SOCIETY OF ACTUARIES

475 N. Martingale Road
Suite 600
Schaumburg, IL 60173

847.706.3500 tel
847.706.3599 fax

www.soa.org

April 9, 2015

J. Mark Iwry
Senior Advisor to the Secretary
Deputy Assistant Secretary
(Retirement & Health Policy)
U.S. Department of the Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220

Victoria Judson
Division Counsel / Associate Chief Counsel
Tax Exempt & Government Entities
Internal Revenue Service
1111 Constitution Avenue, NW
4306 IR
Washington, DC 20224

Robert Choi
Director, Employee Plans
Internal Revenue Service
1111 Constitution Avenue, NW
NCA 614
Washington, DC 20224

Dear Mr. Iwry, Ms. Judson, and Mr. Choi,

The Society of Actuaries ("SOA") is the world's largest organization credentialing and serving the actuarial profession. We are an educational, research and professional organization of more than 25,000 actuaries, dedicated to serving our members, students, the profession and the public. We conduct a wide range of research to provide technical information resources for the profession, to advance the capabilities of the profession, to inform public policy development, and to promote public understanding and the public interest. This research includes many studies of historical experience and techniques for projections into the future. Experience studies have been at the core of SOA research activities since its formation in 1949, and were additionally a main activity of our predecessor organizations for many decades prior to that date. Core principles for all SOA research projects are objectivity, quality, relevance and quantification. The SOA does not take advocacy positions on specific policy proposals.

This letter is in response to the March 23, 2015, letter from Lynn Dudley, Senior Vice President, Global Retirement and Compensation Policy at the American Benefits Council ("ABC"), to a number of individuals at the Department of Treasury and the Internal Revenue Service. The ABC letter includes a number of criticisms of updated mortality tables recently

released by the SOA (the RP-2014 mortality tables and the mortality improvement Scale MP-2014). While we appreciate and respect the ABC's work to promote sound retirement policies and practices, we strongly disagree with their criticisms of the updated mortality tables. The purpose of this letter is to correct the record on each of these issues.

Criticisms raised by the ABC in their March 23 letter include:

- That the mortality improvement projections from the central year of 2006 do not adequately reflect improvement data from 2007 to 2009;
- That recently available mortality improvement data from 2010 to 2012 shows lower rates of improvement than the SOA study;
- That the assumption for long-term rates of improvement should have been lower; and
- That certain data sets were not included in the study.

These criticisms are discussed in more detail in the appendix to this letter. We would like to preface this discussion with a few preliminary points.

First, the SOA followed a rigorous, multi-year process to develop the RP-2014 mortality tables and Scale MP-2014. The process was based on sound actuarial analysis and extensive research. The SOA's Retirement Plans Experience Committee (RPEC), which performed the study, is made up of highly qualified actuaries working in the retirement field.

Second, decisions about data to be utilized in the study were subjected to extensive peer review. Key decisions were reviewed by a separate Data Processing Review Team, which was itself made up of highly qualified experts. The independent committee validated each of the decisions made by the RPEC. The data-selection issues raised in the ABC letter are not new, and have been thoroughly vetted.

Third, the data utilized by the RPEC was extensive and reflects the actual mortality experience of individuals who participate in private sector, single-employer defined benefit plans. The data that was utilized reflects more than 220,000 deaths and 10.5 million life-years of actual experience, which is comparable to the data sets used in past mortality studies that the ABC describes as non-controversial.

A point-by-point discussion of the issues raised by the ABC is contained in the attached appendix that has been developed by RPEC**.** However, one of these issues is briefly discussed here.

The ABC contends that the RPEC's decision to use projection scales to project mortality improvements from a central year of 2006 was flawed because it did not take into account actual improvement data from 2007 to 2009. The ABC asserts that actual improvement data in that brief period of time was markedly lower than the assumptions used by the RPEC. The problem with this argument is that year-over-year changes in age-specific mortality rates are extremely volatile. The tables included later in this letter illustrate this volatility. They demonstrate that relatively short periods of comparatively low mortality improvements are frequently followed by similar periods of comparatively high improvements, and vice versa. An over-reliance on data from any short time period could potentially lead to highly inaccurate projections. This discussion highlights the critical importance of actuarial methods such as graduating raw mortality improvement rates across longer periods of time, typically more than a decade.

The SOA is in complete agreement with the ABC on "the importance of the new assumptions being accurate and technically sound." The RP-2014 tables, projected with Scale MP-2014, accomplish that objective in a way that strikes an appropriate balance between the needs of both plan participants and of plan sponsors**.**

The ABC letter included a number of inaccuracies and misrepresentations regarding the assumptions and methodologies underpinning the RP-2014 mortality tables and Scale MP-2014 mortality improvement rates. We hope this letter helps clarify the SOA's position on this important topic.

If you think it would be helpful, representatives from the SOA and RPEC would be available to discuss any of the items discussed in this letter – or any related topics – with you in more detail.

Sincerely,

Errol Cramer, FSA, MAAA
President, Society of Actuaries

R. Dale Hall, FSA, MAAA
Managing Director of Research

David Kausch, FSA, FCA, MSPA, EA, MAAA, PhD
Chair, SOA Retirement Plans Experience Committee

APPENDIX

Much of the content of this appendix is supported by research and previously published reports of the SOA's Retirement Plans Experience Committee (RPEC) as cited throughout. These include the following reports, all of which can be found at www.soa.org/Research/Experience-Study/pension/research-2014-rp.aspx and www.soa.org/Research/Experience-Study/pension/research-2014-mp.aspx:

- the "RP-2014 Mortality Tables Report"
- the "Mortality Improvement Scale MP-2014 Report"
- the "RPEC Response to Comments on the RP-2014 Mortality Tables Exposure Draft" (also referred to as the "RP-2014 Response" document), and
- the "RPEC Response to Comments on the Mortality Improvement Scale MP-2014 Exposure Draft" (also referred to as the "Scale MP-2014 Response" document).

Projection of Mortality Rates from 2006 to 2014

The RP-2014 mortality tables were based on a final dataset that covered the five-year period starting in 2004 and running through the end of 2008. Hence the "central year" of the RP-2014 observation period was 2006.

First, it is important to recognize that the practice of projecting pension-related mortality rates from the central year of the study to some later "release year" is a well-established method in the actuarial community. The data underpinning the "1994" series of mortality tables (including GAR 94 and UP-94) had a central year of 1988, and the data underpinning the RP-2000 tables had a central year of 1992. Each of these previously published tables had projections to their respective release years.

Due to the unavoidable time delay between the most recently available mortality data and the new table's release date, projection of mortality rates between those two dates will always be required. While those rates will never match emerging experience exactly (as is the case with all actuarial assumptions), it is important to use a projection methodology that blends actual recent mortality experience with longer-term mortality expectations. In the case of the RP-2014 tables, RPEC's approach[1] was to base the projection during the intervening years on the corresponding Scale MP-2014 rates.

In their letter, the ABC claims to identify "inaccuracies" in the 2014 SOA tables by focusing on two recent three-year periods of year-over-year mortality improvement rates. Any such short-term comparisons of mortality improvement rates is questionable, given the long-term nature of these assumptions. In particular, appropriate graduation techniques must be applied to the inherently volatile year-over-year mortality improvement rates (illustrated later in this letter) before they can be used to develop long-term assumptions.

[1] The final RPEC reports also describe a methodology for "factoring out" the Scale MP-2014 rates back to 2006, providing users who wish to start their projection from calendar year 2006 – possibly with some other set of mortality improvement rates – the ability to do so.

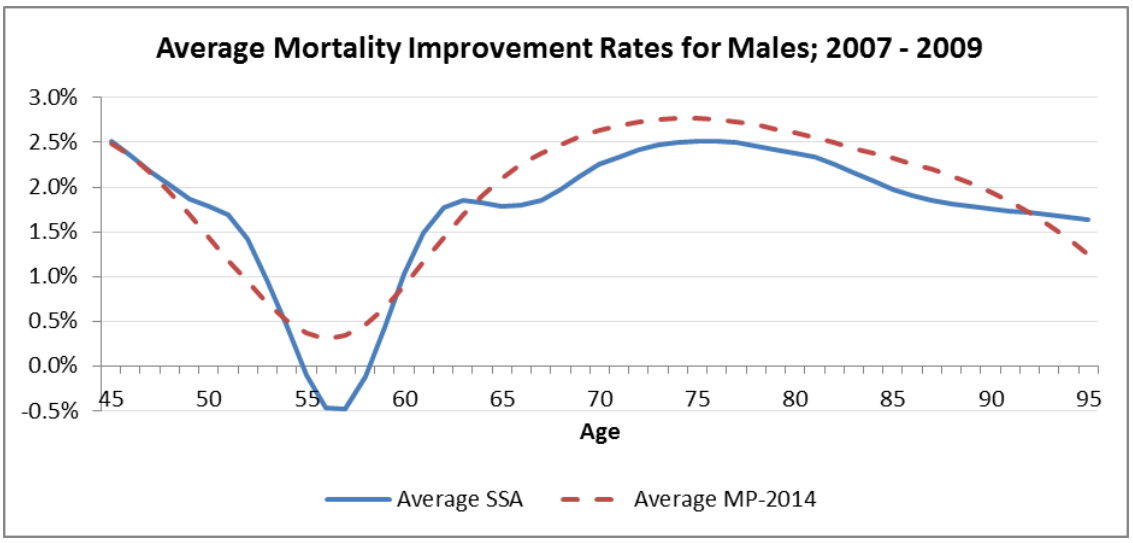
In addition, certain specific statements made by the ABC (first in connection with the period from 2007 through 2009 and then in connection with the period from 2010 through 2012) require formal responses.

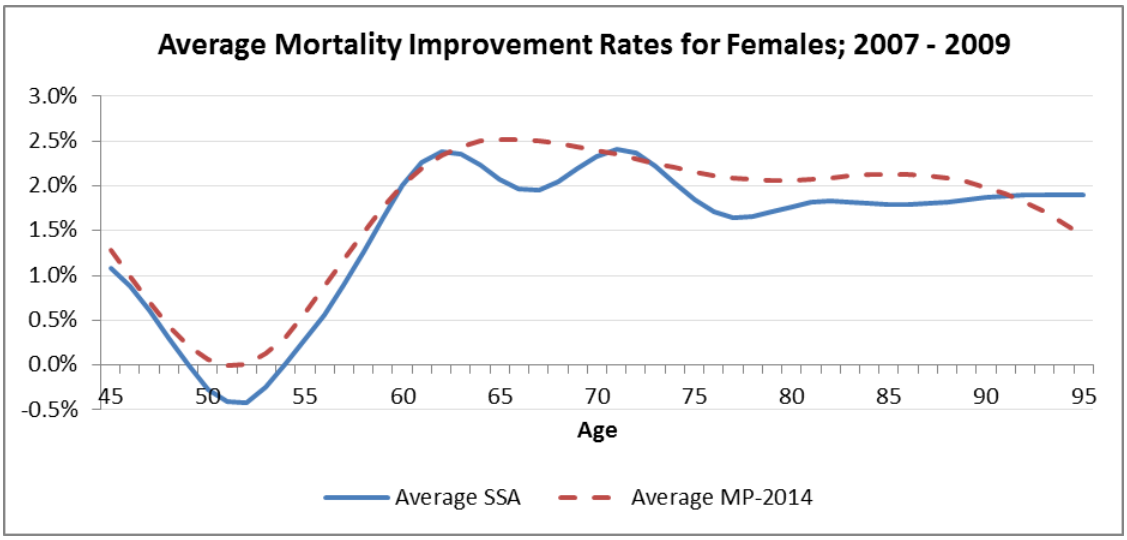
Projection for years 2007 through 2009

The ABC letter contends that “little weight was given to the actual improvement data for years 2007 through 2009”, and that “[t]he actual data on the rate of improvement for 2007 through 2009 showed a markedly lower rate of improvement than the rate assumed by the SOA” for that period.

The ABC's statements demonstrate a misunderstanding of RPEC’s graduation process. In fact, all the actual Social Security Administration (“SSA”) data through 2009 were used and fully-weighted, based on the lives exposed. The graduated values from the actual data were used only to 2007. This is a standard method to reflect the fact that all graduation methods are less precise around the "edges" of the actual data. The actual data for 2008 and 2009 still had material impacts on the graduated rates.

The following displays compare the average mortality improvement rates for calendar years 2007 through 2009, the blue lines based on average “actual” rates derived from SSA mortality rates and the dashed red lines reflecting average Scale MP-2014 rates for those years.





The main purpose of any graduation technique is to smooth out variations in the underlying data while retaining an appropriate degree of fit. Visual inspection of the displays reveals that the average MP-2014 rates reasonably match the average SSA rates while also having a much smoother curve. Although the displays indicate that at some ages the three-year average SSA mortality improvement rates are slightly smaller than the corresponding average MP-2014 averages, the SOA maintains that the SSA rates were not "markedly lower" than the Scale MP-2014 rates over this time period, as claimed in the ABC letter.

Consider, for example, the hypothetical impact on 2009 mortality rates based on the RP-2014 Healthy Annuitant table (full dataset) for males age 75. Projecting the 2006 rate of 0.033113 to 2009 with the actual SSA mortality improvement rates produces a value of 0.030667, compared with a value of 0.030440 projected using Scale MP-2014, an absolute difference of about 2 deaths per year for every 10,000 exposed lives. Differences between mortality rates projected with graduated improvements rates versus raw improvement rates will almost always occur. The important point is that absolute differences at this order of magnitude are well within the tolerances for the normal variability of mortality tables.

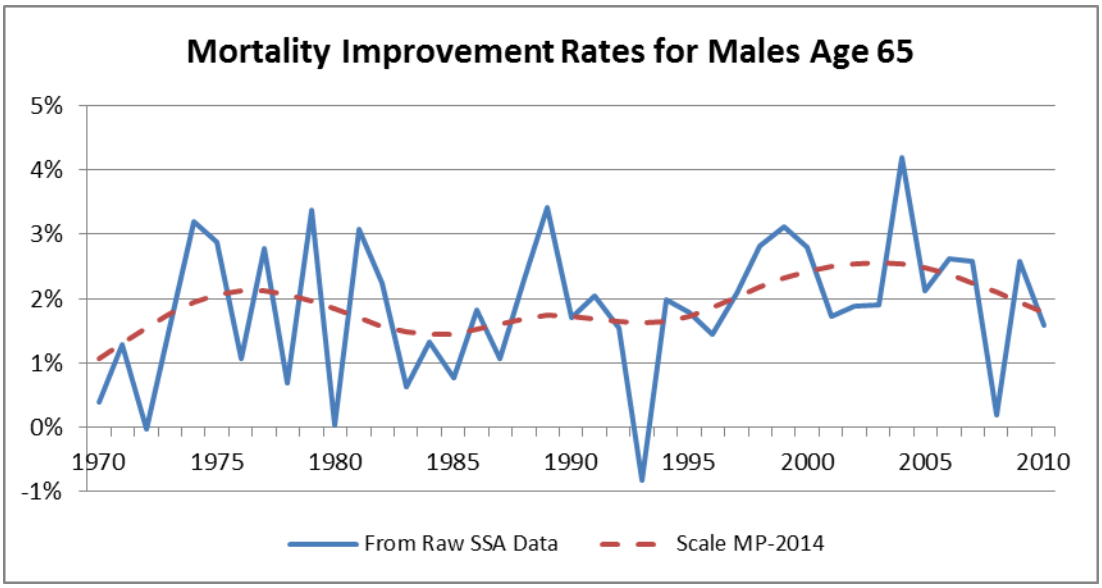
Projection for years 2010 through 2012

The ABC letter also claims that "data on mortality improvements for 2010 through 2012 has become available from multiple sources (SSA, Center [sic] for Disease Control, and the Human Mortality Database), and that data similarly shows markedly lower rates of improvement than the rates assumed by the SOA" for that period. There are a number of concerns with this statement.

First, it should be noted that for calendar years after 2010, there currently is only one[2] publicly available source for gender-/age-specific US population mortality rates; viz., those published by the National Center for Health Statistics (the "NCHS", part of the CDC). However, those NCHS mortality datasets do not provide age-specific rates beyond 84, ages that are important ages for virtually all pension-related calculations. Furthermore, NCHS and SSA reflect Medicare death information differently, which makes direct comparison of mortality improvement rates after age 65 difficult.

[2] The Human Mortality Database depends in part on the same data as the CDC mortality rates and is therefore not an independent source.

Second, raw mortality improvement rates developed by comparing year-over-year changes in age-specific mortality rates are volatile. The following display illustrates the variability in unsmoothed year-over-year mortality improvement data for an age-65 male relative to the corresponding (graduated) Scale MP-2014 rates.



This display shows quite clearly that short periods of comparatively low or high mortality improvement are frequently followed by short periods exhibiting the opposite trend. This display also highlights the critical importance of graduating raw mortality improvement rates across calendar years. Furthermore, to ensure consistency between consecutive ages, it is important to smooth the raw mortality improvement rates in the age direction. Hence, RPEC used a two-dimensional Whittaker-Henderson graduation technique to develop historical mortality improvement rates that remain relatively stable, despite volatility in both the calendar year-to-year and age directions. Therefore, it would be inappropriate to reflect emerging NCHS mortality improvement estimates prior to the time that (1) consistent gender-/age-specific mortality data are available (including ages over 84), and (2) full two-dimensional graduation has been applied to the resulting datasets.

Other Data Excluded from SOA Analysis

The ABC letter makes reference to "systematic data problems in the SOA process" and includes three examples of data that was excluded from the SOA study. RPEC's rationale for excluding each of these data categories specified in the ABC letter was carefully explained in the first four sections of the RP-2014 Response document.

Moreover, the SOA formed an independent RP-2014 Data Processing Review Team (the "Data Review Team") to review the procedures used by RPEC to collect, edit and process the data used to construct the RP-2014 tables. In Section 1 of the RP-2014 Response document, the Data Review Team expressed its agreement with RPEC on all areas of their review; namely:

- The exclusion of public/federal plan data from the final RP-2014 dataset was appropriate and that the SOA should undertake a separate mortality study for these plans.

- The possibility of receiving additional data from the PBGC (for distressed or involuntarily terminated pension plans) should not delay the release of a final RP-2014 report.

- The final RP-2014 dataset consisting of over 10.5 million life-years of exposure and 220,000 deaths is an appropriate representation of the mortality experience of private pension plans in the United States over the study's observation period.

In summary, the independent Data Review Team concluded that RPEC "followed appropriate actuarial procedures in the collection and processing of the dataset underlying the RP-2014 mortality tables."

Specifically with respect to the exclusion of PBGC data from the study, the SOA and RPEC continue to maintain that the numerous inconsistencies between the RP-2014 and PBGC datasets (detailed in Section 3 of the RP-2014 Response document) are so significant as to make combination of the two datasets inappropriate.

Post-2013 Improvements

The ABC letter states that there are "at least three reasons to question the SOA's assumptions regarding future improvements."

1. "Historical rates of improvement have shown a more significant grade-down after age 85 than are reflected in the SOA's table."
2. "The SSA generally uses a lower average rate of long-term improvement (albeit over a longer convergence period)."
3. "The SOA's demonstrated overreliance on pre-2006 improvements casts into doubt its projection for the future as well as its relatively long transition period from those higher rates."

With respect to the first item above, it was RPEC's conclusion that the overall level of future mortality improvement at ages 85 and older was very likely going to be greater than those based on purely retrospective age-based historical averages. As overall life expectancy increases in the US, RPEC projected that the starting and ending ages of the "grade-down" period will increase, and the shape of the grade-down curve is expected to be rather more gradual between ages 85 and 95, than after age 95. RPEC's assumptions were reinforced by the anticipated impact of the cohorts of (1) males born between 1930 and 1940 and (2) females born between 1935 and 1945. These two cohorts have exhibited nearly uninterrupted levels of relatively high mortality improvement over the past forty years, and these are precisely the subpopulations that will be generating advanced age mortality experience over the next 20 years.

With respect to the second item, the SOA respectfully refers the readers to (1) RPEC's detailed discussion regarding the selection of long-term rates in Section 4.2 of the Mortality Improvement Scale MP-2014 Report and (2) RPEC's additional response in Section 6.3 of the Scale MP-2014 Response document. It is also important to highlight the fact that the 0.75% long-term rate assumption mentioned on page 4 of the ABC letter is less than the SSA-assumed long-term rates at all ages below 85.

Finally, as discussed earlier in this letter, the SOA disagrees with the ABC's premise that there was an "overreliance on pre-2006" improvement rates in the development of Scale MP-2014. As for the "relatively long" transition period, the RPEC used a 20-year convergence period (starting in 2007). Use of a shorter transition period could greatly diminish the impact of anticipated cohort effects. And while there clearly can be legitimate differences of opinion in connection with the appropriate length of "transition periods", the 20-year convergence periods selected by RPEC represent an eminently reasonable basis for interpolating from the 2007 mortality improvement rates to assumed long-term mortality improvement rates.