



June 30, 2012

Cindy MacDonald
Sr. Experience Studies Actuary
Society of Actuaries
475 North Martingale Rd., Suite 600
Schaumburg, Illinois 60173

Re: Scale BB Comments

Dear Ms. MacDonald,

The Pension Committee of the American Academy of Actuaries¹ wishes to thank the Retirement Plans Experience Committee (RPEC) and its Mortality Improvement Sub-Team for its efforts in developing a new set of mortality tables and projection scales for the valuation of uninsured pension plans. Actuaries are looked upon as mortality experts and our tables are quickly adopted as standards by other professions and by governmental agencies responsible for pension regulation. We know this has been a major and critical undertaking and we thank you for your contribution to the profession.

Our comments on Scale BB concern a few areas where we believe there are differences of opinion in the actuarial community. Our comments apply not only to Scale BB, but also to the underlying theory of using two dimensional vs. one dimensional tables.

1. The RPEC recommended expected Future Mortality Improvement Rates (MIR's) that are reflective of recent experience. These rates seem to be appropriate for predicting current and near term levels of mortality. However, given the uncertainties about the levels of future mortality improvements, we suggest the RPEC be less prescriptive as to the future level of mortality improvement. For example, the RPEC could provide a framework for an actuary to modify the scale by assuming a different ultimate rate of improvement and/or time frame to reach it.

We agree it is a plausible hypothesis that mortality improvement rates will likely converge to a constant rate that may vary somewhat by attained age (the RPEC has suggested a constant rate of 1% up to age 90 as a reasonable rate). However, based on comments at the 2012 Enrolled Actuaries (EA) Meeting, the use of a single ultimate mortality improvement rate (1%) may be overly simplistic. and mortality improvement seems to decrease with age.²

¹ The American Academy of Actuaries is a 17,000-member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists 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.

² For example, Steve Goss, chief SSA actuary, stated this at one of the 2012 EA Meeting sessions: “[The U.K. actuaries] were assuming a 1% constant increase into the future at all ages, which is quite different than the experience we’ve seen historically. We have seen a very, very strong gradient in terms of average rate of improvement in mortality by age. Much stronger at younger ages, much weaker at higher ages. The same is true in Canada as in the U.S. And therefore our projections have always had a gradient, still do have a gradient. Larry put up our number of .78% with

There is considerable debate as to the level of these rates, the variation by age and the time at which the rates of improvement might slow or become minimal. For example, is it reasonable to assume decreasing future improvements in mortality rates from technology improvements, both as a function of time and age (the law of diminishing returns)? We therefore suggest the final report acknowledge the uncertainties surrounding estimates of future mortality rates and that reasonable people may conclude that an ultimate rate other than 1% is a reasonable assumption.

Given the considerable debate as to the level and the duration of future mortality improvements we are concerned that this constant not become a de facto standard by which the reasonableness of differing assumptions is judged (e.g., by auditors). We believe that certain statements within the Exposure Draft and the Questions and Answers document will lead auditors and others to treat Scale BB fully generational as a de facto standard. In addition, we are especially concerned that it could lead to pressure on actuaries to use the 1% improvement assumption for all future years unless “evidence” that it is inaccurate can be developed (and since the appropriateness of the 1% for all future years cannot be proved it cannot be disproved either). Accordingly, we suggest that the final report explicitly acknowledge that (a) the assumption that mortality will improve 1% per year for all future years is subject to debate, and relies on the assumption that new factors will emerge to replace factors not expected to recur and thereby continue to produce mortality improvement indefinitely; and (b) mortality may not continue to improve that rapidly due to the failure of such new effects to emerge and/or due to countervailing trends that increase mortality, or may improve more rapidly due to new technologies that are emerging.

2. Use of Scale BB. Due to the uncertainty surrounding long term future mortality improvement, we believe the statement in the Exposure Draft that the use of Scale BB as a replacement for Scale AA is “strongly encouraged” is too strong and does not adequately allow for the exercise of judgment by individual actuaries. The “Caveat and Disclaimer” in the Exposure Draft states “It may or may not reflect the experience of any individual company. The study is for informational purposes only and should not be construed as professional or financial advice. The SOA does not recommend or endorse any particular use of the information provided in this study.” We believe the statements within the final report should follow this principle.

The mortality improvements measured in the study that produced Scale BB reflect a number of changes that are unlikely to recur and/or persist at the same levels in the future. These changes include: the introduction of Medicare and Medicaid; the widespread use of antibiotics beginning after World War II; declines in smoking, particularly among males; improvements in automotive and workplace safety, etc. It is not possible within the scope of the study (and may not be possible at all) to isolate these non-recurring effects, nor is it possible to predict with any degree of certainty whether new factors will emerge to replace them (e.g., genetic engineering and advances in treating cancer or heart disease). National health care programs may result in changes in medical treatment that could affect mortality improvements in both directions.

age/sex adjusted mortality improvement for what we have at Social Security for the U.S. general population mortality improvement. That's on average for all ages. It's not quite that strong at the highest ages, which I assume you might be most interested in for annuities that you might be pricing or valuing, and it's stronger than that at younger ages into the future. We've really collapsed the spread quite a bit relative to what's happened historically but not exactly down to the same rate of improvement at all ages. So I would just put a note of caution on that.”

To ensure actuaries are encouraged and allowed to use their professional judgment in choosing mortality tables and MIR's, statements in the final report concerning the use of Scale BB fully generational as a de facto standard should be softened.

3. Static Tables

- a. An actuary is obligated to consider future improvements in mortality under ASOP 35. Paragraph 3.1 of ASOP 35 states:

“3.1 Overview—The actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment.”

- b. The final mortality table and improvement scale chosen by the actuary reflect many factors and must reflect the professional judgment of the actuary.
- c. The Exposure Draft recommends the use of generational tables over static tables. While there are many actuaries who believe a generational table provides a better estimate of future mortality experience than a static table, we understand many actuaries use static tables as an acceptable application of actuarial principles.

Statements in the Exposure Draft are largely technical observations that static tables projected to the duration of the liabilities using Scale BB do not approximate the generational ones as well as they did for Scale AA. Solely because of this, generational mortality was “strongly recommended.”

The comments, however, do not address a fundamental advantage of a static approach: the static approach affords the user the ability to decide how long to assume the 1% (or other reasonable future improvement assumption) persists; fully generational tables assume continuing improvement for all future years.

Thus, a very significant recommendation to adopt a specific but uncertain assumption—unending future improvement at a 1% rate—is made without a direct justification.

- d. **Actuarial Equivalent Assumptions:** US-based pension plans use unisex tables to determine the actuarial equivalent optional forms. We are not aware of any plans that use generational tables for this purpose, but it is likely that some do. Some public plans use static unisex tables, based on the funding assumptions, for determining the actuarial equivalent optional forms. In addition, the Internal Revenue Code (IRC) requires a qualified plan (including public plans) to include the basis of the actuarial equivalent for optional forms of payment in the legal plan document. Plan sponsors do not often change actuarial equivalent factors and are unlikely to adopt generational tables for these purposes. In addition, certain large plans have their own pension administrative systems and those systems, in most cases, cannot easily be modified to use generational tables. Therefore, the Pension Committee encourages the RPEC to at least acknowledge that static tables will likely continue to be used for the purpose of developing actuarial equivalent factors for calculating or administering benefits inside pension plans, including adjustments for

- early and late retirement.
- e. For purposes of IRC section 417(e) lump sum calculations and IRC section 430 Funding Target calculations, the IRS could continue to permit or require the use of static tables. The Exposure Draft should acknowledge that for some purposes, such as determining lump sums, regulatory agencies may develop static tables that are based on prevalent mortality tables and improvement scales.
 - f. Section 7.1 (Static) states Scale BB used with a static projection might vary by $\pm 1\%$ vs. a generational table using Scale BB. The developers of Scale AA said the variance was $\pm 0.5\%$. A variance of $\pm 1\%$ may not be material for some purposes. This would be true for a small plan since there is a near zero chance that the actual experience will be close to the assumed experience. It may also be true for a plan where a lump sum distribution is the predominant form of distribution.
4. Two dimensional vs. one dimensional table. We agree the grading over time of the MIR's to a constant is plausible (although as noted in comment #1 above, we prefer allowing actuaries the flexibility to define a graded MIR assumption rather than the flat 1% currently embedded in Scale BB). However, the use of a two dimensional table implies a level of precision that may be misleading, especially given the uncertainty about the ultimate levels of mortality improvement. For example, there is no apparent intent in the Exposure Draft to try to predict cohort effects over the long term (i.e., eventually 1% is used for all ages under age 90). Even if observed cohort effects can reasonably be assumed to continue for the next few years, does differing mortality experience by cohort during the period the data covers – ending in 2007 – imply the same trends for the same cohorts for any future year? Since the year of birth cohort effects are limited to 10 years (the ultimate rate is reached for age 90 in 2015 and for age 65 in 2024) – by the time the table with the two dimensional scale is available in 2014 or 2015, the base table could already have most of the cohort effect phased-out. Unless the two-dimensional scale is also intended to be used with an older base table that does not reflect the period of mortality improvement reflected in the new base table, it would seem that there is little to be gained by changing valuation systems to be two dimensional. Further, looking at years 2015 and later in the two dimensional table we note that the improvement rates are all less than 1.2% grading rapidly down to the 1%. This would seem to imply that the use of two dimensional rates from that point forward is unlikely to have much effect.

The Academy's Pension Committee is available to the RPEC to address any of the issues raised in this letter. If you have any questions, please contact Assistant Director of Public Policy Bill Rapp (rapp@actuary.org; 202-223-8196).

Sincerely,

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Chairperson, Pension Committee
American Academy of Actuaries