Comment #1 – 5/1/18 – 8:38 a.m.

I assume the result of both the old and revised ASB 27 is the continued use of 4-5 % on private plans and 7.5% on public plans. Private plans is from the IRS and makes sense. The 7.5% is totally irresponsible. It leads to wrong fiscal decisions for public plans. There were two articles in the economist, one each in the Wall Street journal and New York Times very critical of actuaries for allowing this level of interest rates. Those articles are right. Actuaries deserve the criticism. Your revision has done nothing to correct this problem.

The rating agencies have also commented about the improper use of 7.5%. It is scary when I agree with rating agencies over actuaries.

Much of Europe and Canada uses closer to government bond yields than the 7.5%..

Are they all wrong?

Three years ago a proposed fix to this problem was drafted and rejected by ASB on a lame excuse. Rather than fix the lame excuse, they buried the issue. It seems ASB is favoring actuarial employment and public employees over the truth.

It is hard to imagine anywhere close to 7.5% with any mix of assets over the next decade or two.(current E/P on stocks, Shiller ten year P/E, 20-30 year bond yields, current real interest rate, interest assumption used for pricing by insurance companies for long term contracts etc.) The yields over the next two decades would have a much heavier weighting than later decades in its impact on assumptions.

I am assuming the 7.5% is not normally set by government entities. As a retiree, I do not keep up as well and may be missing something here. If so, I would appreciate your correcting any errors in my comments. If not, please fix it.

Thanks

Sid LeBlanc, FSA,MAAA

Comment #2 – 5/18/18 – 5 p.m.

This email presents my comments on the proposed revision to ASOP 27. I emphasize that my comments are personal and do not necessarily represent the views of my employer or of any actuarial body of which I am a member. I am a Fellow of the Institute of Actuaries (London), a Fellow of the Society of Actuaries, An Enrolled Actuary, and a member of the American Academy of Actuaries.

In general, I have presented my comments in the order in which an issue appears in the exposure draft and describe each issue as a "part," regardless of if the wording applies to a section, paragraph, subparagraph, or text with another name.

1 The ability of myself, other actuaries, and other interested parties to comment on this proposed revision would be greatly enhanced – to a minimum acceptable level – if the ASB issued a red line version of the proposed revision, using strikeout font for text in the original that the ASB proposes to remove and by using *italic*/different color font for text the ASB proposes to add. Such a version is essential for us to make a reasonable review of the changes and to catch areas where the changes appear to need further revision or removal. I urge the ASB to provide red line versions for all future proposed revisions of ASOPs and to provide red line versions of all current draft ASOPs that are proposed revisions of existing ASOPs.

2 I urge removal of 1.1.d. – a new part that indicates a purpose being to supplement the guidance in ASOP No. 34 relating to the selection of economic assumptions for these reasons:

- The first paragraph of Part 1.2, which is unchanged, excludes the use of this ASOP for measurement of individual benefit calculations. The economic assumptions used for calculations in Domestic Relations Orders almost always relate to individual benefit calculations. It is inappropriate to modify ASOP 27 to include a specific kind of individual benefit calculation when all other individual benefit calculations are excluded.

- Any revision in guidance on Domestic Relations Orders belongs solely in ASOP 34. If the ASB believes the ASOPs should include additional guidance on the selection of economic assumptions for Domestic Relations Orders, it should propose changes to ASOP 34, not to any other ASOP.

3 I urge removal of the new penultimate paragraph of part 1.2 "The standard also applies whenever the actuary has an obligation to assess the reasonableness of an economic assumption that the actuary has not selected. My reasons appear in my discussion of part 4.1.2.

4 I urge removal of part 3.6.3. ASOPs are intended for use by qualified actuaries. This addition is a "paint by the numbers" approach to guidance, appropriate for an actuarial textbook. blog, or informal presentation, but not appropriate for an ASOP. The wording of the existing ASOP requires the actuary to select reasonable assumptions at each measurement date; nowhere did it excuse an actuary from doing so for any reason. 3.6.3 adds nothing worthwhile to the ASOP; by omitting any reference to phasing in of assumptions chosen by a party other than the actuary, this new part suggests, contrary to

later wording, that the actuary need not be concerned about the reasonableness of assumptions at each measurement date when a party other than the actuary selects a phase in of assumptions. The part has no merit. Consistent with this comment on 3.6.3, I urge a thorough review and pruning of the entire ASOP to remove or shorten the many places where the ASOP provides guidance more suitable to a textbook for new actuaries than for a standard for qualified actuaries. In many places, the wording is prescriptive.

5 The proposed revision to 4.1.2 directly conflicts with ASOP 41 part 3.4.4 b. 1. , which reads: If a material assumption or method is selected by another party…[and] If the assumption or method does not conflict significantly with what, in the actuary's professional judgment, would be reasonable for the purpose of the assignment, the actuary has no disclosure obligation.

a. Nothing in ASOP 27 makes its wording override ASOP 41

b. Any proposed change to any ASOP that conflicts with ASOP 41 should not appear without coincident proposed revision to ASOP 41

c. A frequent situation where a party other than the actuary chooses economic assumptions relates to the salary scale, discount rate(s) and expected return on assets in actuarial measurements for accounting purposes. In many such situations, the party that sets the assumptions is the plan sponsor based on confidential information on planned salary changes, planned changes in personnel, the portfolio of assets held by the plan, the current and any planned changes in asset management, and sophisticated "black box" programs for determining discount rates. The ASOP maintains the absolute requirement to protect confidential information. If adopted, this proposed change will result in a sentence in many affected SAOs along the lines of "The actuary believes the economic assumptions selected by NAME are reasonable, but is prohibited from providing any rationale for such belief due to the confidential nature of the information provided to the actuary by NAME in support of such assumptions."

d. The proposed requirement is a fishing expedition, which increases the risk to every actuary subject to this ASOP of being sued by an interested party for having published two or more apparently contradictory rationales for considering different assumptions reasonable in different situations. This proposal is not so much the start of a slippery slope as a plank it forces actuaries to walk and almost inevitably fall from into a litigious swamp.

e. Missing from the proposed revision is any change to 4.2.a. The ASOP should apply consistent rules on the an actuary's obligation to provide a rationale for (a) considering an assumption reasonable and (b) considering an assumption not reasonable. So long as an actuary has no obligation to provide a rationale for considering an assumption chosen by another party to be not reasonable, so the actuary should have no obligation to provide a rationale for considering an assumption chosen by another party to be reasonable.

Meetings of the ASB and of the ASB Pension Committee that will discuss the comments on this proposed revision will be under different rules from those that applied in the past. The meeting chair can now prohibit attendance by anyone for any reason and for no reason. The ASB should have sought input from the Academy membership before piggybacking on the changes adopted for Academy board and committee meetings. I urge the ASB, as a separate entity from the AAA, to sever its meeting attendance policy from the policy for the Academy meetings and adopt a modern web-based attendance policy that would make live webcasts of all ASB board and committee meetings (similar to C-Span) readily accessible to anyone, and to provide an accessible library of recordings of past such meetings. I am confident the ASB could provide appropriate rules for those rare situations where the confidential nature of some discussion merits in-camera treatment. The ASB refuses to post or consider anonymous comment communications on draft ASOPs. The ASB and its pension committee should not adopt a "do as I say, not as I do" approach, by holding meetings that those interested in the ASOP have no guarantee of attending (thereby, being unable to identify the people on the committee or board whose comments lead to welcome or unwelcome changes).

An unresolved conflict of interest could exist if an actuary's work on the ASB or any ASB committee could affect (a) any client of the actuary, or (b) any other direct or indirect financial interest of the actuary. I urge the ASB to publish standard signed statements by each member of the ASB and of each of its committees prior to participating in any ASB-related meeting that attest to (a) having received approval from each client to perform work on the ASB or ASB committee at that meeting regardless of if that work affects that client and (b) having no material conflict of interest in any other matter in relation to ASB board or committee work.

Best Wishes

Jan Harrington

Comment #3 – 6-25-18 – 4:43 p.m.

Comments on ASOP 27 Exposure Draft
June 25, 2018
R. Evan Inglis, FSA, CFA
610-608-1578

Thank you for the opportunity to comment on **ASOP 27** for selecting economic assumptions for pension valuations. These assumptions, in particular expected returns used as discount rates are of vital importance to our profession, plan sponsors, trustees, and most importantly the members of a pension plan whose financial security depends on the pensions they have been promised. Unfortunately, due to pressures on plan sponsors and actuarial and investment professionals, the practice in this area is aggressive and inappropriate support is being found for expected return assumptions that are too high. This puts benefit promises in jeopardy.

Methods for determining future returns have evolved significantly over the past decade and most actuaries and many investment professionals are simply not aware of the methods that are available or of the typical results that up-to-date methods will produce. Actuaries often rely on investment professionals to determine expected returns without being able to critically evaluate the investment professional's work, which may lack rigor or be biased.

The ASOP could facilitate more appropriate practice by emphasizing and clarifying two related aspects of setting and using expected returns as discount rates:

- The impact of prices and yields on expected returns, by period
- The application of return expectations to the specific cash flows for a pension plan

Both of these items have grown in importance for our profession in recent years because of the new methods being used to forecast returns and because of the maturity of pension plan populations, i.e. the shortening of the duration or cash flow time horizon. This is explained in more detail in my comments on section 3.8.4

3.8.4

The language in the ASOP includes the appropriate considerations, but many actuaries will not understand the significance of some of the factors included. For instance, the idea that the assumed market appreciation in one period should impact the assumed return in the next period is probably not commonly understood within the profession. This idea is particularly important today when potential changes in equity P/E ratios are a significant factor in an equity return forecast. It is especially important because the horizon over which the discount rate is applied is becoming shorter for most pension plans. Some forecasters include little or no decrease in P/E's and should therefore have a lower assumed return in the subsequent period than if they did assume a decrease in P/E's. This aspect of a forecast is vital for understanding the relationship between a 10-year forecast and a longer-term forecast. I believe that most actuaries are not aware of this concept enough to ask about it or analyze it when looking at the expected return provided by an investment professional. Of course, this idea of price changes impacting the expected returns in subsequent periods is common to virtually all financial assets.

Actuaries generally use an expected return for a 20-year period or longer with no explicit consideration of the actual time horizon for the plan. This provides results that can be quite different from applying expected returns identified for each period (e.g. for 0-10 years, 10-20 years, 20-30 years, etc.) to the cash flows expected in those periods. Since the intent of the discounting process is to calculate the discounted value of the cash flows, select and ultimate rates (even if converted to a single equivalent rate) are appropriate when the return expectation is different for different periods. Note that most forecasters have different return expectations for different periods, and therefore select and ultimate rates would almost always be appropriate (even if converted to a single equivalent rate for disclosure). For most plan valuations where expected returns are used for discounting it makes sense to apply the different rates to the benefit payment (PVB) cash flows.

The two concerns above are closely related, and they should be considered carefully and applied appropriately in every valuation that uses an expected return discount rate. It would make sense for the ASOP to elevate these considerations to something that would always be considered or applied in developing or evaluating an expected return. The use of a single equivalent rate may work fine, but the evaluation of the return assumption should consider the time frame and the underlying assumption about the development of prices and yields (price is inverse of yield) over the time frame associated with the liability cash flows.

The ASOP could say directly that when the relevant return forecast is for different levels of return during different time periods that the returns during each period should we weighted by the expected benefit payments from the plan.

3.8.1

I cannot think of a situation where historical plan return performance would be a relevant input into a process for determining a return expectation. The plan's performance is completely irrelevant and the only historical information that is relevant is for factors such as yields, growth, inflation, etc. and the relationship of those factors to returns – not the returns themselves. Even if there is some way that it is helpful, I think including this on the list of key data is misleading because in the past there was a substantial reliance on historical return information and continuance of this approach is leading to bad and outdated practice today.

Arithmetic v. Geometric

The pension committee may already have spent a lot of time on this topic, but the issue has become quite confused when it should be straightforward. Conference presentations and practice notes on this topic go to great lengths to allow for the potential use of arithmetic returns as discount rates. The arguments against this on both conceptual and practical grounds are very strong and there seems to be no reason to allow for arithmetic returns to be used as discount rates. The ASOP should directly discourage the use of arithmetic return information for discounting. On both conceptual and practical grounds, it is inappropriate.

Arithmetic returns are the appropriate input into a stochastic process where they will be applied together with volatility to generate a result that is equivalent to applying a single, fixed geometric return. Because the discounting process for an actuarial valuation does not include volatility, applying arithmetic returns as a discount rate will provide an answer that is too low. Some argue that compounding an arithmetic return provides the mean value on a dollar basis, but this number is essentially meaningless for a geometric process like return compounding (or discounting). After many years of compounding an arithmetic return without volatility the value becomes unreasonably high and provides little useful information (see link below).

The idea that an actuarial assumption should produce a "best estimate" without bias on one side or the other has caused confusion here. The standard of expecting zero dollar gain or loss (an arithmetic concept) is not a useful standard for a geometric process, especially when the results are compounded over long time periods. When actuaries interpret this standard to apply on a dollar basis, rather than a percent basis, confusion is created by applying an arithmetic standard (equal dollars on either side of the estimate) to a geometric process. The standard could state clearly that expected arithmetic returns are not appropriate for discounting.

The confusion on this topic is also unnecessary since few actuaries or investment professionals are actually using weighted averages of arithmetic returns as discount rates, so there is no significant actual practice to accommodate in this area.

Appendix 2

Appendix 2 is incomplete and confusing. The correct discount rate for a pension valuation based on this distribution of returns is 14.02% (the geometric average of 0% and 30% returns). Applying 14.02% or 0% and 30% (half of the time each) will provide the same answer. Thus the number 14.02% applied as a consistent unchanging number is the correct discount rate. The number 14.51% is not relevant for any purpose. It is the arithmetic average of the results from a geometric process and as such is a bit of an odd duck. While this number (the arithmetic average of geometric return averages from stochastic scenarios) is commonly plucked from a stochastic modeling exercise as a discount rate, this is just a sloppy process that makes no material difference over the periods for which these modeling exercises are performed (10+ years). The best number (that corresponds to 14.02% for the example in Appendix 2) is the median result which is immaterially different from the mean over periods longer than a few years. It is also very close to the geometric average of the geometric return averages from the scenarios, which can also be determined from a stochastic modeling exercise. The median of the information provided in Appendix 2 is 14.02%.

Note that compounding 15% returns over 100 years gives a result that is almost 2.5 times higher than compounding 14% returns. The probability of the actual end result being greater than or equal to the result from compounding a 15% return is about 25%. The probability of the end result being greater than 14.02% is about 50%.

It may make sense to remove Appendix 2 to avoid the confusion to which it seems to be contributing.

Here's a website on the topic of geometric and arithmetic means.

http://standardwisdom.com/softwarejournal/2012/01/defining-the-center-arithmetic-mean-geometric-mean/

Demonstration of possible estimates of the geometric mean

The table below shows calculations over four years similar to the two-year demonstration in Appendix 2. The median of returns or the geometric mean of geometric returns (both in italics) are good estimates of the geometric return which is the parameter that is to be estimated. The arithmetic average of geometric returns (referred to as the "forward looking expected geometric return" in Appendix 2) will only be a reasonable estimator over longer periods, but it is flawed conceptually and should be ignored, except perhaps to acknowledge that it may be used as a reasonable estimate of the geometric return over periods longer than 10 years. In the table below that number is 14.26% corresponding to the two-year number of 14.51% in Appendix 2.

					arithmetic average of geometric	arithmetic	geometric
				mean	**14.26%**	**15.00%**	***14.02%***
				median	***14.02%***	**15.00%**	**14.02%**
Year 1	Year 2	Year 3	Year 4				
30	30	30	30		30.00%	30.00%	130.00%
30	30	30	0		21.75%	22.50%	121.75%
30	30	0	30		21.75%	22.50%	121.75%
30	30	0	0		14.02%	15.00%	114.02%
30	0	30	30		21.75%	22.50%	121.75%
30	0	30	0		14.02%	15.00%	114.02%
30	0	0	30		14.02%	15.00%	114.02%
30	0	0	0		6.78%	7.50%	106.78%
0	30	30	30		21.75%	22.50%	121.75%
0	30	30	0		14.02%	15.00%	114.02%
0	30	0	30		14.02%	15.00%	114.02%
0	30	0	0		6.78%	7.50%	106.78%
0	0	30	30		14.02%	15.00%	114.02%
0	0	30	0		6.78%	7.50%	106.78%
0	0	0	30		6.78%	7.50%	106.78%
0	0	0	0		0.00%	0.00%	100.00%

If the distribution (30%/0%) represents the expected distribution of returns then a $1,000 payment in four years has a present value of $592, using 14.02% as the discount rate (ignoring the potential for other less risky returns). The result $572 (using 15%) is not valid because the volatility in the distribution is not part of the calculation. The result $587 (using 14.26%) is not as good an estimate as the estimate obtained using the median result.

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July 19, 2018

Via e-mail comments@actuary.org

Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington, DC, 20036

Re: Comments on exposure drafts for Actuarial Standards of Practice (ASOPs) 4, 27 and 35

Dear Members of the Actuarial Standards Board (ASB) and the Pension Committee of the ASB

The Society of Actuaries (SOA) Board of Directors submits these comments to the exposure drafts of ASOPs 4 (*Measuring Pension Obligations and Determining Pension Costs or Contributions)*, 27 (*Selection of Economic Assumptions for Measuring Pension Obligations)*, and 35 (*Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension* Obligations). The SOA Board thanks the ASB and the Pension Committee of the ASB (Pension Committee) for their work in reflecting the recommendations of the *Report of the Pension Task Force of the Actuarial Standards Board*, dated February 29, 2016 in the exposure drafts for ASOPs 4, 27 and 35. The Pension Task Force report represented a significant amount of time spent by the ASB listening to the pension community and reflecting on the role of pension standards. It is heartening to see that work reflected in the exposure drafts of ASOPs 4, 27 and 35. The SOA Board urges the Pension Committee to substantively maintain these changes to these ASOPs.

The SOA Board acknowledges the importance of the newly defined Investment Risk Defeasement Measure disclosure for funding valuation reports (ASOP 4 Exposure Draft, section 3.11). The Pension Task Force report cited the importance of introducing a required market-based measure to provide clarity and context to funding values, provide information about risk not found in other measures, and incorporate into actuarial science the best practices of other professions. The Investment Risk Defeasement Measure provides important information to assess the degree of risk in a plan's funding and investment policy that, when accompanied by an actuarial report that provides context for its meaning, improves pension plan sustainability. The SOA Board recommends this measure not be removed or meaningfully changed as ASOP 4 is revised, including any changes that would allow an actuary or plan sponsor to opt out of its calculation.

Sincerely,

M. Lombardi

Mike Lombardi
President, Society of Actuaries

July 27, 2018

ASOP No. 27 Revision
Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington, DC 20036

Dear Sir or Madam,

This letter documents the response of Willis Towers Watson to the proposed revision of Actuarial Standard of Practice ("ASOP") No. 27 Selection of Economic Assumptions for Measuring Pension Obligations, as requested in the Exposure Draft (ED) of March 2018.

Willis Towers Watson is a leading global professional services company that employs over 40,000 associates worldwide, over 1,100 of whom are members of U.S. actuarial bodies subject to the standards and approximately 600 of whom are enrolled actuaries. We provide actuarial and consulting services to more than 1,700 defined benefit plans in the U.S. The undersigned have prepared our company's response with input from others in the company.

Our comments generally support four central themes that we believe should apply to the ASOPs that can be found on our website at https://www.towerswatson.com/en/north-american-retirement-principles.

Summary and General Observations

We appreciate the opportunity to comment.

Before identifying comments on specific sections of the ED, we would like to make a few general observations for you to consider. First, revising ASOP No. 27 provides an opportunity to clarify the extent to which ASOP No. 27 applies to retiree group benefit programs as well as pension programs (e.g., sections 1.1a, 1.2, 2.2, 3.1, 3.2, 3.6.1, 3.9 and 3.11 refer exclusively to pension plans).

Second, we would like to highlight one of the principles from our four central themes linked above. We believe no written standard can anticipate every situation that actuaries will confront and therefore, the ASOPs should not seek to substitute rules for the actuary's reasonable professional judgement (especially since most of our services are already highly regulated by governmental bodies). Due to the many current and forthcoming standards that now, or shortly will, provide guidance on actuarial assumptions, we believe that an actuary's reasonable professional judgement has become subservient to satisfying standards that represent the Board's view of "best practice", rather than "basic professional standards", and the actuary is no longer able to take a reasonable approach that, in the actuary's professional judgement, meets the Principal's needs. For this reason, in general we advise against adding additional requirements that may further constrain professional judgement.

Lastly, we believe that, based on the definition of measurement date, the standard will be effective and apply immediately upon adoption to projections that are more than 12 months out (similarly for section 4.1.4 Changes in Circumstances). We recommend modifying the effective date provisions to avoid this result.

Our specific feedback on the ED by section follows.

Specific Comments

Section 3.5.6 (Views of Experts) – We believe that the phrase "views of experts" is a misnomer. In some cases the sources listed would not be considered experts, and therefore we recommend revising this section to refer to "sources" of economic data and analyses.

Section 3.6.3 (Phase-In of Changes in Assumptions) – Please clarify the meaning of a phase-in of changes in assumptions. We interpret this section as either referring to a select and ultimate assumption, or an assumption for which the implementation of a change (and therefore the effect) is smoothed over a number of measurement dates. Selecting reasonable assumptions is already addressed in section 3.6(c) and 3.13 which respectively indicate that an assumption is reasonable if "it takes into account historical and current economic data that is relevant as of the measurement date" and "at each measurement date, the actuary should determine whether the assumptions selected by the actuary continue to be reasonable." We suggest deleting section 3.6.3 as the rest of ASOP No. 27 makes it very clear that assumptions should be reasonable at the measurement date (regardless of any phase-in).

Section 3.13 (Reviewing Assumptions) – We understand the need to assess assumptions, however we are concerned that this section makes no reference at all to the Principal. While the actuary will assess assumptions at each measurement at a high level, a more detailed assessment (including potential modifications to assumptions) is done at the discretion of the Principal. We believe the actuary should suggest experience studies to the Principal periodically, as well as at any point that the actuary has significant concerns regarding whether assumptions are reasonable. However, the detailed assessment and study are only done with the Principal's consent. Cleary the actuary should not be required to perform a study without the Principal's consent nor compensation and we are concerned that this section could be used against actuaries who do not do this. Instead, the actuary should resign from the work if he or she believes that a study is necessary to select reasonable assumption and the Principal does not consent.

Section 4.1.2 (Rationale for Assumptions) – The ED refers to changes to this section as a clarification and we disagree with this characterization. We view the changes as a substantial expansion to which we strongly object. As proposed, Section 4.1.2 would require disclosure of the rationale for a Prescribed Assumption or Method Set by Another Party. Under the current standard, this section is not applicable to such assumptions. Currently, the actuary discloses only if a Prescribed Assumption or Method Set by Another Party significantly conflicts with what would be reasonable. Under this revision, a new responsibility would effectively be imposed on the actuary to evaluate the reasonableness of assumptions not selected by the actuary and for which applicable law, regulations or accounting guidance give the responsibility for selecting the assumption to a different party. There is no justification for imposing this on the actuary and satisfying it would require additional work which would likely be uncompensated, have little use and could potentially put the actuary in conflict with the Principal. In addition, the assumption may be an assumption that the actuary does not have the expertise to evaluate.

We understand that the ASOPs already require the actuary to determine whether such assumptions significantly conflict with what would be reasonable. However, determining whether an assumption is reasonable and determining whether an assumption significantly conflicts with what would be reasonable are two very different things.

We believe 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 strongly object to requiring the actuary to affirmatively determine whether such an assumption is reasonable. We do not believe the ASOP should effectively force the actuary's judgement on the Principal (or other party given the responsibility to select assumptions).

Thank you for this opportunity to comment on the ED. If you have any questions concerning our comments, please contact us directly.

Sincerely,

Michael F. Pollack, FSA, EA, FCA
Senior Director, Retirement

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Head of Retirement Policies and Procedures
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Comment #6 – 7/27/18 – 1:41 p.m.

Dear Members of the Actuarial Standards Board,

I write in support of the proposed changes to the pension actuarial standards of practice, ASOP 4, ASOP 27, and ASOP 35.

As background, I have spent my career researching and publishing on state and local government tax and fiscal issues and have spent much of the last five years researching the interplay between public pension plans and risks to government sponsors. Based upon modeling work that I have conducted with my colleague, Yimeng Yin, I have concluded that these risks are far greater than many policy makers realize. I have presented at numerous conferences and events on these topics (including at the 2017 Annual Meeting of the American Academy of Actuaries).

I support the expanded disclosure requirements (including the Investment Risk Defeasement Measure) contained within your proposals. These disclosures will improve the understanding of pension liabilities, costs, and risks by researchers and others seeking to develop a consistent outlook for public pension plans – which I hope will, in turn, contribute to an improved and more consistent financial outlook for state and local governments in general.

I also support the provisions specifically guiding actuaries to opine on legislated assumptions. I am always interested in understanding what actuaries think about prescribed assumptions.

Thank you very much for considering my views.

Sincerely,

Don Boyd

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Don Boyd
Senior Research Fellow
Center for Policy Research
Rockefeller College, University at Albany, SUNY

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Comments on the Exposure Draft of the

Proposed Actuarial Standard of Practice No. 27: Selection of Economic Assumptions for Measuring Pension Obligations

July 31, 2018

The Actuarial Standards Board

The American Retirement Association (ARA) and the ASPPA College of Pension Actuaries (ACOPA) appreciates this opportunity to comment on the exposure draft of the Actuarial Standard of Practice (ASOP) on *Selection of Economic Assumptions for Measuring Pension Obligations.*

ARA is a national organization of more than 24,000 retirement plan professionals who provide consulting and administrative services for qualified retirement plans covering millions of American workers. ARA members are retirement professionals of all disciplines, including consultants, investment professionals, administrators, actuaries, accountants and attorneys. All credentialed actuarial members of ARA are members of ACOPA, which has primary responsibility for the content of comment letters that involve actuarial issues. The following are ACOPA's comments on the proposed actuarial standard of practice:

1. In the Background, the prior language in the first sentence of the Background stated the ASB provides "coordinated guidance". The word "coordinated" was removed in the Exposure Draft. ***ACOPA recommends*** the ASB should continue to refer to "coordinated guidance", as this better reflects the intention of the ASB to avoid conflicts between the ASOP's as well as to provide guidance on specific ASOP's.

2. Section 3.6.3 Phase-in of Changes in Assumptions uses the phrase "should select a reasonable economic assumption". ***ACOPA recommends*** this be replaced with "should consider a reasonable economic assumption" to indicate that the phase-in assumption is monitored along the phased path, but not necessarily changed each period.

***

This letter was prepared by the ASOP Task Force of the ACOPA Professionalism Committee, Lynn Young, Chair. If you have any questions, please contact Martin Pippins, Executive Director of ACOPA, at (703) 516-9300 ext. 146.

Thank you for your consideration of these comments.

Sincerely,

/s/ Lynn Young, MSPA, Chair ASOP Task Force	/s/ Martin L. Pippins, MSPA, Executive Director ASPPA College of Pension Actuaries
/s/ Bill Karbon, MSPA, President ASPPA College of Pension Actuaries	/s/ John Markley, MSPA, President-Elect ASPPA College of Pension Actuaries

Comment #8 – 7/31/18 – 11:08 a.m.

July 31, 2018

Dear Members of the Actuarial Standards Board,

I was a member of the SOA's Blue Ribbon Panel on Public Pensions (BRP). Your proposed changes represent a healthy strengthening of standards. Also:

- Amortization periods should not extend beyond the average expected future working lives of employees so that plans are fully funded upon retirement.

- Actuaries should be required to provide the basis for their determination that assumptions are reasonable.

- The IRDM should also be applied to the calculation of contributions so that readers may assess the risk associated with the funding program.

David Crane

Lecturer, Stanford University

President, Govern For California

415-672-4402

Comment #9 – 7/31/18 – 11:15 a.m.

To the Actuarial Standards Board—I would like to offer a few thoughts with respect to ASOP's 4, 27 and 35 that are currently in exposure draft.

Let me begin with a bit of personal background. I am currently a retired actuary but was previously the Chairman, CEO and President of Principal Financial Group. I was fortunate to be the Academy President in 1995/1996 and have been involved in Academy work for more than 30 years. In the early part of my career, I was more involved in the pension industry but migrated to a more executive career for the past 20 years. I do NOT consider myself a subject matter expert with respect to choosing actuarial or economic assumptions. However, I was fortunate to be part of the Society of Actuaries Blue Ribbon Task Force on Public Pension Plans that was chaired by Bob Stein, FSA. That work is the primary basis of the comments that I offer today.

My comments are not specific to any of the ASOP's but are more general in nature. As we performed our research for the Blue Ribbon Task Force and started to formulate our recommendations, it was very clear to me that in broad and general terms, public plan actuaries needed to be much better at working with Trustees and plan sponsors at understanding how pension plan costs vary under a SERIES of actuarial and economic assumptions. Too often, public plan actuaries presented costs under a single set of actuarial and economic assumptions thereby not helping Trustees and plan sponsors to know how costs might change under conditions of high inflation, low inflation, high interest rates, etc. Said in a more general way, public plan actuaries were not (in my view) carrying out their important responsibilities to not only create the proper costs for the current plan year, but to educate plan sponsors and beneficiaries of how costs and funding levels vary across a range of actuarial and economic assumptions.

As I said, these comments are not with respect to any one of these ASOP's but I would hope that there might be a preamble or some other way of embedding this thought into each of the ASOP's overall. It is only by doing a better job of educating plan trustees, plan sponsors and beneficiaries that we can hope to help the general public understand the challenges of public plans and what solutions might exist to help align benefits and revenue.

I hope these comments will be of value to the ASB. I am deeply appreciative of the work that the ASB members to do help the actuarial profession carry out it's important responsibilities to the public. If there are any follow-up questions, please feel free to contact me at: Zimpleman.Larry@gmail.com.

Regards,

Larry Zimpleman

Comment #10 – 7/31/18 – 12:27 p.m.

Dear Members of the Actuarial Standards Board:

The Civic Federation is writing in support of proposed revisions to Actuarial Standards of Practice (ASOP) Nos. 4, 27 and 35. The Civic Federation, founded in 1894, is a non-partisan government research organization that works to maximize the quality and cost-effectiveness of government services in the Chicago region and State of Illinois. For many years, the Civic Federation has written about our area's public pension plans and posted our reports on the Federation's website. Our research relies heavily on the actuarial valuations published by our region's retirement systems. As President of the Civic Federation, I served on the Society of Actuaries' Blue Ribbon Panel on Public Pension Plan Funding, which issued its report in February 2014.

The Civic Federation supports the expanded disclosure requirements contained in ASOP Nos. 4, 27 and 35 in order to increase transparency and comparability of public pension plans and improve public understanding of their financial condition. We note in particular that the proposed Investment Risk Defeasement Measure in ASOP No. 4 is in line with the Blue Ribbon Panel Report, which recommended disclosure of plan liability at a risk-free rate to quantify the risk inherent in plans' investment policies. As consumers of actuarial valuations, the Civic Federation would find comments from the actuary on the reasonableness of assumptions a useful supplement to work already being done by the Illinois State Actuary for the State funds and the Chicago Teachers' Pension Fund and would assist the Federation in making recommendations to sponsoring governments about pension-funding policies.

Thank you for the opportunity to comment on the proposed revisions. Please do not hesitate to contact me at 312-201-9044 if you have any questions.

Sincerely,

Laurence Msall
President

Laurence Msall | President
The Civic Federation

July 30, 2018

Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington DC 20036

Subject: Comments on Proposed Revisions to ASOP 27

Dear Actuarial Standard Board:

Thank you for the opportunity to comment on the proposed revisions to ASOP 27.

1. In Section 1.1, should there be a reference to ASOP 51?

2. The reference to ASOP 34 was added to section 1.1 from the current version of the ASOP, and we believe this reference should be deleted or clarified. Nothing in the scope as articulated in section 1.2 would include the types of valuations normally done in conjunction with actuarial practice concerning retirement plan benefits in domestic relations actions, nor is ASOP 34 mentioned as one of the ASOPs related to measuring pension and retiree group benefit obligations in the background section. While in some ASOP 34 valuations, following concepts similar to the concepts articulated in ASOP 27 would be appropriate and Section 3.3.4 of ASOP 34 does reference ASOP 27, in many instances the guidance of ASOP 27 is not appropriate for valuations under ASOP 34.

   Before the ASB changes guidelines on how economic assumptions for all purposes under ASOP 34 are determined, we urge the ASB consult with individuals with actual experience in the actual application of ASOP 34 in practice. Further, since the stated motivation of the changes to ASOP 27 are related to issues related to public plans, and ASOP 34 has nothing to do with valuing public plans, this seems well outside the scope of the intent of the changes being made.

   Similarly, the ASB should harmonize including ASOP 34 in the scope with including ASOP 17 in the scope.

3. Should the title of Section 3 more accurately be "Analysis of Issues and Appropriate Practices?" The inclusion of the word "Recommended Practices" may give the idea that the issues mentioned in Section 3 are literally recommendations which an actuary may follow or not follow.

4. At the end of section 3.2, the words were changed from "measure obligations under a defined benefit pension plan" to "measure pension obligations." Under section 1.2 the scope of the standard only applies to measure obligations under any defined benefit pension plan. We would note that under federal tax law, a money purchase plan is classified as a pension plan but is not a defined benefit plan, so the two terms are not synonymous. Unless there was some intent to change the meaning of this section, we think this should not be changed.

5. In section 3.5.3 the proposed phrase "consider the balance between refined economic assumptions and the cost of using refined assumptions" was changed to "take into account the balance between refined economic assumptions and the cost of using refined assumptions." It is not clear to us what this intended change is supposed to accomplish. We would suggest reverting to the current language.

6. In section 3.5.5 the language of the first sentence was changed. It is not clear what this change is intended to reflect, and we would suggest that either the ASB explain how the proposed language has a different meaning from the current language, or revert to the current language.

7. The first sentence of 3.6 was changed. Unless there was some compelling reason for this change, we believe that the current language is superior, and should be retained, as the proposed language is not clear. We believe that the next sentence is unclear as to whether the assumption should individually meet each requirement (i.e. the sentence should say "…has **all** the following characteristics…") or should meet some of these characteristics. Also, it would appear that this list is intended to be exhaustive, in other words, the ASOP is stating that an assumption is reasonable, if and only if, it meets these requirements. We do not believe this to be true, and can think of many counter examples (i.e. where an assumption is reasonable, but does not meet that set of requirements and conversely where it might meet that set of requirements but still is not reasonable).

   An easy example of a problem with this list is an assumption regarding salary history in a one person plan, covering a lawyer, who just started his practice, and earned $100,000 in the first year. What possible "historical and current economic data" could possibly inform the actuary with regard to the selection of a salary scale assumption? If the response is "well, the requirement is 'that is relevant'" we would respond that if 3.6 requires all of these requirements to be met, but this requirement is not always applicable, then, at a minimum, it should say "if applicable" or "to the extent there is relevant data." In the alternative, we would suggest that the language should be changed to make clear that not all items are required (perhaps by saying "if applicable") and that an assumption is unreasonable if it does not meet these requirements (i.e. meeting the requirements is not conclusive that the assumption is reasonable).

8. Section 3.6.3, the exposure draft contemplates that the phased-in assumption is reasonable at each measurement date during the phase-in period. This requirement might be strengthened if there was also an explicit requirement that the phased-in assumption be consistent with other assumptions on each measurement date during the phase-in period.

9. Section 3.9 would be improved if it included guidance on how to select a discount rate for periods beyond the available yield curves.

10. Section 3.9a and 3.9b would be clearer if defeasement and settlement were distinguished from one another.

11. Section 3.10 would be enhanced by discussing developing a salary increase assumption for self-employed individuals (i.e. paid on Schedule C or K-1) and situations in which it would be reasonable to assume compensation decreases.

12. Section 3.10.2 would be enhanced by encouraging actuaries to consider the effect of legal changes. For example, an actuary should consider the effect of state and local laws that prohibit asking about an applicant's pay history. Similarly, the actuary should be encouraged to consider other trends such as the push for a $15 per hour minimum wage and/or companies voluntarily taking on audits to adjust for gender and racial pay gaps will affect the salary increase assumption.

13. In multiple locations in section 3.11.2, "()" were changed to "[]." Since these are sites to section of a law, and the law uses "()" not "[]" these should be changed back, as they are now wrong. Also, the use of the term "funding valuation" in 3.11.2 (which is used in this context as the valuation for purposes of determining the minimum required contribution and maximum deductible contribution) is inconsistent with how the term is now defined in ASOP 4.

14. The reference in 3.11.4 to "so-called floor-offset arrangements" should simply be "floor-offset arrangements." Also, the reference to ASOP 4 seems misplaced, since ASOP 4 seems to provide no guidance at all on "these types of benefits" other than to say that they may be difficult to value (unless we missed where this guidance is in ASOP 4).

15. Section 3.11.5 would be improved by providing guidance on how to select the economic portion of the variable annuity factor at each decrement date.

16. The language of section 3.12 was changed, but it is not clear exactly why. The main difference appears to be that previously the requirement was only that the economic assumptions be consistent with each other, but now the requirement is that the economic assumptions be consistent with all other assumptions (presumably requiring that the economic assumptions be consistent with the non-economic assumptions). The balance of the paragraph only addresses economic assumptions being consistent. If this was an intentional change, then we would suggest that the ASOP explain what consistency between economic and non-economic assumptions would mean in application. If this was not intentional, we would suggest reverting to the prior language.

17. Section 3.13 references the actuary reviewing recent gain and loss analyses. However, as drafted, the exposure draft does not contemplate that a gain/loss analysis is required. Further, it would require that "the actuary should consider reviewing recent gain and loss analyses" whether or not any such analysis exists. The ASB's position may be that ASOP 4 would require a gain and loss analysis, but, under the current exposure draft of ASOP 4, a gain and loss analysis would not necessarily be required in all situations where ASOP 27 apply. Further, we would reference our comments on ASOP 4's requirements regarding a gain and loss analysis. Noting that section 3.13 is an addition to the standard, we would recommend that it not be added.

These comments represent our personal comments and do not represent any actuarial organization to which we belong.

Sincerely,

DocuSigned by:
Larry Deutsch
2003BA03F7944B2...
Larry Deutsch

DocuSigned by:
Karen Smith
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Karen Smith

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July 31, 2018

Via e-mail: comments@actuary.org

Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington, DC, 20036

Re: Comments on exposure drafts for Actuarial Standards of Practice (ASOPs) 4, 27 and 35

Members of the Actuarial Standards Board (ASB) and the Pension Committee of the ASB:

As the former Chair of the SOA's Blue Ribbon Panel on Public Pensions (BRP), I would like to thank you for undertaking this significant update and upgrade of the ASOP's relevant to the practice of pension actuarial services. My view, which has not been considered by the former members of the BRP, is that, together with ASOP 51, the proposed changes represent a significant and desirable strengthening of the standards in this important area of actuarial work.

Specifically, I strongly support the requirement to disclose the investment risk being assumed by the plan through the calculation of the Investment Risk Defeasement Measure (IRDM) included section 3.11 of the ASOP 4 exposure draft. This measure is consistent with the recommendations of the BRP. I also suggest that this measure be extended to the calculation of the plan's contribution using the same measurement basis as the IRDM, i.e., funding method and discount rate. The availability of both the aggregate and the annual risk of assuming returns in excess of more readily achievable returns provide important, useful and understandable information regarding the level of risks embedded in the plan's funding program.

I also recommend that the guidance concerning the development of amortization methods (<u>Amortization Method</u>, section 3.14, ASOP 4 exposure draft) be strengthened to prohibit any negative amortization; currently the guidance only states that the actuary must consider the "length of time until amortization payments exceed nominal interest" (3.14.b.i). In addition, I suggest that guidance concerning the period of amortization more strongly recommend that such period should be consistent with the average expected future working life of the employees so that promised benefits are fully funded upon retirement; again, currently, it is just a factor for consideration (3.14.b.ii, "duration of the actuarial accrued liability").

Finally, I strongly support the requirement for the actuary to provide information and analysis used to support their determination that the assumptions are reasonable (Rationale for Assumptions, section 4.1.2, ASOP 27 exposure draft). The draft language states "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." I recommend that the language stating an actuary 'may' disclose specific approaches, sources of external advice, and other bases for their conclusion be strengthened to a 'should disclose' standard. In this regard, I believe it is critical that users have a full understanding of how the actuary reached their conclusion that assumptions are reasonable.

Thank you for making these important changes to the ASOPS covering pension practice. I hope that my suggestions will contribute to further improvement in practices and the transparency of the work being performed.

Robert Stein
Former Chair of the SOA Blue Ribbon Panel on Public Pensions

July 31, 2018

Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington, DC 20036
Via email to comments@actuary.org

Re: Comments on Exposure Drafts of Proposed Revisions to ASOP Nos. 4, 27 and 35

Members of the Actuarial Standards Board:

The Pension Committee, Public Plans Committee and Multiemployer Plans Committee of the American Academy of Actuaries[1] (the Committees) appreciate the opportunity to present the following comments to the Actuarial Standards Board (ASB) regarding the exposure drafts of the proposed revisions to ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, and ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. We are providing comments relevant to each specific standard, and general comments applicable to the revision of all three standards collectively. Because of the interrelated nature of these revisions, we are providing our comments in one consolidated letter rather than responding with separate letters with comments on each exposure draft.

We greatly appreciate the efforts of the ASB to develop Actuarial Standards of Practice (ASOPs) for the profession, and we believe that these exposure drafts contain some substantive improvements to the ASOPs. While we believe much good work has been done to improve these three ASOPs, we also have some concerns about certain aspects of the proposed revisions.

Before offering comments on specific sections of the exposure drafts, we have several observations regarding issues that apply across the exposure drafts that we offer for the ASB's consideration. Throughout the remainder of this letter, unless otherwise noted, references to any of the three ASOPs are to the exposure drafts. When referring to the standards as in effect as of the issuance of this letter, we will refer to the "current standard(s)."

[1] The American Academy of Actuaries is a 19,000+ member professional association whose mission is to serve the public and the U.S. actuarial profession. For more than 50 years, the Academy has assisted public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

General Comments on Proposed Revision of ASOP Nos. 4, 27, and 35

- The proposed revisions to ASOP Nos. 4, 27, and 35 may require substantial effort to implement. In addition to updating valuation processes and reports, actuaries will need to address these changes with the plan sponsors that they work with, possibly including discussions of expanded scopes of engagement. We thank the ASB for proposing a 12-month deferred effective date for these new ASOPs when finalized, since actuaries will need that time to implement any changes.

- Section 3.6.3 of ASOP No. 27 and Section 3.4 of ASOP No. 35 would permit the phase in of actuarial assumptions over a period of years, so long as the assumption in each year of the phase-in period is reasonable. While this approach does sometimes occur in practice, we are concerned that including this provision in the ASOPs might signal an endorsement of this practice. We believe is better to fully reflect assumption changes when the actuary deems those changes appropriate, and consider use of an output smoothing mechanism if needed to manage cost or contribution levels.

  If the effect of assumption changes needs to be smoothed, we believe the preferred approach would be to phase-in the effect in the outputs (i.e., the measured benefit obligations or costs), rather than the assumption inputs. The current standards already require assumptions selected by the actuary to be reasonable. It is unclear to the signatories how this change will improve actuarial practice. If the ASB decides to retain this provision, we suggest adding a requirement that the effect of full recognition of the assumption change (i.e., the benefit obligation, contribution, and/or cost using the ultimate assumption) be disclosed.

- The exposure drafts all refer to a concept that the assumption(s) selected by the actuary have "no significant bias (i.e., it is not significantly optimistic or pessimistic)." (ASOP No. 4, Sections 3.8 and 3.20(a), ASOP No. 27, Section 3.6(e), and ASOP No. 35, Sections 3.2.5(e) and 3.10.4) This requirement generally applies to both individual assumptions and the combined effect of all assumptions. We suggest that this concept be refined to provide that the assumption(s) selected by the actuary are not <u>expected to have</u> significant bias (i.e., it is <u>not expected to be</u> significantly optimistic or pessimistic). The actuary cannot know whether an assumption will turn out to be significantly biased without seeing how experience plays out and looking back at that experience versus the assumption. Therefore, we believe the ASOPs should clearly state that the actuary is only held to this standard with respect to what is expected when <u>selecting</u> the assumption.

- We appreciate the effort the ASB made in reviewing the wording in current ASOP Nos. 4, 27, and 35. We found that there were a significant number of subtle proposed wording changes in the exposure drafts and that it was difficult to find all of the small subtleties in the proposed changes. Therefore, we are concerned that actuaries may not notice all of the changes and suggest that a version that tracks all of the changes be posted for use by the US actuarial profession (not just potentially available upon request).

Also, it is not clear whether these subtle changes were intended to change actuarial practice, clarify the existing language, or improve the consistency of language across the various standards. In this letter, we point out some places where the ASB's intentions about future actuarial practice as a result of wording changes are not clear. However, there were many other changes that were unclear and are not mentioned in this letter. While we believe it is vital for these ASOPs to be written as clearly as possible, we ask that the ASB try to propose wording changes only when you envision a change in actuarial practice (which should be cited as a notable change in an exposure draft), when the current wording is inconsistent across the standards, or when the existing language has the potential to be substantively misleading. If changes are made solely to accomplish minor improvements in readability, clarity, or consistency, a general note to that effect in the release memorandum or an appendix summarizing key changes would be helpful.

- There was no change to the definition of "Measurement Date" in Section 2.16 of the ASOP No. 4 exposure draft. However, in Section 2.2 of the ASOP No. 27 exposure draft and Section 2.4 of the ASOP No. 35 exposure draft, the words "(sometimes referred to as the "valuation date")" were removed from the end of the definition. We think that the definition should be consistent in the three ASOPs and, if the phrase is removed from all three, we would like to understand the rationale for the change and the associated expected change in future actuarial practice, if any.

  Also, certain actuarial tasks involve the determination of pension obligations as of several dates. Consider the following examples:

  - Deterministic or stochastic forecasts involve the determination of pension obligations for a series of future dates
  - Gain/loss analysis can involve the determination of pension obligations as of several dates.
  - Back-testing to evaluate the effectiveness of alternative plan management approaches can involve the determination of pension obligations as of several past dates.

  We suggest that the standards could be improved by recognizing that actuarial tasks that involve liability calculations at multiple dates may have a single measurement date. The actuarial task may also entail the calculation of pension obligations at other dates, but the economic data or estimate of future experience as of those dates may not be appropriate to use in the determination of these obligations, and may not always be based on assumptions that meet the reasonableness requirements (for example, stress-testing scenarios in a deterministic forecast).

- We support the change to the requirement of Section 4.1.2 of ASOP Nos. 27 and 35 regarding the rationale for actuarial assumptions selected by the actuary. We appreciate the clarification from the ASB as to the intent of these provisions in the current standards and believe this is as an appropriate strengthening of actuarial practice.

Specific Comments on Proposed Revisions to ASOP No. 4

Answers to ASB's Questions

As the ASB requested, following are our responses to the questions posed in the exposure draft to ASOP No. 4:

1. *Section 3.11, Investment Risk Defeasement Measure, requires the calculation and disclosure of an investment risk defeasement measure when the actuary is performing a funding valuation. The guidance allows for discount rates to be based upon either U.S. Treasury yields or yields of fixed income debt securities that receive one of the two highest ratings given by a recognized ratings agency. Are these discount rate choices appropriate? If not, what rate choice would you suggest?*

   We believe that these discount rates would be appropriate for this purpose in many contexts, but would be inappropriate in others. Therefore, we do not believe that ASOP No. 4 should mandate any particular discount rate or rates. As discussed more fully in our comments on section 3.11 of the exposure draft, we believe that the ASB should employ a principle-based approach to defining this measurement.

2. *Under certain circumstances, section 3.20, Reasonable Actuarially Determined Contribution, requires the actuary to calculate and disclose a reasonable actuarially determined contribution. Do the conditions in this section describe an appropriate contribution allocation procedure for this purpose? If not, what changes would you suggest?*

   Generally, we agree that the conditions outlined in Section 3.20 are appropriate in defining a contribution allocation procedure for an actuarially determined contribution (ADC). In particular, we note that the requirement in Section 3.20(b) that the normal cost is based on the plan provisions applicable to each participant precludes the use of the ultimate entry age cost method.[2] We agree with this provision and support its inclusion.

   We have offered comments elsewhere in this letter regarding sections 3.13 through 3.16 which are incorporated by reference into the definition in 3.20. Those comments should be considered in the context of our response to this question.

   We also note the disclosure requirements in Section 4.1 supplement the basic requirement to disclose an ADC by imposing other disclosures on specific components of the ADC, such as the requirements in Section 4.1(x) to describe any changes in the cost allocation procedure, the reasons for the change and the general effect of making the change. This disclosure requirement is important and addresses concerns raised by members of the Committees that an actuary could change the actuarial cost method, amortization period, or other components of the contribution allocation procedure annually to produce an ADC that closely matches the actual "fixed rate" contributions found in some public

[2] Under the ultimate entry age cost method, the normal cost is based on an open tier of benefits even for members not in that tier as of the measurement date. This is not to be confused with an entry age cost method under which the normal cost is based on a member's current (but not historical) accrual rate.

sector plans.[3] For these "fixed rate" plans, the Committees believe the ADC should be determined on a consistent basis year-to-year. Requiring disclosure of any changes in the method of determining the ADC should be sufficient to achieve this consistency, while permitting the actuary to make changes when there is an appropriate reason to do so.

The Section 4.1 disclosure requirements also address the Committees' concerns about rolling amortization methods by requiring either a disclosure that the method will not fully amortize the unfunded actuarial accrued liability (Section 4.1(v)) or that the method has been changed to reset the amortization period so it does not reduce annually, and the reason for such change (Section 4.1(x)). The ASB may want to consider further strengthening the disclosure requirements by requiring that the actuary disclose if past changes to the ADC calculation follow a consistent pattern, and if so, what the implications of that pattern are.

Additional Comments on Proposed Revisions to ASOP No. 4

- Section 1.2—The third sentence of the fourth paragraph from the end of Section 1.2 (i.e., "This ASOP addresses broader measurement issues including cost allocation procedures and contribution allocation procedures, and provides guidance for coordinating and integrating all of these elements of an actuarial valuation of a pension plan.") seems to relate more to the purpose (Section 1.1) of the ASOP than the scope (Section 1.2). Also, the sentence doesn't seem critical to the purpose of the paragraph, which is to clarify which standard governs in the event of a conflict between various ASOPs. Therefore, we suggest you consider deleting this sentence since the same concepts can be found in the last two sentences of Section 1.1.

- Sections 2.5 and 2.12—The new definition of "Funding Valuation" and the definition of "Actuarial Valuation" don't refer to each other or have similar wording. In our view, a "Funding Valuation" is very closely related to an "Actuarial Valuation," and better coordination between the definitions would help actuaries understand the distinction between these two terms as they impact the ASOPs.

- Section 2.18—We believe that the proposed definition is ineffective. As written, it describes the intention of the technique (reducing the volatility of results) and lists several examples. The first sentence in the definition could be read to include *any* techniques that are intended to reduce volatility, including those that smooth inputs. We use the term "output smoothing" to describe smoothing of results, not of inputs.[4] We believe that smoothing asset values, for example, would meet the proposed definition of an output smoothing method. Additionally, the first example of "phasing in the impact of assumption changes on contributions" is unclear as to whether it is describing phasing in the change in the assumption inputs (as addressed in Sections 3.6.3 of ASOP No. 27 and 3.4 of ASOP No. 35) or using the changed assumptions and blending those results with the pre-assumption change results. We consider smoothing of assumptions or asset values

[3] In a "fixed rate" plan, the contribution rate per participant is "fixed" (often by statute) rather than driven by annual funding valuation results that would presumably be determined on a basis that would meet the definition of an ADC.
[4] American Academy of Actuaries, Issue Brief: "The Pension Protection Act: Successes, Shortcomings, and Opportunities for Improvement," April 2018.

to be input smoothing. When output smoothing is utilized, the assumptions and asset values used should be based on the actuary's observation of the estimates inherent in market data or the actuary's estimate of future experience, or a combination thereof.

The current version of ASOP No. 4 describes an output smoothing method as an approach to "adjust the *results* of a contribution allocation procedure". [Emphasis added.] Although not perfect (in part because the output smoothing method was also included as part of the contribution allocation procedure), this avoided the confusion between input and output smoothing that exists in the exposure draft. We suggest that the definition describe output smoothing as an approach to "adjust the preliminary results of the contribution allocation procedure."

Because the results of one calculation are often used in another calculation, the distinction between inputs and outputs is contextual. We suggest that the more specific term "Contribution Output Smoothing Method" be used in the ASOP. Moreover, although both the proposed and current wording in ASOP No. 4 refer to an output smoothing method only in the context of a contribution allocation procedure, similar approaches are also used to reduce volatility in other contexts. For example, an actuary may use output smoothing when allocating costs to divisions or companies within a controlled group sponsoring a plan. Using the term "Contribution Output Smoothing Method" would clarify that the actuary is not precluded from using output smoothing in contexts other than contribution allocation procedures.

- Sections 2.22 and 2.23—The wording in these sections does not exactly match the wording in Sections 2.5 and 2.6 of the ASOP No. 27 exposure draft and in Sections 2.6 and 2.7 of the ASOP No. 35 exposure draft. In the second sentence of Sections 2.22 and 2.23 of the ASOP No. 4 exposure draft, the definitions use the word "set" when "selected" is used in the other two exposure drafts. The definitions should be the same to avoid confusion and, although the defined term uses the word "set," we suggest consistent use of the word "selected" in the definitions, since that word better describes the process used and other wording in the ASOPs.

- Section 3.2(u)—The wording was changed from the current ASOP to refer to the action to "assess" instead of "evaluate," In addition, we note that both terms are used in all three of the ASOPs, but neither "assess" nor "evaluate" are defined terms in ASOP No. 1. It is unclear to us if the change was made so that there would be a change in future actuarial practice. If a change in actuarial practice is expected as a result of this wording change, it may be helpful to define "assess" and "evaluate" to help actuaries understand the distinction.

- Section 3.3—In rewording the examples of Section 3.3, one of the examples in the current standard was left off the list: "market value assessments." It is not clear why this was removed as an example. We believe this is still a reasonable purpose of a measurement that is not eliminated due to the new Investment Risk Defeasement Measure (IRDM) provisions, especially since IRDM is only applicable to funding valuations. It would be helpful to understand why the ASB decided to eliminate this as a purpose for measurement and to confirm that the ASB still believes this to be a valid purpose.

- Sections 3.4.2 and 3.5.1—The last sentence of these sections were reworded. However, when they were reworded, the fact that an actuary "may, but need not," reflect post-measurement date events was removed. Although the new wording doesn't preclude the inclusion of post-measurement date items, it is no longer clear. We believe it is important to be clear in the standard and include this option for the actuary to reflect post-measurement date events, similar to what is provided in the current standard.

  Section 3.8—The current version of this section stops after the first sentence, which refers actuaries to ASOP Nos. 27 and 35. The exposure draft now has additional wording that addresses the "no significant bias" criteria with respect to the aggregate set of assumptions selected. This same language appears in Section 3.10.4 of ASOP No. 35, which cross-references to ASOP No. 27 to encompass the complete set of economic and demographic assumptions. We believe all guidance regarding the selection of actuarial assumptions should be found in ASOP Nos. 27 and 35 and not in ASOP No. 4. We suggest that Section 3.8 of ASOP No. 4 should remain as just the one sentence referring to ASOP Nos. 27 and 35 for assumption-setting guidance, and the guidance in Section 3.10.4 of ASOP No. 35 regarding consideration of the aggregate reasonability of the entire assumption set should be added to ASOP No. 27.

  Section 3.11—Our comments on the IRDM fall into three categories. The first category focuses on the purpose of the measurement. The second category consists of observations regarding the potential value that could be provided by such a measure, together with the limitations it would have. The third category provides feedback on the details of how the exposure draft implements the IRDM.

  Purpose of the Measurement

  Before requiring a specific disclosure that may involve additional liability calculations that an actuary may not already be providing, we believe it is critical to clearly define the purpose of the disclosure and assess expectations of the value of the disclosure

  The purpose of the IRDM and expectations for how it should or would be used are not fully clear in the exposure draft. The name and the description provided of "an obligation measure to reflect the cost of effectively defeasing the investment risk of the plan" implies that the purpose is related to the plan's investment risk. However, the methodology prescribed in the exposure draft appears to be intended to price a settlement for a fixed set of future payments, whether or not the pension obligation consists of a fixed set of future payments. We believe the goal of the IRDM is to provide information that improves stakeholders' understanding of the investment risk present in pension plans, and that the exposure draft should more fully explain the purpose.

  Potential Value of the IRDM

  The Committees believe that investment risk disclosures are critically important, and that a measurement similar to the IRDM could help address this need. For this reason, we are generally supportive of the proposed requirement. However, we also note that within the actuarial community, there are a wide range of views on whether the IRDM is the optimal way to approach this issue, or whether the recently introduced risk disclosure requirements of ASOP No. 51 provides a better framework for improving stakeholder understanding of pension investment risk. The differing views on the usefulness of the IRDM are partially attributable to differing assumptions as to the purpose of requiring disclosure of this measure, which is not clearly stated in the exposure draft. The ASB may want to consider whether it is appropriate at this time for the standards to encourage the disclosure of the IRDM, while providing actuaries with the discretion to alternatively disclose certain quantitative analyses under ASOP No. 51.

While pension plans are subject to many risks, investment risk is noteworthy for two reasons. The first is that in a majority of pension plans, it is the largest source of risk. Second, in contrast with other risks such as uncertain retirement patterns and mortality rates, plan sponsors willingly choose to bring investment risk into their plans by investing in assets other than those that best match liabilities (generally bonds with minimal default risk). Plan sponsors can also reduce this risk at any time by increasing allocations to matching assets. Plan sponsors choose to accept investment risk because they believe that the resulting returns in excess of those attainable with matching assets will be sufficient to justify the uncertainty associated with risky assets.

The IRDM has the potential to help illustrate important information about investment risk in pension plans. For example, the IRDM represents an estimate of the amount of assets that the plan would need to hold in order to protect participant benefits that are attributable to past service[5] from investment risk without any further contributions. Additionally, a comparison of the IRDM and the plan liabilities calculated using the same actuarial cost method and an expected return discount rate is a measure of the gains that the plan sponsor expects to realize due to the investment in other than matching assets.

The IRDM provides important information about investment risk in pension plans, but it also has limitations. A significant factor in the evaluation of the level of investment risk that is affordable is the ability of the plan sponsor to offset adverse experience with additional contributions, and the IRDM provides no information about the plan sponsor's ability to pay any additional contributions that may be needed. The probabilities associated with various degrees of over and under performance are similarly outside the scope of the information that the IRDM can provide. The IRDM also does not quantify the higher benefit levels that the plan promises based on expected investment returns above bond yields, nor does it address the impact that adverse investment experience that the plan sponsor is unable to offset with additional contributions could have on benefit security. We also recognize that it may be optimistic to believe that simply disclosing an

[5] As discussed later in our comments, we believe the IRDM should be defined using a principles-based approach that would permit the use of the same funding method that is used for other purposes. The portion of the present value of benefits that is attributable to past service would be determined by the funding method.

IRDM will change how the users of actuarial analyses view pension obligations and risks[6].

Despite its limitations, the calculation and disclosure of an IRDM has the potential to enhance the transparency of investment risk in pension plans. By calling attention to the difference between the cost of eliminating investment risk and the actual funding target employed by the plan sponsor, the IRDM will encourage closer examination of the level of investment risk that is present in the plan. To the extent that it does not provide all relevant information related to this risk, it may serve to stimulate additional analysis and consideration that further improve understanding. We also note that various outside parties often attempt to estimate their own IRDM-type measurements where one is not disclosed, but due to a lack of information, these estimates may be inaccurate. Having such a measurement calculated by a plan actuary could provide greater accuracy in these situations.

Implementation Concerns

While we recognize the potential value of the IRDM, we also have some concerns related to the details of how it is defined and communicated.

We recommend the adoption of a principle-based approach towards defining the IRDM in lieu of prescribing any particular discount rates or funding method. As currently defined, the IRDM specifies a specific actuarial cost method and a discount rate consistent with the yield on one of two hypothetical bond portfolios, whether or not these requirements are consistent with the purpose of the measure. This approach is contrary to the way standards have normally been set. In fact, Section 3.1.4 of ASOP No. 1 explicitly states that ASOPs are principles-based.

A better approach to providing guidance relating to an IRDM would be to clearly establish the purpose of the measurement and provide the actuary with factors to consider in selecting the assumptions and methods used to calculate the measurement. The current prescriptive approach could lead to the disclosure of meaningless or misleading results. For example, the benefit payments from hybrid benefit plans can be sensitive to changes in the economic environment (e.g., cash balance plans with variable interest credits, variable annuity plans, gain-sharing plans, plans that pay variable lump sums, and plans with variable cost-of-living adjustments). In these plans, simply discounting projected cash flows using rates derived from a yield curve may not produce a benefit obligation that provides useful information about the investment risk.

If, for example, the benefit obligation is to pay the accumulation of a notional amount assuming it is invested in the S&P 500, the minimal risk asset is not Treasuries or high quality fixed income securities, but an S&P 500 index fund. Section 3.5.3 of the current

[6] For example, it is not clear that the mandatory disclosure of current liability for multiemployer plans, and the voluntary disclosure of measures similar to the IRDM by New York City and the State of Washington, have caused the sponsors of those plans to evaluate pension investment risk differently than other plans.

ASOP No. 4 recognizes the complexities presented by benefit structures that vary based on economic conditions and requires the actuary to consider alternative valuation procedures. However, when calculating the IRDM as currently defined, it may not be permissible to consider such alternative valuation procedures without deviating from the standard. A principle-based approach to defining the IRDM would enable the standard to more effectively address the full spectrum of plan designs.[7] Care would need to be taken to ensure that such a definition effectively captures the objective of the IRDM while being flexible enough to address a wide range of designs.

In addition to prescribing two acceptable discount rate bases, the IRDM prescribes the use of the unit credit actuarial cost method. If the purpose of the measurement is related to the investment risk of the plan, it is not necessary to define the actuarial cost method to be used. In fact, requiring an actuarial cost allocation method that differs from the one used to fund the plan may inadvertently cause confusion by introducing factors unrelated to the investment risk into the analysis. Section 3.4 of ASOP No. 51, for example, indicates that one method for the assessment of risk is "a 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." [Emphasis added.] For a plan that uses the entry age actuarial cost method for its funding valuation, this method of assessing the risk would compare the entry age actuarial accrued liability from the funding valuation to the entry age actuarial accrued liability using a discount rate derived from minimal risk investments. It is noteworthy that ASOP No. 51 does not even suggest a comparison to a unit credit measure if such a measure is not used in the funding valuation. While this comparison does not actually assess the risks, it does estimate the cost to mitigate the investment risks, which we believe is the purpose of the IRDM.

There are numerous common measures applicable to certain types of pension plans that are already calculated and that are similar in nature to the IRDM, but it is not apparent they would meet the current definition. For example:

- Current Liability as defined in Internal Revenue Code (IRC) Section 431(c)(6)(D), which is calculated and disclosed for multiemployer pension plans, also uses accrued benefits, the traditional unit credit cost method, and the same actuarial assumptions used for funding other than discount rate and mortality table. This measure, however, uses a discount rate based on 30-year Treasury rates that would not necessarily be consistent with the rate derived from matching the Treasury yield curve with the pattern of benefits expected to be paid in the future. Additionally, it is unclear if the prescribed mortality table would be acceptable for this purpose, as it is neither used in the funding valuation nor is it based on estimates inherent in market data.
- The IRC Section 430 funding target for single-employer plans (without regard to the interest stabilization corridor) by definition meets the requirements of parts (a), (b) and (d), but it's not clear that the Section 430 segment rates meet the

definition in part (c)(2), and, if they do, the use of a 24-month average adds further uncertainty that this measure would be considered an IRDM.

- The accumulated benefit obligation under Accounting Standards Codification (ASC) No. 715 determined for many single-employer plans (other than those that don't prepare US Generally Accepted Accounting Principles (GAAP) financial statements, such as many very small employers) is based on accrued benefits, the traditional unit credit cost method, and frequently a discount rate that would meet the definition of Section 3.11(c)(2). However, the actuarial assumptions used may not be the same as used in the funding valuation (e.g., mortality tables), or based on estimates inherent in market data.

A principle-based approach to defining the IRDM would provide actuaries with the discretion to decide whether any of the existing measures adequately satisfy the intent of the IRDM requirement, or whether a new liability measure must be calculated. To the extent that a readily available measure deviates only modestly from the IRDM requirement, we believe it would be reasonable to allow the actuary to use that readily available measure, along with commentary about the nature and magnitude of such deviation.

Defeasement is a term that is primarily used in the analysis of bond payment obligations, and may not effectively communicate the purpose of this measurement to pension actuaries, particularly with respect to benefit plans that incorporate hybrid or variable benefit designs. Section 3.4 of ASOP No. 51 discusses the calculation of "an actuarial present value using a discount rate derived from minimal-risk investments." This definition appears to be consistent with the purpose of the IRDM, and could more easily be applied to nontraditional plan designs. Defining the purpose of the IRDM in a similar manner to the ASOP No. 51 minimal-risk concept, while eliminating any prescriptions related to specific discount rates or actuarial cost methods, would help ensure that the purpose of the measurement is clear.

An additional potential source of confusion is the interaction between the existing ASOP No. 51 requirements related to pension risks and the proposed, new ASOP No. 4 IRDM requirement. ASOP No. 51 addresses the assessment and disclosure of risks for pension plan funding valuations, clearly defining a process by which an actuary should identify, assess, and in certain circumstances recommend to the intended user of the actuarial communication that further analysis is warranted. If the purpose of the IRDM is related to investment risk, it is confusing to include it in ASOP No. 4 instead of ASOP No. 51. This confusion is compounded by the difference between the "minimal-risk" measure referenced in Section 3.4 of ASOP No. 51 and the IRDM requirement in ASOP No. 4. The "minimal-risk" measure would likely be a different measure than the IRDM as currently defined because it would be based on the same actuarial cost method as is used for funding and might take into account plan provisions for risk-sharing that the IRDM might not. If they are intended to be different measures, it would be helpful for the ASB to provide clarity as to the intended difference.

- We also recommend modifying Section 4.1(o) of ASOP No. 4 to include as a required disclosure the purpose of the IRDM, so the users of the actuarial communication have the necessary background to evaluate the relevance and implications of the IRDM.

- Section 3.13(a)—The term "normal cost" is defined to include both the actuarial present value of projected benefits and expenses, if applicable. However, the term "normal cost for benefits" is not defined. It is not clear what this term means as expenses paid from pension plans are generally used for services that support the payment of benefits. Instead of developing a new defined term, that we expect was meant to be the defined term of normal cost without expenses, we believe it would be more clear in the first sentence of the second paragraph of (a) to adjust the wording to refer to the fact that the normal cost for a plan without benefits accruing might just be the expenses, if applicable, and not the actuarial present value of projected benefits. In addition, we believe the "and" in that sentence should be "and/or" since one of those could be true or both could be true.

  The last sentence of (a) provides for treatment of active participants who are no longer accruing benefits under a plan, and this provision is applicable through the entire standard. We agree this treatment is appropriate for the discussion of the actuarial cost method, but it may not be appropriate for other components of the contribution or cost allocation procedure. A common approach used by plan sponsors under ASC No. 715 when accounting for a frozen plan treats all of a plan's participants as inactive, even active employees who are not accruing benefits, for purposes of determining the period over which to amortize prior service costs and actuarial gains/losses. This approach is generally considered to be consistent with the guidance provided by the Financial Accounting Standards Board (FASB). The determination of the amortization period for determining plan costs is outside the scope of Section 3.13, however use of the word "standard" in this sentence would appear to make this generally accepted approach inconsistent with the guidance in ASOP No. 4. We believe the scope of this provision should be limited to this section 3.13, rather than to the entirety of ASOP No. 4.

- Section 3.13(c)—This section refers to "normal cost for benefits" as did Section 3.13(a). It is not uncommon for an actuary to reflect some forms of expenses (for example, a contract expense) in normal cost while reflecting others, such as investment costs, in the investment return assumption. Therefore, we believe it would be clearer to indicate that expenses may be reflected "as a component of normal cost and/or" as an adjustment to the investment return or discount rate assumptions.

- Section 3.14—We support the principles outlined in this section, but we are concerned that the amortization method as defined does not anticipate the use of many common amortization methods, including methods that establish a new amortization base on each measurement date and those that separate the causes of the change in unfunded actuarial accrued liability (UAAL) at a measurement date.[8]

[8] For example, a plan may measure the UAAL in year 1 and establish an amortization method that is compliant with this section. In subsequent years, the measured UAAL is compared to the unamortized balance of the base(s) established in the preceding year(s), with the difference (which may be positive or negative) established as a new

While the amortization period chosen for these methods is reasonable for the base(s) established for any given year, it is possible that the total amortization payments at a given measurement date could be greater than or less than interest on the total UAAL, violating the conditions outlined in the proposed ASOP language. To address this concern, we recommend adding an additional subsection 3.14(c) as follows:

> *If the amortization method is applied separately to changes in unfunded liability (sometimes called layered amortization) then this section can be applied separately to each layer (and not applied just to the total amortization payment compared to the total unfunded liability). The amortization period applied to layers from the same source should be at least as great for decreases as for increases (e.g., gains should have the same or longer amortization period as losses).*

We note that as worded, section (b) requiring amortization over a reasonable period of time only applies when payments do not exceed nominal interest on the UAAL. Consider an amortization method that reflects nominal interest on the UAAL plus $1. This method would not have to comply with conditions (a) and (b), but would also not fully amortize the UAAL over a reasonable period of time. We suggest restructuring this paragraph to say the payment must either exceed nominal interest on the UAAL or must not increase more rapidly than expected payroll growth, with the reasonable time period requirements currently in section (b) applying in all cases.

We also believe it would be prudent to modify Section 3.14(a) to state that payments do not increase, or do not increase more rapidly than the expected growth in plan sponsor payroll assuming no increase in the number of active employees. This language would be helpful in addressing the establishment of an appropriate method for closed plans. As currently worded, closed plans may be forced into level dollar amortization immediately upon plan closure in situations where a level percentage of payroll amortization may be an appropriate amortization method for at least some period of time.

Finally, these limitations are appropriate for a plan that is less than 100% funded to ensure that there is a reasonable plan to return to full funding. For plans in surplus, however, if Section 2.7 is interpreted to mean that a surplus is a negative unfunded actuarial accrued liability, then these limitations may force the rapid utilization of the surplus rather than reserving it as a cushion against future losses. We suggest that the ASB consider specifying that some or all of any surplus may be excluded from the amortization calculation.

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base in that subsequent year. The new base is amortized in accordance with this section, and may be further split into multiple bases that isolate actuarial gain or loss, changes in plan benefits, and assumption changes. The unamortized portion of each base is typically determined as a "write-down" of the previous year's balance at the assumed interest rate, or as the present value of the remaining scheduled amortization installments using the current year interest rate.

- Section 3.16—This section uses the adjective "reasonable" several times but does not provide any guidance on how an actuary should evaluate what might be considered reasonable. We suggest the ASB consider adding wording about factors the actuary might consider in determining what might be reasonable. The considerations in Sections 3.14(b) and 3.17 are examples of the sort of guidance that might prove helpful.

  The term "actuarially determined contribution" is defined to be the result of a "contribution allocation procedure," which is in turn defined to optionally include an output smoothing method. All instances of actuarially determined contribution that are intended to exclude the output smoothing should therefore explicitly state this. We suggest adding the phrase "without output smoothing" to references to actuarially determined contribution in items (a) and (c).

  We also suggest adding a new item (c) (and renaming the current item (c) as item (d)), worded as follows:

  > *When considering output smoothing in conjunction with the other components of the contribution allocation procedure (such as input smoothing and amortization methods), the total amount of smoothing contained in the smoothed contribution result is reasonable.*

- Section 3.17—We observe that the language in the current standard encouraging the actuary to consider "factors such as" was removed and instead a specific list that the actuary should consider is put forth. We think that the more open language should be restored, as there may be other factors that an actuary might wish to consider. We do not see the value in limiting the considerations to the factors listed.

  Removing the example of "a desire to achieve a target funding level within a specified time frame" as a relevant "input received from the principal" removes valuable guidance from the ASOP, and we suggest that it be restored.

  The items listed in (a) through (c)—benefit security, intergenerational equity, and stability or predictability of costs or contributions—are important and appropriate, and we are pleased to see them added. However, we suggest changing the listing to remove the separate listing of (a) through (c) and instead reword (d) to list a balance amongst these three items (with (a), (b), and (c) listed here) as the factor to consider. It would also be helpful to the profession to include examples of benefit security measures that might be considered, and how intergenerational equity might be reflected, as it is not feasible as an absolute measure (for example, funding unexpected mortality improvements for those participants already in pay status).

- Section 3.19—The language used in the first paragraph is confusing. In the first sentence, this section excludes funding valuations using a prescribed assumption or method set by law. But the second sentence provides that "contributions set by law" constitute a funding policy, which is part of what is to be assessed in the first sentence. It is not fully clear how contributions calculated using a prescribed assumption or method set by law differs from "contributions set by law" from the wording here. A more rigorous definition would help avoid the possibility of confusion. Note that the same language is used in Section 4.1(v)—additional clarity would be helpful in both places.

- Section 3.23—This section was not changed from the current standard and does not acknowledge the new ASOP No. 51, which requires an identification of risks that could affect the plan's future financial condition and an assessment of their effects when performing a funding valuation. Although ASOP No. 51 does not require a quantitative risk assessment, volatility is now in the scope of all funding valuations and costing valuations. Please clarify the interaction between this section and ASOP No. 51 and indicate when this section should or should not be invoked. The ASB may consider whether this section should be reworded to just refer to ASOP No. 51 instead of providing different requirements. We also note that there is no specific disclosure requirement tied to this Section 3.23, unless the disclosure in Section 4.1(dd) is meant to inform the intended user of the analysis in Section 3.23.

- Section 3.24—The first two sentences refer to language included in an actuarial communication about the party responsible for each "material" assumption and method. It is not consistent with the language in ASOP No. 27, Section 4.2 or ASOP No. 35, Section 4.2 and we think the references in ASOP Nos. 27 and 35 should be updated to be consistent. In addition, it does not seem to be in the right location within ASOP No. 4, and we suggest this concept be included in Section 4, since that outlines the communications and disclosures required.

  We also suggest that the ASB consider that it is likely sufficient that this section just reference the appropriate sections in ASOP Nos. 27 and 35 with respect to the assessment of assumptions, instead of restating or summarizing the guidance in those ASOPs. This would help avoid confusion and make sure the actuary is focusing on just one ASOP for appropriate practice when assessing assumptions.

- Section 4.1(t)—This section is part of Section 4.1(k) in the current ASOP, but the final sentence in Section 4.1(k) of the current standard (i.e., "For purposes of this section, the actuary should assume that all actuarial assumptions will be realized and actuarially determined contributions will be made when due;") is not in Section 4.1(t) (although it is found in Sections 4.1(u) and (v)). The caveat that assumptions will be realized and contributions made seems important and should apply to all of the requirements where the actuary must assess implications during future time periods. We suggest that the ASB consider placing it as a general condition that applies to all the assessments.

- Section 4.1(u)—This section requires a new determination of the period of time the actuarially determined contribution is expected to remain less than the normal cost plus interest on the unfunded actuarial accrued liability. We request the ASB clarify whether this requires a quantitative analysis or may be satisfied by a qualitative discussion. If a quantitative analysis was contemplated, we request that the ASB consider allowing the option for a qualitative analysis, based on the actuary's judgment, due to the complexity that can be involved with a complete quantitative analysis.

The ASB may also want to consider whether an alternative measure might be more appropriate, such as evaluating the actual funding policy instead of the ADC. If the plan has a fixed statutory rate, disclosing that it is never expected to exceed normal cost plus interest on the unfunded actuarial accrued liability could be powerful and might have prevented or limited some of the current underfunding situations.

- Section 4.1(aa)—It is not clear whether the "corresponding funded status" referred to in this section should be the one used in determining the ADC. Also, it is not clear what components should be used to determine the funded status—for example, would a market value of assets be more appropriate than a smoothed value? This language should be clarified to indicate which funded status should be disclosed. We suggest adding something like the following to the end of this section:

  using the measure of plan assets and actuarial accrued liability used in the actuarially determined contribution

Specific Comments on Proposed Revisions to ASOP No. 27

- Sections 1.2 and 4.2—The ASB reworded the following sentence in Section 1.2: "The standard also applies whenever the actuary has an obligation to assess the reasonableness of an economic assumption that the actuary has not selected." Previously the sentence referred to "prescribed assumptions," which refers to defined terms in Sections 2.5 (those set by another party) and 2.6 (those set by law). The reference to "prescribed assumptions" was clear in the original language. While the new wording is not unclear, the change raises a question as to whether there is an intended change in practice. If no such change is anticipated, we recommend restoring the original reference to "prescribed assumption." A similar change in language was made in Section 4.2, and the same comment applies there.

- Section 3.1 (and elsewhere)—We observe that the term "evaluate" found in the current version of the ASOP has been changed to "assess." Please see our comments above on this change in Section 3.2(u) of ASOP No. 4.

- Sections 3.5.2 and 3.5.3—The phrase "the actuary should consider" has been replaced by "the actuary should take into account". "Should consider" is defined in ASOP No. 1. "Should take into account" is not. This is also found in Section 3.5.3 of ASOP No. 35. If the phrase "should take into account" is intended to convey different guidance to the actuary than "should consider," then for clarity we recommend the ASB highlight the intended change in the summary of key changes when the final ASOP is issued.

- Section 3.6 –The first sentence of this section is awkward and appears to have no difference in meaning from the comparable sentence in Section 3.6 in the current version of ASOP No. 27. Please consider restoring the current language, or modifying it for clarity if intended to change current practice.

- Section 3.12—We observe the elimination of what had been the last paragraph of this section: "Assumption selected by the actuary need not be consistent with prescribed assumptions…." Although this can be inferred from other passages of the section, this explicit statement is helpful clarification. We suggest that this sentence be restored.

- Section 4.1.2—This section is clear regarding the disclosure requirements regarding the rationale for i) significant assumptions selected by the actuary and ii) assumptions selected by another party that the actuary determines to be reasonable. Please consider adding an explicit statement that this section does not apply to an assumption the actuary has not selected and made no determination of whether it is reasonable, as discussed in Sections 3.14 and 4.2 of ASOP No. 27 and ASOP Nos. 4, 6, and 41.

- Section 4.2—The guidance found in (a) and (b) each refers to Section 3.13. We believe that these references should be updated to 3.14, Assumptions Not Selected by the Actuary.

- Appendix 2—The exposure draft did not make any changes to the discussion in Appendix 3 of the current ASOP (referred to as "Appendix 2" herein) on the use of forward-looking expected arithmetic versus geometric returns as a discount rate. An Academy Practice Note that has been released as an exposure draft discusses this issue more fully. One of the important concepts from Appendix 2 that is discussed more fully in this Practice Note is that these approaches differ in focus between expected value outcomes versus median outcomes. We believe that Appendix 2 should include additional discussion of the possible consequences of these approaches related to their expected outcomes, as described in the practice note.

Specific Comments on Proposed Revisions to ASOP No. 35

- Sections 1.2 and 4.2—Please see our comments regarding these same sections in the ASOP No. 27 exposure draft.

- Section 3.2.4—The language in this section has been modified to include the statement "In addition, the actuary should not give undue weight to experience that is not relevant." While we agree irrelevant experience should not be given undue weight, we question whether it should be given any weight at all. We suggest changing the wording to something similar to the following:

  > *In addition, the actuary should give weight to experience that is appropriate to its relevancy to future expectations.*

- Section 3.2.5—The first sentence of this section is awkward and appears to have no difference in meaning from the comparable sentence in Section 3.3.5 in the current version of ASOP No. 35. Please consider restoring the current language, or modifying it for clarity if meant to change current practice.

- Section 3.6.2—In contrast with the current version of ASOP No. 35, the language in the exposure draft is not clear in saying the actuary may need to select a marriage assumption. The language in the current ASOP No. 35 is clear and concise, and is substantively the same as the proposed language in the exposure draft. Please consider modifying the language to clarify that a marriage assumption—in addition to an assumption regarding beneficiary ages—may be necessary.

- Section 3.7—We observe the elimination of what is the last paragraph of this section in the current version of ASOP No. 35: "Assumption selected by the actuary need not be consistent with prescribed assumptions…." Although this can be inferred from other passages of the section, this explicit statement is helpful clarification. We suggest that this sentence be restored.

- Section 3.10.4—This section provides that the actuary should select assumptions "such that the combined effect of the assumptions has no significant bias…except when provision for adverse deviations are included." Unlike the current version of ASOP No. 35, it is unclear whether this "no significant bias" requirement applies solely to the combined effect of assumptions selected by the actuary or to all assumptions (including the effect of individual prescribed assumptions combined with those selected by the actuary). We believe the intent is the former and request that section is reworded to be similar to Section 3.8 of the ASOP No. 4 exposure draft, which provides that "the combined effect of the assumptions selected by the actuary has no significant bias…."

- Section 4.1.2—This section is clear regarding the disclosure requirements applicable to the rationale for i) significant assumptions selected by the actuary and ii) assumptions selected by another party that the actuary determines to be reasonable. Please consider adding an explicit statement that this section does not apply to an assumption the actuary has not selected and made no determination of whether it is reasonable, as discussed in Sections 3.9 and 4.2 of ASOP No. 35 and ASOP Nos. 4, 6, and 41.

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We appreciate the ASB giving consideration to these comments. Please contact Monica Konate, the Academy's pension policy analyst (konate@actuary.org; 202-223-7868), if you have any questions.

Respectfully submitted,

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July 31, 2018
Sent via e-mail to comments@actuary.org

ASOP No. 27 Revision
Actuarial Standards Board
1850 M Street, NW, Suite 300
Washington, DC 20036

Subject Proposed Revision of Actuarial Standard of Practice (ASOP) No. 27

To Members of the Actuarial Standard Board (ASB):

We appreciate the opportunity to comment. This letter documents the response of Principal Financial Group Retirement Actuarial Services to the proposed revision of Actuarial Standard of Practice ("ASOP") No. 27 Selection of Economic Assumptions for Measuring Pension Obligations, as requested in the Exposure Draft (ED) of March 2018.

Principal provides actuarial services and consulting to over 500 defined benefit plans based in the United States. Our Retirement Actuarial Services group is comprised of approximately 25 credentialed actuaries subject to the Actuarial Standards of Practice. This letter was prepared by the author in conjunction with thoughts and opinions from other actuaries within Principal.

We will respond to some questions under the request for comments below.

Question 1: *Section 3.6.3, Phase-In of Changes in Assumptions, was added to provide guidance regarding the phase-in of assumptions.*

We request that the ASB provide examples of how a phase-in of assumption changes could be applied. We would also like the ASB to provide clarification of how a phase-in can work with the requirement that assumptions must be reasonable at each measurement date.

Question 2: *Section 3.13, Reviewing Assumptions, was expanded to provide additional guidance regarding reviewing assumptions.*

No comments.

Question 3: *Section 4.1.2, Rationale for Assumptions, was clarified regarding the disclosure requirement for the rationale of assumptions.*

This expansion now includes assumptions selected by another party and not by the signing actuary. Based on this ED, the actuary also needs to provide rationale that these assumptions are reasonable or not reasonable. In certain instances, assigning reasonability to an assumption set by another party could be challenging or even impossible. For example, if the ASC715 discount rate is 3.50% based on a commonly used yield curve and the plan sponsor chooses to use 4.50%, will this ASOP require the actuary to disclose with rationale that 4.50% is reasonable or unreasonable? We are concerned that this could add further burden to the actuaries for prescribed or third-party assumptions. We understand ASOPs already require the actuary to determine and disclose whether such assumptions significantly conflict with what would be reasonable, so we feel that this expansion is not necessary.

We thank the ASB for the opportunity to comment on the exposure draft. Please contact us directly if you would like to discuss.

Sincerely,

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Consulting Actuary
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July 31, 2018

Actuarial Standards Board
1850 M Street, NW, Suite 300
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RE: COMMENTS ON PROPOSED REVISIONS TO ASOP 4, 27, AND 35

Members of the Actuarial Standards Board,

Thank you for the opportunity to offer our comments and suggestions regarding the exposure drafts containing the proposed revisions to:

- ASOP 4 – Measuring Pension Obligations and Determining Pension Plan Costs or Contributions
- ASOP 27 - Selection of Economic Assumptions for Measuring Pension Obligations
- ASOP 35 – Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

We are strongly supportive of these proposed revisions, which introduce important new disclosure requirements for pension actuaries performing funding valuations. Our comments and suggestions for your consideration follow:

ASOP 4

Section 3.11, Investment Risk Defeasement Measure

Purpose

We strongly support the concept of a required disclosure of a liability measure that is uniformly calculated on a market-consistent basis for all pension plans. Such a liability measure provides a meaningful, transparent, and trackable metric for the plan sponsor and/or the entity responsible for funding the plan, as well as to other stakeholders. By making the liability measure independent of the sponsor's investment strategy, it facilitates a better understanding and tracking of a plan's funded status, and facilitates a relevant comparison of a plan's funded status to that of other plans or systems. Currently, this critical information is generally unavailable in the published reports of public pension plans.

Name

In our view, the proposed name, Investment Risk Defeasement Measure (IRDM), does not capture the essence or the value of this additional liability measure. It can even be misleading because the real value of this liability is as a point-in-time, market consistent, transparent solvency measure.

We believe a more straightforward name like “market-consistent present value of accrued benefits” or “proxy settlement value” is more descriptive, as well as more indicative of the calculation methodology and the relevance of this required disclosure.

Calculation elements

We support the use of what is essentially a unit credit actuarial allocation method and agree that the measure should reflect low-risk discounting. This liability calculation method relies on a straightforward discounting of projected cash flows at an appropriate discount rate, much like typical market instruments. Among the array of different actuarial cost allocation methods, we believe that the method required for this important liability disclosure is the only method that will replicate a market process on a consistent basis. Further, particularly for disclosure purposes, we support this degree of prescription.

We note that in the public sector, future benefit accruals are often protected by the state’s constitution. In those situations, some might believe that such future benefits are already “accrued.” As such, it may be worth reinforcing that, under 3.11(a), “benefits accrued as of the measurement date” do not include the impact of future accruals, even if so protected.

Section 3.14, Amortization Methods

We support the added focus on amortization methods contained in section 3.14, which helps shine a light on the excessive deferral of costs/contributions.

Section 3.16, Output Smoothing Methods

We believe the expansion of the definition of output smoothing will be useful, and the added focus may encourage actuaries to consider the value of smoothing outputs over inputs.

Section 3.20, Reasonable Actuarially Determined Contribution

We support the disclosure of a reasonable actuarially determined contribution when the determination prescribed by the plan sponsor is not. In general, we would expect that actuaries would fulfill this requirement by bringing in line those elements that fall outside the actuary’s judgment of reasonable. However, flexibility in this determination is appropriate as in some cases the contribution is prescribed as an amount, not as the result of a calculation. Further, we could envision that some actuaries may prefer to use a standard, reasonable alternative across all their clients, irrespective of the particular methods or assumptions in question for a given client.

ASOP 27

Section 3.6.3, Phase-In of Changes in Assumptions

We respect the desire to provide guidance on the phase-in of assumption changes over multiple measurement dates. But as we read it, the guidance merely reinforces that the “regular” rules apply at each measurement date. And given that the environment at a future measurement date cannot be known today, a phase-in merely becomes a statement of intent. As such, we question the value of giving this topic its own subsection, and suggest the reinforcement of the underlying principles be handled either in the appendix or embedded in a section such as 3.13

on reviewing assumptions. Alternatively, the subsection could be retained, but the structure changed to convey that a phase-in is acceptable if the assumptions at the current measurement date are reasonable, and the assumptions at each future stage of the phase-in are reasonable at the respective future measurement date.

Section 4.1.2, Rationale for Assumptions

We agree that an actuary should provide his or her rationale for supporting assumptions selected by another party. We believe it should be made more clear that the intent is that, with respect to a *significant* assumption selected by another party, the actuary should make a determination as to its reasonableness and disclose such determination.

ASOP 35

Section 3.4, Phase-In of Changes in Assumptions

See related section under ASOP 27 comments above.

Section 4.1.2, Rationale for Assumptions

See related section under ASOP 27 comments above. In addition, we support the added disclosure around the use of older mortality tables.

We appreciate your consideration of our comments. If you have questions, you may reach us via John Moore at 720-504-7974 or john.moore@terrygroup.com.

Sincerely,

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Sent via e-mail to comments@actuary.org

ASOP No. 27 Revision
Actuarial Standards Board (ASB)
1850 M Street, Suite 300
Washington, DC 20036

July 31, 2018

Subject: Proposed Revision of Actuarial Standard of Practice (ASOP) No. 27

To members of the Actuarial Standard Board:

I would like to thank the Actuarial Standards Board for the opportunity to provide comments on the proposed revision of ASOP No. 27. The focus of these comments is on the most problematic parts this ASOP:

- misguided guidance;
- misleading examples;
- misplaced creativity.

Misguided Guidance

Actuarial models are based on a substantial mathematical foundation. This foundation is presented in detail in actuarial textbooks, practice notes, and other educational materials. Consequently, ASOPs normally provides high level guidance without theoretical technicalities. Yet, "… *the Pension Committee of the Actuarial Standards Board determined that the inclusion of some educational material regarding arithmetic and geometric returns in ASOP No. 27 would be beneficial*." While this inclusion would be unusual, a summary of basic results supplemented by numerical examples and references to educational materials would certainly be beneficial.

The problem is there are no widely used educational materials in this area. A general closed form relationship between arithmetic and geometric returns is not known. Several known estimates of this relationship were scattered around miscellaneous publications. Despite the importance of this relationship, no single publication offered a systematic presentation of this relationship before 2011.

The apparent intention of the Pension Committee of the ASB was to produce a "first-of-its-kind" publication that would immediately become a standard. Producing such a publication would require conducting a comprehensive analysis of existing sources, researching analytical tools, and producing a solid justification for the results. Undoubtedly, this publication would be highly beneficial to the actuarial community and beyond. Undoubtedly, the committee was not properly equipped to produce this publication.

The final product of this endeavor published as Appendix 3 in the September 2013 version of ASOP No.27 is deeply flawed (this appendix is Appendix 2 in the current exposure draft). The current exposure draft contains several cases of misplaced creativity – misleading numerical examples, dubious recommendations, incorrect calculations, debatable statements, and other faults. Moreover, some substantive critical comments to the previous version of this ASOP were summarily ignored. Useful publications were evidently ignored as well.

This standard-setting fiasco demonstrates that emerging areas of actuarial practices should be developed in practice notes and other educational materials. As these areas evolve, practice notes and other publications would reflect this evolution. ASOPs should incorporate new areas only when these areas reach a certain level of maturity as related to general practices and the underlying theoretical foundation. Standard setters should refrain from pioneering new developments in ASOPs. These developments belong elsewhere.

Here are a couple of publications that may serve as a first step in the development of practice notes on the subject "arithmetic vs. geometric returns" (sent to the ASB in May 2012):

Mindlin (2011): On the Relationship between Arithmetic and Geometric Returns

Mindlin (2012): Present Values, Investment Returns and Discount Rates

I present just one example of the aforementioned faults in this section. Part D in Appendix 2 recommends the following approximation: "… *a forward-looking expected geometric return … can be approximated by taking the forward-looking expected arithmetic return and subtracting one-half of the variance …*" The authors seem unaware of other approximations of this kind. Mindlin (2011) presents three additional approximations and good reasons to believe that *the approximation recommended in the ASOP is the worst of the four*. Needless to say, dubious recommendations should have no place in an ASOP.

Later sections analyze certain problems in the current exposure draft in more detail.

Misleading Examples

Part C of Appendix 2 presents a numeric example that illustrates the relationship between arithmetic and geometric returns. This example has a couple of major problems.

It is assumed that the investor's portfolio "is is expected to have a 50% probability of earning a return of 30% and a 50% probability of earning a return of 0% for each of the next two years and that these returns are the only possible outcomes." This example deals with the following problem: *given $1,000 at the present, to calculate the distribution of accumulated asset values at the end of the investor's time horizon (in two years).*

Exhibit 1 in in part C of the appendix "illustrates the totality of possible investment results for an initial $1,000 investment" in two years.

***Exhibit 1*: Future Assets**

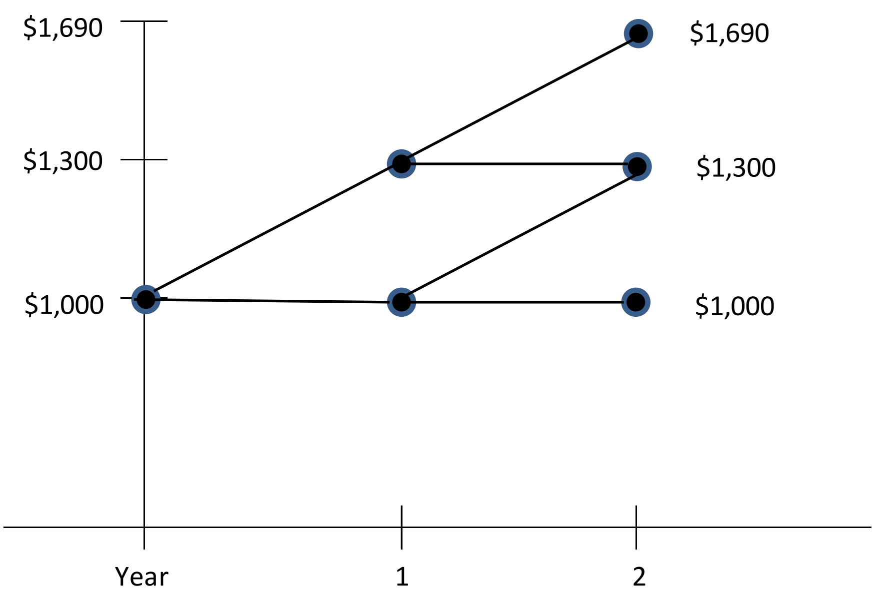


Exhibit 1 illustrates arguably the most important shortcoming of this example. The main task here is to calculate future values given present values. In contrast, the conventional problem of retirement funding is the opposite – to calculate present values given future values.

A long-established practice in actuarial science (and in many other areas of finance) is to measure the outcomes of investment programs at the present, not at the end of the investor's time horizon. *The choice of the measurement point in time may have profound consequences*. Actuarial valuations report present values, not future values. An example that does not represent long-established *actuarial* practices is not the best choice for an *actuarial* standard of practice. Context matters.

Another major problem with this example is the incorrect calculation of the geometric mean. "The forward-looking expected geometric return" (14.51%) not equal to the geometric mean of the portfolio in this example (see below). This is one of the aforementioned cases of misplaced creativity that should have no place in an ASOP.

Let us turn this example into a funding problem. The investor's commitment is to accumulate \$1,000 in two years. This example deals with the following problem: *to calculate the distribution of asset values at the present required to accumulate \$1,000 in two years.* This example utilizes the same portfolio (equally probable returns of 30% and 0%).

The key measurements of the portfolio return – arithmetic mean *A*, geometric mean *G*, and variance *V* – are calculated as follows:

$$A = \frac{1}{2}30\% + \frac{1}{2}0\% = 15.00\%$$

$$G = exp\left(\frac{1}{2}ln(1 + 30\%) + \frac{1}{2}ln(1 + 0\%)\right) - 1 = 14.02\% \text{ (see Mindlin (2011))}$$

$$V = \frac{1}{2}(30\%)^2 + \frac{1}{2}(0\%)^2 - (15.00\%)^2 = 2.25\%$$

It is informative to test the approximation $G \approx A - \frac{1}{2}V$ currently recommended by this ASOP: $A - \frac{1}{2}V = 15.00\% - \frac{1}{2}2.25\% = 13.875\%$, which is lower than the geometric return 14.02%.

Fortunately, there is no need to use $G \approx A - \frac{1}{2}V$. The approximation $(1 + G)^2 \approx (1 + A)^2 - V$ should be expected to work better, and it is exact in this case:

$(1 + 14.02\%)^2 = (1 + 15.00\%)^2 - 2.25\%$ (see Mindlin (2011) for more details).

I question the wisdom of recommending a particular approximation in this ASOP.

Let us calculate the required assets distribution.

If the investment returns are 0% in the first year and 0% in the second year, then the required asset value is \$1,000.00:

$$1{,}000.00 = \frac{1{,}000.00}{(1 + 0\%)(1 + 0\%)}$$

If the investment returns are 30% in the first year and 0% in the second year, then the required asset value is \$769.23:

$$769.23 = \frac{1{,}000.00}{(1+30\%)(1+0\%)}$$

If the investment returns are 0% in the first year and 30% in the second year, then the required asset value is \$769.23:

$$769.23 = \frac{1{,}000.00}{(1+0\%)(1+30\%)}$$

If the investment returns are 30% in the first year and 30% in the second year, then the required asset value is \$591.72:

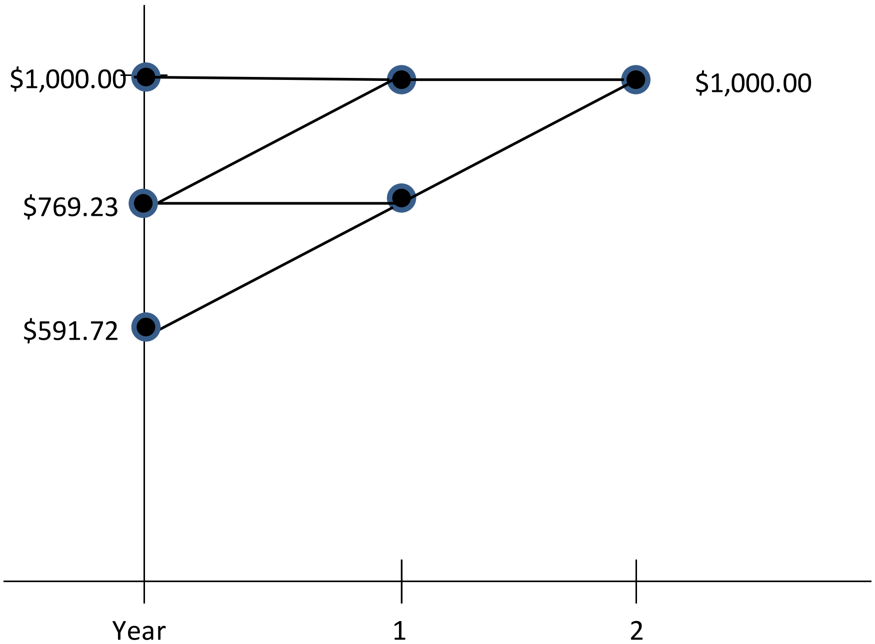
$$591.72 = \frac{1{,}000.00}{(1+30\%)(1+30\%)}$$

The required assets (*RA*) distribution is the following:

\$1,000.00 with probability 25%;
\$769.23 with probability 50%;
\$591.72 with probability 25%.

Exhibit 2 below illustrates the required assets for the commitment of \$1,000 in two years.

***Exhibit 2*: Required Assets**



The key measurements of required assets – the mean, median, and variance – are as follows:

$RA\ Mean = 782.54$
$RA\ Median = 769.23$
$RA\ Variance = 21{,}014$

If the actuary had to report a deterministic measurement of the required assets distribution, then the mean and the median would be reasonable choices (among others). The choice of the mean (782.54) as the deterministic measurement would imply discount rate 13.04%:

$$13.04\% = \left(\frac{1{,}000.00}{782.54}\right)^{\frac{1}{2}} - 1$$

The choice of the median (769.23) as the deterministic measurement would imply discount rate 14.02%:

$$14.02\% = \left(\frac{1{,}000.00}{769.23}\right)^{\frac{1}{2}} - 1$$

For comparison, let us calculate similar values for the original example. The future assets (*FA*) distribution is the following:

$1,000 with probability 25%;
$1,300 with probability 50%;
$1,690 with probability 25%.

The key measurements of future assets – the mean, median, and variance – are as follows:

$FA\ Mean = 1{,}322.50$
$FA\ Median = 1{,}300.00$
$FA\ Variance = 60{,}019$

If one had to present a deterministic measurement of the future assets distribution, then the mean and the median would be reasonable choices (among others). The choice of the mean (1,322.50) as the deterministic measurement would imply discount rate 15.00%:

$$15.00\% = \left(\frac{1{,}322.50}{1{,}000.00}\right)^{\frac{1}{2}} - 1$$

The choice of the median (1,300.00) as the deterministic measurement would imply discount rate 14.02%:

$$14.02\% = \left(\frac{1{,}300.00}{1{,}000.00}\right)^{\frac{1}{2}} - 1$$

These examples demonstrate the following:

- The outcomes of investment programs can be measured at the present or in the future.
- Present and future values are stochastic due to the investor's use of risky assets.
- Present and future value calculations do not require discount rates.
- The actuary may calculate present values first and, if necessary, determine discount rates next. Thus, the use of discount rates in present value calculations is a choice, not a necessity.
- The investor may want to select a deterministic measurement of outcomes that produces no expected gains or losses. The mean of outcomes at the measurement point would be a natural choice for this measurement. If the measurement point is at the present, then the implied discount rate is 13.04%. If the measurement point is at the end of the investor's time horizon, then the implied discount rate is 15.00%. Thus, the choice of the measurement point in time is highly consequential.
- The discount rates implied by the median present value and the median future value are the same and equal to the portfolio geometric mean (14.02%).
- The "no-gains-or-losses" discount rates for present values (13.04%) and future values (15.00%) are connected to the geometric mean (14.02%) via the following relationship:
  $$1 + 14.02\% = \sqrt{(1 + 13.04\%)(1 + 15.00\%)}$$

Overall, these examples should be largely re-written or eliminated altogether.

Misplaced Creativity

As was mentioned before, the current exposure draft contains several cases of misplaced creativity. The previous section contains one such case (the incorrect definition and calculation of the geometric mean). This section discusses a couple of such cases in this ASOP.

The first case involves the term "forward-looking expected arithmetic and geometric returns." Most publications define arithmetic and geometric *averages* for series of returns and arithmetic and geometric *means* (a.k.a. expected values, mathematical expectations, first moments, among other terms) for distributions of returns (random variables). See Mindlin (2011) for more details. The ASOP adds the modifier "forward-looking" to a known term and calculates the term incorrectly in a numeric example. To justify this addition, part B ("Looking Back Versus Looking Forward") of Appendix 2 contains the following paragraph:

> "*The discount rate used in the measurement of a pension obligation is a forward-looking assumption. While the actuary may use some historical results in establishing expectations regarding the future, the discount rate reflects an expectation of events to come, not events that have already occurred*."

The problem with this correct statement is that it is equally correct regarding other actuarial assumptions (e.g. inflation rates, salary growth, mortality rates, etc.). Yet, there is no "forward-looking expected arithmetic and geometric" inflation rates in this ASOP. Quite appropriately, this ASOP utilizes just "inflation rates," even though the actuary "may use some historical results in establishing expectations regarding" the inflation rate assumption and distinguish arithmetic and geometric averages. It is understood that the inflation rate assumption "reflects an expectation of events to come, not events that have already occurred." Again, context matters.

This ASOP should eliminate "forward-looking expected arithmetic and geometric returns" and consistently utilize well-known arithmetic and geometric means instead.

The second case involve a perplexing paragraph in part A of Appendix 2:

> "*The use of a forward-looking expected geometric return as a discount rate will produce a present value that generally converges to the median present value as the time horizon lengthens. … The use of a forward-looking expected arithmetic return as a discount rate will generally produce a mean present value*."

These statements make no sense – mathematical or otherwise – and should be eliminated.

A somewhat similar statement is presented in part (j) "Arithmetic and Geometric Returns" of section 3.8.3:

> "*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*."

This statement is mathematically suspect and should be eliminated.

I cannot help but mention the following striking paragraph in part B:

> "*Note that a forward-looking expected geometric return is not synonymous with compounding. That is, both a forward-looking expected geometric return and a forward-looking expected arithmetic return would be used in a compounding nature*."

The meaning of this paragraph and the reasons for its inclusion in this ASOP elude this author.

Last but not least, this ASOP still provides no justification for the use of risk premium in "risk-free" rates of return (a.k.a. discount rates), even though this justification is readily available and would be greatly appreciated.

Conclusion

I believe that this exposure draft has significant room for improvement. As discussed in these comments, certain sections of the draft should be re-written or eliminated.

Thank you for your attention to these comments. Feel free to contact me if you have any questions/comments. I would be happy to assist the ASB in the development of this standard and related issues.

Sincerely

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