

# PERiScope

PUBLIC EMPLOYEE RETIREMENT SYSTEMS

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## ASOP 51: Summary and considerations for public plans

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### Introduction

In September 2017, the Actuarial Standards Board (ASB) adopted Actuarial Standard of Practice (ASOP) No. 51, “Assessment and Disclosure of Risk Associated With Measuring Pension Obligations and Determining Pension Plan Contributions.”<sup>1</sup> This standard, effective November 1, 2018, provides guidance for actuaries to assess and communicate through disclosure the risk or uncertainty inherent in the assumptions used in the measurement of pension obligations. ASOP 51 is a supplement to the guidance provided in ASOP No. 4, “Measuring Pension Obligations and Determining Pension Plan Costs or Contributions,” ASOP No. 27, “Selection of Economic Assumptions for Measuring Pension Obligations,” ASOP No. 35, “Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations,” and ASOP No. 44, “Selection and Use of Asset Valuation Methods for Pension Valuations.”

ASOP 51 represents the culmination of three years of review and deliberation by the ASB, which included public exposure and comment. Despite the importance of risk management to the continued successful operation of pension funds, prior ASOPs did not require that valuation reports include a robust discussion on the risks inherent in the actuarial results, and only required inclusion of language noting that future results may be different from current results. Perceiving the need for a heightened awareness of risk to pension plans due to the uncertainty embedded in the assumptions underlying the actuarial calculations, the ASB released the first draft of ASOP 51 in December 2014 and a second draft in June 2016, with the final version released in 2018.

In this article we will provide a brief overview of the requirements of ASOP 51 and then take a look at how this new risk ASOP has been implemented in practice.

### Summary of ASOP 51

ASOP 51 applies when actuaries are performing actuarial services related to measuring obligations and calculating actuarially determined contributions for a defined benefit (DB) pension plan, such as when performing a funding valuation of a pension plan, a pricing valuation of a proposed pension plan change, or a risk assessment that is not part of a funding or pricing valuation. The key requirement is to assess and disclose, in a way that is understandable to intended users of reports, the risk that actual future measurements will deviate from expected future measurements in a way anticipated to significantly affect the plan’s future financial position. However, the actuary is not required to evaluate the ability or willingness of the plan sponsor to make contributions, or the potential for future law changes.

It's important to note the relatively narrow scope of ASOP 51; although, as previously indicated, this standard supplements the guidance in related actuarial standards of practice. Explicitly excluded from the scope are actuarial services regarding other postemployment benefits (OPEB) plans, plan partitions, benefit suspensions under the Multiemployer Pension Reform Act (MPRA), or valuations of social insurance programs as described in ASOP 32, "Social Insurance."

Section 3 of ASOP 51 provides detailed practice recommendations for preparing risk assessments. As a starting point, several specific examples of risk are provided (Section 3.2):

- Investment risk (i.e., the potential that investment returns will be different from the expected)
- Asset/liability mismatch risk (i.e., the potential that changes in asset values are not matched by changes in the value of liabilities)
- Interest rate risk (i.e., the potential that interest rates will be different from the expected)
- Longevity and other demographic risks (i.e., the potential that mortality or other demographic experience will be different from the expected)
- Contribution risk

Once risks to the plan are identified, the actuary should assess these risks and their associated potential effects on the plan's future financial condition and provide an actuarial opinion. Numerical calculations for the purposes of this assessment are not mandatory (Section 3.3).

If numerical methods are used, the actuary should use professional judgment in selecting a method. This judgment should take into account the nature, scale, and complexity of the plan as well as other considerations such as usefulness, reliability, timeliness, and cost-efficiency. Similarly, in selecting assumptions, professional judgment is used. At least one assumption selected should differ from the baseline assumptions to result in at least one plausible outcome (Sections 3.4 and 3.5).

The actuary may decide that a more detailed assessment would better help intended users to understand the risks identified and, after consideration of factors related to the plan, may recommend that it be performed. Whether or not an additional assessment is recommended, the actuary should calculate and disclose plan maturity measures and historical information to help readers understand the risks facing the plan. In disclosing this information, the actuary should include commentary on the relevance and risk impact of each metric being provided (Sections 3.6 and 3.7).

Historical values of plan measurements should be disclosed if reasonably available and if, in the actuary's professional judgment, they are significant to understanding the risk identification and assessment. Commentary should be included to help the intended user understand the significance of this historical information (Section 3.8).

The actuary may partly or fully rely on risks that have been assessed by another party if that assessment is consistent with ASOP 51, in the actuary's professional judgment (Section 3.9).

Once the risks are fully assessed by the actuary, Section 4 of ASOP 51 provides guidance in communicating them. In addition to the required disclosures of ASOP 4, 23, 27, 35, 41, and 44, actuarial communications prepared to communicate the results of actuarial services subject to ASOP 51 should contain the following disclosures:

- Risks identified and any results of the risk assessments performed, including detailed commentary on the effects of the identified risks
- A description of each significant method and assumption upon which the actuary's risk assessment depends, including their sources, if applicable
- A recommendation that a more detailed assessment be performed, if applicable
- Plan maturity measures evaluated, including related commentary
- Historical values of any actuarial measurements and other historical information used, including related commentary

Further, the actuarial communication should include disclosures relating to assumptions, methods, third-party reliance, and any deviations from this guidance (Sections 4.2 and 4.3).

## Two approaches to numerical calculations

While ASOP 51 specifically mentions that numerical calculations are not required for compliance, it does provide several numerical calculation methods to assess the risk facing the plan. These suggested techniques all involve performing projections of the potential future financial position of the plan if actual experience were to differ from what is expected. By understanding what happens to the funded status or required contributions if assumptions do not materialize as expected, plan sponsors can better understand the long-term risks facing their pensions systems.

The most complex numerical method suggested by the ASOP for assessing risk in a pension plan is stochastic modeling. Under this approach, a large number of scenarios are generated based on capital market assumptions and the plan's asset allocation. This approach captures expected volatility in future investment returns as well as other variables and anticipated variability in potential outcomes. This type of analysis can be designed to provide plan sponsors with the likelihood of achieving specific objectives or falling below certain critical thresholds. However, due to the complexity of stochastic modeling, this type of analysis has typically not been included in a standard ASOP 51 disclosure.

The other numerical methods suggested by ASOP 51 are all deterministic in nature. These approaches include scenario testing, stress testing, and sensitivity testing. ASOP 51 defines these numerical methods as follows:

- Scenario test: A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan's financial condition.
- Sensitivity test: A process for measuring the impact of a change in an actuarial assumption on an actuarial measurement.
- Stress test: A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan's financial condition.
- Comparison of an actuarial present value using a discount rate derived from minimal-risk investments to a corresponding actuarial present value from the funding valuation or pricing valuation.

While somewhat different from one another, these approaches all involve projection of a specific set of assumptions (as compared to the thousands of scenarios under stochastic modeling). Because plan sponsors are often focused on understanding downside risk, the stress testing of investment returns is of use for illustrating a major potential risk to a pension plan. Under this approach, investment returns are modeled under a specific stressed return scenario (e.g., 10% loss initially, followed by 0% return for three years, followed by expected returns).

## Public plan response to ASOP 51

Public plan sponsors and industry groups began expressing interest in stress testing even before ASOP 51 became effective in 2018. The Society of Actuaries (SOA) Blue Ribbon Panel on Public Pension Plan Funding included risk analyses and disclosures for public pension plans in its 2014 report.<sup>2</sup> This report recommended that plans should show financial and demographic trends, measure several risk benchmarks, conduct deterministic stress testing, and disclose undiscounted cash flows. Many sponsors of public plans agreed, and risk management assessments have been gaining traction over the past several years; recently, 12 states have passed legislation mandating some degree of stress testing for their pension systems.<sup>3</sup> Proponents of these mandates argue that they simply formalize the process and standardize the type of stress tests already being conducted, ensuring that the information provided to lawmakers best facilitates their decision-making process.

While some states simply mandated that stress testing be performed, other states passed legislation specifying the type of stress tests that were required. For example, in 2017 Hawaii was among the first states to mandate stress testing.<sup>4</sup> In doing so, it specified that the actuary is to perform a 30-year projection under two scenarios. The first scenario models investment returns that are 2% lower than expected for the 30-year period. The second scenario models a one-time 20% investment loss followed by 20 years of investment returns 2% below the expected return. Each of these scenarios is to be modeled under two different contribution scenarios, following the SOA Blue Ribbon Panel recommendation of varying investment returns and contribution levels.

## Case study

The effect of ASOP 51 has ranged from negligible (if the actuary had already been including risk metrics and commentary in relevant reports) to surprising (if this information was not previously included). Many actuaries have added a new section to actuarial valuation reports covering the requirements of ASOP 51, with additional risk analysis being unnecessary in most cases. However, some plan sponsors have used this opportunity to increase their knowledge and understanding of the risks facing their pension plans, requesting separate risk reports or engaging the actuary to perform more robust risk analyses.

With the introduction of ASOP 51, one of our public plan clients requested an in-depth analysis that would identify key risk factors that could impact the plan's funding. The report was structured similarly to the outline provided in ASOP 51. Significant factors affecting the financial health of the plan, as modeled by varying key assumptions, were included in the report.

The following is an outline of what was presented to the client in this report. This outline may be of assistance to other actuaries who are considering providing a risk analysis report, or to plan sponsors interested in requesting such a report. The report begins by identifying relevant risks, then discusses risk measures that can provide insight into the nature of plan risks, and finally quantifies the potential impact of each risk.

- Introduction
  - Understanding of current client risk mitigation efforts, broken out in detail
  - Commentary about the effectiveness of current efforts as well as the cost-benefit involved
- Identification of risks
  - Review of plan experience leading to identification of key factors that cause the most deviation from expected results over the past 20 valuations
  - Each risk is introduced and defined, with commentary on why it was chosen and the effect of that risk on the plan
  - All identified risks are ranked in severity based on likelihood and magnitude of negative impact
  - A detailed description and ranking of causes of unfunded actuarial accrued liability change over the prior 20 valuations, including graphs that show the dollar amount of change due to each cause
- Maturity measures
  - Commentary about the importance of maturity measures and their effects on plan risk
  - Identification and discussion of the maturity measures that are most influential in causing risk to the plan
  - Graphs to quantitatively show past maturity measures as well as projections into the future
- Historical measures
  - Historical investment returns, funded ratio, and employer contribution rate are discussed and graphed
  - Analysis of historical data and the effect on plan funding for each metric
- Assessment of risks
  - Several projections were performed in order to analyze the potential outcome of various investment scenarios
    - One-time market correction
    - Continuation of historical returns
    - Stochastic analysis
  - Modeling of potential future payroll and mortality
  - Changes to investment return assumption

This comprehensive report fulfills all the requirements of ASOP 51 and was very well received by the client.

## Further considerations

ASOP 51 is still a relatively new standard, so more experience is needed. Although it appears that most clients are not seeking additional risk information at this time, that could quickly change in the presence of additional economic instability, a more severe litigation environment, or updated legislation. Plans with significant risk factors, such as poor funding or certain demographic profiles, will have an increased need for risk analysis. Stress testing is one approach to provide plan sponsors with deeper understanding of the potential downside risk facing their plans. Stochastic analysis is a more robust approach to assessing risk and assigns probabilities to specific challenges that may be encountered, but it is a more costly analysis to perform. Each actuary should discuss the options with their clients to determine what type of risk assessment is appropriate for the pension plan and whether an addendum to the valuation or a separate report would best serve the client's needs.

This document contains summaries of some content in ASOP 51; all users should read that standard carefully before assessing and disclosing risk. We are members of the American Academy of Actuaries and meet its qualification standards.

### ENDNOTES

- <sup>1</sup> Actuarial Standards Board (September 2017). Actuarial Standard of Practice No. 51: Assessment and Disclosure of Risk Associated With Measuring Pension Obligations and Determining Pension Plan Contributions, Section 3.2. Retrieved May 11, 2022, from [http://www.actuarialstandardsboard.org/wp-content/uploads/2017/10/asop051\\_188.pdf](http://www.actuarialstandardsboard.org/wp-content/uploads/2017/10/asop051_188.pdf).
- <sup>2</sup> Society of Actuaries (February 2014). Report of the Blue Ribbon Panel on Public Pension Plan Funding. Retrieved May 11, 2022, from <https://www.cccera.org/sites/main/files/file-attachments/brp-report.pdf?1443575329>.
- <sup>3</sup> National Conference of State Legislatures (January 15, 2021). Public Plan Stress Testing in the States. Retrieved May 11, 2022, from <https://www.ncsl.org/research/fiscal-policy/public-pension-stress-testing.aspx>.
- <sup>4</sup> State of Hawaii Department of Budget and Finance (December 27, 2021). Stress Test Annual Report. Retrieved May 11, 2022, from <https://ers.ehawaii.gov/wp-content/uploads/2018/01/Stress-Test-2017.pdf>.



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