

Actuarial Standard of Practice #53

*Estimating Future Costs for
Prospective Property/Casualty Risk Transfer
and Risk Retention*

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Highlights of ASOP #53

- Requested on behalf of the CAS Board in 2009
- Three exposure drafts released for comment
- Covers ALL Considerations listed in the CAS Statement of Principles of Property/Casualty Ratemaking (1988 edition)
- “Umbrella Standard” as it refers to many existing pertinent ASOPs
- Approved by the Actuarial Standards Board December 2017
- Effective for work performed on or after August 1, 2018

Section 1. Purpose, Scope, Cross References, and Effective Date

1.1 Purpose

This actuarial standard of practice (ASOP) provides guidance to actuaries when performing actuarial services with respect to developing or reviewing future cost estimates for prospective property/casualty risk transfer and risk retention. This includes future cost estimates for insurance, reinsurance, self-insurance, loss portfolio transfers, or any other mechanisms for risk transfer or risk retention.

1.2 Scope

This standard applies to actuaries when performing actuarial services with respect to developing or reviewing future cost estimates (commonly known as actuarial indications) for prospective property/casualty risk transfer and risk retention. For example, this standard applies when actuaries are developing future cost estimates underlying product prices, estimating funding requirements for self-insured programs and captives, and developing reinsurance prices.

1.2 Scope (continued)

As estimates are often made for separate elements of the cost of risk transfer and risk retention (for example, loss and loss adjustment expenses, operational and administrative expenses, the cost of reinsurance, and the cost of capital) and subsequently summed to a total cost estimate, this standard applies to the separate elements as well as the total. If the actuary's role relates to any of the elements of the future cost estimate, the guidance in this standard applies only to the actuarial services related to those elements. If the actuary's actuarial services involve reviewing future cost estimates developed by another party, the actuary should use the guidance in section 3 to the extent practicable. This standard also applies to developing or reviewing the future cost estimates by class within a risk classification system.

1.2 Scope (continued)

Actuarial services involved in developing or reviewing estimates of future costs may include actuarial communications, expert testimony, regulatory activities, legislative activities, or statements concerning public policy to the extent these activities involve providing an opinion on property/casualty future cost estimates.

If the actuary departs from the guidance set forth in this standard in order to comply with applicable law (statutes, regulations, and other legally binding authority), or for any other reason the actuary deems appropriate, the actuary should refer to section 4.

1.4 Effective Date

*This standard is effective for work performed
on or after August 1, 2018*

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice.

2.1 Coverage

The terms and conditions of a plan or contract, or the requirements of applicable law, that create an obligation to pay benefits, expenses, or claims associated with contingent events.

2.2 Exposure Base

A basic unit that is used to measure the future cost of risk transfer and risk retention. This unit can vary by element of cost.

2.3 Method

A systematic procedure for developing, reviewing, or revising future cost estimates or elements thereof.

2.4 Model

A simplified representation of relationships among real world variables, entities, or events using statistical, financial, economic, mathematical, or scientific concepts and equations.

2.5 Risk Retention

A risk-management and risk-control strategy for the assessment, management, or financing of retained risk associated with the specific coverage. Examples of risk retention include self-insurance and certain types of single parent captives.

2.6 Risk Transfer

A risk-management and risk-control strategy, involving legally binding agreements, that shifts responsibility from one party to another or indemnifies one party by another party for the financial obligations associated with the coverage. Examples of risk transfer include insurance, reinsurance, and loss portfolio transfers.

Section 3. Analysis of Issues and Recommended Practices

3.1 Future Cost Estimate

The actuary should determine the elements that are appropriate to include in the future cost estimate. Such elements should relate to the applicable coverage and include loss and loss adjustment expenses, operational and administrative expenses, the cost of reinsurance, and the cost of capital.

3.2 Intended Measure

The actuary should determine the intended measure of the future cost estimate based on the purpose or use of the estimate. The intended measure may vary for each element of the future cost estimate as needed and appropriate. Intended measures will be affected by the desires or needs of the principal, legal requirements, and the regulatory environments in which the future cost estimate will be used.

Examples of intended measures include the mean, the mean plus risk margin, the high or low estimate within a range of reasonably possible outcomes, and a specified percentile of the distribution of reasonably possible outcomes. There are instances in which other measures may be appropriate based upon the purpose or use of the estimate.

3.3 Organization of Data

The actuary should determine what data are available and appropriate for estimating future costs. Based on what data are available and appropriate, the actuary should determine how the data will be organized to develop or review the future cost estimate or any element of the future cost estimate.

The actuary should consider the level of data aggregation that the actuary believes is appropriate for the types of cost estimation analyses to be undertaken. Examples of aggregation methods include aggregating by accident period, calendar period, policy period, and report period. The nature of the coverage, the element of the future cost being estimated, and the type of analysis will influence the actuary's selection of the level of data aggregation.

3.3 Organization of Data (continued)

The actuary also should consider segmenting the data if the actuary believes it will improve the cost estimation analysis, subject to credibility considerations (see section 3.11). Examples of data segmentation include segmenting the data by coverage, risk class, or risk characteristic. Segmenting the data to more refined levels may be appropriate for estimating future costs within a risk classification system.

3.4 Data Quality

The actuary should refer to [ASOP No. 23, *Data Quality*](#), for guidance in the consideration of the choice and use of data for estimating future costs.

3.5 Methods, Models, and Assumptions

The actuary should select appropriate methods or models consistent with the intended measure for each element of the future cost. The actuary should use reasonable assumptions (including parameters) appropriate to each method or model. Assumptions may be implicit or explicit and may involve interpreting available experience, projecting future experience, or adjusting for changes in conditions affecting the available experience. The actuary should use methods or models, along with reasonable assumptions, that, in the actuary's professional judgment, have no known significant bias in the aggregate relative to the intended measure. When using models, the actuary should refer to *ASOP No. 38, Using Models Outside the Actuary's Area of Expertise (Property and Casualty)*.

3.6 Exposure Base

If selecting a new exposure base or changing an existing exposure base, the actuary should select an exposure base that bears a strong relationship to the cost of risk transfer or risk retention and is practical. Characteristics of a practical exposure base may include that the exposure base is objectively measurable and easily verifiable.

Some mechanisms for implementing risk transfer and risk retention may use multiple exposure bases, with different exposure bases applying to different aspects of coverage provided (for example, sales revenue for general liability, amount of insurance for commercial property). In undertaking analyses for these mechanisms, it may be appropriate to select one exposure base, referred to as the composite exposure base, to act as a proxy for the more refined coverage-by-coverage exposure bases.

3.7 Risk Classification System

Risk classification systems can be an integral part of the development of future cost estimates for prospective property/casualty risk transfer and risk retention. The actuary should refer to [ASOP No. 12, *Risk Classification \(for All Practice Areas\)*](#), for guidance in designing, reviewing, or changing a risk classification system.

3.8 Use of Historical Data

The actuary should determine the extent to which historical data (premium, exposure, loss, and loss adjustment) are available and appropriate for estimating future costs. For example, the data should be consistent with insurance policy provisions or risk-management and risk-control strategies of the applicable insurance, reinsurance, self-insurance, loss portfolio transfers, or any other mechanisms for risk transfer or risk retention

3.8.1 Use of Historical Exposure and Premium Data

If the actuary is using historical exposure and premium data, the actuary should consider adjusting the data to reflect a consistent measurement of the historical exposures and rate level, if applicable. These considerations include adjusting historical data to a common exposure level and adjusting premium data for historical changes in the way premium charges are calculated, including both changes to manual rates and the impact of any individual risk rating plans, if applicable. If the actuary is adjusting historical exposure and premium data, the actuary should consider changes during and after the historical period and should select an appropriate method for adjustments that is consistent with the nature of the available data, the intended measure, and the purpose of the analysis.

3.8.2 Use of Historical Loss and Loss Adjustment Expenses

The actuary should determine the extent to which historical loss and loss adjustment expenses are available and appropriate as a basis for estimating future costs. In estimating future costs related to loss and loss adjustment expenses, the actuary should consider adjusting historical data using methods or models, along with reasonable assumptions, that, in the actuary's professional judgment, reflect the ultimate value of the loss and loss adjustment expenses. The actuary also should consider the following:

- a. the coverage being evaluated;
- b. the type of analysis (such as overall future cost level analysis or risk classification analysis); and
- c. the differences between the future period and the historical conditions under which the historical claims occurred, the claims were adjusted, and the claim reserves were set.

3.8.2 Use of Historical Loss and Loss Adjustment Expenses (continued)

The actuary should consider whether the analysis of loss adjustment expense data requires different methods, models, or assumptions than the analysis of loss data. Additionally, the actuary should consider whether different coverages within a line of business may require different methods, models, or assumptions.

3.8.3 Trends

The actuary should consider past and prospective changes in claim costs, claim frequencies, exposures, and premiums. The actuary should refer to [*ASOP No. 13, Trending Procedures in Property/Casualty Insurance*](#), for guidance in the selection of trends for estimating future values of costs associated with the elements that make up the future cost estimate.

3.8.4 Additional Adjustments to Historical Data

The actuary should consider whether additional adjustments to the historical data are needed to reflect the environment expected to exist in the period for which the future costs are being estimated. If the actuary makes adjustments, these adjustments should be made so that the historical data are stated and used on a consistent basis. Examples of changes that may suggest the need for adjustments include the following:

- a. judicial, legislative, or regulatory changes;
- b. mix of business changes;
- c. policy contract changes;
- d. claim practice or reserving changes;
- e. operational changes;
- f. accounting changes; and
- g. reinsurance changes.

3.9 Expenses

Some types of expenses may require different treatment for future cost estimates than other types of expenses. The actuary should refer to *ASOP No. 29, Expense Provisions in Property/Casualty Insurance Ratemaking*, and *ASOP No. 13* for guidance in estimating future expenses.

3.10 New Coverages or Exposures

If the actuary is estimating the future cost for a new coverage or exposure, and the historical loss and loss adjustment expenses are either unavailable, limited, or not fully representative of the new coverage or exposure, the actuary should consider the following in selecting data and developing methods, models, or assumptions for use in estimating the future costs:

- a. data from coverages or exposures that are similar to the new coverage or exposure;
- b. data on the phenomenon or events that are contemplated by the new coverage or exposure;
- c. differences between coverages or exposures with available relevant data and the new coverage or exposure; and
- d. appropriate adjustments to the available relevant data to reflect expected differences identified in section 3.10(c).

3.11 Credibility

The actuary should refer to [ASOP No. 25, *Credibility Procedures*](#), for guidance in considering the credibility given to a particular set of data and the selection of the relevant experience used to supplement the data, which is often referred to as the complement of credibility.

3.12 Treatment of Catastrophes

The actuary should refer to [ASOP No. 38](#) and [ASOP No. 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*](#), for guidance in the consideration of catastrophes.

3.13 Treatment of Infrequent Events

The actuary should consider whether it is necessary to use methods that adjust for either the presence or absence of infrequent large losses in the historical data set. For example, some data sets may require using a longer experience period to calculate an appropriate provision for large losses. Similarly, when estimating expected losses in higher layers that contain infrequent losses, different methods may be appropriate. In some cases, the methods used to deal with catastrophe losses may be applicable and the actuary should refer to [ASOP No. 39](#).

3.16 Additional Funding Sources

In some mechanisms for risk transfer, income may come from other sources, such as assessments paid by policyholders or other parties including insurers, a group of insurance purchasers, or taxpayers. The actuary should consider additional sources of funding and their allocation and timing when estimating future costs.

Section 4. Communications and Disclosures

4.1 Actuarial Communications

When issuing actuarial communications under this standard, the actuary should refer to [ASOP Nos. 12, 13, 23, 25, 29, 30, 38, 39, and 41, *Actuarial Communications*](#). In addition, the actuary should disclose the following in an appropriate actuarial communication:

- a. the elements included in the future cost estimates (see section 3.1);
- b. the intended measure used in developing or reviewing the future cost estimates (see section 3.2);
- c. the methods or models used in developing or reviewing the future cost estimates (see section 3.5); and
- d. the material assumptions made by the actuary and used in developing or reviewing the future cost estimates (see section 3.5).

4.2 Disclosures

The actuary should also include the following in an actuarial communication, if and when applicable:

- a. if appropriate data are available for the analysis, the actuary should disclose the data organization (level of data aggregation and, if considered, segmentation) used for each element (see section 3.3);
- b. if the actuary selects a new exposure base or changes an existing exposure base, the actuary should disclose the new or revised exposure base (see section 3.6);
- c. if the actuary uses historical data, the actuary should disclose any adjustments made to the historical data to account for expected differences between the historical data and future experience (see sections 3.8 and 3.10). For adjustments made to address issues of data quality, refer to [ASOP No. 23](#);
- d. if the actuary estimates future costs for a coverage or exposure when the historical data are unavailable, limited, or not fully representative, the actuary should disclose the data used and any appropriate adjustments made to the data (see sections 3.8.4 and 3.10);

4.2 Disclosures (continued)

The actuary should also include the following in an actuarial communication, if and when applicable:

- e. when the cost of reinsurance is reflected in future cost estimates, the actuary should disclose the methods or models, along with the material assumptions, used in estimating the costs of reinsurance (see section 3.14);
- f. if the actuary considers additional sources of funding, the actuary should disclose how the funding was reflected in estimating the future cost (see section 3.16);
- g. the disclosure in [ASOP No. 41, section 4.2](#), if any material assumption or method was prescribed by applicable law;
- h. the disclosure in [ASOP No. 41, section 4.3](#), if the actuary states reliance on other sources and thereby disclaims responsibility for any material assumption or method selected by a party other than the actuary; and
- i. the disclosure in [ASOP No. 41, section 4.4](#), if, in the actuary's professional judgment, the actuary has otherwise deviated materially from the guidance of this ASOP.

Questions and Comments

Thank you to all who participated in the process