Guidelines for loss reserves

in non-life insurance

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1. Object

These Guidelines for loss reserves in non-life insurance describe the necessary principles that need to be complied with whenever actuaries have to estimate loss reserves, thereby ensuring the relevant standards within the framework of the Swiss Association of Actuaries (SAV1).

These standards are generally complied with and presuppose that in concrete cases the actuary in question will take appropriate account of the specific circumstances and incorporate these into the reserve calculations in a professional way, along with any mathematical and statistical findings.

The term “loss reserves” is not clear cut. It is sometimes defined differently in the statutory balance sheet or balance sheet according to commercial law than it is, for example, in the accounting standards according to Swiss GAAP2 ARR3, IFRS4 and US GAAP, or in the Swiss Solvency Test under the Insurance Supervisory Law.

Particularly in connection with the discounting of loss reserves, the actuary has to know and take account of the relevant definitions and requirements, as well as knowing how to delimit these from the interests of pricing.

The required loss reserves are of pivotal importance in each case, and it is these that form the main subject matter of these Guidelines.

Annuity funds and ageing reserves in personal accident and health insurance, and also the balance- sheet reserves that management are required to set up under the various accounting standards, including any additional strengthening thereof, are not dealt with in these Guidelines.

The most important technical expressions are brought together in a glossary.

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1 Schweizerische Aktuarvereinigung.
2 Generally Accepted Accounting Principles.
3 Accounting and Reporting Recommendations.
4 International Financial Reporting Standards.

2. Methodology and principles

2.1 Required loss reserves

The required loss reserves on a key date are an estimate of the non-discounted claims payments arising after the key date for all claims with a date of loss up to the key date.

Expressed in mathematical terms, the required loss reserves are a conditional best estimate of the conditional expected value of future payments based on the information available at the time of the estimate. They are therefore considered to be the best estimate, ie neither on the cautious nor the incautious side, and do not contain any intentional increases.

The required loss reserves include the reserves for claims outstanding on the key date, claims incurred but not reported (IBNR) on the key date, and also the reserves for any future claims expenditure in respect of claims already settled on the key date (reopened claims).

Future potential changes in the general conditions, such as a change in the technical interest rate decisive for calculating indemnities in motor third party liability, are not taken into account when estimating the required loss reserves, but still have to be included as scenarios for determining the run-off risk (point 2.4).

Important parameters for the required loss reserves are the type of accounting and, dependent on this, the definition of the date of loss. Thus, for example, more cases of IBNR are to be expected with accounting on an underwriting-year basis than with accounting on a year-of-occurrence basis.

The actuary is responsible for choosing a suitable method for calculating the required loss reserves. In order to assess the model risk, it is advisable to use and compare several methods simultaneously. Run-off triangles (point 3.2) form the basis for any calculations of reserves.

It is advisable, but not mandatory, to estimate the required loss reserves for IBNR losses separately from those for losses that are already known. Here, particular attention should be paid to any strengthening of the case reserves that has already taken place, or to any underreserving.

Price increases have a major influence on future claims payments. They can be taken into account implicitly or explicitly. Run-off triangles contain price increases observed in the past, which means that reserve calculations based on such triangles already implicitly contain price increases to the extent of the values observed in the past. When taking explicit account of price increases, it is advisable to distinguish between normal price increases due to economic variables like the consumer price index and superimposed inflation caused, for example, by changes in case law.

When selecting parameters and making assumptions for loss reserve estimation, actuaries should consider the potential influence of new and emerging risks (such as climate change, sustainability factors, technological advancements, economic fluctuations, political developments, and legislative changes)

2.2 Required reserves for claims handling costs

Claims handling costs are the costs arising in connection with the settlement of claims.

The required reserves for claims handling costs on the key date are defined as the best estimate of the expected value of claims settlement costs arising after the key date in respect of claims with a date of loss up to the key date. Claims handling costs are assessed on the assumption that a business will continue to operate as a going concern.

The reserves for claims handling costs are made up of two components: the reserves for costs that can be directly allocated to individual losses, that is to say “allocated loss adjustment expenses” (ALAE), and reserves for costs that cannot be directly allocated to individual losses, ie “unallocated loss adjustment expenses” (ULAE).

Where the database allows directly allocatable claims handling costs to be separated from other claims payments, the reserves for these costs can be estimated separately in the same way as for the required loss reserves. Where this is not the case, however, the required loss reserves and the reserves for directly allocatable claims handling costs are calculated together.

When estimating the ULAE, it is advisable to differentiate between the costs involved in handling the claims and those involved in opening newly registered claims.

2.3 Discounting

The required loss reserves are by definition an estimate of undiscounted claims payments. Under certain conditions, however, discounting of the reserves can be carried out:

- The discounting must be allowed in the context in which the assessment is carried out (law, supervision, accounting standards).
- The discounting must be declared, and the required loss reserves must also be specified alongside the discounted reserves.
- The interest rates must be chosen such that the discounted reserves are not lower than those that would result from discounting using a risk-free yield curve. Reasons must be given for any departures from this principle.
- It must be possible for future payment flows to be estimated with sufficient reliability.

Discounting is not synonymous with assessment of liabilities that is close to the market, as the latter method contains an additional risk loading.

2.4 Run-off risk

The required loss reserves are an estimate of the expected value of future claims payments, the amount of which is unknown at the time of the estimate. The actual claims payments, the so-called run-off of reserves, will generally differ from the estimate, the reason for this being the stochastic nature of the claim process.

There is uncertainty regarding the parameters affecting the size of an individual known loss, the number and amount of losses that have in fact already happened but have not yet been

reported to the insurer (IBNR losses), and also the parameters affecting a set of claims in the same way, such as price increases or changes in case law.

As the first two uncertainties are based on chance happenings in the individual losses, they can be reduced through diversification in a large portfolio. They are known as risks of random fluctuation. The third type of uncertainty simultaneously affects at least one subset of all claims. Within this subset, diversification has no effect. In particular, a large portfolio is affected by it in the same way as a small one. Risks associated with this are called parameter risks.

In order to quantify the risk in the required loss reserves, the time horizon of the risk assessment must be defined. Basically, there is a run-off risk up to the time when claims are settled and a run-off risk over a specific period, for example a business year.

The estimate of the required loss reserves therefore has to be completed by indicating the run-off risk. This indication can consist of a distribution, a confidence interval, a standard deviation or some other parameter. It should be supplemented with any special scenarios considered and must be accompanied by specification of the time horizon.

2.5 Documentation

The actuary must document the methodology for estimating the required loss reserves and the run- off risk in such a way that any other actuary can follow it. In particular, the assumptions made and any departures from previous calculations must be specified and the rea- sons given.

The actuary will also consider whether new and emerging risks (such as climate change, sustainability, and other technological, economic, political, and legislative changes) may have implications for the reserves and will notably explain methodologies, assumptions, and data sources used to incorporate these risks into the analysis.

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3. Data requirements

3.1 Basics

When it comes to estimating the reserves required, the underlying data plays an important part. Besides being dependent on the actuarial methods used, the accuracy of the estimate also depends decisively on the quality of the data resources. Where applicable, the actuary considers whether the data is reliable and appropriate or has limitations in relation to new and emerging risks (such as climate change, sustainability, and other technological, economic, political, and legislative changes).

In order for the data to be assessed and interpreted correctly, the actuary must be familiar with the business written and the administrative claims processes existing within the company. Changes in these processes, such as the introduction of teleclaims, changes in the guidelines for estimating case reserves, changes in responsibilities or in the allocation of claims, have a significant effect on the run-off figures that are to be expected in the future.

The actuary checks what data is available, what part of it should be used to estimate reserves and what part might have to be completed or corrected on account of being incomplete. The data used must be checked for completeness, as well as for internal and external consistency.

The Glossary contains a list of information that should generally be available from direct insurers at the individual-loss level.

The data must be up-to-date at the time of the calculation. This means that cumulative payments should correspond to the actual level on the key date and that case reserves should take account of the latest available information. In particular, processes and systems should ensure that case reserves are checked and adjusted whenever any important information is received and, in the case of major losses, these should also be subjected to a general check periodically, and at least once a year.

3.2 Run-off triangles

A run-off triangle is a representation of loss parameters in a table. Where the information is complete, the data takes the form of a triangle. The individual cells relate on the one hand to an occurrence period (eg loss year i) and on the other to a development period (eg development year j). The cell (i,j) then contains information about the size of a loss that occurred in loss year i at the end of business year i + j.

For determining, analysing and assessing the reserves, it is usually necessary to draw up run-off triangles for at least the following loss parameters:

- Number of claims
- Claims payments
- Reported claims expenditure (cumulative claims payments plus case reserves)
- Required claims expenditure (cumulative claims payments plus required loss reserves).

For each loss year, a suitable measure of volume, such as the premium, the sum insured or the number of insured risks, should also be known.

The length of run-off triangles is dependent on the segment, which may be a class of insurance or a loss category, for example. In long-tail classes of business like general third party or motor third party liability, the run-off should be followed for at least twenty years. The loss portfolio should be subdivided in such a way that statistically meaningful sub-portfolios with comparable run-off characteristics are combined.

If the available data are statistically insufficient, which is often the case in the reinsurance in particular, it may be necessary to supplement them with industry wide statistics or model based reserve estimates.

3.3 Documentation

The actuary has to document the origin of the data and its consistency and agreement with comparable data in the balance sheet and profit and loss account. In particular, whether and how relevant influencing factors such as retentions, recourse actions or allocated loss adjustment expenses are taken into account should also be recorded.

4. Reinsurance and coinsurance

The required loss reserves should be determined and shown both gross (before allowing for reinsurance) and net (after reinsurance).

Any business from coinsurance should also be considered separately if it has a significant influence on overall reserves and their run-off.

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Glossary

ALAE	Allocated loss adjustment expenses (eg court costs, cost of outside lawyers, police reports, medical opinions)
Case estimate	The claims handler's estimate of the final claims expenditure for an individual loss, or a statistically determined rough estimate for an individual case
Case reserve	Case estimate less cumulative claims payments
Claims-made policies	Policies on a claims-made basis, ie the time when the first claim is made is decisive for the cover
Date of loss	This is usually the date of the loss occurrence. In special cases, such as with claims-made policies or accounting on an underwriting-year basis, this may differ from the date of occurrence
Development year	Difference from observation time (calendar year) to loss year
Final claims expenditure	Claims expenditure after final settlement of the loss
IBNR	Incurred but not reported
Individual claims information	- Unequivocal identification (loss number) - Date of loss - File creation date - Identification done/pending - Date claim settled (if applicable) - Payments made so far (cumulative) - Case reserve or statement that no individual estimate is available - Segment (eg sector, class of business, risk) - Details of coinsurance - Details of reinsurance Also desirable: - Historicised data - Relevant risk information (eg retention) - Other attributes (eg types of losses) - Identification of major loss accumulation events (occurrence code, eg thunderstorm)
Key date	Date to which the reserves relate
Long-tail classes of business	Classes of business in which claims take a long time to settle
Loss year	The year to which the loss is allocated on the basis of the date of loss
Outstanding claim	Claim that has not yet been settled
Settled claim	Claim entered in the system as "settled". No further payment movements in respect of this case are expected.
Superimposed inflation	Component of the increase in the cost of a claim that lies above the price increase measured in an official index
Teleclaims	Claims notifications taken over the phone in a call centre
ULAE	Unallocated loss adjustment expenses (eg wages of claims handlers, maintenance of IT claims systems and other claims administration costs)
Underwriting-year basis	Claims are allocated to the year in which the policy was written
Year-of-occurrence basis	The loss is allocated to the policy that is in force at the time of the loss occurrence