Actuaries Institute.

Technical Paper: Claims Reserves - Insurance in Superannuation

October 2023

Claims Reserving - Insurance in Superannuation

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1. Purpose

The purpose of the Technical Paper is to inform Members about some of the current approaches and possible considerations for advice provided to insurers and superannuation Fund trustees on:

- Group insurance pricing; and
- Best estimate reserves for superannuation Funds.

This includes information on some of the more commonly used methods to determine claims reserves covering claims incurred but not reported (building on the IBNR Information Note) and disabled lives in the course of payment. A provision for closed claims that are reopened and claims assessment expenses may also be included in the final reserve.

While the main focus of this Technical Paper is on the determination of best estimate reserves for insured benefits inside superannuation, especially in its application to pricing, it also explores:

- situations and scenarios where methodologies and/or assumptions may need to be (re)assessed for appropriateness, and where needed, adjustments may be considered; and
- data quality considerations.

The Technical Paper does not address valuations which are dealt with by a Professional Standard or Practice Guideline of the Institute.

1.1 Status of Technical Paper

This Technical Paper:

- has been prepared by the Insurance in Superannuation Working Group, which reports to the Superannuation and Investments Practice Committee and the Life Insurance Practice Committee of the Institute;
- has been approved by the two Practice Committees;
- is not a Professional Standard or Practice Guideline and it is not mandatory;
- does not constitute legal advice. Any interpretation or commentary within the Technical Paper regarding specific legislative or regulatory requirements reflects the expectations of the Institute but does not guarantee compliance under applicable legislation or regulations. Accordingly, Members should seek clarification from the relevant regulator and/or seek legal advice in the event they are unsure or require specific guidance regarding their legal or regulatory obligations.

At times, it may be beneficial to seek input from other actuaries or relevant experts (e.g. claims team), particularly during structural shifts (e.g. legislative), when considering Best Estimate reserves.

References to legislation and regulatory requirements are current at the date of the Technical Paper. Members should check that there have been no subsequent changes.

For superannuation Funds that self insure, references to the insurer may not be relevant and

can be replaced by references to the RSE Licensee.

This is the first version.

Feedback from Members on this Technical Paper is encouraged and should be forwarded to the Insurance in Superannuation Working Group through ppd@actuaries.asn.au

1.2 Definitions

The following definitions have been adopted for the purposes of this Technical Paper to remove the ambiguity associated with the various interpretations and uses of these terms in the industry. Insurers and superannuation Funds may adopt different definitions so comments in this Technical Paper may need to be converted to the lexicon adopted by an individual insurer or superannuation Fund.

Best Estimate means methodology, measures, assumptions and judgements that:

- reflect anticipated experience having regard to the distribution of outcomes;
- are made having regard to relevant (past and current) information including statistics;
- are neither deliberately overstated nor deliberately understated; and
- do not contain adjustments to reflect a desired outcome.

Best Estimate Claims Reserves means the sum of the Best Estimate IBNR Claims reserve, DLR and RBNA Claims reserve and may include a provision for Re-opened Claims, Recurrent Claims and claims management expenses.

DLR (**Disabled Lives Reserve)**, means the reserve held to cover the insurer's liability to make further payments to open IP claims. Allowance may be made in the DLR for claims management expenses, Recurrent Claims and Re-opened Claims.

Fund means a registerable superannuation entity (RSE) under the SIS Act.

Fund Member means a member of a superannuation Fund.

GLM (Generalised Linear Model) means a form of model that allows a linear relationship between the predictor (e.g., y) with a set of response variables (e.g., x1, x 2…). The linear relationship is established through fitting many sets of actual data points of y and x1, x2…, with the error term (i.e., a balancing term to establish the linear relationship) having its own distribution.

IBNR Claims (**Incurred But Not Reported Claims)** means claims that have been incurred but not yet reported to the entity.

IBNR Claims Reserve means the liability held for the future payment of IBNR Claims. This may include a component to cover future claims assessment and management expenses of the IBNR Claims.

IBNR Information Note means the Information Note issued in December 2014 by the Institute titled "IN IBNR (December 2014)". This is available on the Institute's website.

Institute is the Institute of Actuaries of Australia or Actuaries Institute.

IP (Income Protection) cover or IP insurance means cover providing an income benefit for

a disabled Fund Member where the benefit is determined in part by the pre disability income of the Fund Member. This is also referred to as “disability income”, “group disability income”, “salary continuance insurance” or “group salary continuance insurance”.

LRS 750 is an APRA life company reporting standard covering Claims and Disputes.

Member means a member of the Institute.

PMIF means the Treasury Laws Amendment (Putting Members’ Interests First) Act 2019

PYS means the Treasury Laws Amendment (Protecting Your Superannuation Package) Act 2019

Pending Claims: See the definition of RBNA Claims below.

RBNA Claims (Reported But Not Admitted Claims) means a claim reported to the insurer and not yet admitted. They may also be referred to as Pending Claims**.**

RBNA Claims Reserve means the liability held for the future payment of RBNA Claims.

Received Claim[1] means a claim where the claimant was eligible for cover and all the initial information has been received by the insurer to allow it to commence the assessment of the claim.

Recurrent Claim means an IP claim that is a continuation of a previously closed IP claim under the terms of the IP insurance policy.

Re-opened Claim[2] means a claim that was previously declined by the insurer and is subsequently re-opened, typically because new or different medical evidence is presented.

Reported Claims means claims reported to the insurer or if no insurer, the superannuation Fund.

Reserve means group insurance claim reserves for pricing and superannuation advice purposes.

SIS Act means the Superannuation Industry (Supervision) Act 1993

SPS 250 is the APRA prudential standard SPS 250 Insurance in Superannuation

TPD means cover for total and permanent disablement as defined in the insurance policy or Fund’s trust deed.

Trustee means the RSE licensee in relation to a superannuation Fund.

Valuation(s) means the process of estimating insurance liabilities.

YFYS means the changes made to the SIS Act and other laws by the Treasury Laws

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1 Date definition used for pricing purposes which may be different to APRA Life Reporting Standards 750

[2] Date definition used for pricing purposes which may be different to APRA Life Reporting Standards 750

Amendment (Your Future, Your Super) Bill 2021 and associated Bills, together with the regulations under those laws.

Reserves held in respect of insurance in superannuation for incurred claims are:

- IBNR Claims reserve;
- DLR;
- RBNA Claims reserve.

A provision for Re-opened Claims, Recurrent Claims and claims management expenses may also be included in such reserves.

2. Background

This Technical Paper should be read in conjunction with the IBNR Information Note.

This discusses IBNR Claims reserving, detailing a range of techniques and methods used in setting IBNR Claims reserve. It also includes consideration of the various strengths and weaknesses of each method used to determine IBNR Claims Reserves.

2.1 Reserves

For group insurance, the IBNR Claims Reserves and DLRs are often a large component of estimated past claim costs.

RBNA Claims Reserves are an important component of the overall reserve but are generally becoming less significant (fewer pending claims) as trustees and insurers have worked to simplify claims assessment processes through technological advancement and implementation of industry guidelines on processing times.

IBNR Claims impact all benefits – Death, Terminal Illness, TPD and IP.

Unlike Death and TPD, where lump sum benefits are paid, IP is paid as an income stream while the Fund Member is disabled and unable to work, up to a maximum benefit period or age. Where income streams are paid, a DLR is required. Many Funds provide members with a basic default IP benefit with either a 2 year or 5 year benefit period, often providing upgrades to longer term benefit periods subject to meeting underwriting requirements.

IBNR Claims Reserves are more material for TPD (and to a lesser extent, IP) given longer average reporting delays due in part to the high threshold of disablement. In addition to changes in economic conditions such as interest rates and inflation, these reserves can be distorted and/or changed as a result of:

- Changes in membership demographics;
- Increasing lawyer involvement;
- The impact of legislative changes such as Workers' Compensation, Centrelink, PYS, PMIF and YFYS;

- Change in Trustee and/or Insurer claim's philosophy;
- General changes to the level of the awareness of insurance amongst Fund Members;
- Systems or other changes impacting reporting or processing of claims; and
- Accelerating number of Fund mergers impacting the profile of the insured membership.

For IP, the DLR is significant particularly for longer term benefit periods. It also forms part of the IBNR Claims Reserve calculation when determining ultimate claims costs. The DLR may also be subject to distortion and change, for example due to:

- Changes in the economic environment affecting employment and/or return to work sentiment;
- The impact of legislative changes affecting disability income benefits calculation (e.g., workers compensation, Centrelink, salary related etc.);
- Changes in the insurer's claims management systems and resources, rehabilitation programs or other changes impacting periodic assessment of ongoing open claims; and
- Societal changes in attitude to disability.

3. Scope

This Technical Paper applies to insured benefits inside superannuation.

The cover provided by Funds is typically Death, Terminal Illness TPD and IP.

This Technical Paper does not cover:

- valuations that are undertaken in accordance with a Professional Standard or Practice Guideline of the Institute);
- individual insurance contracts;
- tax considerations;
- capital considerations or stress margins; or
- liabilities or reserves other than DLR, RBNA Claims Reserve and IBNR Claims Reserves.

4. Relevant legislation, regulations and regulator practice guides and Institute guidance

The December 2014 IBNR Information Note lists the APRA Prudential Standards which specifically mention IBNRs. However, determination of insurance reserves is implicit in a range of other areas of actuarial practice, APRA Prudential Standards, regulations and associated practice guides. Some of the key standards and regulations are listed in this section.

The following list is a point in time summary and is not necessarily a complete list. Members may consider the latest regulatory practice guides, regulations and legislative requirements at the time they are conducting their analysis.

4.1 Legislation

- **Life Act**

Life Act sets out the role of the Appointed Actuary, in particular Section 98 (1) requires that:

The appointed actuary of a life company must draw to the attention of the company, or of the directors or an officer of the company, any matter that comes to the attention of the actuary and that the actuary thinks requires action to be taken by the company or its directors:

a) to avoid a contravention of this Act or the Financial Sector (Collection of Data) Act 2001; or

b) to avoid prejudice to the interests of the owners of policies issued by the company.

- **SIS Act**

The SIS Act is the pillar of the superannuation industry, setting the legal framework for most of the matters that are superannuation related, including insurance inside superannuation.

In particular Section 52 states trustee's overriding obligation to perform its duties in the best financial interests of the beneficiaries (Section 52(2)) Fund[3], including determining appropriate insurance arrangements and ensuring that premiums do not inappropriately erode the retirement income of Fund Members (Section 52(7)).

- **PYS (from 1 July 2019) and PMIF (from 1 April 2020) Changes**

These changes to the SIS Act include significant changes to the terms and conditions attaching to insured benefits. They set out:

- contribution (PYS) triggers for cover to cease, and
- age and account balance (PMIF) triggers for cover to commence. However, PMIF does not apply in many situations including for Funds that have a Dangerous Occupation exception.

The changes allow members to override these triggers by opting into cover (PMIF) or remaining covered (PYS). "Opt In" in relation to cover refers to the situation where a Fund Member who would not otherwise have been provided with insurance cover nevertheless chooses cover offered by the Fund or chooses to continue cover.

- **YFYS Changes**

YFYS, amongst other changes, introduced the concept of a "stapled fund", to reduce the accumulation of multiple Funds and multiple insurance cover as Fund Members change employment. Fund Members remain in their first Fund (existing Fund for current Fund Members) unless they decide to change Funds. These changes removed the link between

[3] Ref: SIS Act Section 52(2), (7) and (9)

automatic cover and change of employment. Together with PMIF and PYS changes YFYS has added complexity to insurance arrangements in superannuation and the cost of providing cover (reflected in premium rates that may be higher than they otherwise may have been).

4.2 Regulation and Regulatory Practice Guides

- **AASB 17 Insurance Contracts**

This accounting standard covers the determination of policy liabilities for life insurers, including best estimate assumptions such as claim assumptions.

- **CPS 320 Actuarial and Related Matters and associated CPG 320**

These cover the Member's role as Appointed Actuary (and other actuaries subject to prudential requirements) in advising life insurers on policy liabilities, pricing and reinsurance and giving appropriate consideration to the protection of policyholder interests.

- **SPS 160 Defined Benefit Matters (paragraph 36 and 37) and associated SPG 160 and SRS 160**

These cover the trustee's role in setting self-insurance reserves for death and disability benefits including "ongoing actuarial oversight of the reserves and self-insurance arrangement via, at a minimum, the regular investigation required under paragraph 14. The actuarial review must provide sufficient information about the maintenance of adequate insurance reserves or other arrangements for funding of self-insured benefits. The actuarial review must also provide sufficient information on the self-insurance arrangements to demonstrate the extent and adequacy of the actuarial oversight undertaken on these arrangements."

- **SPS 515 (Strategic Planning and Member Outcomes)[4]**

Section 14 of SPS 515 requires the trustee, on an annual basis, to review its performance in achieving its strategic objectives (business performance review) and use the results of the review to make improvements to its business operations. Section 15 goes on to state that this review must have regard to (amongst other things), the outcomes achieved for different cohorts of beneficiaries (such that all beneficiaries are covered) against objective internal and external benchmarks.

As such, in giving advice to superannuation Fund trustees, the Member may assess claims experience and pricing at cohort level and therefore, the appropriate allowance for insurance reserves (including IBNR reserves) at cohort level.

[4] Effective January 2020

- **SPG 516 (Business Performance Review)[5]**

SPG 516 provides further details on the member outcomes assessment and the selection of Fund Member cohorts.

- **SPS 250 (APRA)**

SPS 250 and SPG 250 (Insurance in Superannuation)[6] provide further details regarding the insurance covenants in Section 52(7) of the SIS Act. They also set out minimum data requirements for Funds, including the requirements for data to be available in key cohorts such as by age, occupations and cover status (i.e. active vs. inactive).

4.3 Institute guidance

The Institute has issued the following Discussion Notes/Technical Papers which may be relevant for the Member:

- September 2021 Technical Paper "Analysing Disability Income Experience and Setting Best Estimate Assumptions", September 2021.
- Information Note "Framework for setting life insurance best estimate assumptions" which was issued in 2017 and is currently in draft form.
- Practice Guideline 499.10 Exposure Draft Self Insurance Arrangements and Prudential Standards SPS 160, August 2023.

5. Relevant industry studies

5.1 ASIC Report 633 Holes in the safety net: A review of TPD insurance claims

This report (October 2019) raised concerns about some aspects of TPD product design and claim processing and assessment, including Activities of Daily Living test. As a result, some superannuation Funds have modified their total and permanent disablement definitions. This is an example of the circumstances when the Member may need to make appropriate adjustments to the historical data used to determine reserves going forward (particularly for pricing purposes) to reflect changes in product design.

5.2 ASIC Report 675 Default insurance in superannuation: Member value for money

This report (December 2020) explores the measurement of 'value for money' that Fund Members receive from default insurance offered through superannuation. It reflects data collected from 12 trustees covering 49% of member accounts in APRA-regulated superannuation Funds at 30 June 2019, including claims notified, admitted, paid and IBNR Claims Reserves, all broken down by product.

The report discussed determination of claim run-off patterns used in making allowances for

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[5] November 2019
[6] November 2021

IBNR Reserves. In particular, it presents on pages 58 and 59, the “estimated cumulative share of claims by length of notification delay” across the Funds surveyed.

5.3 ASIC Report 696 TPD insurance: Progress made but gaps remain

This report (August 2021) provided an update on progress by insurers in reviewing TPD definitions and improving insurance data and claim processes.

5.4 ASIC Rep 760 - Industry progress on delivering better outcomes for members

This report (March 2023) examined progress by superannuation trustees to improve their arrangements for life insurance in superannuation. These improvements respond to issues identified in ASIC’s public communications on life insurance in superannuation since 2019 and recent regulatory reforms.

6. Models

Common IBNR Claims reserving methods or models used in the group insurance market are as follows. This list is not exhaustive and a broader list is included in IBNR Information Note.

- Chain Ladder or Adjusted Chain Ladder Methods

Please see Section 7.4 Chain Ladder Method of the IBNR Information Note for the technical details.

- Bornhuetter-Ferguson Method

Please see Section 7.5 Bornhuetter-Ferguson Method of the IBNR Information Note for technical details.

- Additive Method

Please see Section 7.6 Additive Method of the IBNR Information Note for technical details.

- GLMs

As insurers and Funds have collected more granular data, and with improved data collection practices, split by more cohorts or dimensions, the use of GLMs in group insurance predictive modelling has gained momentum. Often, they use the Fund’s own experience or the broader experience of a portfolio of Funds to set reserves. GLMs allow more response variables (e.g., reporting lag, gender, claims cause etc.) to explain future events or outcomes (e.g., ultimate claims) than the other methods listed above. This is discussed further in the April 2017 Information Note on setting life insurance best estimate assumptions Appendix B – Analytical tools and technique.

Common models used in assessing the DLR include:

- The ADI 2007-11 GLM framework (released in 2015) contains the first Australian individual retail industry standard disability table published in 20 years, since the IAD 89-93 table was issued. This table was updated by the ADI 2014-2018 table which was released in 2020.
- IAD 89-93 GLM framework developed by the Institute based on the Australian individual disability income experience for this period. Termination rates are based on calibration after year 3 to a percentage of the US CID IAD 89-93 A85 termination rate tables, both for

the shape and sub-standard mortality adjustments. These US tables had longer experience than the Australian data.

- Insurer's or Fund's own experience models may be more appropriate for insured benefits inside superannuation, where there is credible data and sufficient experience.

For group superannuation reserves, the first 2 termination rate parameter sets are likely to require significant adjustment as they are based on individual disability income experience where the termination rate shape may differ markedly from the experience in group superannuation.

Section 9 set's out a more detailed discussion on setting parameters and calibration of models using experience data.

A more detailed discussion of insurance claim reserve methodologies is set out in Section 9.

7. Considerations in setting parameters and calibration

7.1 Claim development period (IBNR only)

This is the number of years of past claims experience data to be taken into the model used to develop IBNR claims number/amounts and assumed future claims rates. It is one of the major decisions in setting up the model and determines the maximum development horizon.

In determining the appropriate claim development horizon, the Member may consider the following:

- SPS 250 requires an RSE licensee to maintain or have access to records of at least five years' duration in relation to its claims experience for each RSE within its business operations
- Ideally sufficient experience is available to provide a complete runoff for some (earlier) event periods. The claim development horizon will vary between Funds and will depend on the availability of longer historical data e.g., 10 years of historical data may be sufficient to have a more complete visibility on runoff pattern, especially for TPD, but may not be available and/or data quality may be mixed
- Any known events that would render some past years' data less relevant as listed in the IBNR Information Note. Additional circumstances and/or changes that have had an impact on reporting patterns include:
    - The introduction of new benefits or adjusted definitions such as Terminal Illness benefits moving from 12 months to 24 months life expectancy
    - Changes in member awareness (e.g., lawyer involvement from 2012 and disclosure associated with legislative changes)
    - Legislative changes (e.g., PYS and the removal of inactive accounts)
    - Changes to claims reporting processes to the Fund and/or to the insurer
    - Pandemics such as the emergence of COVID-19 since 2020

Where such events have occurred, the Member may make appropriate adjustments to the relevant historical data so that it can be used to make more accurate estimates of future

claims experience. These adjustments could, for example when determining pricing reserves, include:

- The Member may adopt methods to weight different historical periods when deriving the development pattern due to changes in factors such as reporting processes or Fund Member awareness, that may potentially lead to different reporting patterns.
- Where there are known one-off effects such as anti-selection, the Member may adopt methods to remove the impact of these claims before calculating IBNR reserves.
- If there have been changes in default cover levels for a Fund, the Member may adjust the claim amounts for all past claims to be the amounts that would have been paid if the current (or proposed new) default cover scale had applied in the past.

7.2 Analysis by claim count, claim amount and others (IBNR only)

When deriving or assessing the speed and development pattern of claim reporting over time, either claim counts (i.e., number of claims) or claim amounts (i.e., sum insured paid) may be used. There will be situations where it is more appropriate to use one over the other such as where:

- there have been significant changes to benefit levels
- a few large claim payments distort the pattern
- there is evidence that size is a driver of reporting patterns.

Hybrid approaches may also be adopted, such as deriving the assumed claim development pattern based on claim amounts but adjusting particularly large or small claims downwards and upwards respectively, especially where there are observed spikes in payments.

It may also be appropriate to derive claim development patterns on both claim count and claim amounts basis. This is because a comparison of the results from the two approaches may provide additional insights into the characteristics or dynamics of the risk pool concerned. For example, if actual paid claim sizes vary materially for earlier vs. later reported claims, then the Member may consider calculating IBNR Claims reserve based on average claim sizes that vary by notification delay.

7.3 Analysis by Cohort

Where Funds are sufficiently large and data segmentation is available (promoted by APRA's latest data collection requirements, please see Section 8), further assessment may be undertaken by cohorts that influence reporting (IBNR) patterns or claim duration (DLR). These include:

- Age or age bands
- Cause of claim, can be based on ICD codes or major grouping such as accident vs. sickness (sub-groupings such as cancer, mental health illness, heart disease etc.)
- Occupation category, typical ones considered are professional, white collar, manual (blue and light blue) and hazardous
- Gender

- Reporting delays or benefit durations, and by capturing analysis by reporting or benefit durations may drive the ability to manage a claim and the return to work process
- Default cover vs. non-default cover, where non-default cover levels are typically much higher than the default cover levels and claims may be reported faster for non-default cover due to the relative cover awareness of these Fund Members

7.4 Tail considerations (IBNR only)

When there are insufficient past years of development data, tail extension methods may be considered. For example, where there are only 5 years of historical reporting data, the tail can be extended using the experience of another Fund or the insurer's broader group insurance business with similar membership or risk characteristics.

Even when data is available, late reported claims could often be sparse and volatile. It may still be appropriate to use tail extension methods such as assuming an exponential runoff of the late reported claims after a certain development period (e.g., after 7 years from the date of incidence).

7.5 Termination Rates and calibration of the model (DLR only)

Termination Rates represent the probability of claimants recovering from the sickness or accident and returning to work, or dying, at which point the monthly benefit payments cease. Termination rates are typically based on one of the models mentioned in Section 6 calibrated to a portfolio of Funds or the Fund's experience.

Model selection is important as, without adjustment, it pre-sets the shape and risk factors of the termination rates, driving DLR projections. Where there is sufficient data and/or unique design situations, the model may be calibrated to actual experience by applying factors to the risk dimensions or termination rates. Some calibration considerations in model selection are as follows:

- How many dimensions are necessary (and statistically credible) for calibration to actual experience?
  - Basic models have a limited number of dimensions, such as age, gender and claims duration
  - The ADI models discussed above have additional dimensions such as claim cause.
- What are the most statistically significant dimensions?
  - Common hypotheses testing methods may be used such as Pearson's correlation coefficient
  - The Member may test dimensions in isolation or in combination e.g., age standalone vs. age & claim cause
- If none of the existing industry parameter sets (IAD and ADI) have the necessary flexibility for the risk dimensions that are statistically significant for the Fund or portfolio in question, then a "free form" GLM may be used and calibrated based on a portfolio of Funds or the Fund's own experience.

Where an insurer's past experience is not fully available to calibrate the chosen DLR model

for a particular Fund or where data is not sufficient or credible, a portfolio-based approach may be used. This may involve using the experience of other similar Funds or broader pool to calibrate a suitable DLR model.

At times, it may be necessary to consider using a hybrid approach of using the Fund's own experience, supplemented by the portfolio experience and adjusted for the Fund's product features if required. For example, this approach may be adopted to develop the DLR model for claim durations greater than 2 years, where the Fund has little claims experience developed beyond 2 years' duration.

7.6 Pre-Disability Income, Offsets and Partial return to Work

IP designs in group superannuation insurance are generally based on indemnity cover. This is designed to ensure that the benefit paid is related to the Fund Member's financial loss.

The headline IP benefit may be expressed as a dollar amount or a fixed proportion of Fund Member's salary.

The following three adjustments mean that the average IP benefit paid may be less than the gross (or headline) IP benefit.

Pre-Disability income (PDI)

The cash component of Income Protection benefits provided through superannuation Funds is based on, or capped at, a percentage of salary (typically 75% of pre-disability income) so that the claim is restricted to an amount that is related to the Fund Member's income prior to becoming disabled.

The monthly benefit payable on claim may be capped where the headline monthly benefit is a dollar amount based for example on a number of units of a benefit scale. For example, the claimant may have IP cover of $2,000 per month and pre-disability income of $2,500 per month, so the benefit paid is capped at 75% of $2,500 or $1,875 per month, a reduction of $125 per month. This reduction can only be determined by the Trustee and insurer at the claim stage once the claimant's pre-disability income is known, although the Fund Member is able to calculate this at any time.

Offsets for other income received because of the disability

IP benefits are adjusted so that a member does not earn income from their disablement that in total exceeds a cap, typically 75% of pre-disability income. These offsets vary by Fund and can include disability income from one or more of:

- sick leave
- Centrelink
- accident compensation scheme benefits
- workers' compensation benefits

There may be a relationship between the cap and termination rates, where it is generally observed that higher termination rates are associated with lower caps. This may be attributed to the lower benefit providing a greater financial incentive to return to work.

Partial Return to Work

Income from partial return to work will result in a reduction in the IP benefit, typically a proportional reduction.

The average benefit offset ratio is a key reserving assumption when determining the DLR. Actuaries may consider the following commonly used method of determining this based on the actual past experience of income protection payments where:

- Payment Ratio = Actual Paid / Implied to be Paid based on duration on Claim, adjusted for indexation where:

Actual Paid = actual physical settlement/claim payments made to claimant

Implied to be Paid based on duration on Claim = monthly benefit (usually after PDI adjustments) x duration (in months) from (claim event date + waiting period) to last benefit Paid To date

- Offset Ratio = 1- Payment Ratio

This ratio may include the impact of recurrent claims on the implied duration. These ratios may be set at individual level or based on cohorts such as duration or benefit period.

7.7 Claims Status

The following sections use a set of commonly adopted definitions. However Members may consider adopting other categorisation where applicable. A claim that is not re-opened or recurrent is treated as a new claim by default under this categorisation.

7.8 Re-opened Claims

Claims may be re-opened for the following reasons:

- Further medical and other information emerging that is relevant to assessment of the claim, for example a deterioration in the claimant's medical condition since the claim was closed;
- Disputed claims decisions that may result in a payment to the claimant, including litigation or AFCA[7].

When a claim is reopened, the date of event and date reported are typically unchanged, though this may vary by insurer and Fund. Where the dates are unchanged the cost of reopened claims may be automatically captured by the methodology used in the calculation of the IBNR Claims Reserve, particularly where past patterns reflect the likely future experience.

Otherwise, an adjustment (up or down) to the reserve may be required. This additional reserve may be included in the RBNA Claims Reserve or for IP the DLR.

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[7] Australian Financial Complaints Authority

In situations where a Fund's historical claims data doesn't have sufficient information on re-opened claims, then portfolio or industry averages may be considered, coupled with actuarial judgement and speaking with the claims department for further insights.

7.9 Recurrent claims (IP)

Recurrent claims are IP claims that have been accepted, paid and closed and are subsequently opened again with the same cause of claim (for example due to a failed return to work attempt). There is usually a limited timeframe of closure (typically 6 months) for this to occur. If outside of the limited timeframe, this is treated as a new claim.

The cost of recurrent claims may be captured in the DLR through the termination assumptions, where a Fund's own experience forms the basis for the termination rates, or the standard tables are based on experience that includes the impact of recurrent claims. In this case no additional provision may be needed.

7.10 Closed IP Claims still recorded as Open Claims

The impact of having a closed IP claim shown in the data as being open is large, as it overstates both the DLR and the IBNR Reserve.

Variations in claims management quality may make historical assumptions inappropriate to use for the future without adjustment. For example, it may be that claims management resources were reduced for a period, leading to "rushed" and/or delayed claim decisions. This may have resulted in variations to acceptance rates, claim development factors, and/or termination rates, that may not be replicated in future periods.

For open income protection claims that have closed, an analysis of the period from "date of last payment" to "date paid to", by claimant, may reveal variations over time, indicating a possible change in claims management quality / timeliness. For example, if that period is lengthening due to larger than expected delays in payments to claimants, which will have an impact on termination rates. Therefore, appropriate adjustments may need to be made to historical termination rates if they are to be used to make assumptions about future claims development.

7.11 Pending Claims or RBNA and Decline Rates

Pending Claims, otherwise known as Reported But Not yet Accepted (RBNA) claims are claims that have been reported to the insurer and are pending or awaiting a decision from the claims assessor[8]. The RBNA reserve is set by assuming that an appropriate proportion of such claims will ultimately be declined and the remainder will be admitted i.e. (1- assumed declined rate) multiplied by the amount of pending claims. For this reason, it is necessary to determine the assumed decline rate of pending claims.

[8] APRA's LRS 750 provides definitions for Notified, Received, Undetermined claims.

They are more commonly considered and calculated separately to IBNR Claims Reserves and DLRs, generally by assuming that an appropriate proportion of RBNA claims will ultimately be admitted by measuring historical decline rates.

The decline rate assumption may be set using historical data. This may involve:

- using actual declined claims, divided by total number of declined and accepted claims in a given incurred period; or
- considering the change of status of pending claims over a period such as the latest year or recent years, paying careful attention to any bulk or back-filling of status change dates.

Where credible data is available it may be informative to observe trends in decline rates over time and reflect this in the final assumption.

Decline rates may be calculated based on number of claims or amounts.

Decline rates may also vary by reporting delay and a duration-based assumption may be appropriate, and the calculations above may be adjusted to pick up this feature of the experience.

The data selection period used in setting the decline rate calculation is an important decision and needs to reflect the prevailing practice of the insurer in assessing claims, as well as the latest definitions and current legislation/regulatory requirements in claims handling.

7.12 Claims management expenses

As indicated in the definitions in Section 1, a provision for Re-opened Claims, Recurrent Claims and claims management expenses may also be included in the Best Estimate Reserve.

The detailed process for analysing past claims management expenses and appropriately adjusting the results for use in determining claims management expense provisions in best estimate claim reserves is beyond the scope of this Technical Paper. However, in that process, Members may consider some of the categories of expense that are unique to claims management, in addition to normal operational expenses of running a life insurance business. These include internal claims management and administration staff expenses with overheads and broader claims management expenses. The latter includes:

- Medical expenses associated with claims assessment, such as medical reports, examination with medical specialists' reports
- Other reasonable claim investigation expenses
- Rehabilitation expenses
- Claims litigation expenses
- Legal expenses associated with both disputed and litigated claims, including those referred to AFCA.

In all cases, this includes the relevant expenses related to both internal resources and external providers.

There is an increasing prevalence in the use of rehabilitation services to support members

during waiting periods, as well as for IP, in return to work initiatives.

These additional claims management expenses may be expected to reduce overall claim costs. To the extent the past claims experience does not reflect the additional claims management expenses it may be necessary to make appropriate adjustments.

7.13 Economic Assumptions

Depending on use, Members may discount future cash flows in order to reflect the "time value of money". This is common practice in setting DLR and IBNR Claims reserves for pricing and are more prescribed for Valuation purposes via accounting and capital requirements.

IP benefits (typically those where the benefit period is greater than 2 years) may include annual increases in benefit in line with an index ("indexation") e.g. Consumer Price Index or Average Weekly Earnings, usually capped, for example at 5% for any one year. Therefore, when setting the DLR, it is necessary to project the future benefit payments for open claims using an assumption for indexation, in accordance with prevailing IP benefit design.

The Institute provides guidance[9] on the setting of the discount rates and claims indexation assumptions.

7.14 Use of Reserves (Pricing vs. Valuation)

There are different considerations when determining claim reserves for pricing purposes and liability determination. Depending on the circumstances, different degrees of rigour may also be required.

Valuation

Calculation of claims reserves is at a point in time, based on the latest available data, which is often tied to the valuation date. Claims reserves are calculated for the purpose of determining the best estimate outstanding claims payments relating to past cover periods. They reflect factors such as:

- the actual benefit design and/or population mix for the relevant liability period at the time of calculating the reserves;
- anticipated changes in claim reporting patterns in respect of claims already incurred;
- anticipated changes in income protection claim termination rates, recurring claim rates and re-opened claim rates in respect of claims already incurred; and
- best estimate future economic assumptions such as inflation/indexation and discount

[9] https://www.actuaries.asn.au/professional-development-regulation/professional-standards-and-guidance

rates.

Assumptions may be constrained by the need to reflect the requirements of the relevant accounting standard. Accounting standards may also require the addition of a risk margin.

Pricing

Claims reserves are more likely to be based on a variety of available data sources (e.g. Fund data in addition to life company data). Past experience is only one of several factors used to determine future pricing. Claim reserves determined for pricing purposes also reflect factors such as:

- adjustments to historical claims data to allow for current and anticipated future changes to:
  - product design
  - default cover levels
  - claim rates, claim reporting patterns, income protection claim termination rate, recurring claim rates and re-opened claim rates, for example due to emerging and future insurance market, social, legislative or economic changes
- adjustments to historical premium data so that premiums are those that would have been charged if they had been based on anticipated future claims experience and operating / claim expenses.

8. Data

Obtaining good quality claims and exposure data is key to the reserving process. Data quality is continually improving.

SPS 250 requires Funds to collect and retain at least 5 years of historical claims, membership, benefit amount and premium paid data. The aim of maintaining this data is to facilitate the tender process and monitor the viability of the insurance offer to the members of the Fund. Sitting as the counterpart to SPG 250, LPG 270, introduced in 2014, requires the life insurer to assist the trustee in meeting the SPS 250 data requirements.

In practice, many Funds and insurers maintain data for considerably longer periods of time, reflecting:

- the length of reporting delays typically experienced, particularly for TPD
- the greater credibility that can be attached to larger data sets.

SPS 250 and SPG 250 also include minimum data collection requirements for superannuation trustees for effective assessment of Fund Member outcomes and monitoring the appropriateness of insurance arrangements. These data requirements are discussed in the subsection below.

Data quality, granularity and segmentation should continue to evolve with the complexity of the group insurance market. For example, the PYS and PMIF legislation changes made it necessary for the historical claims experience of active and inactive Fund Members to be considered and analysed separately. This analysis had not been necessary previously, so

Funds and insurers faced significant challenges in assessing the experience of inactive lives versus active lives.

Cohort indicators such as salary and occupation are often incomplete or not available and actuaries have developed methods (e.g. estimation using publicly available population data for occupation, derive salary information from SG contribution data set etc.) to overcome these deficiencies when assessing the experience at a cohort level for those Funds with sufficient credible data to justify this level of analysis.

8.1 Data Collection

The key data items generally appropriate for the purpose of calculating claims reserves are:

- Date of birth
- Date incurred (i.e., date of event giving rise to claim)
- Date reported[10]:
  - the date on which the claim was notified by the RSE licensee to the insurer;
  - also, nice to have but not necessary, is the date on which the claim was notified by the Fund Member to the RSE licensee;
- Paid amount
- Sum insured
- Date paid;
  - the date(s) the claim was paid by the insurer to the RSE licensee; and
  - the date(s) the claim was paid by the RSE licensee to the Fund Member;
- Claim Status:
  - paid in full and closed;
  - open (accepted and in course of payment for IP);
  - pending decision;
  - withdrawn or not proceeded with by the Fund Member;
  - disputed (APRA also requires the reason for dispute);
  - declined (APRA also requires date of decline); and
  - re-opened (this could be as a result of successful dispute process outcome for a

[10] Claims are reported when the required documentation is provided by the member and the Fund. The documentation required may vary between insurers and between Funds.

claimant or a recurrent claim);

- Date of decision where claim is accepted or declined;
- Claim Cause (this is usually based on International Classification of Disease (ICD) codes)
- In addition, IP specific key data fields include:
  - Payment start date;
  - Date paid to
  - Date last payment made;
  - Monthly benefit amount, gross and net of PDI adjustment;
  - Benefit Indexation if applicable;
  - Benefit period;
  - Waiting period;
- The following additional fields may be required, for example where occupation specific default cover and/or pricing occurs and to analyse the impact on reserves of legislative changes such as PYS/PMIF:
  - Cohort (policy type, retained division, etc. – refer to SPS 515 (Strategic Planning and Member Outcomes)[11] and SPG 516 (Business Performance Review)[12]);
  - Gender;
  - Occupation category or collar rating;
  - Inactivity status (this is specific to PYS/PMIF changes);

To better understand the data that's been collected, the Member may further consider the following additional information to enhance their analysis and understanding:

- Historical product designs, premium rates and Fund Membership
- Consult with claims and medical underwriting teams to gain a better understanding of nuances in data, including gaps in experience and/or quality. For example, in relation to disability claims:
  - **Re-open claims**: The Member may seek to gain better understanding of the reasons for claims being re-opened and/or successfully disputed and, as a result, adjust accordingly when using these to set assumptions.
  - **Claim dormancy in processing delays**: The Member may consider the length of

[11] January 2020
[12] November 2019

time for which claims remain dormant e.g., awaiting a decision or delays in obtaining updated medical records and then, adjust accordingly when using the datasets for setting assumptions.

- **Manual vs. system generated data fields**: certain fields are manual inputs from claims or medical underwriting assessors (e.g., interim event dates during assessment), and some are system generated (e.g., payments date) Members need to be aware of the data source and associated process, to have a better understanding of its credibility and quality.
- **Reporting process changes** – temporary or permanent, system based or resourcing related changes to claims reporting e.g., creation of backlog of claims.
- **Remediation –**corrections to errors or omission, initiated by Fund and/or life insurers e.g., correcting past miscalculated premiums or claim amounts.

When considering data requirements and collecting that data, the Member may bear in mind the different roles of the trustee and the insurer and how they interact with each other, including passing data between them and the processes that have been adopted to ensure data consistency. This may dictate the source of each data item (trustee and/or insurer) and how it is interpreted, for example, does "Received" mean received by the trustee or received by the insurer (as per LRS 750).

Insurance processes and the roles played by the trustee and insurer respectively in insurance processes may have varied over time, so historical data may need to be adjusted to ensure that it is consistent with more recent data. For example, automation and/or process improvements may have resulted in a significant reduction in the delay between a claim being notified to the trustee and to the insurer respectively. In this situation, historical "Date Notified to Insurer" data could be adjusted to approximate the date the claim may have been notified to the insurer if current processes had occurred historically.

8.2 Data Checks

The following are examples of data checks that may be undertaken.

- Total checks by counts and amounts, ensuring no periods are missing and data field contents are not truncated;
- Consistency checks across two common sets of data e.g., member is in both claims and membership files, same claimant is in overlapping periods of claims data from different extraction periods etc.;
- Data profiling to check for missing data, outliers and identify/log any unexpected data e.g., data sets or fields with manual inputs that were never intended to be captured for actuarial analysis, which may therefore have been improperly completed or used for a different purpose;
- Common claims data error or extraction checks e.g., duplicates, negative payment amounts, paid date before event date, claim incurred after date reported, characters in number fields, waiting period/payment commencement and paid to date/benefit period, date of birth/incurred date and sum insured are consistent (scale designs);

- Reasonableness checks using actuarial judgement and past experience;
- Benchmark against data used in the past for the same Fund and against data for other similar Funds or a portfolio of Funds; and
- Checks against the Fund's financial statements

APRA also expects data sets to be assessed for completeness and being fit for use - CPG 235.

9. Detailed Methodology considerations

9.1 Selecting and changing methodologies

There may be occasions when it becomes necessary to change methodology, driven by growth of the business or the ever-changing dynamics in the market landscape.

Several issues may be considered:

- The range of methodologies available;
- Data, expertise and inputs available to calibrate any chosen methods; and
- Periodic reviews of the appropriateness of the methods currently used, including any shortcomings (e.g., a poor fit of the claims model to the data) and an assessment of the impact of alternatives, where required (please see section 11 for further details).

Some common examples of the issues encountered in relation to selecting and changing methodologies:

- There may be insufficient claims experience to form a credible basis for reserving, particularly for Funds that are new to the insurer and where the outgoing insurer has challenges providing a longer history of a particular dataset and/or in the same format required by the new insurer. In this case, assumptions or an alternate basis could be formed by referencing similar Funds or portfolios to determine and reserve for expected claims, until sufficient Fund specific experience is developed.
- Experience investigations have identified gaps in reserving basis between actual to expected results. If the actual experience is significantly different from expected, then the expected basis and associated methodologies may need to be reconsidered. Even if overall actual claims align closely with expected claims reserved, there may be significant differences for particular cohorts, such as those at different ages, in different occupation categories, for default versus voluntary cover, etc. In this case, potentially more granular analysis may be required to understand drivers of the difference and consider the impact on the methodology used.
- Methodologies could also be reconsidered in situations of macro trends specific to the market, such as legislation or technology impact on reporting and awareness.

9.2 Calculation of reserves between experience studies and timing

Life insurer experience investigations are generally undertaken no less than every 2 years, depending on the size and materiality of the Fund or portfolio.

Valuations are undertaken more frequently, often monthly.

Group life insurance policies are repriced at each renewal. Typically rate guarantee periods range from 1 to 3 years. Nevertheless, at least for the larger group life policies, experience investigations are carried out for individual group life policies more frequently, to inform both the insurer and the trustee on the progress of the arrangement since the last renewal and provide insights into potential future price changes.

During group life insurance tender situations i.e. new business, detailed experience investigations may be required. It is generally difficult to predict the timing of tenders or when macro changes will occur and these may occur at a time when the latest experience investigation is becoming out of date, so it may be reasonable in some circumstances to simplify methodologies or calculations (e.g., roll forward IBNR or take average duration for open claims reserves) between experience studies, pricing and Valuation timings.

9.3 Considerations specific to IBNR Claims Reserves

When selecting and adjusting methodologies the Member may consider changes in member awareness of their insurance and the associated impact on reserves.

A sudden increase in awareness (e.g., due to PYS - 2019 and PMIF - 2020) can cause a sudden claims notification spike in the affected periods (e.g., claims notified in 2019 and 2020). Under a standard Chain Ladder methodology where the cumulative development factor (CDF) is calculated without adjustment and applied to the higher claims reported, an over-estimate in IBNR Claims Reserve and the ultimate claims cost may occur – see the simplified model in Attachment 1.

When a spike in notifications occurs, further analysis may need to be undertaken to understand:

- which periods are affected by the spike;
- whether the spike is due to one or more of
    - a bringing forward of claims e.g., with a change of process;
    - an increase in incidence rates;
    - changes, temporary or permanent, in claim reporting patterns between the RSE Licensee and the insurer; or
    - random fluctuation.

A bringing forward of claims view implies that the ultimate claims cost has not changed and IBNR Claims Reserves under a standard approach may be overstated and need adjusting.

Even if the spike is due to a higher incidence rate, distortions to CDF's under for example the Chain Ladder Method may occur and the Member may make adjustments. For example, IBNR Claims Reserves should be higher with higher incidence rates but only for those periods where the higher incidence rate occurred. Ultimately, these adjustments would depend upon the Member's assessment of the drivers behind the reporting spike.

In situations where higher awareness leads to mainly faster reporting, it may be inappropriate to use CDFs without adjustment (i.e., claims for more recent incident periods and its IBNR Claims Reserves may be overestimated). In this case, some alternate methods to deal with claims' notification spikes and to include more appropriately are:

- Selecting a CDF development period that is considered to more accurately reflect the development pattern going forward based on past claims development experience averaged over a longer period;
- Selecting CDF's that excludes the notification pattern from the most recent event period spike, where appropriate for pricing;
- Applying Additive methods; or
- Applying Bornhuetter-Ferguson method

The abovementioned methods can also be used if higher member awareness leads to temporary spikes in claims reporting.

9.4 Considerations specific to DLR

When selecting and adjusting methodologies for the DLR, the Member may consider trends in the market or Fund that impact severity and duration of claim payments.

Examples of some recent trends are discussed below:

- Legislation changes such as changes to workers compensation legislation affecting the amount of offsets and, PYS/PMIF/YFYS legislation affecting the membership mix. The Member may need to consider changes to termination rates and offset assumptions, in particular, analysing the impact by cohorts such as age and occupation.
- The economic situation, in particular during times of economic downturn and higher unemployment rates, may impact the duration of claim payments (and incidence rates although this is not part of the DLR). The more economic uncertainty, the longer that claimants potentially remain on claim if:
    - the claimant perceives that the risk of going back to work and potentially losing their job outweighs the reduction in income they are currently receiving whilst on claim;
    - there may be fewer job opportunities available, as employers cancel or delay recruitment; or
    - there is a lack of suitable return to work opportunities.
- The impact on certain claim causes or cohorts (e.g., age and occupation) can vary in its severity, depending on other awareness factors that may exist. For example, higher prevalence of mental illness claims vs. other claim causes, unemployment in certain industry sectors vs. others etc. The Member may consider determining termination rates by claim causes and relevant cohorts. Where classification information is not available for a particular claim then overall (all causes) termination rates may be determined as a weighted average across claim causes, with the weights varying over time to reflect the increased prevalence of trends and risk factors.
- The availability, quality and experience of the claims team may affect the duration of claim payments, which may lead to higher or lower provisions for DLR. Changes in claims management approaches, for example increased focus on managing longer duration claims, can distort short term experience and require adjustments when assessing experience for the DLR.

9.5 Methodology combinations and interactions

There may be situations where multiple methods may be required for claims reserving.

Below are common situations where combinations of reserving methods may be useful to accommodate the situation of insufficient past experience and/or data gaps.

The standard Chain Ladder method may lead to a volatile IBNR pattern (i.e., materially under or over reserving) in the following scenarios:

- Low claim numbers making the data statistically not credible. This could apply to the whole claims experience or particular periods, particularly the more recent incurred periods;
- When reporting patterns are in flux; or
- Where the number of reported claims is volatile.

Similarly for claims amounts (and average claim size).

The Member, therefore, may consider adopting a different approach that is less reliant on the reported claims to date such as the Additive Method or Bornhuetter-Ferguson Method, which can be overlaid on these affected delay periods. Care should be taken when using different methods for different incurred or reporting periods as trends or behaviour changes may be masked.

There may be situations where there is insufficient relevant data history, especially with changes in legislation, design or winning new business. For example, at times, only 5 years' worth of TPD incurred claims data is available but, based on the experience of similar Funds, it is expected that a significant number of claims would have delays greater than 5 years, the Member may consider extrapolating the Chain Ladder backwards[13] (or use the Bornhuetter-Ferguson method) to calculate IBNR amounts for longer duration claims. The IBNR Claims run-off pattern from a similar Fund could also be used to overlay the later delay periods.

Systems vary across different (group) insurers and typically group insurance arrangements are tendered every 3 years or more. The claims data received for reserving will be a combination of various insurers' systems, with different definitions for reporting, notification, assessment and/or payment dates. For example, insurer A is currently on the business for < 1 year, insurer B previously for 5 years, depending on the systems used and the rules for recording dates for Insurer A vs. B, a combination of methods may need to be considered or existing methods need to be adjusted to insurer B dataset.

9.6 Outliers

The Member may need to assess if outliers and anomalies are likely to unduly distort the

[13] For example, by fitting a curve to the exiting data and/or using tail data from similar Funds / portfolios that the Member considers may have a comparable claim run-off pattern

calculation of claims reserves.

Some common scenarios are as follows:

- It would be reasonable to normalise rare, exceptionally large or small claims. For example, where there is a single claim for $2m and the largest sum insured in the current Fund Membership is $1m, when conducting an analysis by claim amounts the $2m claim may be spread over two or more years.
- An outlier claim that was reported with a very long delay could materially extend the IBNR tail reserving. An alternative tail extension methodology could be applied if this outlier is not anticipated to be representative of future expectations.
- Significant member communications (such as a special offer to upgrade cover or notification of changes in default cover levels, eligibility rules or legislative changes) may lead to (one-off) anti-selective claims.

An approach that may be used to determine whether data points are outliers is to estimate confidence intervals for ultimate incidence rates or termination rates. Claim incidence rates or termination rates based on the calculated reserves, can be considered relative to the previously determined range of likely outcomes, to determine whether there are outliers or anomalies that exist amongst the data or experience used.

Further insights can also be gained by comparing claim development patterns based on claim numbers and claim amounts.

9.7 Reasonableness checks

Reasonableness checks, including “common sense” checks, may be performed on any claim reserves calculated, including the impact of any methodology changes. Some common methods to check reasonableness outcomes are discussed below:

- Back-testing of the methodology on historical data.
    - For IBNR Claims reserves, an approach is to compare expected notified claims based on the adopted IBNR methodology against actual notified claims over a selected incidence period that has a credible amount of emerged experience.
    - For DLR, this could be to compare expected terminations based on the adopted DLR methodology against actual terminations, for example by graphing the runoff of claims (say per 100 starting) on expected (according to the DLR methodology) and actual runoff pattern. Actual claim runoff patterns can be looked at over different periods to identify trends.
- Visual aids such as charts and graphs may be used where possible, to bring better perspectives to ensure IBNR development patterns look reasonable, whether smoothing is required, whether if there’s any unexpected volatility in the pattern, especially in situations when methodology changes or reporting is in flux during changes in legislation, for example – PYS/PMIF.
- Checking the reasonableness of the average claim durations (i.e., total claims paid including DLR / average monthly benefits/count of claims, should produce an average claims duration that is consistent with the benefit period and past average durations

observed), especially comparing the relativities of DLRs between different waiting periods and benefit periods.

- When GLM methods are used, checking the logic of the outcomes and whether it's consistent to the calibration of the inputs e.g., termination rates in general decrease with increasing claim duration, accident claims terminate faster vs. mental health claims etc.
- Benchmarking to market studies is a good discipline, where available.
- Using simple ratios to check consistency across periods and/or between similar Funds and/or similar risk pools / portfolios.

10. Control cycle applied to claim reserves

The actuarial control cycle is a strong framework to ensure that any assumptions and/or methodologies are appropriate for its intended purposes. It is an iterative process of monitoring outcomes, assessing actual results against expected, analysing any differences and making revisions as appropriate. It is forward looking, using past data as a guide. The iterative process may follow the following steps:

1. Define the problem. For example:
    - Determining the TPD IBNR Claims Reserves when setting prices or reserves for TPD business that are "best estimate".
    - Determining the DLR when setting prices or reserves for IP business that are "best estimate".
2. Develop a model (or models)[14] and set assumptions to calibrate the model(s).
3. Monitor actual claims experience relative to the experience predicted by the model(s). Review and adjust the assumptions and/or recalibrate the model(s).
    - A financial reporting process can provide the needed actual to expected analysis required (e.g., Analysis of Profit) on a regular cycle (monthly, quarterly, yearly)
    - The analysis and/or diagnostics may encompass a multidimensional approach in dissecting the risks.
    - With GLM techniques in particular, noting the interaction between the various dimension of risks, for example:
        i. If claims with a particular cause are trending upward, is this occurring for a certain age group or across the board;
        ii. whether average claim size relatively uniform across different reporting delays or is it higher/lower for longer reporting delays.

[14] The "model" may, for example, be one or more of those discussed in section 0 above and in the IBNR Information Note.

4. Back to Step 1.

Common checkpoints to repeat the control cycle process are:

- If (regular) reasonableness checks identify a consistent and/or material deviation of actual experience from expected experience according to the current claims model.
- In line with regulatory reporting requirements, such as preparation of half-yearly / annual financial statements.
- At the time of policy renewals / tenders.
- When there are major regime shifts such as changes on regulations or legislation.
- When major system changes occur.
- When new data or information becomes available.

When changes in method(s) and/or assumptions occur, the Member may carry out parallel runs under old and new methodologies / assumptions to assess impact of change and check that the impact is as anticipated and can be explained rationally.

11. Fund and portfolio specific considerations and External Factors

The starting point of most claims reserve calculations is past experience and data that is considered to be relevant. As noted in section 8 and 10, the Member may need to consider the extent to which the past data reflects likely future outcomes especially in the scenarios where there has been a structural change to claim rates, product designs, terms and conditions, legislation / regulations, claim processes, the characteristics of particular material employer sponsors of the Fund, etc.

The following sub-sections discuss some of the external factors and Fund/portfolio specific considerations that may have resulted in a structural change to the group insurance risk profile and where, as a result, assumptions derived from past data require adjustment.

11.1 Step changes in experience (changing awareness)

In the context of insurance in superannuation where TPD claim notification delays can be lengthy, a change in notified claims may suggest any of the three possible scenarios below (or a combination of the three):

- A permanent step change (up or down) in ultimate claims for the incident period concerned;
- A one-off claim change for the specific reporting period; or
- The bringing forward or slowing down of claims reported that may otherwise have been reported later without the external factor causing the increase.

Depending on the scenario assumed, after consideration of the external environmental factors, specific models and parameter calibration approaches may be more appropriate than others. For example, if it is determined that a claims notification spike is driven by a one off event, without any evidence that the claims would have been incurred or reported at a later date, then using an Additive model or a Bornhuetter-Ferguson model may be more

appropriate than a Chain Ladder model.

One example of how a Member could confirm whether there is a permanent change in claims experience (rather than simply volatility) is to consider the correlation of the benefit with other benefits. For example, if there is a steady increase in the IP to TPD conversion rate (the proportion of IP claims where the claimant later claims a TPD benefit for the same or related condition), and the membership profile and benefit design have not changed then it may be that the underlying TPD claim rates are increasing.

11.2 Claims administration disruption/backlogs (or improvements)

The IBNR Claims Reserves and DLR are heavily reliant on specific data fields (discussed in Section 9) sourced from the insurer's claims records as well as the Fund's administrator.

Changes in processes within the claims function and/or by the administrator can impact how information is recorded in the relevant data field(s). In turn, this can add noise or volatility to the notification delay, altering reporting patterns. Depending on the extent of any claims and/or administration changes, leading to changes in ultimate reporting patterns, IBNR levels may change accordingly. Changes in claims processes can also affect the timing of payments for IP and may change the size of the return to work window, so termination rates as well and DLR levels may change accordingly.

Some process changes are unexpected and can disrupt claims notification and/or settlement. This, in turn, may have spurious effects on claim reserves.

Some process changes are improvements undertaken by the claims function that result in faster processing times and hence overall earlier reporting for the claim. If these process improvements are permanent, the resulting earlier reporting patterns are likely to be permanent so the data may be interpreted accordingly when determining claim reserves. In this scenario the faster reporting may initially distort (increase) IBNR reserves using standard actuarial methodologies and an adjustment may be required to reflect the fact that the ultimate claims cost has not changed.

Unexpected changes in reporting delays e.g., due to a sudden surge in reporting, claims administration backlogs[15] are common in an environment of frequent legislation changes or event driven disruptions (e.g., during a pandemic). The build-up of claims backlogs and the process to reduce them could cause fluctuations of received and/or settled claims from one period to another.

All of the above examples may cause the observed claims reporting pattern and IP termination pattern to vary and the Member may consider them in determining how past data should be amended to reflect the current situation and, for pricing, anticipated future

[15] Claims that are notified but stuck, pending decisions or, for IP, delays in processing claims in the course of payment

experience.

11.3 External changes impacting claims management

At times changes are imposed on the industry that impact the way claims are managed. This may need to be taken into account when considering:

- the suitability of historic loss ratios as indicators of future experience for pricing;
- the assumed acceptance rates for claims.

Examples of recent external factors are the Life Code and legislation making it harder to determine non disclosure, the latter becoming more significant with increased voluntary cover being taken up by Fund Members.

11.4 Growing or diminishing blocks of business

The insured membership of most superannuation Funds in Australia has largely reduced and the mix has changed since the introduction of the PYS and PMIF legislation. A typical superannuation Fund would have fewer insured members in 2021 compared to 2018, and overall slightly older. Fund membership will continue to evolve with the introduction of the YFYS legislation and the increasing prevalence of superannuation Fund mergers.

Deriving an IBNR Claims Reserve for recent periods based on historical claims reporting patterns (for example over the last 10 years) without any adjustments may not be appropriate. For example, PYS removed inactive Fund Members from cover automatically and changed the nature of the membership pool. On average the remaining membership is more aware and is expected to report claims more quickly:

- Fund Members who “opt in” if they wished to retain their cover become aware or more aware of their cover.
- Fund Members who were removed from cover were inactive and it may be reasonable to assume they were less aware of their cover.

Similarly, the inactive Fund Member cohort is expected to have a higher proportion of unemployed members than the whole pool. It may be felt that unemployed Fund Members are on average less healthy than employed Fund Members. Under this scenario PYS will have the effect of increasing the average health of the pool as it removes the less healthy cohort, and may result in lower claim rates, all things being equal.

When setting DLRs reserves, the Member may consider the appropriateness of the termination rate assumptions using all the past experience for the current set of open claims. Past experience may reflect a different membership either due to legislative changes, large changes to movements of new or existing members or recent Fund mergers. In these circumstances the pool of past claims used to determine the termination rates may no longer have the same characteristics or risk profile as the current membership or that expected in future years.

YFYS has started to alter the risk profile of the insured membership of Funds and will continue to do so for many years. This will vary significantly between Funds and may include:

- Changing lapse and new member rates,

- Changes in occupation mix,
- Changes in age mix,
- More members selecting Funds via Single Touch Payroll[16] or exercising Choice in joining a Fund,
- Fund mergers,
- Some Funds no longer being able to accept new MySuper members.

11.5 Premium/rate change

Reserve methods that use premiums, such as the Bornhuetter-Ferguson method or the Loss Ratio method are directly affected by premium changes. When using loss ratio methods, the Member may need to ensure that premium rates assumed in the loss ratio adopted are consistent with the premium rates to be charged going forward.

11.6 Changes to benefit levels, terms and conditions and average claim size

In contrast to retail risk insurance, the trustee of a superannuation Fund can usually alter group insurance arrangements provided it is done so in the best financial interests of the Fund's members. Examples of benefit changes include increasing cover levels to meet insurance needs, decreasing cover levels to maintain affordability, changes to disability definitions, a change in Terminal Illness definitions from 12 months to 24 months, changes in IP income replacement ratios, changes in IP benefit periods and waiting periods.

When determining IBNR Claims Reserves and DLRs, the Member may consider how the prior benefit and policy changes may have impacted key assumptions, for example:

- The introduction of Terminal Illness benefits when the member has a life expectancy of 24 months or less may have resulted in an increase the proportion of Terminal Illness claims compared to other Death claims. As a result, the average claims delay for Death claims (including Terminal Illness) may reduce as Terminal Illness claims typically have shorter reporting delays. On the other hand, there may be an increase in average TPD claim reporting delay because some claims which had previously been reported a TPD are now reported as Terminal Illness claims and those typically have shorter reporting delays.
- The shortening or lengthening of Income Protection and TPD waiting periods may also shorten or lengthen claims reporting delay. A change in waiting period may also change the mix of open IP claims.
- A change in income replacement ratios may alter the incentive for a claimant to return to

[16] The ATO online tool used to register new employee details, including selection of a superannuation Fund to receive employer contributions.

work.

- The removal of Activities of Daily Living (ADL) definitions from TPD definitions following ASIC Report 633 may result in a new cohort of members becoming eligible for a TPD claim and hence changing the average claims profile of the Fund.

As discussed in previous sections, claims reserves may be determined to reflect the benefit and policy terms relevant to the historical period for Valuation purposes. For pricing purposes, claims reserve may need to be rebased to the current product terms or the proposed product term under consideration, incorporating both the mechanical aspect of the relevant product changes as well as the potential behavioral changes of the Fund Members. For example, if default benefit levels have been increased then historic claims experience may need to be appropriately adjusted to align with the current default benefit scale.

11.7 Changes in societal and/or lifestyle influences:

In addition to the above-mentioned scenarios, the risk profile of a portfolio or Fund could be changing even if the insured membership and the insurance design remains unchanged, influenced by events not yet seen in the past. Some examples of these are set out below:

- Pandemic event, leading to:
  - A sustained increase in sub-standard lives as a result of the pandemic.
  - A sustained reduction in rates of vehicle accidents and infectious disease in recent years.
  - Changing claims experience of membership cohorts in industry sectors impacted by the pandemic such as hospitality, travel and the healthcare sector.
- Changes in other external factors:
  - Medical advancements that may result in improved overall physical and mental health of the insured population and could also result in higher levels of diagnosis, but concurrently, potentially driving faster reporting and with early detection, resulting in reduced mortality/morbidity in the longer run.
  - Lifestyle influences, for example leading to a reductio n in the population who are smokers or more “healthy eating”, potentially leading to improvements in morbidity and/or mortality.
  - Occupational health and safety improvements.

The above may be considered as future adjustments in setting premium rates, depending on whether the trend is expected to continue and the extent it is in the past data as well as the rate guarantee period.

External trends may also be allowed for by rebasing historical claims and claim reserves to reflect the current status of the Fund or portfolio and the external factors.

11.8 Economic Factors

Economic factors may also influence both claim incidence rates and claim reporting patterns. When the economy is growing and business optimism is high, all else being equal, claim durations and claim incidence rates may both reduce.

Attachment 1 – Example of the impact of a change in claim reporting patterns

This Appendix and the accompanying Excel workbook ("example impact on Chain Ladder of change in reporting pattern.xlxs") are designed to demonstrate how any actuarial model can be misleading if applied mechanically.

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%20on%20Chain%2(

In this simplified example the impact of a small change in reporting pattern on the results of the Chain Ladder Method is demonstrated.

In reality, many factors may be at play that will influence reporting patterns and the suitability of the IBNR Claims reserving method.

The assumptions in this example are set out below:

- The claim reporting pattern to Event Period 10 is unchanged.
- From Event Period 11, claims are reported sooner. Each Development Period gains a claim from the following Development Period and loses a claim to the earlier Development Period.
- Apart for this change, a stable environment applies with no change over the 14 Event Periods to, for example:
    - Fund or Portfolio size or demographic characteristics.
    - Product design or default insurance levels that may have affected experience.
    - Legislation that may have affected claims experience or claims reporting patterns.
    - Claims philosophy that may have affected claims experience or claims reporting patterns.
    - Claim processes that may have affected claims experience or claims reporting patterns.
- The Chain Ladder CDF's are calculated using the experience in the two prior Event Periods.
- 24 claims are incurred in each period, for 13 consecutive periods.

Table 1 below shows the results for the development triangles.

Table 1 Claim by event period and development period

	Development Period						
Event Period	1	2	3	4	5	6	Ultimate
1	1	5	10	5	2	1	24
2	1	5	10	5	2	1	24
3	1	5	10	5	2	1	24
4	1	5	10	5	2	1	24
5	1	5	10	5	2	1	24
6	1	5	10	5	2	1	24
7	1	5	10	5	3	0	24
8	1	5	10	6	2	0	24
9	1	5	11	5	2	0	24
10	1	6	10	5	2	0	24
11	2	5	10	5	2	0	24
12	2	5	10	5	2	0	24
13	2	5	10	5	2	0	24
14	2	5	10	5	2	0	24

The Excel workbook shows the derivation of claims development factors and the resulting IBNR Claims Reserves at the end of each Event Period, from period 10 to period 13 inclusive. The impact is set out in **Error! Reference source not found.** below.

Table 2 Chain Ladder Predicted Ultimate Claims Cost - Misestimation

Event Period	Chain Ladder Ultimate Claim Numbers at end of Event Period				IBNR Claim Numbers Overestimate at end of Event Period (%)				Ultimate Claim Numbers Overestimate at end of Event Period (%)			
	10	11	12	13	10	11	12	13	10	11	12	13
6	24	24.0	24.0	24.0	0			0	0	0	0	0
7	24	25.0	24.0	24.0	0			0	0	4	0	0
8	24	25.7	24.5	24.0	0	84		0	0	7	2	0
9	24	26.7	25.1	24.0	0	38	54	0	0	11	5	0
10	24	30.2	25.8	24.0	0	37	26	0	0	26	8	0
11		56.1	27.8	24.0		146	23	0		134	16	0
12			37.1	24.0			60	0			55	0
13				24.0				0				0
Average last 4 years	**24**	**34.7**	**29.0**	**24**					**0**	**44**	**21**	**0**

In this example, when there is a small change in claim reporting patterns so that one claim per development period is reported one period earlier than previously, if the standard Chain

Ladder method of determining IBNR Claims Reserves is adopted without modification or adjustment, the reserves and claims cost will be overstated for 2 periods following the change before becoming accurate again in the third period. The overestimate will be longer if CDF's are calculated using longer periods (in this example only 2 prior periods were used).

The conclusion from this example is that where IBNR claims reserves are determined using a mechanical Chain Ladder Method the resulting reserves, claims cost and loss ratios will misestimate the ultimate claims cost. This may lead to overpricing and over reserving. The opposite applies for a lengthening in reporting patterns.

The results depend on the particular example chosen. Different results occur for other scenarios which could be considered, for example:

- initial claim reporting patterns;
- claim volumes in different period; or
- changes in other factors such as legislative environment, product design and underlying claims experience.