

1 **Statement of Principles**
2 **Regarding**
3 **Property and Casualty**
4 **Loss and Loss Adjustment**
5 **Expense Reserves**

6 (ADOPTED BY THE BOARD OF DIRECTORS OF THE CAS, MAY 1988)

(Rescinded by the CAS Board of Directors, November 2014)

7 The purpose of this Statement is to identify and describe principles applicable to the
8 evaluation and review of loss and loss adjustment expense reserves. Because of their size and
9 the uncertainties in the estimation process, the evaluation of these reserves requires the use of
10 proper actuarial and statistical procedures. The financial condition of a property and casualty
11 insurer cannot be assessed accurately without sound reserve estimates.

12 This Statement consists of three parts:

13 I. Definitions

14 II. Principles

15 III. Considerations

16 The definitions in the next section apply to both loss reserves and loss adjustment expense
17 reserves. For the purpose of this statement the terms loss and claim are used
18 interchangeably, and the term insurer is meant to represent any risk bearer for property and
19 casualty exposures, whether an insurance company, self-insured entity, or other.

20 I. Definitions

21 A loss reserve is a provision for its related liability. A total loss reserve is composed of five
22 elements, although the five elements may not necessarily be individually quantified:

- 23 • case reserve
- 24 • provision for future development on known claims
- 25 • reopened claims reserve
- 26 • provision for claims incurred but not reported
- 27 • provision for claims in transit (incurred and reported but not recorded)

28 Before these five elements are discussed, certain key dates and terms need to be defined.

29 The accounting date is the date that defines the group of claims for which liability may exist,
30 namely all insured claims incurred on or before the accounting date. The accounting date may
31 be any date selected for a statistical or financial reporting purpose.

32 The valuation date is the date through which transactions are included in the data base used
33 in the evaluation of the liability, regardless of when the analysis is performed. For a defined
34 group of claims as of a given accounting date, reevaluation of the same liability may be made as
35 of successive valuation dates. A valuation date may be prior to, coincident with or subsequent
36 to the accounting date.

37 The carried loss reserve is the amount shown in a published statement or in an internal
38 statement of financial condition.

39 An indicated loss reserve is the result of the application of a particular loss reserving
40 evaluation procedure. An indicated loss reserve for a given accounting date likely will change
41 from one valuation date to another.

42 A division is often required between reserves for known claims and reserves for claims which
43 have been incurred but not reported (IBNR). The reserve for known claims* represents
44 the amount, estimated as of the valuation date, that will be required for future payments on
45 claims that already have been reported to the insurer. The IBNR reserve represents the amount
46 that must be provided for future payments on insured losses that have occurred but that have not
47 been reported.

48 The case reserve† is defined as the sum of the values assigned to specific known claims
49 whether determined by claims adjusters or set by formula. Adjusters' estimates are the aggregate of
50 the estimates made by claims personnel for individual claims, based on the facts of the particular
51 claims. Formula reserves are reserves established for groups of claims for which certain classifying
52 information is provided. Formula reserving may be applied to individual claims or to aggregations of
53 claims with similar characteristics through use of average claim values or factors applied to
54 representative statistics (for example, premiums in force or earned premiums).

55 Development is defined as the change between valuation dates in the observed values of
56 certain fundamental quantities that may be used in the loss reserve estimation process. For
57 example, the observed number of reported claims associated with losses occurring within a
58 particular calendar period often will be seen to increase from one valuation date to the next until
59 all claims have been reported. The pattern of accumulating claims represents the development of
60 the number of claims.

61 In a similar fashion, the amount of claim payments for losses occurring within a specific
62 calendar period also will be seen to increase at succeeding valuation dates. In this case the
63 pattern of accumulating payments represents the development of claim costs and is usually
64 referred to by the term paid development. The concept of development also applies to incurred
65 losses. Incurred development is defined as the difference between estimates of incurred costs at
66 two valuation dates for a defined group of claims.

67 The provision for future development on known claims relates to incurred development on
68 those claims reported to an insurer on or before a specific accounting date that are still open on
69 that accounting date. Incurred development on such claims can be either increasing or
70 decreasing.

71 The reopened claims reserve is a provision for future payments on claims closed as of the
72 accounting date that may be reopened due to circumstances not foreseen at the time the claims
73 were closed. In some instances, post-closing payments or recoveries for claims not actually
74 reopened may be included with the development on known claims.

75 For many insurers a claim is considered to be reported when it is first recorded in the
76 accounting records of the insurer. Conceptually, two elements form the IBNR reserve. The first
77 of these elements is the provision for claims incurred but not reported, referred to as the "pure"
78 IBNR. This provision results from the normal delay that occurs in reporting losses. The second
79 element is the provision for claims in transit, which are incurred and reported but not recorded. This
80 provision represents the additional time consumed by the insurer's recording procedures.
81 As a practical matter it is not always feasible to measure these two elements separately, but it is
82 important to understand the effect reporting procedures can have on the amount of IBNR

83
84
85 *
86 The reserve for known claims is also sometimes referred to by other labels such as the
87 "reported reserve," the "reserve for claims adjusted or in the process of adjustment," or the
88 "reserve for unpaid losses excluding IBNR."

89 †
90 The term case reserve is sometimes used in place of the reserve for known claims.
91 However, as defined, the case reserve does not include the provision for future development
on known claims.

92 reserve. For some insurers claims in transit are considered known claims. The IBNR reserve
93 must provide for the ultimate value of IBNR claims including the development which is
94 expected to occur on these claims after reporting.
95 Loss adjustment expenses include allocated loss adjustment expenses and unallocated loss
96 adjustment expenses. Allocated loss adjustment expenses are those expenses, such as attorneys'
97 fees and other legal costs, that are incurred in connection with and are assigned to specific claims.
98 Unallocated loss adjustment expenses are all other claim adjustment expenses and include salaries,
99 utilities and rent apportioned to the claim adjustment function but not readily assignable to specific
100 claims. The definition of allocated and unallocated loss adjustment expenses for reserving purposes
101 varies among insurers, and an individual insurer's practice for reserving may not always conform
102 to its definition for statistical reporting or ratemaking purposes.

103 Since allocated expenses are assigned to specific claims, all of the analyses performed on
104 loss data can also be performed on allocated loss expense data. Thus, the allocated loss
105 adjustment expense reserve can be divided into known and IBNR components. All of the
106 concepts discussed in the preceding paragraphs, as well as each of the five elements of the loss
107 reserve, have similar meanings with regard to the allocated loss adjustment expense reserve.

108 Although the same statistical procedures normally do not apply to unallocated expenses, the
109 unallocated loss adjustment expense reserve can still be divided into known reserve and IBNR
110 components, and the concept of a particular valuation date is meaningful.

111 II. Principles

- 112 1. An actuarially sound loss reserve for a defined group of claims as of a given valuation date
113 is a provision, based on estimates derived from reasonable assumptions and appropriate
114 actuarial methods for the unpaid amount required to settle all claims, whether reported or
115 not, for which liability exists on a particular accounting date.
- 116 2. An actuarially sound loss adjustment expense reserve for a defined group of claims as of a
117 given valuation date is a provision, based on estimates derived from reasonable
118 assumptions and appropriate actuarial methods, for the unpaid amount required to
119 investigate, defend, and effect the settlement of all claims, whether reported or not, for
120 which loss adjustment expense liability exists on a particular accounting date.
- 121 3. The uncertainty inherent in the estimation of required provisions for unpaid losses or loss
122 adjustment expenses implies that a range of reserves can be actuarially sound. The true
123 value of the liability for losses or loss adjustment expenses at any accounting date can be
124 known only when all attendant claims have been settled.
- 125 4. The most appropriate reserve within a range of actuarially sound estimates depends on
126 both the relative likelihood of estimates within the range and the financial reporting context
127 in which the reserve will be presented.

128 Although specific reserve requirements may vary, the same basic principles apply in each
129 context in which the reserves are stated, including statutory balance sheets, statements of
130 opinion on loss reserves, and reports to shareholders or securities regulators. Guidance in the
131 application of these principles is provided in the Considerations section of this statement.

132 III. Considerations

133 Understanding the trends and changes affecting the data base is a prerequisite to the
134 application of actuarially sound reserving methods. A knowledge of changes in underwriting,
135 claims handling, data processing and accounting, as well as changes in the legal and social
136 environment, affecting the experience is essential to the accurate interpretation and evaluation of
137 observed data and the choice of reserving methods.

138 A knowledge of the general characteristics of the insurance portfolio for which reserves are

139 to be established also is important. Such knowledge would include familiarity with policy
140 provisions that may have a bearing on reserving, as well as deductibles, salvage and
141 subrogation, policy limits, and reinsurance.

142 **Data Organization**

143 The categorization of claims by time unit is extremely important. The successful organization of a
144 data base for reserving revolves around five key dates:

- 145 • accident date, which is the date on which the loss occurred, or for those losses that cannot
146 be identified with a single isolated event, the date on which the loss is deemed to have
147 occurred
- 148 • report date, which is the date on which the loss is first reported to the insurer (in practice it
149 is often taken to be the recorded date)
- 150 • recorded date, which is the date on which the loss is first entered in the statistical records of
151 the insurer
- 152 • accounting date
- 153 • valuation date

154 Commonly, insurers compile claim data by accident periods (accident year, accident quarter,
155 accident month, etc.), which group together all claims with accident dates falling within
156 particular fiscal periods; or by policy periods, which group all claims relating to policies written
157 during particular fiscal periods. Claim information by accident year is required for various
158 financial reporting schedules. Many insurers also compile claim data by report periods, which
159 group together all claims with report dates falling within specified fiscal periods.

160 Claims with report dates equal to or prior to a particular accounting date would be classified
161 as known or reported claims with respect to the accounting date, but claims with report dates
162 later than a particular accounting date and with accident dates equal to or earlier than the
163 accounting date would be classified as IBNR with respect to the accounting date.

164 The preceding paragraph gives the precise definition of IBNR claims. In practice a broader
165 definition is sometimes used in which the IBNR reserve denotes the provision for late reported
166 claims, development on known claims, and a provision for reopened claims.

167 The ambiguity regarding the definition of IBNR can result from the differing strategies
168 insurers may employ in approaching loss reserving. The two common strategies are the report
169 period approach and the accident period approach. In the report period approach the adequacy
170 of existing reserves on reported claims is estimated on the basis of the historical results. Further
171 analysis is required in order to measure the emergence of IBNR claim. In a pure accident
172 period approach, the ultimate cost of all claims, both reported and unreported, arising from each
173 accident period is estimated. This approach results in an estimate of the loss reserve without
174 segregation of claims incurred but not reported. The estimated loss reserve is then apportioned
175 between reserves for IBNR and known claims on a suitable basis. Because accident period
176 techniques do not necessarily require separate treatment of reported and unreported claims,
177 their use can lead to a broader definition IBNR as mentioned above.

178 The method of assigning report dates to reopened claims can also affect the IBNR reserve.
179 Because reopened claims are generated from claims previously reported and closed, there is
180 general agreement that the provision for this liability should be included in the reserve for
181 known claims. Some insurers, however, establish new report dates for reopened claims and
182 thereby consider the provision for these claims as a component of the IBNR reserve.

183 **Homogeneity**

184 Loss reserving accuracy often is improved by subdividing experience into groups exhibiting
185 similar characteristics, such as comparable claim experience patterns, settlement patterns or size
186 of loss distributions. For a heterogeneous product, such as commercial multi-peril or
187 miscellaneous liability insurance, consideration should be given to segregating the experience
188 into more homogeneous groupings. Other example applications concern the distinctions
189 between personal and commercial risks and between primary and excess coverage.
190 Additionally, subdividing or combining the data so as to minimize the distorting effects of
191 operational or procedural changes should be fully explored.

192 **Credibility**

193 Credibility is a measure of the predictive value that the actuary attaches to a body of data.
194 The degree to which consideration is given to homogeneity is related to the consideration of
195 credibility. Credibility is increased by making groupings more homogeneous or by increasing
196 the number of claims analyzed within each group. A group of claims should be large enough to
197 be statistically reliable. Obtaining homogeneous groupings requires refinement and partitioning of
198 the total data base. There is a point at which partitioning divides data into cells too small to
199 provide credible development patterns. Each situation requires a balancing of the homogeneity
200 and amount of data in each grouping. Thus, line and coverage definitions suitable for the
201 establishment of reserves for large insurers can be in much finer detail than in the case of small
202 insurers. Where a very small group of claims is involved, use of external information such as
203 industry aggregates may be necessary.

204 **Data Availability**

205 Data should meet requirements for the proper evaluation of reserves. Existing information
206 systems may impose constraints while more suitable data are being developed. Whatever data
207 are used in analysis of reserves, they must reconcile to the insurer's financial records. If
208 reserves are established in less detail than necessary for reporting requirements, procedures for
209 properly assigning the reserves to required categories must be developed.

210 **Emergence Patterns**

211 The delay between the occurrence of claims and the recording of claims depends upon both the
212 line of business and the insurer's practices. In general, property claims are reported quickly,
213 whereas the reporting of liability claims may be substantially delayed.

214 A review of the insurer's claims practices should be made to assure that assumptions
215 regarding the claims process are appropriate. If a change in claims procedures is identified, its
216 impact on emergence patterns should be evaluated.

217 **Settlement Patterns**

218 The length of time that it normally takes for reported claims to be settled will affect the
219 choice of the loss reserving methods. Lines of business for which claims settle quickly generally
220 are less subject to reserve uncertainty. A claim arising under collision coverage, for example,
221 tends to be settled quickly, and the amount of settlement is usually close to the original estimate.
222 Conversely, a bodily injury liability claim often requires a long time to settle. Moreover, the
223 amount of settlement often varies considerably from the original estimate, since it depends on
224 the interaction of complex variables such as the type and severity of the injury and the
225 intricacies of the judicial process.

226 **Development Patterns**

227 The pattern of development on known claims should be carefully reviewed. An insurer's
228 claims procedures will affect the manner in which the case reserves develop for any group of
229 claims, and changes in claims practices may affect the consistency of historical developments.
230 Further, the length of time to settlement may affect the observed development.

231 If reserves have been established at present values, the payments of claims, by themselves,
232 cause an appearance of upward development apart from development due to other factors. To
233 interpret development patterns correctly, the development history should be restated to remove
234 the effect of discounting.

235 **Frequency and Severity**

236 The same total dollars of losses may arise from a few very large claims or from many small
237 claims. Reserve estimates will tend to be more accurate for losses resulting from a high
238 frequency/low severity group of claims than from a low frequency/high severity group of claims.
239 Therefore, the evaluation of reserves for low frequency/high severity groups of claims will
240 ordinarily require more extensive analysis. If the exposure for the group of claims being
241 considered includes the potential for claims of a magnitude not present in historical data,
242 adjustments should be made to reflect the expectation of such claims.

243 **Reopened Claims Potential**

244 The tendency for closed claims to reopen varies substantially among lines of business.
245 Judicial opinions and legislation can affect the reopening of claims, as can changes in an
246 insurer's procedures.

247 **Claims-Made**

248 Some coverages may be provided on a policy form covering claims reported during a
249 certain period rather than claims arising out of occurrences during that period. Claims-made
250 data should be segregated from experience on occurrence policies. It may be necessary to
251 augment claims-made statistics with appropriate report period statistics generated under
252 occurrence programs.

253 Certain provisions may modify the claims-made policy upon fulfillment of conditions
254 stipulated in the contract. Review of the contract wording is necessary to determine the
255 appropriate reserve, if any, for occurrences prior to the policy effective date or claims reported
256 after the policy expiration.

257 **Aggregate Limits**

258 For certain insurance coverages, such as products and professional liability, aggregate policy
259 limits may act to restrict total potential incurred losses and therefore reserve requirements. In
260 the review of groups of claims where aggregate limits apply, modeling techniques or audit tests
261 of the data will reveal to what extent limit ceilings have been reached and assist in determining
262 how reserve projections may have to be modified.

263 **Salvage, Subrogation, and Collateral Sources**

264 For a proper evaluation of an insurer's total reserve position, the potential impact of salvage
265 and subrogation on the group of claims under consideration should be evaluated even though
266 statutory accounting may prohibit a deduction from loss reserves. In addition, the impact of
267 coinsurance, deductibles, coordination of benefits, second injury fund recoveries, as well as any
268 other collateral sources, should be considered.

269 **Generally Accepted Accounting Principles**

270 Reports to shareholders and to securities regulators are governed by generally accepted
271 accounting principles (GAAP). GAAP reserves may be defined differently from statutory
272 reserves. For example, GAAP reserves are ordinarily reduced by anticipated salvage and
273 subrogation. The same principles of analysis used for statutory estimates can be applied to
274 GAAP reserve estimates.

275 **Reinsurance**

276 Reserves are affected by the types of reinsurance plans and retentions that were and are in
277 force, and the impact of changes in net retentions should be evaluated. To determine the effect
278 of reinsurance it may be appropriate to analyze direct and ceded experience separately. The
279 recoverability of ceded reinsurance is a further consideration; generally, it is addressed
280 separately from the reserve evaluation process.

281 **Portfolio Transfers, Commutations, and Structured Settlements**

282 Portfolio transfers, commutations, and structured settlements generally recognize the time
283 value of money. Such transactions should be evaluated for their impact on the loss reserves and
284 the development patterns.

285 **Pools and Associations**

286 The loss liabilities of an insurer depend to some degree on forces beyond its control, such as
287 business obtained through participation in voluntary and non-voluntary underwriting pools and
288 associations. The operating and reserving policies of these organizations vary, and adjustments
289 to reserves reported by the pools and associations may be warranted.

290 **Operational Changes**

291 The installation of a new computer system, an accounting change, a reorganization of claims
292 responsibility or changes in claims handling practices or underwriting programs are examples of
293 operational changes that can affect the continuity of the loss experience. The computation of the
294 reserves should reflect the impact of such changes.

295 **Changes in Contracts**

296 Changes in contract provisions, such as policy limits, deductibles, or coverage attachment
297 points, may alter the amounts of claims against an insurer. Such contractual changes may affect
298 both the frequency and severity of claims.

299 **External Influences**

300 Due regard should be given to the impact of external influences. External influences include
301 the judicial environment, regulatory and legislative changes, residual or involuntary market
302 mechanisms, and economic variables such as inflation.

303 **Discounting**

304 There are circumstances where loss reserves are stated on a present value basis. To calculate
305 or evaluate such reserves, it is generally appropriate to perform an analysis on an undiscounted
306 basis and then apply the effect of discounting.

307 **Provision for Uncertainty**

308 A reserve estimate should take into account the degree of uncertainty inherent in its
309 projections. A reserve stated at its ultimate value may include an implicit provision for
310 uncertainty due to the time value of money. If a reserve is to be stated at a present value, it may
311 be appropriate to include an explicit provision for uncertainty in its undiscounted amount.
312 Further, an explicit provision for uncertainty may be warranted when the indicated ultimate

313 reserve value is subject to a high degree of variability.

314 **Reasonableness**

315 The incurred losses implied by the reserves should be measured for reasonableness against
316 relevant indicators, such as premiums, exposures, or numbers of policies, and expressed
317 wherever possible in terms of frequencies, severities, and loss ratios. No material departure from
318 expected results should be accepted without attempting to find an explanation for the variation.

319 **Loss-Related Balance Sheet Items**

320 The loss reserve analysis may have implications for other loss-related balance sheet items.
321 These include contingent commissions, retrospective premium adjustments, policyholder
322 dividends, premium deficiency reserves, minimum statutory reserves and the deduction for
323 unauthorized reinsurance.

324 **Loss Reserving Methods**

325 Detailed discussion of the technology and applicability of current loss reserving practices is
326 beyond the scope of this statement. Selection of the most appropriate method of reserve
327 estimation is the responsibility of the actuary. Ordinarily the actuary will examine the
328 indications of more than one method when estimating the loss and loss adjustment expense
329 liability for a specific group of claims.

330 **Standards of Practice**

331 This statement provides the principles of loss reserving. The actuary should also be familiar
332 with standards of practice, which address the application of these principles.