for years ending on or before June 2002 include liabilities arising from inside Australia only. However, figures for years ending after June 2002 include liabilities arising from inside and outside Australia.
- For years ending on or before 30 June 2002, Insurance Liabilities are defined as the sum of outstanding claims liabilities and unearned premium. Outstanding claims liabilities may not be actuarially determined. There may or may not be a risk margin on the outstanding claims liabilities. If there is a risk margin, it may not correspond to a probability of adequacy of 75%.
- For years ending after 30 June 2002, Insurance Liabilities are defined as the sum of outstanding claims liabilities and premium liabilities. For most insurers, the outstanding claims liabilities and premium liabilities are based on the requirements of GPS 210 and GN353. There are risk margins on the Insurance Liabilities (with allowance for diversification benefits). Risk margins are to be at the higher of that required to provide a probability of adequacy of 75%, and half a standard deviation of the Insurance Liabilities central estimates.

Insurance Liabilities as a Proportion of Total Liabilities

Graphs 2.1 and 2.2 set out the Insurance Liabilities as a percentage of the Total liabilities for years ending 31 December 1996 to 31 March 2005, separately for reinsurers and direct insurers.

Premium Liabilities



Bearing in mind the differences in the definition of Insurance Liabilities pre and post 1 July 2002, one might expect the proportion of Total Liabilities that are Insurance Liabilities to increase. The main reason being the universal inclusion of risk margins aiming for a probability of adequacy of 75% for both outstanding claims liabilities and premium liabilities.

Surprisingly Graph 2.1 indicates that the proportion of Total Liabilities that are Insurance Liabilities for direct insurers has remained relatively stable at approximately 85% before and after July 2002. A detailed analysis by APRA classes may provide more information and possible explanations for the above result. However, since the implementation of the APRA Prudential Standards, insurance liabilities information by APRA classes is not publicly available. Hence, some general explanations might be:

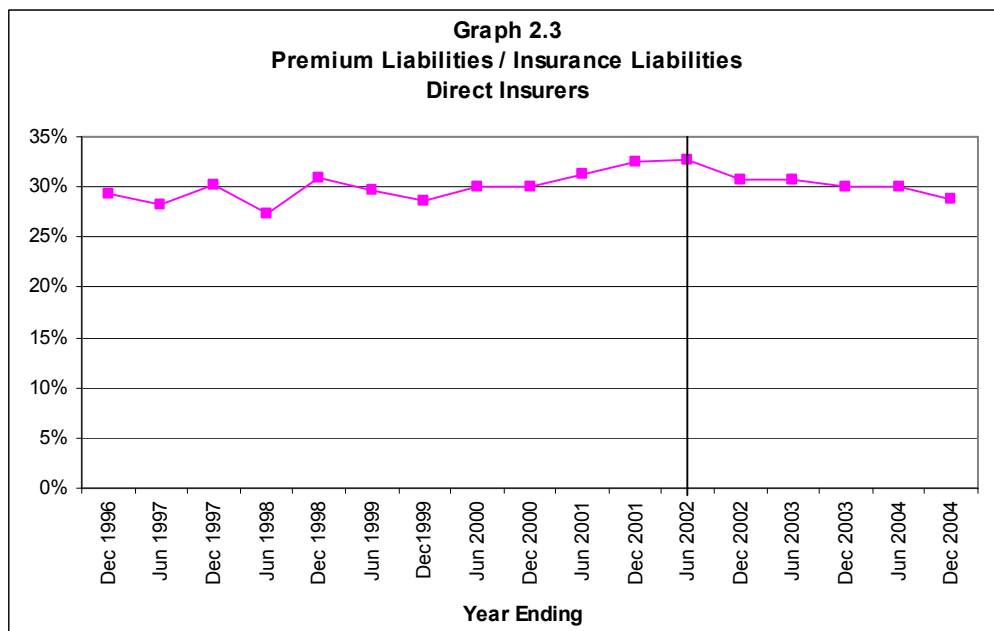
Premium Liabilities

- Some direct insurers already held a risk margin with a probability of adequacy of 75% or higher on their outstanding claims liabilities prior to 1 July 2002; and/or
- With the introduction of the Approved Actuary for most insurance companies, both the outstanding claims liabilities and premium liabilities were actuarially re-assessed. There had been some offsets between the central estimates and risk margins in the insurance liabilities (that is, prior to June 2002, central estimates were reserved above the mean of all possible claim outcomes and adopted risk margins were aimed at a probability of adequacy below 75%); and/or
- Given the favourable market conditions in the last few years, most insurers have been charging premiums that appear to be profitable. The unearned premium is likely to be greater than the actuarially assessed premium liabilities more often than would have been the case prior to July 2002, offsetting the increases in outstanding claims liabilities determined according to the APRA Prudential Standards.

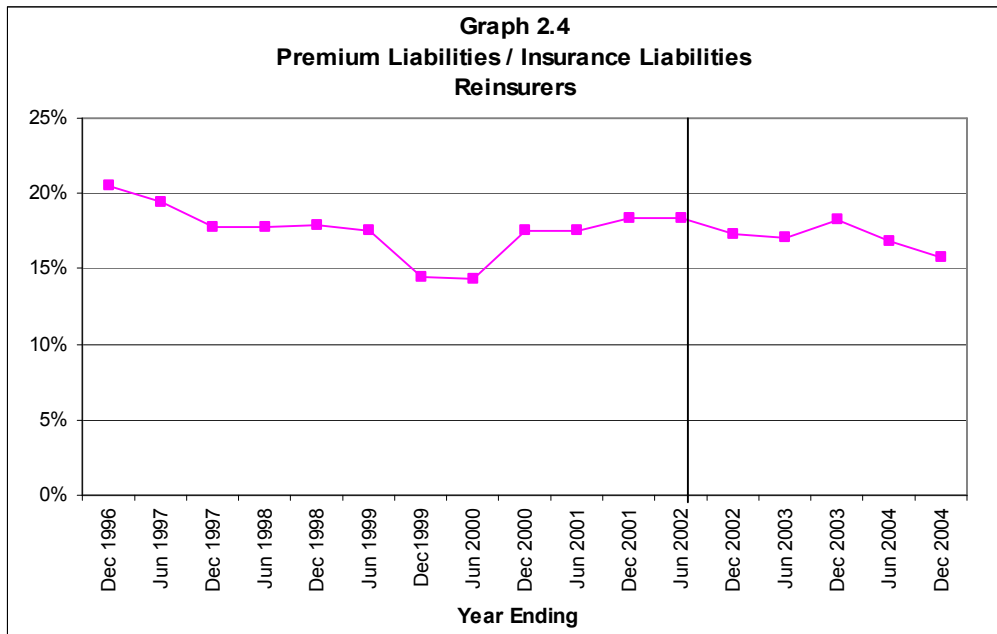
For reinsurers, the proportion of Total Liabilities that are Insurance Liabilities remained relatively stable at 80% between June 1999 and June 2002. From July 2002, this proportion has increased to above 85% at December 2004. It appears the implementation of APRA Prudential Standards has had more impact on reinsurers than direct insurers.

Premium Liabilities (or Unearned Premium) as a Proportion of Insurance Liabilities

Graphs 2.3 and 2.4 set out the Premium Liabilities as a percentage of Insurance Liabilities for years ending 31 December 1996 to 31 March 2005, separately for reinsurers and direct insurers. For years ending on or before 30 June 2002, the premium liabilities are taken as the unearned premium provisions in the accounts.



Premium Liabilities

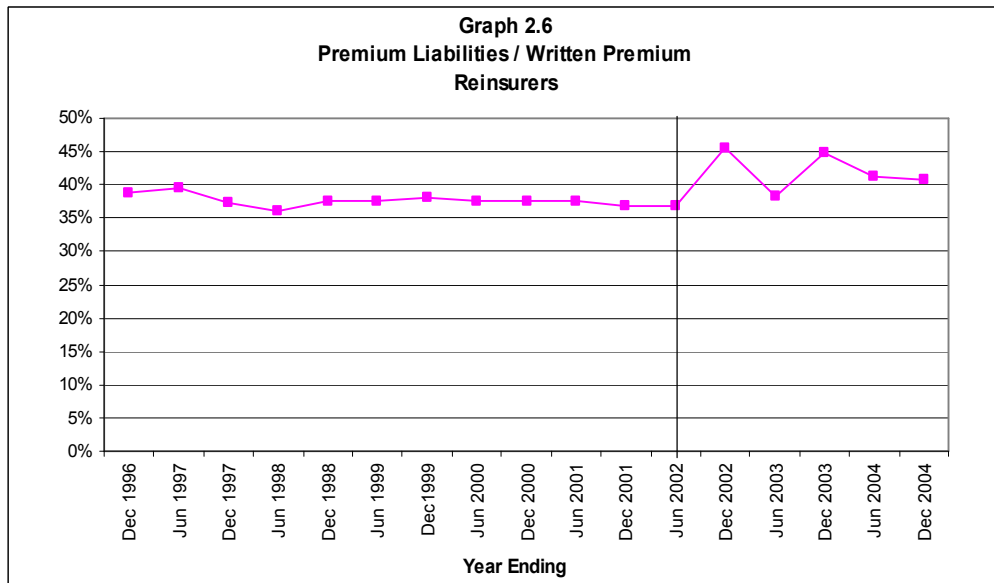
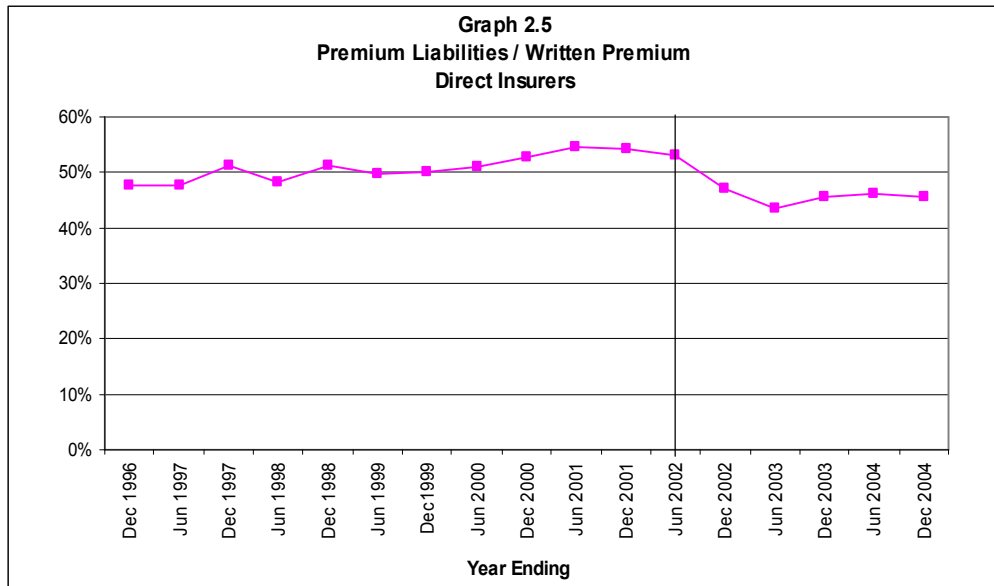


Compared to the direct insurers, the proportion of premium liabilities as a percentage of Insurance Liabilities is lower for reinsurers. This is probably due to a higher proportion of long tail liabilities in the reinsurers' portfolios. It is also noted the percentage of premium liabilities have remained stable pre and post the implementation of GPS210. This may suggest any percentage changes in the outstanding claim liabilities due to the implementation of GPS210 are mirrored by the same percentage changes in the premium liabilities.

Premium Liabilities (or Unearned Premium) as a Proportion of Written Premium

Graphs 2.5 and 2.6 set out the Premium Liabilities as a percentage of Written Premium for years ending 31 December 1996 to 31 March 2005, separately for reinsurers and direct insurers. Similar to Graphs 2.3 and 2.4, the premium liabilities are taken as the unearned premium provisions in the accounts for years ending on and before 30 June 2002.

Premium Liabilities



For most direct insurers, the majority of their policies are renewed annually and are written uniformly throughout the year. Hence it is expected the unearned premium is approximately half of the written premium. This feature is noted in Graph 2.5 for years ending on or before 30 June 2002 where the ratio of unearned premium to gross written premium is approximately 50%. For years ending after 30 June 2002, the premium liabilities are approximately 45% of written premium. This decrease in percentage implies the premium liabilities are generally less than unearned premium, reflecting the current favourable market conditions due to tort reforms on liability insurances, favourable weather conditions and economic environment, and insurers are charging premiums that are profitable.

There are various theories in the market regarding how long this phase of the pricing cycle is to last before a return to a period of soft pricing. When this occurs, premium liabilities with risk margins targeting a probability of adequacy of 75% will likely to exceed the unearned premium. In this situation, the proportion of premium liabilities to written premium would be higher than 50%.

For reinsurers, a significant proportion of their contracts are renewed either on 1 January or 1 July, so the unexpired premium at 30 June and 31 December is expected to be low. It can be noted from Graph 2.6, the unearned premium is approximately 38% of the written premium. This percentage increases to approximately 45% after the implementation of the APRA Prudential Standards at June 2002. This impact is opposite to that observed for the direct insurers. A possible explanation is due to the GPS210 requirement to include premium liabilities arising from contractual obligations under the proportional reinsurance contracts for business to be written beyond the reporting date but prior to the next treaty renewal date.

2.2. Changes in the Accounting Standards

In July 2004, a revised version of AASB1023 was issued. An amendment was issued in May 2005. This revised accounting standard is applicable to all general insurance contracts for annual reporting periods beginning on or after 1 January 2005. The main changes which will impact the reported insurance liabilities of insurers are the introduction of the Liability Adequacy Test (“LAT”) and the increased disclosure requirements for amounts recognised in the balance sheet and income statements.

The LAT specifies that if the premium liabilities inclusive of a risk margin are greater than the unearned premium less related intangible assets and related deferred acquisition costs, then the entire deficiency should be recognised, first by writing down the intangible assets, then deferred acquisition costs. If a deficiency remains after these two items are written down to zero, then an unexpired risk liability would need to be established. Furthermore, if a deficiency has been identified, the amount of deficiency must be disclosed in the financial statements. Conversely, if a surplus is identified, only the fact that the LAT identified a surplus must be disclosed. The LAT must be performed separately for each grouping of broadly similar risks that are managed together as a single portfolio.

The LAT is not an entirely new feature of the accounting standard. Under the previous version, a similar comparison was also specified, where the sum of the present value of expected future claims and settlement costs were compared to the unearned premium net of deferred acquisition costs. However, the comparison was only required on a company-wide basis and there was no specific guidance on the method with which the future claims and settlement costs were to be determined. In addition, if the unearned premium was inadequate, the write down was limited to the deferred acquisition costs. In comparison, the LAT under the revised AASB1023 provides a more structured way in which the comparison is to be performed in regards to:

Premium Liabilities

- The method which the future claims and settlement costs are to be determined
- A risk margin is to be allowed on the future claims and settlement costs
- If the unearned premium is inadequate, the write down is not limited to the deferred acquisition costs but an additional liability, “unexpired risk liability” is to be included in the income statements
- The test is at a finer level, rather than at the company level

The requirement for an unexpired risk liability has an impact on the insurer’s published profits and losses, providing a direct link between the assessment of the unexpired risk and the profitability of the insurer. General insurers will be required to recognise the impact of unprofitable premiums when the contracts are written, rather than waiting until the premium is earned.

2.3. Changes in the Market Cycle

At this point in the insurance cycle, it appears that insurers and reinsurers are generally writing profitable business. Hence, the LAT is less likely to have a balance sheet impact since the test is likely to identify surpluses. The recent hard market has also been aided by relative good weather conditions in Australia (no major catastrophes) and various tort reforms in the long tail classes. At some point, it is expected that markets will soften and there are some indications that the softening has already commenced. Table 2.7 shows the progression of premium rate movements from 1994 to 2004, by class of business. These statistics are based on the 2004 General Insurance Industry Survey (JP Morgan and Deloitte). It illustrates the pricing cycle exists for the Commercial classes and less evident in the Domestic classes.

Table 2.7 – Progression of Premium Rate Movements (%)

	Domestic Motor	House Holders	Fire & ISR	Commercial Motor	Liability	Professional Indemnity
1994	3	4	1	1	4	6
1995	9	6	-5	-1	-2	-2
1996	6	5	-15	-3	-12	-9
1997	4	2	-18	-8	-17	-18
1998	3	1	-12	-6	-8	-12
1999	4	2	-1	2	4	2
2000	10	6	13	11	17	12
2001	7	5	16	10	18	23
2002	11	11	45	11	51	51
2003	7	7	14	5	27	29
2004	2	5	-7	-8	3	6

Premium Liabilities

The pricing cycle downturn occurred in the years 1994 to 1999. Until 2004, the premium rates increased each year at rates higher than inflation. 2004 is the first year for some time where premium rates fell, or rose less than claim inflation. If the premium rates follow the previous cycle, it is likely more rate decreases will follow. If this occurs, the estimates of premium liability will become more important as it will have a direct impact on insurers' published profits and losses.

However, the depth and length of this potential softening of markets could be less than the previous soft pricing cycle. A contributor to this could be the LAT under which an unexpired risk liability will be required under such market conditions and this may force insurers to return to prudent premium pricing sooner.

3. Current Approaches to Premium Liabilities Assessment

3.1. Definition of Premium Liabilities

Prior to examining the current approaches adopted to assess premium liabilities, it is useful to review their definitions and their components under the APRA Prudential Standards and the revised AASB1023. This section sets out the definitions stated in each standard and discusses the similarities and differences between them.

APRA Prudential Standards

Under the draft APRA Prudential Standard GPS310 (paragraph 54), premium liabilities are defined as (bold emphasis by author):

“Premiums liabilities relate to all future claim payments arising from future events post the calculation date that will be insured under the insurer’s existing policies that have not yet expired. The value of the premiums liabilities must include an amount in respect of the expenses that the insurer expects to incur in administering the policies and settling the relevant claims. The value of premiums liabilities must not include any amounts for levies and charges imposed by Government. Premiums liabilities are to be determined on a fully prospective basis, both net and gross of expected reinsurance recoveries and non reinsurance recoveries. A deferred acquisition cost asset must not be reported. Premiums liabilities relating to insurance and reinsurance contracts written on a long term (or continuous) basis with the option for the policyholder/insurer and insurer/reinsurer to review (and cancel) annually, are to be accounted for only up to the effective date following that review date.”

The premium liabilities are to include a risk margin that is intended to value the insurance liabilities of the insurer at a 75% probability of adequacy, but not less than one half of a standard deviation above the mean for the insurance liabilities.

Premium liabilities, as defined by the APRA Prudential Standard, comprise of the following components:

- Future claim payments expected to arise from all existing policies that have not yet expired at the balance date
- Claims handling expenses incurred in establishing and settling the future claim payments
- Policy administration expenses
- Future cost of reinsurance
- Future reinsurance recoveries

Premium Liabilities

- Future non reinsurance recoveries
- A risk margin which aims to provide a 75% probability of adequacy for the insurance liabilities, but not less than one half of a standard deviation above the mean for the insurance liabilities

It is possible that a portion of an insurer's unexpired risk could relate to exposure that will be covered by reinsurance arrangements that are not yet in place. For example, an insurer with a reporting date of 31 December may protect some of its business with a reinsurance arrangement written on a "loss occurrence date" basis, and for that arrangement to have a 1 July renewal date. In this example, some of the 31 December unexpired risk is likely to relate to exposure to events that could occur after the following 1 July.

If reinsurance recoveries relating to this exposure are allowed for in the premium liabilities, it would give rise to a distorted impression of the insurer's financial position, unless allowance is also made for the cost of putting the policy in place that will generate the recoveries. The full reinsurance premium does not need to be allowed for, just that component that can be regarded as providing cover for the balance date unexpired risk. In this paper, I refer to this as "the future cost of reinsurance."

The APRA premium liability definition does not include an explicit statement confirming that the future cost of reinsurance needs to be incorporated in the premium liability assessment. However, because it can be regarded as "an expense the insurer expects to incur in settling the policies and settling the claims", it is implicitly included.

Revised AASB1023

Compared to the APRA Prudential Standard, the revised AASB1023 definition of premium liabilities appears to be less prescriptive. Under Section 9 of the revised AASB1023, premium liabilities under the Liability Adequacy Test ("LAT") are defined as:

"present value of the expected cash flows relating to future claims arising from the rights and obligations under current general insurance contracts";
and

"an additional risk margin to reflect the inherent uncertainty in the central estimate"; and

"insurers also consider whether there are any additional general insurance contracts, where the premium revenue is not recognised in the unearned premium liability, under which the insurer has a constructive obligation to settle future claims that may arise"; and

"takes into account both future cash flows under insurance contracts it has issued and the related reinsurance"

Premium Liabilities

The premium liabilities are expected to be assessed applying the same principles that are used to determine the outstanding claims liabilities. Thus, claims handling expenses are a component of the premium liabilities.

Taking into account all of the above guidance, the premium liabilities defined by AASB1023, comprise of the following components:

- Future claim payments expected to arise from the rights and obligations associated with the unexpired risks
- Claims handling expenses incurred in establishing and settling the future claim payments
- Policy administration expenses
- Future cost of reinsurance
- Future reinsurance recoveries
- Future non reinsurance recoveries
- A risk margin which reflects the inherent uncertainty of the premium liabilities

Differences in the definition of premium liabilities between the APRA Prudential Standards and revised AASB1023

The words used to describe premium liabilities in the APRA Prudential Standards and revised AASB1023 are different, however they appear to capture the same future costs and expenses.

There is one significant difference. The risk margin required by APRA is specified to give a probability of adequacy of 75% for the insurer's insurance liabilities, but not less than half of the coefficient of variation. Under the revised AASB1023, there is no requirement for a specific probability of adequacy. However, if the insurer is to adopt a risk margin where the probability of adequacy is different from that adopted for the outstanding claims provision, an explanation must be disclosed in the financial statements.

Differences in the treatment of premium liabilities between the APRA Prudential Standards and revised AASB1023

There are some differences in the treatment of premium liabilities under the each of the standards.

Premium Liabilities

- If the premium liabilities plus a risk margin is less than the unearned premium less intangible assets less deferred acquisition cost (that is, when the LAT has no effect), under the revised AASB1023 basis, the liability relating to the unexpired risk exposure recognised in the balance sheet is unearned premium less related intangible assets and less deferred acquisition cost. For APRA reporting, the premium liability inclusive of the risk margin would be recognised as the balance sheet item. Hence, APRA recognises both profits and losses, whereas the accounting standard recognises losses only.
- Under the APRA Prudential Standards, the premium liabilities with a risk margin are required to be reported by APRA class of business. Under the revised AASB1023, the LAT is required to be performed “at the level of a portfolio of contracts that are subject to broadly similar risks and are managed together as a single portfolio.”

The revised AASB1023 does not provide any guidance or definition of the terms “broadly similar risk” and “managed together as a single portfolio”. Hence which risks should be grouped for the LAT is open to interpretation by the insurers. Ultimately, it is the management and board of the insurer who will specify and explain the risk groupings on which the LAT is performed. These groupings would need to be agreed with the auditor.

The grouping of risks for LAT means deficiencies in some classes of business could be masked by surpluses from other classes, reducing some of the transparencies in the profitability of the insurer business aimed by the revised AASB1023. In addition, a change in the mix of business within a grouping may introduce volatility to the results of the LAT.

3.2. Materiality of Premium Liabilities

The combination of outstanding claims liabilities, premium liabilities and claim payments represent the total liabilities arising from a policy when a risk is attached. The materiality of the premium liabilities relative to the outstanding claims liabilities depends on:

- The reporting pattern and payment pattern of claims
For a mature long tailed business, the outstanding claims liabilities outweigh the premium liabilities due to the long reporting and payment pattern of claims. Conversely, for short tailed classes, the premium liabilities outweigh the outstanding claims liabilities due to a faster claims reporting and payment pattern.

- The earning pattern of premium or the exposure period of the policies
Multi-year policies that are paid for by way of a single premium such as Lenders Mortgage Insurance, Consumer Credit, Extended Warranty and Builders' Warranty products have significant premium liabilities in comparison to the outstanding claims liabilities. This is because the longer is the earning period of a policy, a larger portion of premium remains unearned at any point in time, and hence, the materiality of premium liabilities increases.
- The availability of premium refunds on cancellation of policies prior to expiry of the policies
In some lines of business (for example, consumer credit insurance, personal lines insurances), premium refunds are available on policy cancellations prior to expiry of the policies. These premium refunds can form a significant component of the premium liabilities.

3.3. Common Approaches

The technical guidance note prepared in 2002 by the Professional Standard on Liability Valuation Task Force suggested two approaches to determine the future claims liabilities arising from the unexpired risk (prior to the allowance of expenses and risk margin).

Premium Approach

Under this approach, the central estimate of the premium liabilities is determined by subtracting the profit margin from the unearned premium at the balance date with adjustments for future inflation and discounting.

This approach appears to be simple, with a direct link to the pricing basis and would be useful for portfolios with scant historical experience such as a new line of business, risks with low frequency and high incurred costs or classes of business with a robust pricing basis. However, this approach relies on an up to date pricing basis, as well as a claims and exposure environment that has been and continues to remain relatively stable.

As premiums are generally set in advance, there is usually a time lag between the premium rates being set and implemented. The claims and/or operating environment could have changed in the interim. Hence, the premium rates inherent in the unearned premiums may not reflect the most current view of the future expected claims experience. For example, if tort law reforms are introduced on a retrospective basis for long tailed business, the premium pricing basis determined prior to the introduction of the reforms would not have allowed for the changes in the claims experience. In this situation, there would be differences or discontinuities between

the valuation basis of the outstanding claims liabilities and that underlying the unearned premium. This will generate unexpected profits or losses at the next actuarial assessment as the unearned premium are fully earned for a portfolio of twelve month contracts and the claims arising from this premium will be reserved as outstanding claims liabilities.

Apart from the availability of an appropriate and timely pricing basis, there are also some practical issues to consider when applying this approach.

- The actual profit margin for large corporate businesses is difficult to determine. For these businesses, premium rates are normally set as guidelines and underwriters have the discretionary power to apply discounts or loadings in accordance with the particular characteristics of the underlying risk. This is further complicated where products are sold as a package where premiums and hence the profit margin for each component of the package may not be separately known.
- Based on the 2004 General Insurance Industry Survey (JP Morgan and Deloitte), premium rates (after adjustment for inflation) for commercial classes declined by around 40% during the previous downturn of the pricing cycle from 1994 to 1999. The profit margin may have been negative at the end of the cycle. In these situations, the premium rates inherent in the unearned premium less expected profit margin may not be sufficient to allow for the expected claims liabilities arising from the policies written, unless the expected profit margin is negative. Under this approach, the estimated premium liability could be understated in times of soft market conditions.

Claims Approach

The “Claims Approach” is essentially an extension of the outstanding claims liability valuation. Future expected claim payments are estimated from the historical claims experience with adjustments for future inflation and discounting. Based on the historical claims experience, the future claims liabilities arising from the unexpired risks can be estimated either by:

- (i) Applying a loss ratio to the exposure measure by each valuation unit at the balance date. The exposure measure is generally unearned premium or an estimate of the number of policies exposed (“Loss Ratio Approach”).

The “Loss Ratio Approach” is a simple method which could be applied to both short and long tailed portfolios. This is the most common approach that I have encountered to estimate the central estimate of the premium liabilities. The critical assumption under this approach is the adopted loss ratio, which is selected through a review of the historical experiences. However, similar to the “Premium Approach”, the historical loss ratios may not reflect the future claims experience due to premium rate movements, policy changes, business mix changes and other aspects. This matter is discussed in more detail in Section 4 of this paper.

- (ii) Multiplying the adopted number of claims by the adopted average claim size. The adopted assumptions generally vary by the valuation unit (“Historical Claims Approach”).

The “Historical Claims Approach” is more suitable for short tailed portfolios where the average claim size and ultimate number of claims incurred arising from a cohort of policies is known with some certainty. Under this approach, there is a flexibility to allow for seasonality in the claims experience (for example, domestic motor classes have higher claim frequency during the wet weather months). However, this approach involves a detailed analysis of the claims experience and thus requires a large volume of historical claims and exposure data, which may not be available for small or immature portfolios.

3.4. Underwriting Period Analysis

With policies written on a claims made basis, the analysis of historical claims experience can be performed by underwriting period or reporting period cohorts. If the analysis is performed on reporting periods, then a separate identification of the future claims liabilities arising from the unexpired risks fall naturally out of the valuation process.

However, the most common approach for these policies is to perform the analysis by underwriting period cohorts. In this instance, a separate identification of the future claims liabilities arising from the unexpired risks does not fall naturally out of the valuation process. An allocation is required to split this component from the estimated insurance liability for each underwriting period cohort.

3.5. Other Approaches

Other approaches are sometimes adopted to reflect the unique characteristics of the underlying risks. Some examples of the alternative methods adopted include:

- Risks with low frequency and high incurred costs generally do not have sufficient claims history and the incurred claims cost distribution can be highly skewed. The deterministic approaches suggested above do not work well. An alternative to the “Premium Approach” is stochastic modelling.
- For lines of business where premium refunds are a significant component of the premium liabilities (such as consumer credit insurance and personal lines insurance), separate projections of policy termination rates are performed to estimate future premium refunds.

4. Selection of Assumptions

This section sets out items that should be considered when determining the premium liability projection assumptions. It also discusses factors to consider when dealing with input data.

Central estimate premium liability assessment can be broken down into assessment of:

- The present value of the expected gross claims cost
- Other potential cash outflows, for example premium refunds on policy cancellation
- Future non-reinsurance recoveries
- Future reinsurance recoveries
- Any future reinsurance costs that would need to be borne to generate the reinsurance recoveries that have been allowed for
- Loadings for claims handling expenses
- Loadings for policy administration expenses

4.1. Gross Claims Cost

The most common approach I have encountered to assess the central estimate of the gross claims cost involves applying a loss ratio to a premium measure. Although the general idea of applying a loss ratio to an unearned premium value is conceptually straightforward, in practice important complicating factors require consideration.

This subsection concentrates on the factors that need to be taken into consideration for the selection of loss ratio and the premium measure.

Loss Ratio

The loss ratio is the ratio of the ultimate incurred claims costs in a period to the earned premium that relates to the same period. For this purpose, ideally the earned premium will be that which is associated with the exposure that generates the claims. Usually, for a given accident period, this would be different to the premium that earns through the accounts in the same year. This is because items such as premium adjustments and unclosed business have a timing difference between the point at which premium earns in the accounts and the exposure it relates to.

Premium Liabilities

The loss ratio is obviously a critical assumption. Appropriate assumption selection is not a purely mathematical exercise and consideration needs to be given to the:

- Input data used in determining the historical loss ratios (in particular collation of the appropriate premium to match against claims)
- Historical and future changes in claims experience and exposure

Premium Definition

Ultimately, the calculation of the central estimate of the gross claims cost proceeds as an adopted loss ratio multiplied by the unearned premium. The adopted loss ratio is determined by examining the trends in the historical loss ratios. The historical loss ratios are calculated as the incurred claims costs divided by the earned premium. Therefore, the definition of premium and its allocation to the appropriate accident period plays an important role in the analysis leading to the setting of the assumptions and in the calculation of premium liabilities. However, there is more to the definition of premium than might at first meet the eye.

The “definition” of premium means the components that make up the gross written premium (and hence, earned and unearned premium) in the ledger accounts and the policy extract file. It is important to understand how the policy extract fields used as input to the premium liability analysis, can incorporate a variety of premium components, and it is also important to understand how the ledger structure accounts for them. Some examples are:

- (i) Output tax liability
- (ii) Fire service levy
- (iii) Stamp duty

Some of these items could change over time either, because levy and duty rates change, or because the business mix might alter over time. For instance, stamp duty varies by state, so if business mix were to change by state, so would the aggregate stamp duty rate. If these items are included in the denominator of a loss ratio analysis, it can be difficult to determine whether the changes in loss ratios over time result from a change in claims experience, or a change in the proportion of premium that relates to these levies and charges. The analysis and interpretation of the experience becomes more straightforward if these items are excluded.

Historical and Future Changes in Claims and Exposure

Changes in loss ratios should reflect the historical shifts in claims experience and exposure due to changes in:

Premium Liabilities

- Claims management
- Underwriting
- Policy terms and standards (for example, changes in deductibles, scope of cover)
- Premium rates (for example, increases in premium)
- Business mix
- Reinsurance arrangements
- The external environment (for example, tort law reforms)
- The chance occurrence or non-occurrence of large claims or catastrophic events

These considerations might significantly impact on the selection of loss ratio to apply for the premium liability estimation. Hence, it is important that the impact each has had on the past experience is understood. It is also important that consideration be given to whether changes in these factors could affect experience through the run-off of the unexpired risk.

A review of the past loss ratio experience will not always be sufficient to determine the appropriate projection assumptions for premium liabilities, other factors that the Approved Actuary should consider include:

- Does the loss ratio reflect the seasonality of the underlying claims experience?
- Does the experience include a representative amount from low frequency high cost events such as catastrophes and very large claims? The central estimate should reflect the mean in the range of possible outcomes, and hence should include a proportionate allowance for low frequency high cost events.
- Related to the previous point, are the underwritten risks such that no working losses are covered? In this case, unless the portfolio is very large, it is quite unlikely that the historical experience will form an appropriate basis to formulate the projection assumptions.
- For Branches and subsidiaries, it is possible for risks to be underwritten as part of international programs, and for local underwriters to have little control over the allocated premium. In this case it is possible for the adequacy of the allocated premium to shift over time.

Unearned Premium at the Balance Date

There are a number of ways in which it is important to ensure that there is consistency between:

Premium Liabilities

- Allocation of earned premium to different accident periods and the categorisation of claims used in the loss ratio analysis. (For a policy for which 365ths earning is appropriate, this will usually involve allocating the premium evenly across the policy period, regardless of the date it is received)
- The definition of earned premium for each accident period. Sometimes this will require projecting ultimate earned premium for each accident period to allow for adjustment premium and any effect of unclosed business.
- The definition of earned premium used in the historical loss ratio analysis, and the unearned premium that the loss ratio will be applied to in order to estimate the premium liability. This will include ensuring consistency with respect to the inclusion or exclusion of amounts relating to levies and charges. It will also require a projection of an ultimate value for the 'unearned premium' measure that allows for unclosed business and premium adjustments.

The unearned premium to which the loss ratio will be applied to estimate the premium liability is effectively being used as an exposure measure. This exposure measure should include all risks relating to policies that have not expired at the balance date. This will include the unexpired risk associated with unclosed business. It will also include claims relating to exposure that will be recognised through premium adjustments at future dates that have not yet been received. In short, the unexpired risks at the balance date should include the following components:

- Premium captured in the product system that is unearned at the balance date
- Unearned unclosed business
- Unearned premium adjustments to allow for specific policy conditions (eg contractual obligations, reinstatement premium)

Though one's first inclination might be to obtain the unearned premium directly from the ledger accounts at the balance date, it is almost certain this will not capture all items needed to fully reflect the exposure that could generate premium liability claims. Direct application of the unearned premium from the ledger to the adopted loss ratio will almost certainly represent a mismatch with the analysis leading to the loss ratio assumption. This will result in an inaccurate estimate of the premium liability. This applies both to the premium liability determination for prudential reporting and AASB1023. In addition, a good understanding of the "definition" (as defined in Section 4.1) of the unearned premium and the earning pattern in which it has been calculated is also important.

Often, the more appropriate method of determining the unearned premium at the balance date is to recalculate it from the unit policy records. This captures unearned premium relating to premium amounts that have been processed to the products system, however allowance will also be required for unclosed business and future premium adjustments.

Premium recognised and unearned at the balance date

It is a requirement under the APRA Prudential Standards and the revised AASB1023 to recognise earned premium in accordance to the pattern of the incidence of risk expected under the policy. The premium recognition pattern has become more important as it now may have an impact on the published profits and losses, since the LAT is based on the comparison of the unearned premium in the ledger at the balance date to the estimated premium liabilities. It is therefore, essential to understand how premium is earned in the insurer's ledger accounts and make an assessment of whether the premium earning pattern reflects the underlying incidence of risk.

Unclosed Business - Premium Development

It is not unusual for insurers and reinsurers to have businesses written and premium received but not processed into the insurer's ledger accounts at the balance date. This is commonly referred to as "unclosed business".

Unclosed business can be a significant component of the unearned premium at the balance date. For direct insurers, the materiality of unclosed business depends on:

- The distribution structure
Businesses written via brokers and agents have a higher volume of unclosed business, since brokers can retain premium for up to ninety days after the inception of a policy.
- Premium processing lags within the insurer
- Balance date
For corporate or commercial lines of business, there is a higher volume of unclosed business for balance dates of either 30 June or 31 December and to a lesser extent at 31 March or 30 September.

For reinsurers, depending on the type of treaties written, the volume of unclosed business can be significant. The premium income for a reinsurer writing reinsurance treaties on a risk attaching basis will be a function of the premium written by the cedant over the life of the policy. At the balance date, the reinsurer is on risk for policies the cedant has not written yet. If both the reinsurance and direct policies have annual policy periods, events reinsured under the treaty could be earned up to 24 months from the balance date. When the premium liability is assessed as a function of "unearned" premium, it will be necessary for the reinsurer to allow for all expected premium associated with the policy, including the reinsured premium the direct insurer has not yet written.

If unclosed business is a significant component and sufficient historical exposure information is available, actuarial projections may be used to estimate the ultimate premium income and hence the unearned premium. However, in the corporate lines of business, the unclosed business may be quite lumpy and seasonal, and this needs to be taken into account. In these cases, the estimation of unclosed business could be determined by discussions with underwriters to obtain updated listings or estimates of unprocessed business written at the balance date.

Unearned Premium Adjustments

Certain adjustments to the unearned premium at the balance date may also be necessary due to the conditions under which the business has been written. Some of the factors that may be worthwhile considering include:

(i) Monthly renewable policies

For these policies, it is possible that no unearned premium will be carried in the accounts at the balance date. However, a premium liability in line with the APRA definition may still exist. Some examples of these types of policies include consumer credit and personal accident insurances.

(ii) Contractual obligations

The contractual obligation in a policy may include:

- Policy cancellation clause
In some instances, particularly in a co-insurance arrangement with an indefinite contract period, the arrangement may only be terminated by one party giving notice in accordance with the policy specifications. Premium liability under APRA's definition must allow for liabilities in respect of the unexpired risk to the end of the contract. Hence, the projected premium written in the notice period prior to the cancellation date should be included in the gross unearned premium to which the loss ratio is applied.
- Guaranteed renewal option
Sometimes, particularly in a soft market, a policy is offered with a guaranteed fixed rate renewal option. Renewal of the policy at the fixed rate is at the insured's discretion. In this situation, the premium liability should take into account the probability of the insured taking up the renewal option and the profitability of the premiums being offered. If the claims experience has been more favourable than that expected by the premium basis, then it may not be necessary to allow for the value of this option in estimating the premium liabilities.

(iii) Retrospectively rated policies

These policies are common in large workers' compensation policies written by direct insurers where the final premium payable is adjusted, based on the insured's claims experience in the period. In this situation, an allowance should be made for future premium receipts in the calculation of the net premium liabilities.

(iv) Reinsurance reinstatement premium

If an event occurs just prior to the balance date and the reinstatement premium clause is triggered, then an allowance for the reinstatement premium should be made in the reinsurer's unearned premium at the balance date. This allowance would depend on the probability that the insured will be paying the reinstatement premium to restore the reinsurance coverage for the remainder of the treaty period. A corresponding allowance should also be made to the insured's future reinsurance cost.

4.2. Other Future Non Expense Type Cash Outflows

Premium Refunds on Policy Cancellation

In most insurance contracts, premium refunds are available upon policy cancellation prior to the expiry of the policy. These refunds can be a material component of the premium liabilities, particularly in the personal lines and consumer credit insurances.

Premium refunds can be viewed as either refund claims or expenses that an insurer expects to incur in administering the unexpired policies at the balance date. In addition, premium refunds are an obligation under the general insurance contracts. Thus, these future cash flows should be included in the premium liability under the APRA Prudential Standards and revised AASB1023. This is the common approach I have encountered adopted by the insurance industry.

The principles applied in assessing the future premium refunds are similar to that for future claims liabilities.

- Future premium refunds are estimated by adopting assumptions on future policy termination patterns. For consumer credit policies, the projection of premium refunds is complicated by policy periods extending beyond one year, where policy termination rates may vary by policy term, duration to policy expiry, and external factors such as the economic environment (for example unemployment rates).
- Generally, no reinsurance recoveries are associated with premium refunds. However there are some non reinsurance recovery components which apply to premium refunds. These include:
 - Commission clawbacks if policies are sold through underwriting agency, brokers or dealers
 - Stamp duty rebates depending on the state which the policy is written.
- The expenses incurred with future premium refunds are also likely to be different from that incurred in handling claims. In cases where cancellation fees are charged upon policy cancellation, allowances for expenses associated with the future premium refunds may not be required or lower in the premium liability estimate.

Endorsements (Policy Alterations)

Endorsements refer to changes to the original policy terms and conditions such as changes in the insured value. These policy alterations are common in the personal lines of business.

There has been some debate whether endorsements should be included in the premium liabilities. Both the APRA Prudential Standards and revised AASB1023 provide no specific guidance.

The case can be made that no allowance for endorsements is required for the premium liability analysis. Some of the support for this includes:

- Endorsements may be specified by the insurer as generating a new policy. Therefore, future endorsements would not need to be considered as part of “the insurer’s existing policies that have not yet expired” under APRA’s definition.
- In most cases, the insurer has the discretion to reject an application for an endorsement. When this is the case, they do not represent rights and obligations under the general insurance contracts. Hence, they do not need to be allowed for in the premium liability estimates under revised AASB1023 definition.

Counter-arguments can also be made for inclusion of endorsements in the premium liability estimate. In particular if there is a history that shows it is standard business practice to accept such applications. In this case, endorsements should be allowed for in premium liability estimates.

Regardless of the points relating to the appropriate treatment of endorsements, it should be noted that, it is likely the historical claims experience and exposure measure analysed to determine the assumptions for the assessment of the central estimate premium liabilities will include premiums and claims relating to endorsements. Claims relating to endorsements will be allowed for if there is an allowance for the premium relating to them included in the unearned premium that the loss ratio is applied to.

4.3. Future Recoveries

Future recoveries include recoveries arising from third parties, GST (input tax credits and decreasing adjustments) and reinsurance.

The allowance for future GST and third party recoveries is generally expressed as a percentage of the gross liability estimate. Similar to the loss ratios, the assumptions are determined after examining the historical experience, and judging whether adjustments are required to allow for the environment in which the unexpired risk will run-off as being different from the past. The changes that might need to be allowed for include changes in the business mix compared to the mix over the period analysed, or changes to the recovery arrangements (for example, removal of “knock for knock” arrangement in domestic motor insurances).

Allowances for the future reinsurance recoveries can be made by either adopting separate gross and net loss ratios under the “Loss Ratio Approach” or a percentage of the gross premium liability. In analysing the historical net loss ratio experience, one should take into account the following factors, in addition to the factors stated in Section 4.1:

- Changes in the types of reinsurance treaties
- Changes in the retentions and limits of reinsurance treaties
- Adequacy of the reinsurance premiums due to the market cycle
- Absence or occurrence of reinsured events

In deciding the adopted net loss ratio, adjustments may also be required for possible future changes in the reinsurance arrangements and their impact on the future net claims experience.

4.4. Future Cost of Reinsurance

The APRA Prudential Standards requirement for an allowance of future reinsurance expenses in the net premium liabilities is implicit. However, the Institute of Actuaries of Australia Guidance Note GN353 states clearly that this should be included in the net premium liability. In paragraph 70, it is stated

“Where a net value is to be calculated and the reinsurance is written on an events occurring basis, it would normally be appropriate to include an allowance for future reinsurance premiums in respect of that part of the unexpired period after current reinsurance expire.”

In most cases, the reinsurance arrangements and cost for the next financial year is known at the time of the actuarial assessment. If this is not the case, then an estimate can be obtained from the insurer's reinsurance brokers. However, the determination of the future reinsurance cost to be included in the premium liability requires some other considerations and understanding of the accounting accruals to avoid double counting between the premium liabilities and other balance sheet items. These considerations include:

- Does the treaty year coincide with the financial year?
- What is the run off pattern of the unexpired risks?
- What is the payment arrangement for the reinsurance premium? Is it payable in advance or in arrears? What is the current accrual in the balance sheet? Understanding the accounting entries is important to avoid double counting in the APRA balance sheet.
- If the insurer is in the Australian Reinsurance Pool Corporation and the class of business is not on the exclusion list of the Terrorism Act, should there be an allowance for the Terrorism levy? If so, is there an accrual on the balance sheet?
- Are there special arrangements in the reinsurance treaty, for example profit commission, reinstatement premium? In the case of profit commission, is it reasonable to allow for a net of profit commission future reinsurance expense in the premium liabilities?

4.5. Claim Handling Expenses

The claim handling expenses are generally allowed for as a percentage of the projected claims liabilities. The appropriate allowance depends on the level of claims activity. This will vary over the life of the claim. It is reasonable to expect higher level of claims activity at the initial stages of a claim's life, when it is first reported. This is because the claim needs to be established on the claims administration system, a physical file needs to be created and investigations to establish the details and validity of the claim need to be organised.

For outstanding claims liabilities, the claims handling expense allows for expenses incurred in administering and settling claims that are outstanding at the balance date and establishment and settlement of IBNR claims. Due to the delayed reporting pattern of long tailed claims, one would expect the proportion of the claims expense allowance that relates to the establishment of claims to be higher for long tailed classes than for short tailed classes.

For premium liabilities, all claims are yet to be incurred and reported. Hence, the claims handling expense provision needs to allow for claims expenses incurred from the establishment to the final settlement of the claim. Therefore, in comparison to the outstanding claims liability, the claims handling expense rate should, in most circumstances, be higher for the assessment of premium liabilities.

In the actuarial assessments I have encountered, it has been rare for the claims handling expense rate adopted for premium liabilities to differ from that applied to the outstanding claims liabilities.

If claims management is contracted to an external party, then it is useful to understand the remuneration structure. For example, if the remuneration is paid in advance at the beginning of the financial year, then depending on the run-off period, the bulk of the claims handling expenses may have already been expensed. In this case the claims handling expense rate might only need to allow for a portion of the insurer's overheads.

4.6. Policy Administration Expenses

The APRA Prudential Standards explicitly require the premium liabilities to “include an amount in respect of the expenses that the insurer expects to incur in administering the policies”. The requirement under the revised AABS1023 is more implicit, where the policy administration expenses can be interpreted as future cash flows.

There have been papers written providing guidelines in regards to the type of expenses to be included for claims handling. However, there are no similar guidelines for policy administration expenses. Hence, the definition of policy administration expenses is open to subjective interpretation. Whilst the available guidance regarding what should be captured by the policy administration expense allowance is less than definitive, it is possible to perform a reasonableness check on the aggregate expense allowances made across different parts of the balance sheet. If one takes the view that a general insurer's activities can be categorised into expenses associated with:

- Business acquisition
- Claims handling
- Policy administration
- Servicing the providers of capital

Then it should be possible to allocate the total expenses into the above categories. The policy administration and claims handling expense allowances should look sensible in the light of such an allocation.

The policy administration rate (as a percentage of unearned premium) I have encountered have ranged between 1% and 8%. Other than the differences in the insurer's expense structure, the variation mainly arises from the type of expenses included and the proportion of overheads allowed in the policy administration expenses.

Premium Liabilities

Policy administration expenses should only include expenses associated with the maintenance of the unexpired risks at the balance date, such as:

- Administration of monthly premium payments
- Policy maintenance
- General enquires by policyholders

and a proportion of overheads (that is expenses associated with IT, rent, finance and accounting and general management). Expenses incurred on acquiring the business, that is policy acquisition costs and marketing expenses should be excluded.

Generally, policy administration expenses vary by class of business and depend on:

- The degree of contact with policyholders throughout the life of the policy
- Whether the policy administration is outsourced or managed internally within the company
- Whether part of the policy maintenance cost is re-couped by policy fees or policy alteration fees charged to the insured

The detailed and more technical way to estimate policy administration expenses is to perform a detailed expense allocation exercise. However, these exercises are often costly and are generally not performed or are impractical to perform them on an annual basis. In most cases, the largest component of the total expenses to be allocated is the overheads. There are various ways in which these expenses could be allocated amongst different functions, and hence the outcomes of such exercises are also highly subjective and judgemental.

Sometimes, a detailed expense analysis is not available or is out of date. One may need to adopt some approximate methods to estimate the policy administration expenses. These methods may include:

- Taking the remaining expenses of the insurer after allowing for upfront policy acquisition costs and claims handling expenses
- Making reference to the most recent pricing review with allowance for future inflation or changes in expenses structure
- Discussion with management on the appropriate policy administration expense rate to be adopted and assess the reasonableness of such advice.

5. Adequacy Assessment of Past Premium Liability Estimates

Application of the control cycle to insurance liability valuations involves comparing the projected experience based on the previous actuarial assessment with the actual experience. The results of this comparison can be fed back to assist the setting of the new valuation basis. This assessment is commonly performed as a review of the outstanding claims liabilities valuation. However to date, similar assessments on the past premium liability estimates is a rare feature in Insurance Liabilities reports.

This section compares the Institute of Actuaries of Australia (IAA) professional standards, APRA and revised AASB1023 requirements on the assessment of the adequacy of past premium liability estimates, and highlights some of the difficulties in performing such assessments for premium liabilities.

5.1. Professional Standards

The Institute of Actuaries of Australia Guidance Note GN353 sets out the guidance which is mandatory for valuations performed for the purpose of compliance with APRA Prudential Standards GPS210. Paragraph 110 states that the valuation report should contain a description of the overall change in the net central estimate. In addition these changes should be quantified and the key reasons for that change analysed. The suggested general approach of the analysis is:

Previous central estimate plus interest to new valuation date, less

Payments from prior accident periods in the inter valuation period plus interest to new valuation date

Compared with

New central estimate for prior accident periods at valuation date, plus

Separate quantification of any material impact on the new central estimate of changes to the valuation model adopted and key assumptions, plus

The impact of new claims and exposure

The general approach described above is an adequacy assessment of the outstanding claims liabilities set at the previous actuarial assessment. GPS210 sets the prudential standard for insurance liability (that is, sum of the outstanding claims liabilities and premium liabilities) valuations, but there is no specific guidance in GN353 that a similar assessment should be performed on premium liabilities.

5.2. Regulatory Requirement

Under the APRA Stage 2 reforms, the requirement for an adequacy assessment of past insurance liabilities is specified in the Financial Condition Report (“FCR”). The FCR is a document prepared by the Approved Actuary, submitted to APRA and the Board of the insurer on an annual basis. It is intended to provide an assessment of the overall financial condition of the insurer. The areas that should be covered by the FCR are set out in the APRA Guidance Note GGN310.1. Paragraph 17 of the draft APRA Guidance Note GGN310.1 states (bold emphasis by author):

*“A Financial Condition Report **must** include an assessment of the adequacy of past estimates of insurance liabilities (including both outstanding claims and premiums liabilities) against the subsequent actual claims experience. Any impacts on current estimates arising out of the review of historic estimates must be commented on.”*

This new APRA requirement differs from GN353 in the following ways:

- An assessment of adequacy is required on past insurance liability estimates.
- The assessment is on **past estimates** rather than just the estimate from the most recent actuarial assessment
- The adequacy assessment of past insurance liability estimates is required in the FCR. The previous requirement of the actual versus expected analysis is required in the Insurance Liability report.

5.3. Accounting Standards Requirement

Compared to the previous accounting standard, the disclosure requirements under the revised AASB1023 have increased significantly. The disclosure requirements for insurance contracts are separated into two components:

- Explanation of Recognised Amounts (paragraph 17.6)
- Amount, Timing and Uncertainty of Cash Flows (paragraph 17.7)

Explanation of Recognised Amounts

The aim of this component of the disclosure requirement for insurance contracts is set out in paragraph 17.6.

“An insurer shall disclose information that identifies and explains the amounts in its financial report arising from insurance contracts.”

AASB1023 further explains that to comply with paragraph 17.6, an insurer shall disclose:

“the effect of changes in assumptions used to measure insurance assets and insurance liabilities, showing separately the effect of each change that has a material effect on the financial report.”; and

“reconciliations of changes in insurance liabilities, reinsurance assets and, if any, related deferred acquisition costs.”

Amount, Timing and Uncertainty of Cash Flows

The aim of this component of the disclosure requirement for insurance contracts is set out in paragraph 17.7.

“An insurer shall disclose information that helps users to understand the amount, timing and uncertainty of future cash flows from insurance contracts.”

AASB1023 further explains that to comply with paragraph 17.7, an insurer shall disclose:

“actual claims compared with previous estimates (i.e. claims development). The disclosure about claims development shall go back to the period when the earliest material claim arose for which there is still uncertainty about the amount and timing of the claims payments, but need not to go back more than ten years. An insurer need not disclose this information for claims for which uncertainty about the amount and timing of claims payments is typically resolved within one year.”

The above paragraph appears to refer to incurred claims only. However, the aim of this disclosure requirement refers to *“future cash flows from insurance contracts”*, and hence a case can be made that the above applies to both outstanding claims and premium liabilities.

To sufficiently meet the disclosure requirements for insurance contracts under the revised AASB1023, a full reconciliation, including adequacy assessment of the insurance liabilities estimates, is required to be performed at each financial reporting period.

5.4. Adequacy Assessment of Past Estimates of Premium Liability under FCRs

The specification of an adequacy assessment of past insurance liability estimates in the FCR is quite broad. It does not specify the depth or level of details required, such as:

- Is the assessment performed on insurance liabilities, or separately for outstanding claims liabilities and premium liabilities?
- Is the adequacy assessment of the past estimates performed on a “rolling” basis?
- The type of comments required on the “impacts on current estimates arising out of the review of historic estimates”

These matters are considered below.

Is the assessment performed on insurance liabilities or separately for outstanding claims liabilities and premium liabilities?

The adequacy assessment of the past estimates can be performed on insurance liabilities or separately for outstanding claims liabilities and premium liabilities.

Insurance Liabilities

If the assessment is to be performed on the insurance liabilities, then the analysis for a typical twelve month contract would proceed as:

Previous central estimate of insurance liabilities (outstanding claims liabilities plus premium liabilities) plus interest to new valuation date (A), less

Payments from claims arising from policies with attachment dates on or before the previous valuation date in the inter valuation period plus interest to new valuation date (B)

Compared with

New central estimate of outstanding claims liabilities at the new valuation date for policies with attachment dates on and before new valuation date (C)

The comparison of A – B with C is for projected insurance liability claims cost (prior to the allowances for expenses and risk margin)

Premium Liabilities

If the valuation analysis is by underwriting period, then C is the outstanding claims liabilities for the new underwriting period since the previous actuarial assessment. However, if the valuation analysis of the outstanding claim liabilities is by accident periods, then C is the sum of the central estimate outstanding claims liabilities:

- (a) For claims occurring on or before the previous valuation date; and
- (b) For claims arising from policies with attachment dates on or before the previous valuation date and earned in the inter valuation period.

Component (b) relates to the liabilities that were premium liabilities at the previous valuation date and is a subset of the outstanding claims liabilities for the new accident period since the previous actuarial assessment. Hence, to estimate Component (b), the outstanding claims liabilities for the new accident period needs to be split between claims arising from:

- Policies with attachment dates on or before the previous valuation date and earned in the inter valuation period; and
- Policies with attachment dates after the previous valuation date and earned in the inter valuation period

This split of claims can be done in proportion to claims or exposure. As the estimation of outstanding claims liabilities are generally based on past claims experience, splitting in proportion to some claims measure would be the intuitive approach. Suitable claims measures include number of claims reported, case estimates and incurred cost. However, this requires the valuation data to include information that allows the linking of claims data with other data associated with the policy that generated the claim (for example, policy commencement date, policy expiry date, sum insured). Claim and policy unit records should be part of the Approved Actuary's data requirement under the APRA Prudential Standards introduced in June 2002. Hence, the linking of claims data to policy data should be straightforward, provided the policy number is in the claim unit records. If not, a re-specification of the claims extract may be required.

When claims experience or policy information is unavailable, splitting in proportion to some exposure measure is an alternative method. Suitable exposure measures include number of exposed policies and earned premium. This method is only suitable under a stable environment where there have been no change in the exposure, claims experience, operating environment (such as claims management and underwriting management) and external environment. If the environment in the inter valuation period had changed, some subjective adjustments will be needed to split the outstanding claims liabilities. For example, if a catastrophe occurs after the previous valuation date, splitting in proportion to some exposure measure will not be appropriate as the claims arising from the catastrophe between policies with attachment date on before the previous valuation date and earned in the inter valuation period and policies with attachment dates after the previous valuation date, are unlikely to be similarly distributed by the adopted exposure measure. The more accurate approach is to separately split the catastrophe claims by the policy attachment dates. This again would require policy information in the claims extract used in the valuation.

If the above comparison results in a surplus, it implies the previous central estimate of insurance liabilities was more than sufficient to cover the claim payments made in the inter valuation period and the central estimate of the new assessment of the remaining insurance liabilities set at the new valuation date. Conversely, if the result is a deficit, it implies the previous central estimate was insufficient. A surplus or deficit can arise as a result of any combination of the following:

- Differences between the actual and expected claims experience from either the outstanding claims and premium liability estimates
- Revisions to the valuation assumptions
- Differences between the valuation bases for the premium liabilities and outstanding claims liabilities. This will generate a release or a strain as the liability transitions from being a premium liability to an outstanding claims liability.

Under the new APRA requirements, the surpluses or deficits must be commented on. However, the revised AASB1023 disclosure requirements goes further than that of APRA's where the insurer should also disclose the effect of changes in assumptions used.

Separately for Outstanding Claims Liabilities and Premium Liabilities

The adequacy assessment of past outstanding claims liability estimates would proceed as described in GN353. The approach for premium liabilities would be the same as that set out for insurance liabilities. The main advantage for performing separate adequacy assessments for outstanding claims liabilities and premium liabilities is that information gained during the assessments can be fed back into the setting of the valuation assumptions in the current actuarial assessment. Separate analysis on the premium liabilities also allows easy identification of inconsistencies between the valuation basis of the outstanding claims liabilities and premium liabilities.

An alternative method for assessing the adequacy of past premium liability estimates is by comparing the loss ratios adopted at the previous valuation date to that at the new valuation date. This method is the more "economical" approach of performing an adequacy assessment. However, it is only a reasonableness check and does not provide any quantification of surpluses and deficits. One should also note that a fair comparison of the loss ratios between the valuation dates relies on the following:

- The claims experience arising from policies with attachment dates on and before the previous valuation date and earned in the inter valuation period is similar to those arising from policies with attachment dates after the previous valuation date and earned in the inter valuation period
- The premium in the denominator of the loss ratios has been appropriately allocated (for example, allowance for unclosed business) so the earned premium in each ratio relates to the exposure that generated the claims

Adequacy Assessment on a “Rolling” Basis?

The APRA requirement states that the assessment should be performed on “*past estimates of insurance liabilities*”. These wordings can be interpreted as the adequacy assessment on past estimates is to be performed on a “rolling” basis. This assessment basis requires a record of the estimates set at each actuarial assessment subsequent to the inception of the policies, and each subsequent re-estimate is compared to the original estimate set at the first actuarial assessment.

The APRA requirement also does not specify whether the assessments are to be performed on “inflated and discounted” or “inflated and undiscounted” or “uninflated and undiscounted” past estimates. The more intuitive approach is to use “inflated and undiscounted” past estimates in the adequacy assessments such that the analysis considers only the changes in claims experience and not distorted by changes in economic assumptions and past inflation effects.

Outstanding Claims Liabilities

Adequacy assessment on past outstanding claims liability on a “rolling” basis can be illustrated by the following diagram.

Outstanding Claims Liabilities (\$'000)				
	Reassessment at			
Valuation Date	30 June 2002	30 June 2003	30 June 2004	30 June 2005
30 June 2002	15,000	14,500	14,000	14,200

The estimate at 30 June 2003 is the sum of the claim payments made in the period between 1 July 2002 to 30 June 2003 and the outstanding claims liabilities at 30 June 2003, for claims occurred on or before 30 June 2002. This assessment is straightforward and easy to construct for outstanding claims liabilities. It can also be easily extended to such that the vertical axis is accident periods and can be illustrated by the following diagram.

Outstanding Claims Liabilities (\$'000)				
	Development Year			
Accident Year Ending	0	1	2	3
30 June 2002	8,000	7,500	7,000	7,200
30 June 2003	6,000	6,200	6,500	
30 June 2004	5,500	5,000		
30 June 2005	6,500			

For accident year ending 30 June 2003, development year 1 refers to the reassessment of the previous outstanding claims liabilities at 30 June 2004. This is the outstanding

Premium Liabilities

claims liabilities at 30 June 2004 plus the claim payments made between 1 July 2003 and 30 June 2004 for claims occurred between 1 July 2002 and 30 June 2003.

The above triangle is similar to that of a claims development triangle. Using this presentation, the progression of the outstanding claims estimates can be observed by accident period, and detailed comments can be made on the impact of the changes in assumptions. This also provides a basis to assess the uncertainties of the past estimates and aids in the estimation of risk margin appropriate for both statutory and regulatory reporting.

Premium Liabilities

Adequacy assessments on a “rolling” basis can also be performed on past premium liability estimates. However, the process is less straightforward than that of outstanding claims liabilities. Take the following example for a portfolio of twelve month contracts.

Premium Liabilities (\$'000)				
	Valuation Date			
Underwriting Year Ending	30 June 2002	30 June 2003	30 June 2004	30 June 2005
30 June 2002	2,000	2,500	2,700	2,800

The premium liabilities estimate at 30 June 2002 transitions to outstanding claims liabilities at 30 June 2003. The estimate at 30 June 2003 is the sum of the outstanding claims liability estimate at 30 June 2003 and payments made in the year ending 30 June 2003, for policies with attachment dates on or before 30 June 2002 and earned in the year ending 30 June 2003.

To estimate the outstanding claims liability estimate at 30 June 2003 for policies with attachment dates on or before 30 June 2002 and earned in the year ending 30 June 2003 would require the outstanding claims liability estimate at 30 June 2003 for accident year 2003 to be split. The split would base on some appropriate allocation methodology which has been covered in the earlier section. Hence, an adequacy assessment of the past premium liability estimates is unlikely to be exact as it relies on some allocation basis.

The first adequacy assessment of the premium liability estimate is valuable as it provides information on the sources of the movement from premium liabilities to outstanding claims liabilities and highlights any significant discontinuities or differences between the valuation bases. However, the subsequent adequacy assessments are essentially adequacy assessments of the outstanding claims estimates for a cohort of policies. The information provided in these adequacy assessments will be captured in the adequacy assessments of the outstanding claims liabilities. Hence, other than the first adequacy assessment of the premium liability estimate, the subsequent adequacy assessments have limited value. In addition, under the revised

Premium Liabilities

AASB1023, an adequacy assessment of past premium liability estimates is only needed when an unexpired risk liability exists at the previous actuarial assessment.

There is another presentation of the adequacy assessment of the past premium liability estimates that could be considered. Take the above example, the premium liability estimate at 30 June 2003 can be the sum of the reassessment of the premium liability estimate at 30 June 2003 and payments made in the year ending 30 June 2003, for policies with attachment dates on or before 30 June 2002 and earned in the year ending 30 June 2003. For multi year policies, the reassessment of premium liability estimate will be part of the insurance liability valuation. However for a portfolio of twelve month contracts, this reassessment of premium liability would not be item that is determined as part of the insurance liabilities valuation process. In addition, the valuation basis for the reassessment of the premium liability estimate needs to be as close as possible to the outstanding claims liability valuation basis to provide a fair assessment of the adequacy of past premium estimates. If this interpretation of the adequacy assessment of past premium liability estimates is extended to various underwriting periods, the following triangle would be constructed.

Premium Liabilities (\$'000)				
	Development Year			
Underwriting Year Ending	0	1	2	3
30 June 2002	2,000	2,500	2,700	2,800
30 June 2003	2,500	2,500	2,550	
30 June 2004	3,000	3,200		
30 June 2005	4,000			

Similar to the triangle of outstanding claims liability past estimates, this can form a basis to assess the uncertainties of the past premium liability estimates and aids in determining the risk margin for premium liabilities.

Insurance Liabilities

The more straightforward cohort to adopt in the adequacy assessment for the past insurance liability estimates are by balance dates. Assuming a portfolio of twelve month contracts, this can be illustrated in the diagram below:

Insurance Liabilities (\$'000)				
	Development Year			
Balance Date	0	1	2	3
30 June 2002	10,000	8,000	7,500	7,000
30 June 2003	12,000	12,500	12,800	
30 June 2004	15,000	14,000		
30 June 2005	18,000			

Premium Liabilities

The insurance liability at development year 0 for balance date 30 June 2004 is the sum of the outstanding claims liability for accidents occurred on or before 30 June 2004 and the premium liabilities at 30 June 2004.

The insurance liability at development year 1 for balance date 30 June 2004 is the sum of the outstanding claims liability at 30 June 2005 and claim payments made in the year ending 30 June 2005, for accidents occurred on or before 30 June 2004 arising from policies with attachment dates on or before 30 June 2004. If the valuation cohort of the outstanding claims liabilities is accident periods, the outstanding claims liability for the accident year 2005 needs to be split as this estimate includes all claims arising from policies with attachment dates on or before 30 June 2005. This is the similar issue encountered in the adequacy assessment of the past premium liability estimates covered in the earlier section. This approach does not provide information on the adequacy of past estimates separately for outstanding claims liability and premium liability and by valuation cohort.

Type of Comments?

The APRA requirement on the comments required for the overall change in insurance liabilities is simply worded as

“Any impacts on current estimates arising out of the review of historic estimates must be commented on.”

It does not specify the depth and type of comments required, such as whether any quantifications are required, separate comments for outstanding claims liability and premium liability estimates if separate valuations were performed, comments on key assumptions changes and etc.

This can be viewed as giving the Approved Actuary the flexibility to provide comments which he/she judged appropriate. However, the depth and type of comments required can impact the depth of the adequacy assessments of the past estimates and the value added by disclosing the comments in the published accounts. Comments which are too broad may defeat the purpose of the increased disclosure requirements under the revised AASB1023.

6. Uncertainty and Risk Margin

It is a virtual certainty that outcomes will differ from the premium liabilities central estimate. The extent of this difference is subject to uncertainty. All other things being equal (for example, size of exposure, nature of business risk), general reasoning suggests that the uncertainties associated with premium liabilities will be higher than that for outstanding claims liabilities. There are several reasons for this. For example:

- Some of the factors affecting claims outcomes, such as weather conditions, that are known for outstanding claims assessments will not be known for premium liabilities.
- For outstanding claims, there is usually more information available to help estimate the liability. The number of claims reported to date, current case reserves, and paid amounts may all help to predict ultimate claims outcomes. For premium liabilities, no such information is available.

In general, the longer the unexpired exposure period, the greater uncertainty in the estimated premium liabilities central estimate. For example, if a company writes multi-year policies, its premium liabilities would usually be subject to greater uncertainty than if the same risk was underwritten as annual policies.

Both the revised version of AASB1023 and the APRA Prudential Standards require recognition of the uncertainty by requiring a risk margin to be added to the central estimate. However, there are differences in the specific requirements of each.

6.1. Regulatory Requirements

APRA's Prudential Standards specify that the risk margins for insurance liabilities should

“relate to the inherent uncertainty in the central estimate values for outstanding claims liabilities and premium liabilities”.

Further, the risk margin should not be less than the greater of a value that is:

“determined on a basis that is intended to value the insurance liabilities of an insurer at a 75% level of sufficiency”, and

“half the standard deviation above the mean for the insurance liabilities of the insurer.”

The APRA requirement therefore relates to the sum of outstanding claims and premium liabilities, and generally requires that the central estimate plus risk margin should aim for an overall likelihood of sufficiency of 75%.

There have been two research papers published (Bateup and Reed 2003; Collings and White 2003) that aim to provide some guidance on what should generally be considered reasonable risk margins for different types of portfolios. Each paper specifically addresses risk margins on premium liabilities. The approach suggested by each paper is similar, but not exactly the same.

The Bateup & Reed paper, suggests a two stage approach to determine 'benchmark' premium liability risk margins. First determine the benchmark risk margin that would apply to an outstanding claims liability of the same magnitude. Then, apply a multiplier (1.75 for short-tailed classes, and 1.25 for long-tailed classes).

The Collings & White paper applies a multiplier to the coefficient of variation assumption that is suggested for the outstanding claims. The suggested multipliers vary by class of business.

The common thread is that each uses the outstanding claims liability risk margin assessment as the starting point and adjusts this to try to reflect the additional uncertainty that premium liability estimates are subject to.

Each paper specifies that the authors' intention is to provide an indication of the general nature of the results their own work suggested would typically apply to insurance portfolios. However, neither paper aims to provide a substitute for reasoned analysis of the circumstances that apply to individual insurers. Risk margin assessment should take into account the unique individual circumstances that will apply to each actuarial assessment, including:

- The characteristics of the business written by the insurer
- The reliability of the data available for analysis
- The existence of a relevant claims history to assist the analysis (for example, if business volumes have expanded rapidly, or a new class of business has begun to be underwritten, a relevant claims history is unlikely to be available, and the liability estimates are likely to be unavoidably less reliable than they would be in more stable circumstances)
- The models used to estimate the liability, past deviations between actual and expected experiences, and estimates of parameters uncertainty
- Uncertainty associated with the external environment

Recognising the factors that impact premium liability uncertainty, risk margin assessment appears to require a combination of statistical analysis and judgment.

The common approaches I have encountered to assess risk margins for premium liabilities are:

- Adopting the ‘indicative’ or ‘benchmark’ risk margins from the research papers; or
- Specific analysis of the uncertainty associated with outstanding claims and then using “benchmark” adjustment factors adopted from one or the other of the papers.
- Analysis that examines the past variability of loss ratios and using this as an indication of the uncertainty in the premium liability estimate.

6.2. Accounting Standards Requirements

Risk margin assessment for premium liabilities can now affect profit reporting for general purpose accounts. The mechanism by which this can happen under AASB1023 is through the Liability Adequacy Test (LAT).

Premium that has not been recognised in an insurer’s income statement is still generally recognised as an unearned premium liability. However, this is subject to a test. The test is described in AASB1023 under paragraph 9.1. The description is reproduced below:

*The adequacy of the unearned premium liability shall be assessed by considering current estimates of the present value of the expected future cash flows relating to future claims arising from the rights and obligations under current general insurance contracts. If the present value of the expected future cash flows relating to future claims arising from the rights and obligations under current general insurance contracts, **plus an additional risk margin to reflect the inherent uncertainty in the central estimate**, exceed the unearned premium liability less related intangible assets and related deferred acquisition costs, then the unearned premium liability is deficient. The entire deficiency shall be recognised in the income statement. In recognising the deficiency in the income statement the insurer shall first write-down any related intangible assets and then the related deferred acquisition costs. If an additional liability is required this shall be recognised in the balance sheet as an unexpired risk liability. The liability adequacy test for the unearned premium liability shall be performed at the level of a portfolio of contracts that are subject to broadly similar risks and are managed together as a single portfolio.¹*

The language used to describe the function of the risk margin, being “to reflect the inherent uncertainty in the central estimate,” is no different to the language used in the APRA Prudential Standards. However, in practice the value of the risk margin could differ from that reported to APRA for regulatory purposes.

¹ Paragraph 9.1 of AASB1023 compilation prepared on 23 September taking into account amendments made up to and including 15 September

AASB1023 under paragraph 9.1.1 further specifies that:

In determining the present value of the expected future cash flows relating to future claims arising from the rights and obligations under current general insurance contracts, the insurer applies sections 5 and 6 and includes an appropriate risk margin to reflect inherent uncertainty in the central estimate, as set out in paragraphs 5.1.6 to 5.1.11.

Paragraphs 5.1.6 to 5.1.11 are reproduced in Appendix A.

Paragraph 9.1.2 states:

Whilst the probability of adequacy adopted in performing the liability adequacy test may be the same or similar to the probability of adequacy adopted in determining the outstanding claims liability, this Standard does not require the same or similar probabilities of adequacy. However, the users of financial reports need to be presented with information explaining any differences in probabilities of adequacy adopted, and insurers are required to disclose the reasons for any differences in accordance with paragraph 17.8(e).

The following points seem to follow from the statements set out in AASB1023 in regards to the risk margin for premium liabilities under the LAT:

1. In establishing the risk margin, account can be taken of diversification benefits. However, diversification benefits relate to the diversification between portfolios.
2. No particular probability of adequacy that the risk margin should target is specified by the standard (this is also the case for outstanding claims)
3. A specific statement is included in the standard that permits the likelihood of adequacy targeted by the premium liability risk margin to be different to that for outstanding claims. However, the standard does not require justification of a likelihood of adequacy that is the same. Only where the likelihood of adequacy is different is justification required. Therefore, the default position would seem to be that the premium liability risk margin should target the same likelihood of adequacy as that for outstanding claims.
4. Similarly, though no specific probability of adequacy is specified, reference is made to the risk margins for regulatory purposes as “*margins that may be appropriate.*” No other particular alternative adequacy levels are specified as appropriate.
5. For the time being, the accounting standards appear to require that risk margins be set in a paradigm that has them targeting a certain (albeit unspecified) likelihood of adequacy.

At the current time, the paradigm under which risk margins are required to be determined in Australia is one in which a certain likelihood of adequacy is targeted. Internationally however, different paradigms apply. International financial reporting standards are moving towards fair value accounting. In line with this, overseas research and discussion papers tend to focus on “Market” risk margins, rather than risk margins as they are applied in Australia.

It is not uncommon for insurers in Australia to adopt the APRA risk margin (with a probability of adequacy of 75%) in their general purpose accounting provisions for outstanding claims. However, some insurers have made public declarations that their reserves have a likelihood of adequacy that is well in excess of the level required by APRA for statutory reporting.

While AASB1023 permits a different likelihood of adequacy to be targeted by the risk margin applied to outstanding claims, and the risk margin incorporated into the premium liabilities for the LAT, the difference must be disclosed together with reasons justifying the difference. Notwithstanding this, a case can be made supporting the view that drawing a distinction between the liability for events occurring before and after the balance date is arbitrary. This is most clearly seen for long tail classes, where the information available to assist estimation of the liability is usually no different for events that occurred in the short period before, and events that may happen in the short period after the balance date. If one accepts this, then it would seem to follow that the basis on which the liabilities are estimated should not differ. Notwithstanding the allowance in the accounting standards for a difference, there is intuitive appeal in setting the margin with the same likelihood of adequacy target.

In particular, for the risk margins for premium liabilities and outstanding claims liabilities to be set such that the provision for the liability has a greater or smaller chance of proving adequate to cover the claims cost that emerges for events that occurred before and after the balance date is difficult to rationalise.

Ultimately, from a statutory point of view, the basis under which premium liability risk margins are set does not appear to be the responsibility of an actuary. The management and board of the insurer will specify the criteria that premium liability risk margins should aim to meet. The auditor will have the role of ensuring the criterion is reasonable in the context of the requirements of the accounting standard, and that the calculation reasonably meets the criterion. However, it is likely that the actuary will be the one who determines the estimate of the value of the risk margin that aims to meet whatever criteria the insurer’s management board specify.

Until now, premium liability risk margins have only affected the assessment of minimum statutory capital requirements. Most insurers have capital that exceeds minimum statutory requirements by a large margin. The actuary’s assessment of risk margins required to meet statutory aims has not usually been subjected to a high degree of scrutiny.

Premium Liabilities

Before much longer, this will cease to be the case. Soon actuaries will be expected to substantiate their assessment of premium liability risk margins. It is debatable whether past practice will be regarded as sufficiently rigorous to withstand such scrutiny. If the insurance markets soften, the LAT will have a greater chance of having a practical impact on general purpose accounts, and the actuarial assessment of premium liabilities and premium liability risk margins will receive much greater prominence than they have to date. I would expect this to motivate a focus on premium liability risk margin assessment that has not been a feature of Insurance Liability assessment to date.

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References

- Australian Accounting Standards Board, July 2004, *AASB1023 General Insurance Contracts*
- Australian Accounting Standards Board, May 2005, *AASB 2005-2 Amendments to Australian Accounting Standard*
- Australian Prudential Regulation Authority, 3 May 2005, *Prudential Standard GPS 310 Audit and Actuarial Reporting and Valuation*
- Australian Prudential Regulation Authority, 3 May 2005, *Guidance Note GGN 310.1 Financial Condition Report*
- Australian Prudential Regulation Authority, July 2002, *Guidance Note GGN 210.1 Actuarial Opinions and Reports on General Insurance Liabilities*
- Australian Prudential Regulation Authority, July 2002, *Prudential Standards GPS 210*
- Bateup R, Reed I, November 2001, *Research and Data Analysis Relevant to the Development of Standards and Guidelines on Liability Valuation for General Insurance*, Institute of Actuaries of Australia
- Blanchard R, Fall 2000, *Considerations in the Calculation of Premium Deficiency Reserves (Under U.S. accounting rules)*, Casualty Actuarial Society
- CAS Task Force on Fair Value Liabilities, *White paper on Fair Valuing Property/Casualty Insurance Liabilities*
- Cantin C, Trahan P, May 1999, *Study Note on the Actuarial Evaluation of Premium Liabilities*
- Collins E, Hu S, November 2003, *Practical Considerations in Valuing Premium Liabilities*, Institute of Actuaries of Australia XIV General Insurance Seminar 2003
- Collings S, White G, November 2001, *APRA Risk Margin Analysis*, Institute of Actuaries of Australia XIII General Insurance Seminar 2001
- JP Morgan, Deloitte, October 2004, *2004 General Insurance Industry Survey*, JP Morgan Asia Pacific Equity Research
- Professional Standard on Liability Valuation Task Force, *Valuations under the Insurance Act – Technical Guidance Notes*, Institute of Actuaries of Australia
- The Institute of Actuaries of Australia, December 2002, *Guidance Note 353 Evaluation of General Insurance Technical Liabilities*