ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 20

Analysis of Property/Casualty Cash Flows, Including Discounting

Developed by the
Task Force to Revise ASOP No. 20 of the
Casualty Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
December 2025

Doc. No. 220

TABLE OF CONTENTS

APPENDIXES

December 2025

TO: Members of Actuarial Organizations Governed by the Standards of the Actuarial Standards Board and Other Persons Interested in Analysis of Property/Casualty Cash Flows, Including Discounting

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 20

This document contains the revision of ASOP No. 20, *Analysis of Property/Casualty Cash Flows, Including Discounting*.

History of the Standard

ASOP No. 20, *Discounting of Property and Casualty Loss and Loss Adjustment Expense Reserves,* was originally adopted by the ASB in April 1992. In 2011, ASOP No. 20 was revised to reflect current terminology and practice and to provide more consistency with the language in ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*.

ASOP No. 20 was revised again in 2023 to address potential scope gaps with other ASOPs, reflect the interaction between this standard and ASOP No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*, and address changes in actuarial practice in the areas of estimating the future costs of prospective risk transfer or risk retention for loss accrual determinations, premium setting, and ratemaking assignments.

The 2023 revision also addressed the issue of discount rates provided by others (for example, requested by the principal or provided by investment managers or finance departments), because the discount rate is a material assumption in developing a discounted claim estimate.

In 2024, the ASB decided to remove property/casualty actuarial practice from the scope of ASOP No. 7, *Analysis of Life, Health and Property/Casualty Insurance Cash Flows*. This revision of ASOP No. 20 expands the scope beyond discounting of claim estimates (i.e., loss and loss adjustment expense reserves and prospective loss and loss adjustment expense funding) to include any property/casualty cash flow analysis (discounted or undiscounted). This includes non-loss cash flows such as premiums, underwriting expenses, and other non-loss items. This revision consolidates guidance for a variety of actuarial work products that use similar data, methods, models, and assumptions for cash flow analyses.

Exposure Draft

The exposure draft of the proposed revision of ASOP No. 20, *Analysis of Property/Casualty Cash Flows, Including Discounting*, was issued in March 2025 with a comment deadline of August 1, 2025. Seven comment letters were received and considered in making changes that are reflected in this revision.

ASOP No. 20—December 2025

Notable Changes from the Exposure Draft

There were no notable changes from the exposure draft.

Notable Changes from the Existing Standard

Notable changes from the existing standard are summarized below. Notable changes do not include additional changes made to improve readability, clarity, or consistency.

1. In sections 1.1 and 1.2, the scope was expanded to incorporate the elements of ASOP No. 7 that previously applied to property/casualty actuarial practice to provide guidance on both discounted and undiscounted cash flow analyses.

2. In section 2, definitions of accounting date, cash flow, cash flow analysis, discounted cash flow, investment cash flows, other cash flows, and underwriting cash flows were added. Definitions of insurance risk and investment risk were deleted.

3. In section 3.1, the intended purpose was expanded to include all property/casualty cash flow analyses. References to ASOP Nos. 43 and 53 were moved from section 1.2 to section 3.1, and references to ASOP Nos. 29, *Expense Provisions in Property/Casualty Insurance Ratemaking*; 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*; and 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*, were added.

4. Section 3.3 was expanded to provide guidance on the timing of underwriting cash flows, investment cash flows, and other cash flows.

5. Section 3.3.3 was added to provide guidance on changing conditions that might impact discount rates.

6. Section 3.5 was expanded to provide guidance on risk margins applied to all cash flows.

7. Disclosure requirements were added in section 4, mostly to address expanded guidance throughout section 3.

The ASB thanks everyone who took the time to contribute comments and suggestions on the exposure draft.

The ASB voted to adopt this standard in December 2025.

The Actuarial Standards Board (ASB) sets standards for appropriate actuarial practice in the United States through the development and promulgation of Actuarial Standards of Practice (ASOPs). These ASOPs describe the procedures an actuary should follow when performing actuarial services and identify what the actuary should disclose when communicating the results of those services.

ACTUARIAL STANDARD OF PRACTICE NO. 20

ANALYSIS OF PROPERTY/CASUALTY CASH FLOWS, INCLUDING DISCOUNTING

STANDARD OF PRACTICE

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

1.1 Purpose—This actuarial standard of practice (ASOP or standard) provides guidance to actuaries when performing actuarial services with respect to a property/casualty **cash flow analysis**, including discounting.

1.2 Scope— This standard applies to actuaries when performing actuarial services with respect to a property/casualty **cash flow analysis**, including discounting.

This standard applies to actuaries when performing a property/casualty **cash flow analysis** involving **underwriting cash flows**, **investment cash flows**, or **other cash flows**. Examples include discounted **claim estimates**, determination of capital adequacy, product development or ratemaking studies, evaluations of investment strategy, financial projections or forecasts, actuarial appraisals, and testing of policyholder dividends or retrospective premiums.

This standard applies to actuaries when performing a **cash flow analysis** that involves the discounting of **cash flows** to a present value, including unpaid and future **claim estimates**. Unpaid **claim estimates** represent an estimate of the obligation for future loss and loss adjustment expense payments resulting from claims due to past events. Future **claim estimates** represent an estimate of loss and loss adjustment expenses associated with prospective property/casualty **risk transfer** or **risk retention**.

This standard applies to actuaries when performing a **cash flow analysis** for any class of entity, including self-insureds, insurance companies, reinsurers, governmental entities, and other risk-sharing pools. This standard applies to actuaries when estimating **cash flows** gross of recoverables (such as deductibles, ceded reinsurance, and salvage and subrogation), **cash flows** net of such recoverables, and **cash flows** of such recoverables.

If the actuary is performing actuarial services that involve reviewing a **cash flow analysis** developed by another party, the actuary should follow the guidance in section 3 to the extent practicable within the scope of the actuary's assignment.

This standard does not require the actuary to use **discounted cash flows** or a **risk margin**.

This standard applies to actuaries when performing a **cash flow analysis** to estimate items that may be a function of **cash flows**, including but not limited to loss-based taxes, contingent commissions, and retrospectively rated premiums.

This standard applies to actuaries when providing actuarial services with respect to health benefits associated with state or federal workers' compensation statutes and liability policies. This standard does not apply to actuaries when performing actuarial services with respect to unpaid claims under a "health benefit plan" covered by ASOP No. 5, *Incurred Health and Disability Claims*, ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions*, or included as "health and disability liabilities" under ASOP No. 42, *Health and Disability Actuarial Assets and Liabilities Other Than Liabilities for Incurred Claims*.

If the actuary determines that the guidance in this standard conflicts with an ASOP that applies to all practice areas, this standard governs.

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

1.3 Cross References—When this standard refers to the provisions of other documents, the reference includes the referenced documents as they may be amended or restated in the future, and any successor to them, by whatever name called. If any amended or restated document differs materially from the originally referenced document, the actuary should follow the guidance in this standard to the extent it is applicable and appropriate.

1.4 Effective Date—This standard is effective for any actuarial work product covered by this standard's scope issued on or after June 1, 2026.

Section 2. Definitions

The terms below are defined for use in this standard and appear in bold throughout the ASOP. The actuary should also refer to ASOP No. 1, *Introductory Actuarial Standard of Practice*, for definitions and discussions of common terms, which do not appear in bold in this standard.

2.1 Accounting Date—The stated cutoff date for reflecting events and recording amounts in a financial statement or accounting system. The **accounting date** is sometimes known as the "as of date."

2.2 Cash Flow—A receipt, disbursement, or transfer of cash or equivalent assets. **Cash flows** may include **underwriting cash flows**, **investment cash flows**, and **other cash flows**. **Cash flows** may include historical amounts or prospective estimates.

2.3 Cash Flow Analysis—An evaluation or projection of **cash flows**. A **cash flow analysis** may include **discounted cash flows**.

2.4 Claim Estimate—An estimate on an undiscounted basis of the obligation for future loss and loss adjustment expenses resulting from claims due to past events or an estimate of loss and loss adjustment expenses associated with prospective property/casualty **risk transfer** or **risk retention**. **Claim estimates** may include elements, such as case reserves, developed by individuals other than actuaries.

2.5 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.

2.6 Discounted Cash Flow—The actuary's estimate of the present value of a **cash flow**.

2.7 Investment Cash Flows—All **cash flows** related to investment operations, including investment purchases, sales, income, and expenses.

2.8 Other Cash Flows—All **cash flows** not characterized as **underwriting cash flows** or **investment cash flows**. Examples include shareholder dividends, capital contributions, income taxes, and non-risk bearing fee income.

2.9 Risk Margin—A provision for uncertainty in a **cash flow analysis**, reflecting process risk, parameter risk, or model risk. A **risk margin** may be implicit or explicit. A **risk margin** is sometimes referred to as a risk load.

2.10 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 individual and group self-insurance and large deductible programs.

2.11 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, prospective reinsurance such as quota share or excess of loss treaties, and retroactive reinsurance such as loss portfolio transfers.

2.12 Underwriting Cash Flows—All **cash flows** related to underwriting operations, including premiums, claims, claims expenses, and underwriting expenses.

Section 3. Analysis of Issues and Recommended Practices

3.1 Intended Purpose and Identification of Cash Flows—The actuary should identify the intended purpose of the **cash flow analysis**. The actuary should identify the **cash flows** and **accounting date(s)** to be used in the **cash flow analysis** consistent with the intended purpose. The actuary should identify the date(s) to which the **cash flow analysis** is discounted, if applicable.

When the **cash flow analysis** includes

a. expense provisions, the actuary should refer to ASOP No. 29, *Expense Provisions in Property/Casualty Insurance Ratemaking*.

b. profit and contingencies provisions, the actuary should refer to ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*.

e. **cash flows** related to catastrophes or extreme events, the actuary should refer to ASOP No. 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*.

c. unpaid **claim estimates**, the actuary should refer to ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*.

d. future **claim estimates** associated with prospective **risk transfer** or **risk retention**, the actuary should refer to ASOP No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*.

3.2 Methods, Models, and Assumptions—The actuary should select methods, models, and assumptions in the **cash flow analysis** that are appropriate for the intended purpose. In determining the methods, models, and assumptions appropriate for the circumstances of the **cash flow analysis**, the actuary should take into account the types of **underwriting cash flows**, **investment cash flows**, or **other cash flows**, the variability of risks associated with those **cash flows**, and any interactions between these risks.

When selecting methods, models, and assumptions for a discounted **cash flow analysis**, the actuary should take into account the relative impact of various methods, models, and assumptions on the discounted **cash flow analysis** and the undiscounted **cash flow analysis**. For example, a development factor at an advanced maturity (such as a "tail factor") has less impact on a discounted estimate than on an undiscounted estimate. Conversely, a change in the timing of loss payments may have a greater impact on a discounted estimate than on an undiscounted estimate.

3.3 Cash Flow Timing and Amount—The actuary should use reasonable assumptions regarding the timing and amount of **cash flows**. Assumptions may be implicit or explicit and may involve interpreting past data or projecting future trends.

3.3.1 Unbiased Assumptions—The actuary should use assumptions that the actuary expects to have no material bias to underestimation or overestimation of the **cash flows**, prior to consideration of any **risk margins**.

3.3.2 Consistency of Estimates—When projecting **cash flows** using an initial total amount that was not derived using a **cash flow analysis**, the actuary should confirm that the total projected **cash flows** are consistent with this initial amount. For example, if discounting an unpaid **claim estimate**, the **cash flow analysis** should be consistent with the unpaid **claim estimate** produced by the unpaid claim analysis.

3.3.3 Consistency with Expected Future Conditions—The actuary should determine estimates of the timing of **cash flows** that are consistent with conditions expected to prevail during the future period. If conditions are expected to be different from those prevailing during the historical evaluation period, the actuary should make appropriate adjustments to the estimated **cash flows**.

3.3.4 Sensitivity of Assumptions—When discounting **cash flows**, the actuary should take into account the sensitivity of **discounted cash flows** to the timing of future payments and may use a range of payment pattern assumptions.

3.3.5 Underwriting Cash Flows—If the **cash flow analysis** includes future **underwriting cash flows**, the actuary should take into account **coverage**, accident or policy period, reinsurance terms, and any other features that may have a material effect on the timing and amount of such **underwriting cash flows**.

The actuary should use assumptions in estimating the timing of **underwriting cash flows** that are consistent with the assumptions used in developing premiums, underwriting expenses, and **claim estimates**, when the assumptions are available and appropriate for the **cash flow analysis**.

The actuary should take into account the timing and amount of expected recoverables (for example, deductibles, reinsurance, retrospective premium adjustments, ceding commissions, and salvage and subrogation) that may impact the **underwriting cash flows** to the extent appropriate.

3.3.6 Investment Cash Flows—If the **cash flow analysis** includes future **investment cash flows**, the actuary should take into account the composition of the projected investment portfolio in terms of type, quality, and maturity. The actuary should use assumptions that are consistent with the future investment strategy of the entity to the extent known by the actuary.

3.3.7 Other Cash Flows—If the **cash flow analysis** includes future **other cash flows**, the actuary should take into account relevant factors, such as historical **other cash flows** or the entity's policies, that may influence the timing and magnitude of the projected **other cash flows**.

3.4 Discount Rates—When discounting **cash flows**, the actuary should use reasonable discount rates. The actuary may use a discount rate that is a single rate or a series of rates, such as a yield curve. The actuary may use a range of discount rates or discount rates that vary by type of **cash flow**.

3.4.1 Selection of Discount Rates—The actuary should select discount rates that are appropriate for the intended purpose. When selecting discount rates, the actuary should use one or more of the following:

3.4.1.1 Risk-Free Approach—This approach utilizes risk-free interest rates. Risk-free interest rates can be approximated by rates of investment return available on fixed-income assets having low investment risk and timing characteristics consistent with the **cash flows**.

3.4.1.2 Portfolio Approach—The selected discount rates in this approach are based on the anticipated return from a selected portfolio of assets. The portfolio of assets may reflect the actual assets supporting the **cash flows** to be discounted. Alternatively, the portfolio of assets may represent a notional portfolio that the actuary deems to be appropriate based on the characteristics of the notional assets in relation to the **cash flows** to be discounted.

When using the portfolio approach, the actuary should take into account, to the extent appropriate, the relationships between

a. the book value and market value of assets,

b. the anticipated portfolio rates of return and market rates of return, and

c. the maturities of the assets and the estimated timing of **cash flows**.

The actuary should also take into account investment expenses.

3.4.1.3 Discount Rates Provided by Another Party—When using discount rates provided by another party, the actuary should assess the discount rates for reasonableness.

3.4.1.4 Other Approaches—Other approaches, such as discounting to reflect the cost of capital, may be appropriate based on the intended purpose of the **cash flow analysis**.

3.4.2 Economic Conditions—When selecting discount rate assumptions, the actuary should take into account economic factors over the expected **cash flow** period including inflation, inflation risk, and macroeconomic conditions. The actuary should consider reflecting short-term versus long-term returns when selecting the discount rate(s), recognizing that long-term returns are generally more uncertain than short-term returns. The actuary should consider adjusting the discount rate(s) to reflect the uncertainty in future economic conditions.

3.4.3 Changing Conditions—The actuary should take into account whether there have been significant changes in conditions that impact **cash flows**, particularly with regard to **claim estimates**, that may not be sufficiently reflected in the experience data or in the assumptions used to estimate **cash flows**. Examples include legislative or judicial changes, operational changes, reinsurance program changes, and changes in the practices used by the entity's claims personnel to the extent such changes are likely to have a material effect on the results of the actuary's **cash flow analysis**. Changing conditions can arise from circumstances particular to the entity or from external factors affecting others within an industry.

3.5 Risk Margins—The actuary should consider including **risk margins** in a discounted **cash flow analysis** to reflect uncertainty in the amount or timing of **cash flows**. The actuary may include **risk margins** in a **cash flow analysis** that is not discounted, depending on the intended purpose of the **cash flow analysis**. The actuary may use different **risk margins** for different **cash flows**.

3.5.1 Implicit and Explicit Risk Margins—The actuary may include implicit **risk margins** through the selection of **cash flows** (including **claim estimates)**, **cash flow** patterns, or discount rates. The actuary may include explicit **risk margins** as an absolute amount (for example, stated percentile of distribution, a fixed amount, or stated percentage load above expected) or through an explicit adjustment to the selected discount rate(s).

3.5.2 Considerations for Discounted Cash Flows—Discounting a reasonable undiscounted **cash flow** may result in an inadequate **discounted cash flow**, unless appropriate **risk margins** are included. When determining the amount of **risk margin**, the actuary should take into account the increase in uncertainty associated with the discounting calculation due to uncertainties in **cash flow** timing and discount rate selection.

3.6 Applicable Law and Accounting Standards—The actuary should take into account whether applicable law or other relevant accounting standards impose constraints or requirements related to the use of **discounted cash flows** or **risk margins**.

3.7 Significant Limitations—The actuary should identify any significant limitations that constrain the actuary's **cash flow analysis** if, in the actuary's professional judgment, there is a significant risk that a more in-depth analysis would produce a materially different result.

3.8 Changes in Methods, Models, and Assumptions—When the **cash flow analysis** is an update of a previous analysis, the actuary should identify changes in methods, models, or assumptions that the actuary believes to have a material impact on the **cash flow analysis** and the reasons for such changes to the extent known by the actuary. This standard does not require the actuary to measure or quantify the impact of such changes.

3.9 Reliance on Another Party—When relying on another party and thereby disclaiming responsibility for

a. data and other information relevant to the use of data, the actuary should refer to ASOP No. 23, *Data Quality*.

b. a model, the actuary should refer to ASOP No. 56, *Modeling*.

c. assumptions or methods prescribed by another party, the actuary should review the assumption or method for reasonableness and consistency with other assumptions or methods to the extent practicable and appropriate within the scope of the actuary's assignment.

d. any other item not addressed above (including assumptions or methods provided, but not prescribed, by another party), the actuary should review the item for reasonableness and consistency to the extent practicable and appropriate within the scope of the actuary's assignment. In addition, the actuary should be reasonably satisfied that the reliance is appropriate, taking into account the following, as applicable:

   1. when the other party is an actuary, whether the actuary knows that the other party is appropriately qualified and has followed applicable ASOPs;

   2. whether the actuary knows that the other party has expertise in the applicable field;

   3. whether the actuary knows the other party's stated purpose for the item and the extent to which it is consistent with the actuary's intended purpose; and

   4. whether the actuary knows of differences of opinion within the other party's field of expertise that are material to the actuary's use of the item.

3.10 Documentation—The actuary should prepare and retain documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. The actuary should prepare documentation in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work. The amount, form, and detail of the documentation should be based on the professional judgment of the actuary and may vary with the complexity and purpose of the actuarial services. In addition, the actuary should refer to ASOP No. 41, *Actuarial Communications*, for guidance related to the retention of file material other than that which is to be disclosed under section 4.

Section 4. Communications and Disclosures

4.1 Required Disclosures in an Actuarial Report—When issuing an actuarial report, the actuary should refer to ASOP Nos. 23, 29, 30, 39, 41, 43, 53, and 56.

In addition, the actuary should disclose the following in such actuarial reports, if applicable:

a. the intended purpose of the **cash flow analysis** (see section 3.1);

b. the **accounting date(s)** of the **cash flow analysis** (see section 3.1);

c. the date(s) to which the **cash flow analysis** is discounted (see section 3.1);

d. the methods, models, and assumptions underlying the **cash flow analysis** and any material difference between those and the methods, models, and assumptions underlying the discounted **cash flow analysis** (see section 3.2);

e. the **cash flow** timing assumptions and the basis for those assumptions (see section 3.3);

f. specific significant risks and uncertainties, if any, with regard to actual timing and amount of **cash flows** (see section 3.3);

g. the basis of the range of **cash flow analysis** results, if the actuary provides a range (see sections 3.3 and 3.4);

h. the discount rate assumptions, the basis for those assumptions (including any material economic or operational changes from current conditions), and the treatment of any investment expenses (see section 3.4);

i. when discount rates were provided by another party, the party that provided the discount rates, the reasonableness of the discount rates, and the basis for the determination of reasonableness (see section 3.4.1.3);

j. whether the **cash flow analysis** includes a **risk margin**, and the basis for any explicit **risk margin** (see section 3.5);

k. any significant limitations that constrained the actuary's **cash flow analysis** (see section 3.7);

l. changes in methods, models, or assumptions that the actuary believes to have a material impact on the **cash flow analysis** and the reasons for such changes to the extent known by the actuary, if the **cash flow analysis** is an update of a previous estimate (see section 3.8); and

m. when assumptions or methods other than the discount rate are prescribed or provided by another party, the party that prescribed or provided them, and, to the extent practicable, the reasonableness of the method or assumption.

4.2 Additional Disclosures in an Actuarial Report—The actuary also should include disclosures in an actuarial report in accordance with ASOP No. 41 for any of the following circumstances:

a. if any material assumption or method was prescribed by applicable law;

b. 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

c. if in the actuary's professional judgment, the actuary has deviated materially from the guidance of this standard.

4.3 Confidential Information—Nothing in this standard is intended to require the actuary to disclose confidential information.

Appendix 1

Background and Current Practices

Note: This appendix is provided for informational purposes and is not part of the standard of practice.

Background

Discounting Claim Estimates

Prior to the issuance of ASOP No. 20, *Discounting of Property and Casualty Loss and Loss Adjustment Expense Reserves*, there was no standard of practice concerning discounting of property and casualty loss and loss adjustment expense reserves. Since then, the ASB has issued ASOP No. 36, *Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves,* and ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*. The 2011 revision of ASOP No. 20 provided more consistency with the language in these two ASOPs and updated guidance for the increased use of discounting related to fair value calculations.

In 2017, the ASB issued ASOP No. 53, *Estimating Future Costs for Prospective Property/ Casualty Risk Transfer and Risk Retention,* to provide guidance for actuaries engaged in loss accrual determinations, premium setting, and ratemaking assignments. The introduction of ASOP No. 53 highlighted the need to extend the guidance of ASOP No. 20 to these types of actuarial work products in a manner similar to the relationship between ASOP No. 20 and ASOP No. 43. In practice, a wide variety of loss reserving and loss funding or ratemaking assignments are performed concurrently using the same data and similar methods and assumptions. In the context of ratemaking, this standard may provide guidance on the discounting of the loss and loss adjustment expense components.

One challenge related to discounting is that the appropriateness of discounting varies greatly depending on the line(s) of insurance coverage, the type of risk financing or risk retention mechanism, the applicable financial reporting and accounting standards, and even the intended use of the work product (for example, insurance company valuation versus statutory loss reserving). As a result, the use of discounting is inexorably tied to the context of the assignment. Traditionally, for admitted U.S. property/casualty insurance companies, unpaid claim estimates have not been discounted except in certain narrowly defined circumstances. However, in a wide and growing variety of other circumstances discounting is commonplace. In 1986, the U.S. Congress passed legislation prescribing discounting procedures for income-tax purposes. In the past, most state insurance departments prohibited discounting; some departments have permitted discounting for some lines of business. While the National Association of Insurance Commissioners (NAIC) has consistently been opposed to discounting except in certain specific circumstances, other regulators have moved to requiring discounting. The various applicable accounting standards organizations have taken a similarly divergent set of positions in their standards.

Historically, the issue of reserve discounting has been closely related to the issue of risk margins. Undiscounted reserves are often considered to contain a needed implicit risk margin in the difference between undiscounted reserves and discounted reserves. If discounted reserves were incorporated into financial statements, many would argue that an explicit risk margin would become necessary. Suggestions for the treatment of that risk margin include treatment as a liability item, a segregated surplus item, or an off-balance-sheet item.

Unpaid claim estimate discounting calculations are commonly performed in conjunction with valuations of insurance companies for purposes such as acquisitions or mergers, commutations, transfers of portfolios of unpaid claims, or other reinsurance transactions. In these instances and for other reasons, actuaries are being asked to determine or evaluate discounted unpaid claim estimates more frequently.

Other Cash Flow Analyses

In 2024, the ASB decided to remove property/casualty actuarial practice from the scope of ASOP No. 7, *Analysis of Life, Health and Property/Casualty Insurance Cash Flows*. This revision of ASOP No. 20 expands the scope to incorporate the elements of ASOP No. 7 that previously applied to property/casualty actuarial practice. This expansion in scope provides guidance on both discounted and undiscounted cash flow analyses.

Current Practices

Property/casualty actuaries use cash flow analyses in a wide variety of work products. These include discounted claim estimates, insurance program valuations, reinsurance pricing (such as loss portfolio transfers); premium deficiency reserve estimates; death, disability, and retirement (DD&R or "free tail") reserves; capital adequacy testing; expected reinsurer deficit (ERD); expected adverse deviation (EAD); and pro forma financial statements. These cash flow analyses sometimes, but not always, involve discounting to a present value. Cash flow analyses can include underwriting cash flows, such as premiums, losses, loss adjustment expenses, and underwriting expenses. They can also contemplate investment activities (such as purchase and sale of assets, investment returns, and expenses) and other cash flows (such as capital contributions and payment of shareholder dividends). Many cash flow analyses involve more than solely discounting unpaid claim estimates. For example, insurance program valuations and pro forma financial statements commonly reflect a comprehensive set of all cash flows for the insurance entity.

Discounted Claim Estimates

Actuaries are currently guided by ASOP No. 20, *Analysis of Property/Casualty Cash Flows, Including Discounting*. Other principal standards issued by the ASB pertaining to property/casualty loss and loss adjustment expense estimates are ASOP No. 43 and ASOP No. 53. In addition, disclosures related to discounting are required by the NAIC, and guidance may be forthcoming as part of new International Financial Reporting Standards that are currently under development.

Numerous educational papers relevant to the topic of discounting and risk loads, including those published by the Casualty Actuarial Society, are in the public domain. While these may provide useful educational information to practicing actuaries, they are not actuarial standards of practice and are not binding.

The data, methods, models, and assumptions used for discounting claim estimates are becoming more complex due to a variety of forces. Varying laws, regulations, and judicial precedents apply differing rules to discounting claim estimates in different situations. Non-actuaries, such as investment managers and finance departments, are often involved in providing discount rates. A variety of discount rates or other scenario tests are often requested depending on the intended use of the analysis.

Other Cash Flow Analyses

Prior to the adoption of this standard, property/casualty actuaries were guided by ASOP No. 7. Cash flow analysis can be used in a variety of ways, such as analyzing the performance of a particular asset or product under certain specified scenarios or evaluating the solvency of the entire company. Cash flow analyses involving cash flows other than claim estimates may or may not involve discounting. Those not involving discounting, such as many pro forma financial statements, were guided by ASOP No. 7 and not ASOP No. 20. Discounted cash flow analyses, including claim estimates and other cash flows (such as premiums), were guided by both ASOP No. 7 and ASOP No. 20. ASOP No. 20 now combines and updates guidance for property/casualty actuaries that was previously contained in ASOP Nos. 7 and 20.

Appendix 2

Comments on the Exposure Draft and Responses

The exposure draft of the proposed revision of ASOP No. 20, *Analysis of Property/Casualty Cash Flows, Including Discounting,* was issued April 30, 2025, with a comment deadline of August 1, 2025. Seven comment letters were received, some of which were submitted on behalf of multiple commentators, such as by firms or committees. For purposes of this appendix, the term "commentator" may refer to more than one person associated with a particular comment letter. The ASOP No. 20 Task Force and the Casualty Committee of the Actuarial Standards Board (ASB) carefully considered all comments received, and the ASB reviewed (and modified, where appropriate) the changes proposed by the task force and committee.

Summarized below are the significant issues and questions contained in the comment letters and the responses. Suggestions for minor wording or punctuation changes are not reflected in the appendix, although they may have been adopted.

The term "reviewers" in appendix 2 includes the ASOP No. 20 Task Force, the ASB Casualty Committee, and the ASB. The section numbers and titles used in appendix 2 refer to those in the exposure draft, which are then cross referenced with those in the final standard.

GENERAL COMMENTS	
Comment	Two commentators said that it should be clear throughout the ASOP that the actuary's options are limited by the intended purpose.
Response	The reviewers believe that sections 1.1 and 1.2 are clear and made no change in response to these comments.
Comment	Two commentators said language should be as consistent as possible across ASOPs to aid understanding.
Response	The reviewers agree and believe the language is generally consistent.
Comment	One commentator said it should be clear that cash flow analysis for investments may need to reflect the terminal value of the investment, which is not actually a cash flow.
Response	The reviewers believe that the language regarding underwriting and investment cash flows is reasonable and appropriate and made no change in response to this comment.
SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE	
Section 1.2, Scope	
Comment	One commentator suggested deleting "or policy terms for retrospective premiums."
Response	The reviewers modified the language.
Comment	One commentator suggested deleting "in all circumstances."
Response	The reviewers agree and made the change.

Comment Response	One commentator expressed concerns about conflicts between this standard and ASOP No. 58, *Enterprise Risk Management*. The reviewers believe the language is appropriate and made no change in response to this comment.
Comment Response	Two commentators suggested changing “and” to “and/or.” The reviewers changed “and” to “or” and note that “or” includes “and.”
Comment Response	One commentator suggested adding “using cash flow analysis.” The reviewers agree and made the change.
Comment Response	One commentator suggested adding past cash flows to the scope of the standard. The reviewers note that the commentator’s concern is addressed in section 2.2 and made no change in response to this comment.
Comment Response	One commentator suggested revising the examples. The reviewers believe the examples are appropriate and made no change in response to this comment.
SECTION 2. DEFINITIONS	
Comment Response	One commentator said methods and models should be defined in this ASOP. The reviewers believe these definitions are unnecessary and made no change.
Comment Response	One commentator suggested adding a definition of “intended measure.” The reviewers believe a definition is unnecessary and made no change.
Section 2.2, Cash Flow	
Comment Response	One commentator suggested that the definition include the total estimate amount and the timing of cash flow. The reviewers believe the definition is appropriate and made no change.
Section 2.8, Other Cash Flows	
Comment Response	Two commentators suggested adding income taxes as an example. The reviewers agree and made the change.
Comment Response	One commentator suggested changing “underwriting” to “risk transfer, risk retention.” The reviewers note this definition is consistent with sections 2.7 and 2.12 and made no change.
Section 2.9, Risk Margin	
Comment Response	Two commentators suggested adding “A risk margin may also be referred to as a risk load or a risk adjustment.” The reviewers modified the language.
Comment Response	One commentator suggested moving language from the end of the definition to section 3. The reviewers believe the language is appropriately placed and made no change in response to this comment.

Comment Response	One commentator asked whether the risk margin could come from the item undergoing the cash flow analysis (for example, if the intended measure of an unpaid claim estimate is 120% of expected, can the extra 20% be considered to be a risk margin under this standard). The reviewers believe that the language covers this issue at an appropriate level of detail in section 3.5. Therefore, the reviewers made no change in response to this comment.
Section 2.10, Risk Retention	
Comment Response	One commentator suggested using the definition as it appears in ASOP No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*. The reviewers believe the definition is appropriate and made no change.
Section 2.12, Underwriting Cash Flows	
Comment Response	One commentator suggested titling the section "Risk Transfer or Risk Retention Cash Flows" and a few other edits to reflect that underwriting operations are associated with risk transfer, such as for insurance, but are not applicable for risk retention. The reviewers believe the definition is appropriate and made no change.
SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.1, Intended Purpose and Identification of Cash Flows	
Comment Response	One commentator suggested adding language to emphasize context when referencing intended purpose. The reviewers believe the language on intended purpose is appropriate and made no change.
Section 3.2, Methods, Models, and Assumptions	
Comment Response	Two commentators suggested changing "and other cash flows" to "or other cash flows." The reviewers changed "and" to "or."
Comment Response	One commentator suggested replacing "underwriting cash flows" with "risk transfer or risk retention cash flows." The reviewers believe the language is appropriate and made no change in response to this comment.
Comment Response	One commentator said the ASOP should consider interactivity between the discounted and undiscounted cash flow analysis and suggested changing "versus" to "and." The reviewers agree and changed "versus" to "and."
Section 3.3, Cash Flow Timing and Amount	
Comment Response	One commentator suggested adding "that are appropriate for the intended purpose." The reviewers note the commentator's concern is addressed in section 3.2 and made no change.
Section 3.3.1, Unbiased Assumptions	
Comment Response	One commentator suggested changing "Unbiased" to "Best Estimate" in the title and suggested an edit in the text, both aimed at clarifying what is meant by bias in this context. The reviewers believe the language is appropriate and made no change.

Comment	Two commentators suggested incorporating the concept of "intended measure."
Response	The reviewers believe the language is appropriate and made no change.
Section 3.3.3, Consistency with Expected Future Conditions	
Comment	One commentator suggested modifying the language to clarify that the section refers to different future expectations regarding the cash flow timing, as opposed to things such as expectations for a different future inflationary period.
Response	The reviewers believe the language is appropriate and made no change in response to this comment.
Section 3.3.5, Underwriting Cash Flows	
Comment	One commentator suggested adding "expected recoverables" in the first paragraph and deleting the third paragraph.
Response	The reviewers believe the language is appropriate and made no change in response to this comment.
Comment	One commentator suggested modifying the language to indicate that there may be good reasons to use different assumptions for different purposes (for example, reserving vs ratemaking vs cash flow analysis).
Response	The reviewers believe the language is appropriate and made no change.
Comment	Two commentators suggested modifying the language to accommodate situations when the assumptions used in developing the original premium are no longer relevant.
Response	The reviewers agree and made the change.
Section 3.3.6, Investment Cash Flows	
Comment	One commentator suggested the second sentence was not correct in all circumstances and suggested replacing it with "Where the projected cash flows include flows from future investments, those flows should be consistent with the future investment strategy of the entity to the extent known by the actuary."
Response	The reviewers agree and modified the language accordingly.
Section 3.3.7, Future Other Cash Flows (now Other Cash Flows)	
Comment	One commentator suggested changing "and" to "or" and adding "may" as these items will not necessarily influence the projected other cash flows.
Response	The reviewers agree and made the change.
Section 3.4, Discount Rates	
Comment	One commentator suggested adding reference to the intended purpose of the analysis.
Response	The reviewers note intended purpose is included in section 3.4.1 and made no change.
Comment	One commentator suggested adding language regarding risk-adjusted discount rates.
Response	The reviewers believe this is addressed in section 3.5 and made no change.
Section 3.4.1, Selection of Discount Rates	
Comment	One commentator suggested changing "should use" to "should consider using."
Response	The reviewers believe the language is appropriate and made no change.

Comment Response	Two commentators suggested adding intended purpose in the second sentence. The reviewers believe the language is appropriate and made no change.
Section 3.4.1.1, Risk-Free Approach	
Comment Response	Two commentators suggested edits to address currency risk. The reviewers believe the language is appropriate and made no change.
Section 3.4.1.4, Other Approaches	
Comment Response	One commentator suggested adding "or utilizing risk-adjusted interest rates." The reviewers note that risk margins are addressed in section 3.5 and made no change.
Comment Response	One commentator suggested adding reference to the intended measure. The reviewers believe the language is appropriate and made no change.
Section 3.4.2, Economic Conditions	
Comment Response	One commentator suggested adding "when appropriate" and stating that some accounting rules require the use of current yield curves. The reviewers note that this is addressed by the applicable law paragraph in section 1.2 and made no change.
Section 3.4.3, Changing Conditions	
Comment Response	One commentator suggested deleting the reference to claim estimates. The reviewers believe the language is appropriate and made no change.
Section 3.5, Risk Margins	
Comment Response	Several commentators suggested changing "intended use" to "intended purpose." The reviewers agree and made the change.
Comment Response	Two commentators suggested moving section 3.5.3 into the stem of section 3.5. The reviewers disagree and made no change in response to this comment.
Comment Response	One commentator suggested adding language explaining why a risk margin should be considered and that multiple risk margins may be used for different elements of the cash flows. The reviewers agree and modified the language accordingly.
Comment Response	One commentator suggested that the actuary should consider including risk margins in discounted and undiscounted cash flows and deleting the last sentence. The reviewers believe the language is appropriate and made no change in response to this comment.
Section 3.5.2, Considerations for Discounted Cash Flows	
Comment Response	One commentator suggested changing "inadequate" to "unreasonable." The reviewers disagree and made no change.

Comment Response	One commentator suggested deleting the first sentence, as "inadequate" is not defined and may not be relevant to the intended purpose. The reviewers believe the language is appropriate and made no change.
Section 3.5.3, Applicable Law and Accounting Standards (now section 3.6)	
Comment Response	One commentator suggested deleting the section and moving it into the stem of section 3.5. The reviewers disagree and made no change in response to this comment.
Comment Response	One commentator suggested changing "should" to "must" with reference to applicable law and accounting standards. The reviewers believe the language is appropriate and made no change in response to this comment.
Section 3.7, Changes in Methods, Models, and Assumptions (now section 3.8)	
Comment Response	One commentator said this section seems to require the actuary to research whether a previous analysis exists and suggested adding "known." The reviewers believe the language is appropriate and made no change.
Section 3.8(d)(1), Reliance (now section 3.9[d][1])	
Comment Response	One commentator suggested deleting "and has followed applicable ASOPs." The reviewers disagree and made no change.
Section 3.8(d)(3), Reliance (now section 3.9[d][2])	
Comment Response	One commentator suggested adding "intended" before "purpose" for consistency. The reviewers believe the language is appropriate and made no change.
Comment Response	One commentator suggested adding language to require documentation of the other party's intended measure. The reviewers believe the language is appropriate and made no change.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1, Required Disclosures in an Annual Report	
Comment Response	One commentator suggested adding a reference to ASOP No. 58. The reviewers believe a reference to ASOP No. 58 is unnecessary and made no change.
Section 4.1(i)	
Comment Response	One commentator suggested using "discount rate(s)." The reviewers agree and made the change.
Section 4.1(j)	
Comment Response	One commentator raised concerns about an implicit risk margin in the intended measure. The reviewers believe the language is appropriate and made no change.