



ACTUARIAL STANDARDS BOARD

**Actuarial Standard
of Practice
No. 27**

Revised Edition

**Selection of Economic Assumptions for
Measuring Pension Obligations**

**Developed by the
Pension Committee of the
Actuarial Standards Board**

**Adopted by the
Actuarial Standards Board
June 2020**

Doc. No. 197

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June 2020

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in the Selection of Economic Assumptions for Measuring Pension Obligations

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 27

This document contains a revision of ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*.

History of the Standard

The ASB provides guidance for measuring pension and retiree group benefit obligations through the series of ASOPs listed below.

1. ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*;
2. ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions*;
3. ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*;
4. ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*;
5. ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*; and
6. ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*.

The last revision of ASOP No. 27 was issued in September 2013.

In response to specific requests for changes in the ASOPs and other activity related to public pension plans, in July 2014 the ASB issued a Request for Comments on the topic of ASOPs and Public Pension Plan Funding and Accounting. Over 50 comment letters were received covering a wide variety of potential ASB actions. In December 2014, the ASB formed the Pension Task Force and charged it with reviewing these comments and other relevant reports and input to develop recommendations for ASB next steps. In July 2015, the ASB held a public hearing on actuarial standards of practice applicable to actuarial work regarding public plans. The Pension Task Force provided its report to the ASB in February 2016. The report included suggestions for changes to the ASOPs that would apply to all areas of pension practice. In June 2016, the ASB directed its Pension Committee to draft appropriate modifications to the actuarial standards of

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practice, in accordance with ASB procedures, to implement the suggestions of the Pension Task Force. Draft revisions of ASOP Nos. 4, 27, and 35 were exposed for comment in March 2018 with a comment deadline of July 31, 2018.

First Exposure Draft

The first exposure draft was issued in March 2018 with a comment deadline of July 31, 2018. Eighteen comment letters were received and considered in making changes that were reflected in the second exposure draft.

Second Exposure Draft

The second exposure draft was issued in June 2019 with a comment deadline of September 15, 2019. Eight comment letters were received and considered in making changes that are reflected in this revised ASOP.

Notable Changes from the Second Exposure Draft

Notable changes made to the second exposure draft are summarized below. Additional changes were made to improve readability, clarity, or consistency within this ASOP and ASOP No. 35.

1. Section 3.8.3(j), Forward-Looking Expected Investment Returns, was modified to delete the educational material on forward-looking expected geometric and arithmetic returns.
2. Section 3.16, Documentation, was revised to remove the requirement that when preparing documentation 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 or could assume the assignment if necessary.

In addition, a number of changes were made to improve readability, clarity, or consistency within this ASOP and with ASOP No. 35. Please see appendix 2 for a detailed discussion of the comments received and the reviewers' responses.

Summary of Notable Changes from the Existing ASOP No. 27 Adopted September 2013

Notable changes from the existing ASOP No. 27 adopted September 2013 are summarized below.

1. Section 1.2, Scope, was expanded to clarify the application of the standard when an economic assumption is not selected by the actuary and whenever the actuary has an obligation to assess the reasonableness of an economic assumption that the actuary has not selected.
2. Section 3.5.6, Views of Experts (now Other Sources of Economic Data and Analyses), was renamed and clarified to provide for use of other sources of economic data and analyses.

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3. Section 3.6, Select a Reasonable Assumption, was clarified to acknowledge that relevant historical data may not exist.
4. Section 3.6.3, Combined Effect of Assumptions, was added to provide guidance regarding the combined effect of assumptions.
5. Section 3.8.3(j), Forward-Looking Expected Investment Returns, was modified to delete the educational material on forward-looking expected geometric and arithmetic returns.
6. Section 3.13, Reviewing Assumptions Previously Selected by the Actuary, was added to provide additional guidance regarding the reviewing of assumptions that the actuary previously selected.
7. Section 3.14, Assessing Assumptions Not Selected by the Actuary, replaced previous section 3.13, Prescribed Assumption(s), and was expanded to provide additional guidance regarding assessing assumptions not selected by the actuary.
8. Section 3.15, Phase-In of Changes in Assumptions, was added to provide guidance regarding the phase-in of changes in assumptions.
9. Section 3.16, Documentation, was added to provide guidance regarding documentation.
10. Section 4.1.2, Rationale for Assumptions, was modified concerning the disclosure of the rationale for assumptions and was clarified concerning the application to planned assumption changes after the measurement date.

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

The ASB also thanks its former Pension Committee members and, in particular, former Pension Committee Chairperson Christopher F. Noble for their contributions in the drafting of this standard.

The ASB voted in June 2020 to adopt this standard.

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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. 27

**SELECTION OF ECONOMIC ASSUMPTIONS
FOR MEASURING PENSION OBLIGATIONS**

STANDARD OF PRACTICE

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

- 1.1 Purpose—This actuarial standard of practice (ASOP or standard) does the following:
- a. provides guidance to actuaries when performing actuarial services that include selecting (including giving advice on selecting) economic assumptions—primarily investment return, discount rate, post-retirement benefit increases, **inflation**, and compensation increases—for measuring obligations under defined benefit pension plans;
 - b. supplements the guidance in ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, that relates to the selection and use of economic assumptions;
 - c. supplements the guidance in ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions*, that relates to the selection and use of economic assumptions; and
 - d. supplements the guidance in ASOP No. 34, *Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions*, that relates to the selection and use of economic assumptions.
- 1.2 Scope—This standard applies to actuaries when performing actuarial services that include selecting economic assumptions to measure obligations under any defined benefit pension plan that is not a social insurance program, as described in section 1.2, Scope, of ASOP No. 32, *Social Insurance* (unless ASOPs on social insurance explicitly call for application of this standard). Measurements of defined benefit pension plan obligations include calculations such as funding valuations or other assignment of plan costs to time periods, liability measurements or other actuarial present value calculations, and cash flow projections or other estimates of the magnitude of future plan obligations. Measurements of pension obligations do not generally include individual benefit calculations, individual benefit statement estimates, or nondiscrimination testing.

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Throughout this standard, any reference to selecting economic assumptions also includes giving advice on selecting economic assumptions. For example, the actuary may provide advice on selecting economic assumptions under US GAAP or Governmental Accounting Standards even though another party is ultimately responsible for selecting these assumptions. This standard applies to the actuarial advice given in such situations, within the constraints imposed by the relevant accounting standards.

As discussed in ASOP No. 41, *Actuarial Communications*, an assumption may be selected by the actuary or selected by another party. Nothing in this standard is intended to require the actuary to select an economic assumption that has otherwise been selected by another party. When an economic assumption is not selected by the actuary, the guidance in section 3.14 and section 4 concerning assessment and disclosure applies.

If the actuary determines that the guidance in this standard conflicts with ASOP Nos. 4 or 6, ASOP Nos. 4 or 6 will govern.

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. If a conflict exists between this standard and applicable law, the actuary should comply with applicable law.

- 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 consider the guidance in this standard to the extent it is applicable and appropriate.
- 1.4 Effective Date—This standard is effective for any actuarial report that meets the following criteria: (a) the actuarial report is issued on or after August 1, 2021; and (b) the **measurement date** in the actuarial report is on or after August 1, 2021.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice and appear in bold throughout the ASOP.

- 2.1 Inflation—General economic **inflation**, defined as price changes over the whole of the economy.
- 2.2 Measurement Date—The date as of which the values of the pension obligations and, if applicable, assets are determined.
- 2.3 Measurement Period—The period subsequent to the **measurement date** during which a particular economic assumption will apply in a given measurement.

- 2.4 Merit Adjustments—The rates of change in an individual’s compensation attributable to personal performance, promotion, seniority, or other individual factors.
- 2.5 Prescribed Assumption or Method Set by Another Party—A specific assumption or method that is selected by another party, to the extent that law, regulation, or accounting standards give the other party responsibility for selecting such an assumption or method. For this purpose, an assumption or method selected by a governmental entity for a plan that such governmental entity or a political subdivision of that entity directly or indirectly sponsors is a **prescribed assumption or method set by another party**.
- 2.6 Prescribed Assumption or Method Set by Law—A specific assumption or method that is mandated or that is selected from a specified range or set of assumptions or methods that is deemed to be acceptable by applicable law (statutes, regulations, and other legally binding authority). For this purpose, an assumption or method selected by a governmental entity for a plan that such governmental entity or a political subdivision of that entity directly or indirectly sponsors is not a **prescribed assumption or method set by law**.
- 2.7 Productivity Growth—The rates of change in a group’s compensation attributable to the change in the real value of goods or services per unit of work.

Section 3. Analysis of Issues and Recommended Practices

- 3.1 Overview—Pension obligation values incorporate assumptions about pension payment commencement, duration, and amount. Pension obligation values also require discount rates to convert future expected payments into present values. Some of these assumptions are economic assumptions covered under this ASOP, and some are noneconomic assumptions covered under ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. In order to measure a pension obligation, the actuary will typically need to select or assess assumptions underlying the obligation.
- 3.2 Identification of Types of Economic Assumptions Used in the Measurement—The actuary should identify the types of economic assumptions to use for a specific measurement. In doing so, the actuary should take into account the following:
- a. the purpose of the measurement;
 - b. the characteristics of the obligation to be measured (such as **measurement period**, pattern of plan payments over time, open or closed group, materiality, and volatility); and
 - c. materiality of the assumption to the measurement (see section 3.5.2).

The types of economic assumptions used to measure pension obligations may include **inflation**, investment return, discount rate, compensation increases, and other economic factors such as Social Security, cost-of-living adjustments, rate of payroll growth, growth of individual account balances, and variable conversion factors.

3.3 General Selection Process—After identifying the types of economic assumptions to be used for the measurement, the actuary should follow the general process set forth below for selecting each economic assumption for a specific measurement:

- a. identify components, if any, of the assumption;
- b. evaluate relevant data (section 3.4);
- c. take into account factors specific to the measurement;
- d. take into account other general considerations, when applicable (section 3.5); and
- e. select a reasonable assumption (section 3.6).

After completing these steps for each economic assumption, the actuary should review the set of economic assumptions for consistency (section 3.12) and make appropriate adjustments if necessary.

3.4 Relevant Data—To evaluate relevant data, the actuary should review appropriate recent and long-term historical economic data. The actuary should not give undue weight to recent experience. The actuary should take into account the possibility that some historical economic data may not be appropriate for use in developing assumptions for future periods due to changes in the underlying environment.

3.5 General Considerations—The actuary should take into account the following when applicable:

3.5.1 Adverse Deviation or Plan Provisions That Are Difficult to Measure—Depending on the purpose of the measurement, the actuary may determine that it is appropriate to adjust the economic assumptions to provide for adverse deviation or reflect plan provisions that are difficult to measure. The actuary should disclose any explicit adjustment made in accordance with section 4.1.1.

3.5.2 Materiality—The actuary should take into account the balance between refined economic assumptions and materiality. The actuary is not required to use a particular type of economic assumption or to select a more refined economic assumption when in the actuary’s professional judgment such use or selection is not expected to produce materially different results.

3.5.3 Cost of Using Refined Assumptions—The actuary should take into account the balance between refined economic assumptions and the cost of using refined

assumptions. For example, actuaries working with small plans may prefer to emphasize the results of general research to comply with this standard.

- 3.5.4 **Rounding**—Taking into account the purpose of the measurement, materiality, and the cost of using refined assumptions, the actuary may determine that it is appropriate to apply a rounding technique to the selected economic assumption. In such cases, the rounding technique should be unbiased.
- 3.5.5 **Changes in Circumstances**—The actuary should select economic assumptions that reflect the actuary’s knowledge as of the **measurement date**. If the actuary learns of an event occurring after the **measurement date** that would have changed the actuary’s selection of an economic assumption, the actuary may reflect this change as of the **measurement date**. For example, a collective bargaining agreement ratified after the **measurement date** may lead the actuary to change the compensation increase assumption that otherwise would have been selected.
- 3.5.6 **Other Sources of Economic Data and Analyses**—When the actuary is responsible for selecting or giving advice on selecting economic assumptions, the actuary may incorporate economic data and analyses from a variety of other sources, including representatives of the plan sponsor and administrator, investment advisors, economists, and other professionals. However, the selection or advice should reflect the actuary’s professional judgment.
- 3.6 **Selecting a Reasonable Assumption**—The actuary should select reasonable economic assumptions. For this purpose, an assumption is reasonable if it has the following characteristics:
- a. it is appropriate for the purpose of the measurement;
 - b. it reflects the actuary’s professional judgment;
 - c. it takes into account current and historical data that is relevant to selecting the assumption for the **measurement date**, to the extent such relevant data is reasonably available;
 - d. it reflects the actuary’s estimate of future experience, the actuary’s observation of the estimates inherent in market data (if any), or a combination thereof; and
 - e. it is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included (as discussed in section 3.5.1) or when alternative assumptions are used for the assessment of risk, in accordance with ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*.
- 3.6.1 **Reasonable Assumption Based on Future Experience or Market Data**—The actuary should develop a reasonable economic assumption based on the actuary’s estimate

of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof. Examples of how the actuary may observe estimates inherent in market data include the following:

- a. comparing yields on **inflation**-indexed bonds to yields on equivalent non-**inflation**-indexed bonds as a part of estimating the market's expectation of future **inflation**;
- b. comparing yields on bonds of different credit quality to determine market credit spreads;
- c. observing yields on U.S. Treasury debt of various maturities to determine a yield curve free of credit risk; and
- d. examining annuity prices to estimate the market price to settle pension obligations.

The items listed above, as well as other market observations or prices, include estimates of future experience as well as other considerations. For example, the difference in yields between **inflation**-linked and non-**inflation**-linked bonds may include premiums for liquidity and future **inflation** risk in addition to an estimate of future **inflation**. The actuary may want to adjust estimates based on observations to reflect the various risk premiums and other factors (such as supply and demand for tradable bond or debt securities) that might be reflected in market pricing.

3.6.2 Range of Reasonable Assumptions—Due to the uncertain nature of the items for which assumptions are selected, the actuary may consider several different assumptions reasonable for a given measurement. Different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop, both for an individual actuary and across actuarial practice.

3.6.3 Combined Effect of Assumptions—The actuary should select assumptions (both demographic assumptions selected in accordance with ASOP No. 35 and economic assumptions selected in accordance with this standard) such that the combined effect of the assumptions selected by the actuary is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic) except when provisions for adverse deviation are included or when alternative assumptions are used for the assessment of risk, in accordance with ASOP No. 51.

For example, the actuary may have decided not to make any assumption with regard to four different types of future events, each of which alone is immaterial. However, the effect of omitting assumptions for all four types of future events may be a material understatement or overstatement of the measurement results. In these circumstances, the assumptions should be revised.

3.7 Selecting an Inflation Assumption—If the actuary is using an approach that treats **inflation** as an explicit component of other economic assumptions or as an independent assumption, the actuary should follow the general process set forth in section 3.3 to select an **inflation** assumption.

3.7.1 Data—The actuary should evaluate appropriate **inflation** data. These data may include consumer price indices, the implicit price deflator, forecasts of **inflation**, yields on government securities of various maturities, and yields on nominal and **inflation**-indexed debt.

3.7.2 Select and Ultimate Inflation Rates—The actuary may assume select and ultimate **inflation** rates in lieu of a single **inflation** rate. Select and ultimate **inflation** rates vary by period from the **measurement date** (for example, **inflation** of x% for the first 5 years following the **measurement date** and y% thereafter).

3.8 Selecting an Investment Return Assumption—The investment return assumption reflects the anticipated returns on the plan’s current and, if appropriate for the measurement, future assets. This assumption is typically constructed by considering various factors including, but not limited to, the time value of money; **inflation** and **inflation** risk; illiquidity; credit risk; macroeconomic conditions; and growth in earnings, dividends, and rents.

In developing a reasonable assumption for these factors and in combining the factors to develop the investment return assumption, the actuary may take into account a broad range of data and other inputs, including the judgment of investment professionals.

3.8.1 Data—The actuary should evaluate appropriate investment data. These data may include the following:

- a. current yields to maturity of fixed income securities such as government securities and corporate bonds;
- b. forecasts of **inflation**, GDP growth, and total returns for each asset class; and
- c. historical and current investment data including, but not limited to, real and nominal returns, the **inflation** and **inflation** risk components implicit in the yield of **inflation**-protected securities, dividend yields, earnings yields, and real estate capitalization rates.

The actuary may also take into account historical and current statistical data showing standard deviations, correlations, and other statistical measures related to historical or future expected returns of each asset class and to **inflation**. The actuary may use stochastic simulation models or other analyses to develop expected investment returns from this statistical data.

- 3.8.2 Components of the Investment Return Assumption—When the actuary is developing an investment return assumption by combining two or more components or factors, the actuary should ensure that the combination of these components or factors is logically consistent.
- 3.8.3 Measurement-Specific Considerations—The actuary should take into account factors specific to each measurement in selecting an investment return assumption. Such factors may include the following:
- a. Investment Policy—The plan’s investment policy may include the following: (i) the current allocation of the plan’s assets; (ii) types of securities eligible to be held (diversification, marketability, social investing philosophy, etc.); (iii) a stationary or dynamic target allocation of plan assets among different classes of securities; and (iv) permissible ranges for each asset class within which the investment manager is authorized to make investment decisions. If the actuary takes into account the investment policy in selecting an investment return assumption, the actuary should consider reflecting whether the current investment policy is expected to change during the **measurement period**.
 - b. Effect of Reinvestment—Two reinvestment risks are associated with traditional, fixed income securities: (i) reinvestment of interest and normal maturity values not immediately required to pay plan benefits, and (ii) reinvestment of the entire proceeds of a security that has been called by the issuer.
 - c. Investment Volatility—Plans investing heavily in those asset classes characterized by high variability of returns may be required to liquidate those assets at depressed values to meet benefit obligations. Other investment risks may also be present, such as default risk or the risk of bankruptcy of the issuer.
 - d. Investment Manager Performance—Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the **measurement period**.
 - e. Expenses Paid from Plan Assets—Investment and other administrative expenses may be paid from plan assets. To the extent such expenses are not otherwise recognized, the actuary should reduce the investment return assumption to reflect these expenses.

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- f. Cash Flow Timing—The timing of expected contributions and benefit payments may affect the plan’s liquidity needs and investment opportunities.
 - g. Benefit Volatility—Benefit volatility may be a primary factor for small plans with unpredictable benefit payment patterns. It may also be an important factor for a plan of any size that provides highly subsidized early retirement benefits, lump-sum benefits, or supplemental benefits triggered by corporate restructuring or financial distress. In such plans, the untimely liquidation of securities at depressed values may be required to meet benefit obligations.
 - h. Expected Plan Termination—In some situations, the actuary may expect the plan to be terminated at a determinable date. For example, the actuary may expect a plan to terminate when the owner retires, or a frozen plan to terminate when assets are sufficient to provide all accumulated plan benefits. In these situations, the actuary may select an investment return assumption that reflects a shortened **measurement period** that ends at the expected termination date.
 - i. Tax Status of the Funding Vehicle—If the plan’s assets are not kept in a tax-exempt fund, income taxes may reduce the plan’s investment return. Taxes may be reflected by an explicit reduction in the total investment return assumption or by a separately identified assumption.
 - j. Forward-Looking Expected Investment Returns—In some instances, the actuary will collect or develop forward-looking expected investment returns by asset class or for the entire portfolio. The actuary should take appropriate steps to determine the time horizon, the price **inflation**, and the expenses reflected in the expected returns. In addition, the actuary should take steps to determine the type of forward-looking expected returns (i.e., forward-looking expected geometric returns or forward-looking expected arithmetic returns) and that they are used appropriately.
- 3.8.4 Multiple Investment Return Rates—The actuary may assume multiple investment return rates in lieu of a single investment return rate. Multiple investment return rates may include the following:
- a. Select and Ultimate Investment Return Rates—Assumed investment return rates vary by period from the **measurement date** (for example, returns of x% for the first 10 years following the **measurement date** and y% thereafter). When assuming select and ultimate investment return rates, the actuary should consider reflecting the relationships among **inflation**, interest rates, and market appreciation or depreciation.

- b. **Benefit Payments Covered by Designated Current or Projected Assets—**
The actuary may assume one investment return rate for benefit payments covered by designated current or projected plan assets on the **measurement date** and a different investment return rate for the balance of the benefit payments and assets.

3.9 **Selecting a Discount Rate**—A discount rate is used to calculate the present value of expected future plan payments. A discount rate may be a single rate or a series of rates, such as a yield curve. The actuary should take into account the purpose of the measurement as a primary factor in selecting a discount rate. Measurement purposes may include the following:

- a. **Contribution Budgeting**—An actuary evaluating the sufficiency of a plan’s contribution policy may choose among several discount rates. The actuary may use a discount rate that reflects the anticipated investment return from the pension fund. Alternatively, the actuary may use a discount rate appropriate for defeasance, settlement, or market-consistent measurements.
- b. **Defeasance or Settlement**—An actuary measuring a plan’s present value of benefits on a defeasance or settlement basis may use a discount rate implicit in annuity prices or other defeasance or settlement options.
- c. **Market-Consistent Measurements**—An actuary making a market-consistent measurement may use a discount rate implicit in the price at which benefits that are expected to be paid in the future would trade in an open market between a knowledgeable seller and a knowledgeable buyer. In some instances, that discount rate may be approximated by market yields for a hypothetical bond portfolio whose cash flows reasonably match the pattern of benefits expected to be paid in the future. The type and quality of bonds in the hypothetical portfolio may depend on the particular type of market-consistent measurement.

The present value of expected future pension payments may be calculated from the perspective of different parties, recognizing that different parties may have different measurement purposes. For example, the present value of expected future payments could be calculated from the perspective of an outside creditor or the entity responsible for funding the plan. The outside creditor may desire a discount rate consistent with other measurements of importance to the creditor even though those other measurements may have little or no importance to the entity funding the plan.

3.10 **Selecting a Compensation Increase Assumption**—Compensation is a factor in determining participants’ benefits in many pension plans. Also, some actuarial cost methods take into account the present value of future compensation. Generally, a participant’s compensation will increase over the long term in accordance with **inflation, productivity growth, and merit adjustments**. The assumption used to measure the anticipated year-to-year change in compensation is referred to as the compensation increase assumption. It may be a single rate, it may vary by age or service, or it may vary over future years. In certain

circumstances, such as a temporary reduction or freeze in compensation, the compensation increase assumption may be negative or zero.

When selecting a compensation increase assumption, the actuary should take into account the following:

3.10.1 Data—The actuary should evaluate available compensation data. Compensation data may include the following:

- a. the plan sponsor's current compensation practice and any anticipated changes in this practice;
- b. current compensation distributions by age or service;
- c. historical compensation increases and practices of the plan sponsor and other plan sponsors in the same industry or geographic area; and
- d. historical national wage increases and **productivity growth**.

When reviewing available plan-sponsor-specific compensation data, the actuary should take into account the credibility of these data. For small plans or recently formed plan sponsors, industry or national data may provide a more appropriate basis for developing the compensation increase assumption. The actuary should refer to ASOP No. 25, *Credibility Procedures*, for additional guidance.

3.10.2 Measurement-Specific Considerations—The actuary should take into account factors specific to each measurement in selecting a specific compensation increase assumption. Such factors may include the following:

- a. **Compensation Practice**—The plan sponsor's current compensation practice and any contemplated changes may affect the compensation increase assumption, at least in the short term. For example, if pension benefits are a function of base compensation and the plan sponsor is changing its compensation practice to put greater emphasis on incentive compensation, future growth in base compensation may differ from historical patterns.
- b. **Competitive Factors**—The level and pattern of future compensation changes may be affected by competitive factors, including competition for employees both within the plan sponsor's industry and within the geographical areas in which the plan sponsor operates, and global price competition. Unless the **measurement period** is short, the actuary should not give undue weight to short-term patterns.
- c. **Collective Bargaining**—The collective bargaining process impacts the level and pattern of compensation changes. However, it may not be appropriate

to assume that future contracts will provide the same level of compensation changes as the current or recent contracts.

- d. **Compensation Volatility**—If certain elements of compensation, such as bonuses and overtime, tend to vary materially from year to year, or if aberrations exist in recent compensation amounts, then volatility should be taken into account. In some circumstances, this may be accomplished by adjusting the base amount from which future compensation elements are projected (for example, the projected bonuses might be based on an adjusted average of bonuses over the last 3 years). In some other circumstances, an additional assumption regarding an expected increase in pay in the final year of service may be used.
- e. **Expected Plan Freeze or Termination**—In some situations, as stated in section 3.8.3(h), the actuary may expect the plan to be frozen or terminated at a determinable date. In these situations, the compensation increase assumption may reflect a shortened **measurement period** that ends at the expected termination date.

3.10.3 **Multiple Compensation Increase Assumptions**—The actuary may use multiple compensation increase assumptions in lieu of a single compensation increase assumption. Examples of multiple compensation increase assumptions include the following:

- a. **Select and Ultimate Assumptions**—Assumed compensation increases vary by period from the **measurement date** (for example, x% increases for the first 5 years following the **measurement date**, and y% thereafter) or by age or service.
- b. **Separate Assumptions for Different Employee Groups**—Different compensation increases are assumed for two or more employee groups that are expected to receive different levels or patterns of compensation increases.
- c. **Separate Assumptions for Different Compensation Elements**—Different compensation increases are assumed for two or more compensation elements that are expected to change at different rates (for example, x% bonus increases and y% increases in other compensation elements).

3.11 **Selecting Other Economic Assumptions**—In addition to **inflation**, investment return, discount rate, and compensation increase assumptions, other economic assumptions may be required for measuring certain pension obligations. The actuary should follow the general process described in section 3.3 to select these assumptions. The selected assumptions should also satisfy the consistency requirement of section 3.12. Other economic assumptions may include the following:

- 3.11.1 Social Security—Social Security benefits are based on an individual’s covered earnings, the OASDI contribution and benefit base, and changes in the cost of living. Changes in the OASDI contribution and benefit base are determined from changes in national average wages, which reflect the change in national productivity and **inflation**.
- 3.11.2 Cost-of-Living Adjustments—Plan benefits or limits affecting plan benefits, including the Internal Revenue Code (IRC) section 401(a)(17) compensation limit and section 415(b) maximum annuity, may be automatically adjusted for **inflation** or assumed to be adjusted for **inflation** in some manner (for example, through regular plan amendments). However, for some purposes (such as qualified pension plan minimum required contribution calculations), the actuary may be precluded by applicable laws or regulations from anticipating future plan amendments or future cost-of-living adjustments in certain IRC limits.
- 3.11.3 Rate of Payroll Growth—As a result of terminations and new participants, total payroll generally grows at a different rate than does a participant’s salary or the average of all current participants combined. As such, when a payroll growth assumption is needed, the actuary should use an assumption that is consistent with but typically not identical to the compensation increase assumption. One approach to setting the payroll growth assumption may be to reduce the compensation increase assumption by the effect of any assumed merit increases. The actuary should apply professional judgment in determining whether, given the purpose of the measurement, the payroll growth assumption should be based on a closed or open group and, if the latter, whether the size of that group should be expected to increase, decrease, or remain constant.
- 3.11.4 Growth of Individual Account Balances—Certain plan benefits have components directly related to the accumulation of real or hypothetical individual account balances (for example, floor-offset arrangements and cash balance plans).
- 3.11.5 Variable Conversion Factors—Measuring certain pension plan obligations may require converting from one payment form to another, such as converting a projected individual account balance to an annuity, converting an annuity to a lump sum, or converting from one annuity form to a different annuity form. The conversion factors may be variable (for example, recalculated each year based on a stated mortality table and interest rate equal to the yield on 30-year Treasury bonds).
- 3.12 Consistency among Assumptions Selected by the Actuary for a Particular Measurement—With respect to a particular measurement, the actuary should select economic assumptions that are consistent with the other assumptions selected by the actuary, including demographic and other noneconomic assumptions, unless an assumption considered individually is not material (see section 3.5.2). For example, if an employer’s business is in decline and the effect of that decline is reflected in the turnover assumption, it may be

appropriate to reflect a change in the retirement assumption, and it may also be appropriate to reflect a change in the compensation increase assumption.

A number of factors may interact with one another and may be components of other economic assumptions, such as **inflation**, economic growth, and risk premiums. In some circumstances, consistency may be achieved by using the same **inflation**, economic growth, and other relevant components in each of the economic assumptions selected by the actuary.

Consistency is not necessarily achieved by maintaining a constant difference between one economic assumption and another. For each **measurement date**, the actuary should reassess the individual assumptions selected by the actuary and the relationships among them, and make appropriate adjustments.

The actuary is not required to select assumptions that are consistent with assumptions not selected by the actuary.

- 3.13 Reviewing Assumptions Previously Selected by the Actuary—At each **measurement date**, the actuary should determine whether the economic assumptions selected by the actuary for a previous **measurement date** continue to be reasonable. In making this determination, the actuary should take into account changes in relevant factors known to the actuary that may affect future experience. The actuary should also review recent gain and loss analyses, if any. In addition, the actuary should consider whether an experience study should be performed; however, the actuary is not required to perform an experience study. For each previously selected assumption that the actuary determines is no longer reasonable, the actuary should select a reasonable new assumption.
- 3.14 Assessing Assumptions Not Selected by the Actuary—At each **measurement date**, the actuary should assess the reasonableness of each economic assumption that the actuary has not selected (other than **prescribed assumptions or methods set by law** or assumptions disclosed in accordance with section 4.2[b]), using the guidance set forth in this standard to the extent practicable.
- 3.15 Phase-In of Changes in Assumptions—If an economic assumption is being phased in over a period that includes multiple **measurement dates**, the actuary should determine the reasonableness of the economic assumption and its consistency with other assumptions as of the **measurement date** at which it is applied, without regard to changes to the assumption planned for future **measurement dates**. If the actuary determines that an economic assumption is not reasonable as of the **measurement date** at which it is applied, the actuary should select a reasonable new assumption.
- 3.16 Documentation—The actuary should consider preparing and retaining documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. The degree of such 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 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 to which this standard applies, the actuary should refer to ASOP Nos. 4, 23, *Data Quality*, 25, 35, 41, and 51. In addition, the actuary should disclose the following in such actuarial reports:

4.1.1 Assumptions Used—The actuary should describe each significant economic assumption used in the measurement and, to the extent known, whether the assumption represents an estimate of future experience, an observation of the estimates inherent in market data, or a combination thereof. The actuary should also include a disclosure of any explicit adjustment made in accordance with section 3.5.1 for adverse deviation or plan provisions that are difficult to measure. Sufficient detail should be shown to permit another qualified actuary to assess the level and pattern of each assumption.

Depending on a particular measurement's circumstances, the actuary may disclose information about specific interrelationships among the assumptions (for example, investment return: x% per year, net of investment expenses and including **inflation** at y%).

4.1.2 Rationale for Assumptions—For each economic assumption that has a significant effect on the measurement and that the actuary has selected, the actuary should disclose the information and analysis used to support the actuary's determination that the assumption is reasonable.

For each economic assumption that has a significant effect on the measurement and that the actuary has not selected (other than **prescribed assumptions or methods set by law** or assumptions disclosed in accordance with section 4.2[a] or [b]), the actuary should disclose the information and analysis used to support the actuary's determination that the assumption does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

The disclosures should be based on the economic assumptions as of the **measurement date** at which they are applied without regard to changes to the assumptions planned for future **measurement dates**. These disclosures may be brief but should be pertinent to the plan's circumstances. For example, the actuary may disclose any specific approaches used, sources of external advice, and how past experience and future expectations were considered in determining the assumption to be reasonable. If applicable, the actuary should disclose the time period of relevant plan or plan sponsor experience that was last analyzed, including the date of any study used in the selection process.

4.1.3 Changes in Assumptions—The actuary should disclose any changes in the significant economic assumptions from those previously used for the same type of measurement. The general effects of the changes should be disclosed in words or by numerical data, as appropriate. For situations in which both the demographic assumptions and economic assumptions have changed from those previously used for the same type of measurement, the actuary may disclose the general effects of the changes separately or combined, as appropriate. For each assumption that is neither a **prescribed assumption or method set by another party** nor a **prescribed assumption or method set by law**, the actuary should include an explanation of the information and analysis that led to the change.

The disclosure may be brief but should be pertinent to the plan’s circumstances. The disclosure may reference any study performed, including the date of the study.

4.1.4 Changes in Circumstances—The actuary should refer to ASOP No. 41 for communication and disclosure requirements regarding changes in circumstances known to the actuary that occur after the **measurement date** and that would affect economic assumptions selected as of the **measurement date**.

4.2 Disclosure about Assumptions Not Selected by the Actuary—The actuary’s report should state the source of any assumption that the actuary has not selected.

With respect to assumptions that the actuary has not selected, other than **prescribed assumptions or methods set by law**, the actuary’s report should identify the following, if applicable:

- a. any such assumption that significantly conflicts with what, in the actuary’s professional judgment, is reasonable for the purpose of the measurement (section 3.14); or
- b. any such assumption that the actuary is unable to assess for reasonableness for the purpose of the measurement (section 3.14).

4.3 Additional Disclosures—The actuary should also include the following, as applicable, in an actuarial report:

- a. 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 set by a party other than the actuary; and
- b. 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.

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

Appendix 1

Background and Current Practices

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

Background

Economic assumptions have a significant effect on any pension obligation measurement. Small changes of 25 or 50 basis points in these assumptions can change the measurement by several percentage points or more. Assumptions such as compensation increases or cash balance crediting rates are often used to determine projected benefit streams for valuation purposes. The discount rate assumption, arguably the most critical economic assumption in determining a pension obligation, is used to determine the discounted present value of all benefit streams that are part of such obligation measurement.

Historically, actuaries have used various practices for selecting economic assumptions. For example, some actuaries have looked to surveys of economic assumptions used by other actuaries, some have relied on detailed research by experts, some have used highly sophisticated projection techniques, and many actuaries have used a combination of these.

The first decade of the 21st century contained a significant amount of debate inside and outside the actuarial profession regarding the measurement of pension obligations. Much of the debate centered on the economic assumptions actuaries use to measure these obligations. The decade also saw the emergence of a financial economic viewpoint on pension obligations. Applying financial economic theory to the measurement of pension obligations has been controversial and has produced a significant amount of debate in the actuarial profession, which has continued in the present decade.

Current Practices

The actuary's discretion over economic assumptions has been curtailed in many situations. In the private single employer plan arena, the IRS, PBGC, and FASB have promulgated rulings that have limited or effectively removed an actuary's judgment regarding the discount rate used for current-year funding or accounting. Actuaries can still set other economic assumptions, such as compensation increases, inflation, or fixed income yields.

For plans other than private single-employer plans (for example, church plans, multiemployer plans, public plans), the discount rate for current-year funding requirements may or may not be prescribed by other entities. Funding valuations for these types of plans often use a discount rate related to the expected return on plan assets. In practice, this discount rate (return on asset) assumption may be set by the legislative body, plan sponsor, a governing board of trustees, or the actuary. The actuary may advise the plan sponsor about the selection of the discount rate.

As in the single-employer situation, the actuary may have discretion over other economic assumptions used to measure obligations for plans other than private single-employer plans.

Alternatively, the actuary may be in an advisory position, helping the legislative body, plan sponsor, or governing board of trustees select the assumptions.

The focus on solvency in the private single-employer plan arena has come along with prescribed economic assumptions that are linked to capital market indices. Actuaries practicing in this area are becoming accustomed to changing assumptions frequently. In nonprescribed situations, practice is still dependent upon the individual actuary. Many actuaries change assumptions infrequently, while other actuaries reevaluate the assumptions as of each measurement date and change economic assumptions more frequently. In the public plan arena, many entities perform assumption reviews every few years, and these reviews may or may not lead to assumption adjustments.

In preparing calculations for purposes other than current-year plan valuations, actuaries often use economic assumptions that are different from those used for the current-year valuation.

The following list of references is a representative sample of available sources of economic data and analyses that may be useful when selecting economic assumptions. It is not intended to be an exhaustive list.

1. General Comprehensive Sources
 - a. Kellison, Stephen G. *The Theory of Interest*. 3rd ed. Colorado Springs, CO: McGraw-Hill, 2008.
 - b. *Statistics for Employee Benefits Actuaries*. Committee on Retirement Systems Practice Education, and the Pension and Health Sections, Society of Actuaries. Updated annually.
 - c. *Stocks, Bonds, Bills, and Inflation (SBBI)*. Chicago, IL: Ibbotson Associates. Annual Yearbook, market results 1926 through previous year.
2. Recent Data, Various Indexes, and Some Historical Data
 - a. U.S. Bureau of the Census. *Statistical Abstract of the United States*. https://www.census.gov/library/publications/time-series/statistical_abstracts.html
 - b. U.S. Department of Labor, Bureau of Labor Statistics. *Consumer Price Index*. <http://www.bls.gov/cpi/>
 - c. U.S. Federal Reserve Weekly Statistical Release H.15. Interest rate information for selected Treasury securities. <http://www.federalreserve.gov/releases/h15/>

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- d. U.S. House of Representatives, Committee on Ways and Means. *Green Book: Background Material and Data on Programs within the Jurisdiction of the Committee*. <http://greenbook-waysandmeans.house.gov/>
 - e. U.S. Social Security Administration. *Social Security Bulletin*. <http://www.ssa.gov/policy/docs/ssb/>
3. Forecasts
- a. *Blue Chip Financial Forecasts*. Capital Publications, Inc., P.O. Box 1453, Alexandria, VA 22313-2053. March and October issues contain long-range forecasts for interest rates and inflation.
 - b. Congressional Budget Office's economic forecast. The forecast projects three-month Treasury Bill rates, 10-year Treasury Note rates, CPI-U, gross domestic product, and unemployment rates. <http://www.cbo.gov/publication/43907>

Appendix 2

Comments on the Second Exposure Draft and Responses

The second exposure draft of the proposed revision of ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, was issued in June 2019 with a comment deadline of September 15, 2019. Eight 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 Pension Committee carefully considered all comments received, and the ASB reviewed (and modified, where appropriate) the changes proposed by the Pension Committee.

Summarized below are the significant issues and questions contained in the comment letters and the responses to each. Minor wording or punctuation changes that are suggested but not significant are not reflected in the appendix, although they may have been adopted.

The term “reviewers” in appendix 2 includes the Pension Committee and the ASB. Unless otherwise noted, the section numbers and titles used in appendix 2 refer to those in the second exposure draft.

| GENERAL COMMENTS | |
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| Comments | One commentator suggested that this ASOP and ASOP No. 35, <i>Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations</i> , should be merged into a single ASOP on selection of assumptions for measuring pension obligations. |
| Response | The reviewers may consider merging the two ASOPs in the future. |
| Comment | One commentator suggested publishing a definition of economic assumption. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested that the title of appendix 1 should be revised to include “Representative Sources.” |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested it would be preferable to release second exposure drafts of ASOP Nos. 4, <i>Measuring Pension Obligations and Determining Pension Plan Costs or Contributions</i> , 27, and 35 at the same time. |
| Response | The reviewers note that there were no expected changes to the second exposure draft of ASOP No. 4 that necessitated delaying the second exposure drafts of ASOP Nos. 27 and 35. |
| Comment | One commentator suggested that the title of the ASOP should refer to “pension commitments” rather than “obligations.” |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested reviewing the use of the phrases “should consider” and “should take into account” for consistency. |
| Response | The reviewers made modifications throughout the ASOP as needed for consistency. To the extent possible, the reviewers included a course of action after the phrase “should consider,” as suggested in ASOP No. 1, <i>Introductory Actuarial Standard of Practice</i> , section 2.1(a). |

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| Comment | One commentator observed that the standard allows the actuary to not analyze the aggregate effect of assumptions not selected by the actuary, even if that effect is significant, provided each individual assumption not selected by the actuary does not have a significant effect. |
| Response | The reviewers note that the second exposure draft of ASOP No. 4 provides proposed guidance to address this issue. |
| SECTION 2. DEFINITIONS | |
| Section 2.4, Merit Adjustments | |
| Comment | One commentator suggested that definition 2.4 and related discussion be moved to ASOP No. 35. |
| Response | The reviewers note that there is not universal agreement as to whether these assumptions are economic or non-economic and believe that the current guidance is sufficient. |
| SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES | |
| Section 3.2, Identification of Economic Assumptions Used in the Measurement | |
| Comment | One commentator suggested that the title of this section should be Identification of Types of Economic Assumptions Used in the Measurement to be consistent with the first sentence of this section and with section 3.2.1 of ASOP No. 35. |
| Response | The reviewers agree and modified the title in response to this comment. |
| Comment | One commentator felt that the difference between the use of materiality in sections 3.2(b) and 3.2(c) was not clear. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 3.5.1, Adverse Deviation or Plan Provisions That Are Difficult to Measure | |
| Comment | One commentator suggested that section 3.5.1 should be modified to be consistent with the disclosure requirements in section 4.1.1. |
| Response | The reviewers agree and modified the language in section 3.5.1. |
| Section 3.5.3, Cost of Using Refined Assumptions | |
| Comment | One commentator suggested deleting the last sentence in section 3.5.3. |
| Response | The reviewers agree and modified the language. |
| Section 3.5.5, Changes in Circumstances | |
| Comment | One commentator suggested that in section 3.5.5 either “may” means “has permission to,” in which case it is inappropriate, or else it means “might,” in which case it is purely educational and provides no guidance and suggested the sentence be deleted. |
| Response | The reviewers believe the use of “may” is consistent with the guidance in ASOP No. 1, section 2.1(b) but deleted “if appropriate” in response to this comment. |
| Section 3.6.1, Reasonable Assumption Based on Future Experience or Market Data | |
| Comment | One commentator suggested that section 3.6.1 was too narrowly prescriptive. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 3.7, Selecting an Inflation Assumption | |
| Comment | One commentator suggested that section 3.7 (and subsections) was too narrowly prescriptive. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 3.7.2, Select and Ultimate Inflation Rates | |
| Comment | One commentator suggested that in section 3.7.2 either “may” means “has permission to,” in which case it is inappropriate, or else it means “might,” in which case it is purely educational and provides no guidance and suggested the sentence be deleted. |
| Response | The reviewers believe the use of “may” is consistent with the guidance in ASOP No. 1, section 2.1(b) and made no change in response to this comment. |

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| Section 3.8, Selecting an Investment Return Assumption | |
| Comment | One commentator suggested that section 3.8 (and subsections) was too narrowly prescriptive. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 3.8.1, Data | |
| Comment | One commentator suggested that section 3.8.1(c) was not relevant when selecting an investment return assumption and that sections 3.8.1(a) and (b) provided sufficient guidance. |
| Response | The reviewers note that section 3.8.1 states, “the actuary should review appropriate investment data” and made no change in response to this comment. |
| Section 3.8.3, Measurement-Specific Considerations | |
| Comment | One commentator suggested that the last sentence in section 3.8.3(a) should be modified to add “if appropriate” at the beginning of the sentence. |
| Response | The reviewers modified this section in response to this and other comments. |
| Comment | One commentator suggested that sections 3.8.3(c) and 3.8.3(j) should be combined and offered suggested wording. |
| Response | The reviewers disagree with the suggested wording and that the sections should be combined but modified the language in section 3.8.3(j) to improve clarity in the guidance. |
| Comment | One commentator suggested that the terms “forward-looking expected arithmetic and geometric returns” should be eliminated altogether. |
| Response | The reviewers note that “arithmetic and geometric returns” are commonly used in the investment consulting community. Therefore, the reviewers made no change in response to this comment. |
| Comment | One commentator suggested that the passage “The use of a forward-looking expected geometric return as an investment return assumption will produce an accumulated value that generally converges to the median accumulated value as the time horizon lengthens” should be deleted. |
| Response | The reviewers agree and deleted the entire paragraph in response to this comment. |
| Section 3.9, Selecting a Discount Rate | |
| Comment | One commentator suggested that section 3.9 was too narrowly prescriptive. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested that the first two sentences in section 3.9 should be combined into one. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested revised wording for 3.9(c). |
| Response | The reviewers believe that the current guidance is appropriate and did not make any changes in response to this comment. |
| Section 3.10, Selecting a Compensation Increase Assumption | |
| Comment | One commentator suggested that section 3.10 was too narrowly prescriptive. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 3.13, Reviewing Assumptions Previously Selected by the Actuary | |
| Comment | One commentator suggested that it would be helpful if this section made clear that the actuary should also review the economic assumptions used by the actuary who last performed the measurement before using them to ensure they remain reasonable. |
| Response | The reviewers disagree and believe the guidance in this ASOP is clear. Therefore, the reviewers made no change in response to this comment. |

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| Section 3.15, Phase-In of Changes in Assumptions | |
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| Comment | One commentator suggested that this section should be clarified to indicate that the assessment of reasonableness and consistency only apply when the phase-in of assumptions is selected by the actuary and should refer to the prior section (section 3.14 in ASOP No. 27 and section 3.8 in ASOP No. 35) for when it is not selected by the actuary. |
| Response | The reviewers disagree and refer the commentator to section 1.2, which states “When an economic assumption is not selected by the actuary, the guidance in section 3.14 and section 4 concerning assessment and disclosure applies.” |
| Comment | One commentator suggested that this section is not clear or necessary and was concerned this section could be read to apply to select and ultimate assumptions. |
| Response | The reviewers disagree and believe that the guidance “phased in over a period that includes multiple measurement dates” is sufficiently clear and made no change in response to this comment. |
| Section 3.16, Documentation | |
| Comment | One commentator suggested that if section 3.16 is retained, the ASB should change “should consider” to “should.” |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | One commentator suggested that section 3.16 would require retaining documentation that may contain proprietary work product that is not required to be provided to another actuary to assume the assignment. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Comment | Two commentators felt section 3.16 is an unnecessary or inappropriate addition to the ASOP. However, one commentator suggested modification to the language if this section was retained. |
| Response | The reviewers disagree that section 3.16 is an unnecessary or inappropriate addition to the ASOP. However, the reviewers modified the language in response to the one commentator’s suggested language. |
| SECTION 4. COMMUNICATIONS AND DISCLOSURES | |
| Section 4.1, Required Disclosures in an Actuarial Report | |
| Comment | One commentator suggested the first sentence of section 4.1 be changed to add “with respect to required disclosures” at the end to specify what the actuary should consider in the listed ASOPs when issuing an actuarial report. |
| Response | The reviewers disagree and made no change in response to this comment. |
| Section 4.1.1, Assumptions Used | |
| Comment | One commentator suggested that the first sentence of section 4.1.1 should be clarified to only require the disclosure that the assumption “represents an estimate of future experience, the actuary’s observation of the estimates inherent in market data, or a combination thereof” if the assumption was selected by the actuary. |
| Response | The reviewers disagree that the disclosure should only be required if the assumption was selected by the actuary but modified the language in response to this comment. |
| Section 4.1.2, Rationale for Assumptions | |
| Comment | One commentator suggested that the second paragraph of section 4.1.2 should allow the actuary to assess the reasonableness of a combination of assumptions rather than each assumption selected by another party. |
| Response | The reviewers disagree and made no change in response to this comment. |

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| Comment | One commentator felt that the current requirement that the actuary disclose if he or she believes the assumption significantly conflicts with what would be reasonable is appropriate and sufficient, and objects to requiring the actuary to provide supporting information and analysis for an assumption that does not seem to significantly conflict. |
| Response | The reviewers disagree, believe the current guidance is appropriate, and made no change in response to this comment. |
| Section 4.2, Disclosures About Assumptions Not Selected by the Actuary | |
| Comment | One commentator suggested that the term “source” in section 4.2 should be clarified. |
| Response | The reviewers disagree and made no change in response to this comment. |