Society of Actuaries Finalizes New Mortality Assumptions

The Financial and Strategic Implications for Pension Plan Sponsors

November 2014
Highlights

In 2009, the Society of Actuaries (SOA) undertook the task of revisiting U.S. mortality assumptions for pension plans. After releasing two exposure drafts on February 3, 2014, RP-2014 Mortality Tables and Mortality Improvement Scale MP-2014, the SOA has now finalized the results of its research. The final RP-2014 and MP-2014 reports issued on October 27, 2014 are largely unchanged from the exposure drafts and suggest materially increased life expectancies. These higher life expectancies could result in significant financial and non-financial consequences for U.S. pension plan sponsors.

While the final reports reflect minimal changes from the exposure drafts that were published in February 2014, the SOA took time to address the questions and issues that were raised during the exposure period. In particular, the final reports make it clear that plan sponsors and their actuaries should look at their specific situations. There may be situations in which, based on the evidence, a custom mortality assumption should be developed.

When estimating the cost of benefits, life expectancy is determined based on mortality assumptions. Those assumptions have changed over time, sometimes lagging actual experience. The chart below demonstrates these changes by comparing life expectancies for a 65-year-old person based on common mortality assumptions used over the past several decades.

Increasing Life Expectancies Over Time

![Chart showing life expectancy for a person age 65 over time]

Source: Society of Actuaries, Aon Hewitt

Note: For the RP-2000 and RP-2014 tables, life expectancy is based on the aggregate tables, not the collar- or amount-specific versions. Life expectancies with a projection scale assume a generational projection of future mortality improvements (i.e., life expectancies increase with year of birth).
The final reports include:

- **New base mortality rates** (RP-2014) that indicate the current rate of mortality observed in the portion of the U.S. population covered by corporate pension plans; and

- **A new mortality improvement scale** (MP-2014) that projects the rates at which mortality is expected to decrease, and thus the pace at which life expectancy is expected to improve.

The mortality assumptions used for pension plans have not been updated in well over a decade—the last set of base mortality rates (the RP-2000 mortality table) was published in 2000 by the SOA and the most commonly used mortality improvement scale (Scale AA) was published in 1995. The Internal Revenue Service (IRS) currently requires that both RP-2000 and Scale AA be used as the basis for mortality assumptions for pension funding purposes and minimum lump-sum calculations. In our experience, they have also been used by most companies (about 84% as of 2013 year-end) to determine the value of the pension obligations reported in their financial statements.

The new SOA reports reflect an increase in life expectancy that has been observed across the broad population of the United States since the RP-2000 SOA research was published. Aon Hewitt’s own research based on several million life-years of pension plan administration data demonstrates similar improvements. As life expectancy increases, so does the cost of certain benefits such as pension annuity payments and subsidized retiree medical coverage, since those benefits are expected to be paid over a longer period of time. Such cost increases can have a significant impact on the sponsors of those benefits.

**Impact on Plan Sponsors**

The change from the prior mortality assumptions to those in the final reports results in longer life expectancies and, consequently, higher pension liabilities. *Although many variables come into play, the increase in liabilities could be 7% or more for many plan sponsors.*

Companies will need to consider the potential impact on:

- **Company financial statements.** While companies are not necessarily required to use RP-2014 and MP-2014 to calculate their pension obligations, company auditors will likely view the final reports as evidence that longer life expectancies should be reflected. Plan sponsors should consider how their own demographics and mortality experience compare to those underlying the SOA reports in selecting a best-estimate mortality assumption.

- **Cash contribution requirements and lump-sum calculations.** The IRS establishes the mortality assumptions required for pension funding purposes and lump-sum calculations, and is expected to develop new assumptions based on the final SOA reports. (See the later section, “What’s Next?” to understand which other organizations will influence the application of the new mortality basis.)

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1. Throughout this paper, references to the IRS-required mortality tables assume a single employer plan subject to the Employee Retirement Income Security Act of 1974.

2. Based on a survey of year-end 2013 financial accounting assumptions of Aon Hewitt clients.
- **Other strategic considerations.** Other strategic considerations for plan sponsors may include pension settlement opportunities, implications for de-risking glidepaths, and implications for plan administration and compliance.

### Changes From Exposure Drafts

The base mortality rates and mortality improvement rates in the final RP-2014 and MP-2014 reports are unchanged from the exposure drafts. However, the final reports include new language regarding such issues as the potential for plan sponsors and their actuaries—with appropriate justification—to adjust the base mortality rates in the standard RP-2014 mortality tables based on plan experience or other factors. The language further indicates sponsors might develop mortality improvement scales using the MP-2014 methodology but with alternate assumption sets (including different long-term mortality improvement assumptions). In addition, the final reports are accompanied by companion documents that explain the SOA’s process and address various questions and issues that were raised during the exposure period.

Due to significant discussion within the pension community regarding the data used to produce the tables and the inherently subjective nature of the long-term mortality improvement assumption, the SOA’s leadership team commissioned independent review teams to peer-review the development of RP-2014 and MP-2014. The review teams found that the committee developing the tables followed appropriate procedures, and that the resulting tables are an appropriate representation of private pension plan mortality in the U.S. over the study period.

### Auditor Expectations

Under U.S. Accounting Standards Codification (ASC) Topic 715, each individual assumption must represent a plan sponsor’s best estimate for that individual assumption. International Accounting Standard (IAS) 19 more explicitly states that a plan sponsor’s mortality assumption must be a best estimate, and should take into account expected changes in mortality. As a result, companies reporting under U.S. Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS) need to consider whether the final SOA reports represent a best estimate of the mortality for their plan populations. In particular, plan sponsors should work with their actuaries to determine which of the various RP-2014 mortality tables may be most appropriate as a benchmark assumption for each of their plans, and what (if any) adjustments to that benchmark may be appropriate based on plan experience or other factors.

While the issuance of the final reports shortly before 2014 year-end may raise timing challenges, auditing firms have generally taken the view that the final reports are evidence of longevity improvements that should be taken into consideration in 2014 year-end measurements. Auditors may also look for experience studies or other documentation supporting the fact that a plan sponsor’s selected mortality assumption represents the plan’s sponsor’s best estimate.
Experience Studies

As mentioned above, plan sponsors should examine their own mortality experience in light of the final SOA reports to see if the experience of their own populations suggests a different life expectancy than the RP-2014 and MP-2014 basis. Longevity is strongly influenced by socioeconomic status, which is highly correlated to factors such as job classification, pay and benefit level, and geography. Geographic differences can be particularly significant, as shown by an Aon Hewitt analysis of 2013 retiree mortality experience for plans representing over 5 million life-years of exposure.

Source: Aon Hewitt, Analysis of 2013 Retiree Mortality Experience by Zip Code

Considering these factors can provide a preliminary directional indication as to whether the life expectancy for a plan’s population may be longer or shorter than that predicted by the RP-2014 tables. Below is an example of such a directional review.
An experience study can then be performed to validate this preliminary directional indication. The use of collar-based tables or other adjustments to the new base mortality tables supported by an experience study may provide an opportunity to mitigate the impact of the mortality table update.

Experience studies may be appropriate even for small or mid-size plans. Credibility techniques can be used to weight standard mortality tables with a plan sponsor’s own experience, and the plan sponsor’s experience can be aggregated over multiple years in order to increase credibility.

**Cash Contribution and Lump-Sum Requirements**

As noted above, the IRS establishes the mortality assumptions required for pension funding purposes and lump-sum calculations. The IRS is expected to develop new mortality tables for these purposes based on the final SOA reports. IRS representatives have indicated that such tables would likely need to be issued as proposed regulations subject to public comment before being finalized. Due to the amount of time required to issue proposed regulations, evaluate the comments received, and finalize the regulations with sufficient lead time for plan sponsors to implement them, it appears likely that such tables would not be effective before 2017 or even 2018.

It is important to note that such updated mortality tables could result in an increase in cash contribution requirements, while the Highway and Transportation Funding Act of 2014 (HATFA) enacted on August 8, 2014, reduced cash contribution requirements. Given that an update to the mortality tables would have an impact opposite that of recent legislation, it remains to be seen whether Congress will propose further legislation to delay or reduce the impact of updated mortality assumptions on pension funding requirements. This will be an interesting public policy debate, given that any delays in reflecting the new tables in pension funding requirements could also delay that recognition in lump-sum and PBGC premium calculations. We suspect that labor groups, along with the PBGC itself, could be quite vocal on this issue, particularly with the significant amount of pension settlement activity occurring and expected to continue through lump-sum payments and plan terminations.
Other Considerations

In addition to the impact on company financial statements and pension funding requirements, plan sponsors should consider other strategic implications for their plans, including:

- **Pension settlement opportunities.** Lump-sum windows for terminated and retired participants continue to represent an opportunity to settle pension obligations at attractive pricing until the IRS issues updated mortality tables for lump-sum calculation purposes.

- **De-risking glidepaths.** Updating the mortality assumptions used in monitoring de-risking glidepaths will result in a one-time change in plan funded status. This impact should be considered, along with the impact of HATFA, in determining whether any adjustments to such glidepaths may be appropriate.

- **Plan administration and compliance.** Plan sponsors should consider the implications of updated mortality assumptions for relative value disclosures, and determine whether the plan assumptions used to determine optional forms of benefit need to be updated to ensure that they remain reasonable.

What’s Next?

It is important to recognize that these final reports represent important new research on mortality to the actuarial profession, but do not constitute new rules and regulations. One of the SOA’s roles is to provide research on matters that are important to the actuarial profession and the general public, such as analyzing and publishing mortality assumptions for pension plans based on available data. There are other groups that will influence how and when the new mortality basis is eventually adopted by plan sponsors.
### Role and Responsible Party

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsible Party</th>
<th>What This Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of company and plan financial statements</td>
<td>Corporate and plan auditors</td>
<td>Corporate and pension plan auditors must review the mortality assumptions used in preparing corporate and plan financial statements, and determine whether there is adequate support for the assumptions used in order to sign off on those financial statements. Plan sponsors will need to consider what changes to their mortality assumptions may be appropriate for 2014 year-end measurements.</td>
</tr>
<tr>
<td>Requirements for pension funding and administration</td>
<td>Congress and federal government agencies</td>
<td>Congress enacts the legislation establishing basic pension funding and qualification rules. The IRS sets the mortality assumptions that must be used for determining minimum contribution requirements for qualified pension plans, as well as for determining minimum lump-sum benefits payable from pension plans. Updated assumptions are not likely to be effective before 2017 or 2018. The Pension Benefit Guaranty Corporation (PBGC) sets the assumptions that must be used for determining PBGC variable-rate premium obligations, as well as plan liabilities for certain transactional events (e.g., plan mergers and spinoffs).</td>
</tr>
<tr>
<td>Advice and recommendations on broad policy</td>
<td>American Academy of Actuaries (AAA)</td>
<td>The AAA often acts on behalf of the actuarial profession to advise policymakers on actuarial matters. It would likely be responsible for potential recommendations that these assumptions be adopted for pension funding or other purposes.</td>
</tr>
<tr>
<td>Actuarial standards of practice</td>
<td>Actuarial Standards Board (ASB)</td>
<td>The ASB is separate from the SOA and AAA, and sets the standards of practice that provide guidance to the actuarial profession.</td>
</tr>
</tbody>
</table>

### Where to Learn More

Please contact your Aon Hewitt actuary for detailed information on these new mortality tables, including a specific look at how your plan may be affected by the changes outlined in the SOA reports.
Appendix

At a Glance: The Change in Life Expectancy

Underlying the new SOA mortality tables is an increase in life expectancy that has been observed across the broad population of the United States since the last SOA mortality tables were published. As life expectancy increases, so does the cost of certain benefits such as pension annuity payments and subsidized retiree medical coverage, since those benefits are expected to be paid over a longer period of time. Such cost increases can have a significant impact on the sponsors of those benefits.

When estimating the cost of benefits, life expectancy is determined based on mortality assumptions. Those assumptions have changed over time, sometimes lagging actual experience. The charts below demonstrate these changes by comparing total life expectancies in 2014 for individuals at various ages based on the new SOA mortality assumptions and the previous generation of assumptions issued in 2000. Note that these life expectancies are based on the aggregate tables and not the collar- or amount-specific versions.

Increases in Life Expectancy

<table>
<thead>
<tr>
<th>Total Life Expectancy by Age in 2014</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Birth</td>
<td>87.3</td>
<td>87.0</td>
</tr>
<tr>
<td>Age 25</td>
<td>86.4</td>
<td>85.5</td>
</tr>
<tr>
<td>Age 35</td>
<td>86.0</td>
<td>84.9</td>
</tr>
<tr>
<td>Age 45</td>
<td>85.7</td>
<td>84.5</td>
</tr>
<tr>
<td>Age 55</td>
<td>85.7</td>
<td>84.1</td>
</tr>
<tr>
<td>Age 65</td>
<td>86.4</td>
<td>84.6</td>
</tr>
<tr>
<td>Age 75</td>
<td>88.6</td>
<td>86.6</td>
</tr>
<tr>
<td>Age 85</td>
<td>92.4</td>
<td>90.9</td>
</tr>
</tbody>
</table>

Change from Old to New Tables

- Females: 5.5, 4.5, 4.2, 3.8, 3.3, 2.4, 1.7, 1.0
- Males: 3.0, 2.6, 2.5, 2.2, 2.2, 2.0, 2.0, 1.3

Increase in 2014 life expectancy

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.
Financial Impact on Plan Sponsors

These new mortality assumptions will affect plan sponsors differently depending on a variety of factors including participant demographics, current assumptions, and plan design.

Participant Demographics

Naturally, the distribution and makeup of the population will influence the assumptions’ financial impact because the improvements in mortality vary by age, gender, and several other factors. Like the old basis, the new mortality basis continues to offer differentiated tables for white collar and blue collar workers, although the magnitude of the change may vary between them.

Current Assumptions

While the IRS dictates the mortality assumptions used for pension funding, organizations have some choice in the assumptions they use for financial accounting purposes. A recent survey showed 80% of organizations tied the mortality assumption used for financial accounting to the assumption used for funding. However, some organizations have made changes in advance of the announcement of the new assumptions in order to mitigate the large one-time increase in plan liabilities and expense anticipated from these two reports. For example, 15% of organizations have adopted a version of the interim mortality improvement assumption (Scale BB, published by the SOA in September 2012).

Plan Design

A pension plan that defines benefits in the form of a lump sum—such as many cash balance and pension equity plans—has less exposure to the changes in life expectancy of plan participants than traditional pension plans that define benefits as an annuity payment. By defining a retirement benefit as a lump-sum amount, changes in post-retirement longevity do not affect the current value of the benefit. The proposed changes will have a much more dramatic effect on the sponsors of traditional plans than on the sponsors of lump sum-based plans.

Employers that offer subsidized retiree medical plans, especially those that have not implemented subsidy caps, could be hit hard by these changes. For example, the percentage impact on liabilities for uncapped post-65 medical coverage could be double the percentage impact on a final average pay pension plan covering the same population, due to the indexation of such medical benefits.

It is important to note that the RP-2000 and RP-2014 mortality tables represent benefits-weighted mortality rates, which are appropriate for most pension valuations. As noted in the RP-2014 final report, the use of headcount-weighted mortality rates may be more appropriate for plans in which benefits do not vary significantly among participants, such as retiree medical plans with flat-dollar subsidies.

Sample Analysis

Aon Hewitt has performed a sample analysis of the expected increase in pension plan liabilities in a final average pay plan to illustrate the effect of adopting the RP-2014 tables projected with Scale MP-2014. The information following is illustrative only, and the results for a specific company could vary greatly from those shown.
The following assumptions were used in this illustration:

- The plan offers payments only in the form of an annuity; there is no lump-sum payment option.
- The population is 40% active, 20% terminated vested, and 40% in pay status.
- Current mortality assumptions are based on an aggregate table; in other words, the plan sponsor did not adopt the white collar or blue collar adjustments available with the RP-2000 combined healthy (RP-2000CH) mortality table.
- The liability discount rate is 5.00%.

**Percentage Increase in Plan Liabilities When Moving to the New Aggregate Table**

<table>
<thead>
<tr>
<th>Current Mortality Assumptions</th>
<th>IRS Static Table</th>
<th>RP-2000CH Using Scale AA (Generational)</th>
<th>RP-2000CH Using Scale BB (Generational)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% male and 50% female</td>
<td>7.3%</td>
<td>7.2%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

**Other scenarios:**

<table>
<thead>
<tr>
<th></th>
<th>IRS Static Table</th>
<th>RP-2000CH Using Scale AA (Generational)</th>
<th>RP-2000CH Using Scale BB (Generational)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% male</td>
<td>7.3%</td>
<td>7.1%</td>
<td>3.4%</td>
</tr>
<tr>
<td>100% female</td>
<td>7.4%</td>
<td>7.2%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

The new tables provide greater differentiation between mortality for white collar and blue collar workers than their RP-2000 counterparts, with expected mortality rates for blue collar workers being higher than those for white collar workers (producing lower liabilities). This may lead more plan sponsors to consider adopting these adjusted mortality rates, especially those with meaningful percentages of blue collar employees in their plans.

**Percentage Change in Plan Liabilities When Moving From New Aggregate Table to Collar Tables**

<table>
<thead>
<tr>
<th>Move to:</th>
<th>White Collar</th>
<th>Blue Collar</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% male and 50% female</td>
<td>3.1%</td>
<td>-2.3%</td>
</tr>
</tbody>
</table>

**Other scenarios:**

<table>
<thead>
<tr>
<th></th>
<th>White Collar</th>
<th>Blue Collar</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% male</td>
<td>3.6%</td>
<td>-2.9%</td>
</tr>
<tr>
<td>100% female</td>
<td>2.7%</td>
<td>-1.7%</td>
</tr>
</tbody>
</table>

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The changes shown above are in addition to the impact of moving to the new aggregate table, so the full effect is cumulative. For instance, suppose a plan sponsor uses the IRS static table today, even though it has a primarily blue collar population. Also suppose the population is approximately 50% male and 50% female. The overall change in liability would be approximately 5% (calculated as a 7.3% increase to move to the new aggregate table, offset by a 2.3% decrease to move to the blue collar table).

Strategic Opportunities Checklist

These developments have strategic implications for plan sponsors as they look at their pension plans. Plan sponsors should consider the following:

- **Mortality experience may differ.** Plan sponsors should examine their own mortality experience in light of these new assumptions to see if the experience of their own populations suggests a shorter life expectancy than the RP-2014 and MP-2014 basis. If so, sponsors may have the opportunity to mitigate the impact of these dramatic changes by adopting the blue collar table and/or making other adjustments to the new base mortality tables and Scale MP-2014. For plans in which benefits do not vary significantly among participants, plan sponsors should also consider whether the use of headcount-weighted mortality rates rather than benefits-weighted mortality rates may be appropriate.

- **A strategic pension settlement opportunity may exist.** There is a strong likelihood that pension expense will increase sooner than cash requirements or minimum lump-sum values. This creates a strategic settlement opportunity for plan sponsors, because the IRS minimum lump-sum values will be systematically 5% to 10% lower than accounting liabilities for the next few years. Plan sponsors taking advantage of this opportunity should consider what, if any, participant disclosures may be appropriate to alert participants to anticipated future changes in mortality assumptions used to calculate lump sums.

- **Plan administration and other participant modeling.** Pension plans typically offer different payment form options to eligible participants that are calculated based on factors using mortality assumptions. Additionally, while these new assumptions may have less impact on plan sponsors of account-based plans, many organizations and their participants use modeling tools to project retirement income from these plans. Sponsors may need to review the implications of these new assumptions in both situations to ensure plan participants continue to be appropriately informed and treated fairly.

- **Dynamic investment policy in need of adjustment.** In the past few years, many plan sponsors have implemented dynamic investment policies that link their allocation between equity and fixed income to their plans’ funded status. These new mortality assumptions will likely create a one-time change to a pension plan’s funded status, and pension plan sponsors should work with their actuaries and investment consultants to determine the best way to handle such a change.

- **Short-term favorable annuity pricing unlikely.** We expect that most insurance companies have already adopted or will quickly adopt mortality assumptions consistent with the new mortality basis. This should eliminate the possibility of plan sponsors accessing annuity pricing that is lower than that suggested by the new SOA papers.

  Employers will also want to understand the effect the new mortality basis has on their funding and expense, and make appropriate provisions for adoption in the future.
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