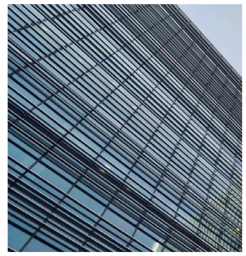
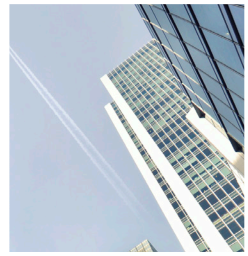
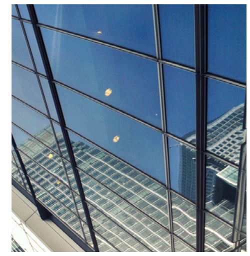
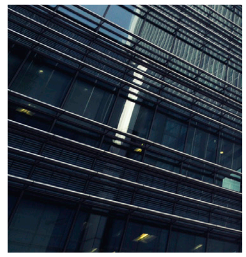

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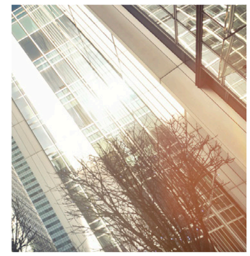


SOA DATA-DRIVEN RESEARCH: HIGHLIGHTS OF OUR REPORT ON THE EFFECTS OF EXTENDING MAP-21 INTEREST RATE SMOOTHING

By Joseph J. Silvestri

The Moving Ahead for Progress in the 21st Century (MAP-21) Act, passed in 2012, eased short-term funding requirements for private sector sponsors of U.S. single-employer defined benefit plans. It modified the interest rates used to measure plan liabilities in a way that deferred required plan funding into future years and reduced the level of funding that sponsors needed to maintain to avoid restrictions on their ability to transfer plan obligations to insurers or offer lump sum settlements to plan participants.

The MAP-21 modifications limited smoothed interest rates to a percentage range around a 25-year historical average of interest rates. Given the disparity between long-term and short-term historical interest rates in 2012, the new interest rate smoothing provisions increased the average of interest rates used to calculate funding requirements from approximately 5.40 percent to 7.03 percent. This, in turn, greatly reduced contribution requirements for 2012 and the prevalence of benefit restrictions that otherwise would have occurred. The effects of the MAP-21 smoothing provisions were expected to phase out over several years as the historical average gradually declined and the percentage limits were scheduled to expand, thereby lowering the "floor" interest rates.[1]

CONTINUED ON PAGE 6

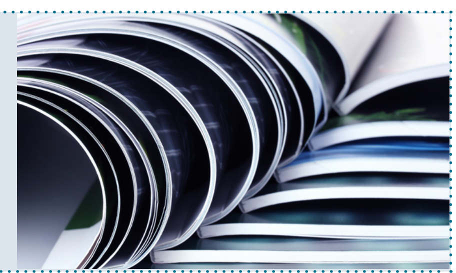
PENSION SECTION NEWS

Published by the Pension Section Council of the Society of Actuaries

This newsletter is free to section members. Current issues are available on the SOA website (www.soa.org).

To join the section, SOA members and non-members can locate a membership form on the *Pension Section Council* Web page at *http://www.soa.org/pension/*

Have an article you think will be of interest to others in the Pension Section?
You can email them to the newsletter editor at *martin.mccaulay@hq.doe.gov.*



CHAIRPERSON'S CORNER

By Aaron Weindling

I'm writing this on the flight back from Toronto, where the Pension Section Council just met. We welcomed our three new members (David Cantor, Grace Lattyak and Judy Ocaya) and thanked those whose terms have reached their end (Azita Bassiji, Claudia Baxter and David Driscoll). I am particularly grateful to Azita for her leadership of the group over the past year. I appreciate the opportunity to have observed her and her predecessor, Faisal Siddiqi, perform this role over the past couple of years. Despite this, I confess to being somewhat apprehensive about both assuming the role of chair and about writing these columns.

Aaron Weindling, FSA, EA, MAAA, is a senior consulting actuary at Towers Watson. He can be reached at *aaron.weindling@towerswatson.com.*

I've now been a pension actuary for about 20 years. In my early years, the environment for pension plans was fantastic. Capital market outcomes were favorable, plans were well-funded, additional contributions were often not required and plans even generated income for their sponsors. That was all I knew. I didn't appreciate the exceptional nature of these conditions. As a junior actuary, I was also soaking up (and accepting unquestioningly) the teachings of those around me. It seemed that sound—perhaps even infallible—approaches to designing, valuing and managing retirement plans were clearly established. My task was just to absorb and apply this knowledge.

But as Bob Dylan sang, "Ah, but I was so much older then. I'm younger than that now." Circumstances and introspection have led many actuaries (including me) to collectively question what we once thought certain. This is inherently an uncomfortable process, but I believe it to be both necessary and healthy. In most scientific endeavors, new observations lead to modification of prior explanations and theories. That doesn't mean that earlier ideas were devoid of value, and it shouldn't bring shame to those who developed and applied them. Copernicus and Newton weren't idiots, even though their theories have been amended over the centuries. We must also feel empowered to examine without defensiveness, the successes and failures of what we have championed, to move forward confidently and to apply newly acquired knowledge in our work.

RISK SHARED PLANS ACTIVITY

This perspective has influenced the council to select "shared risk" plans as an area of emphasis in the coming year. These plans live along the spectrum between traditional DB plans and traditional DC plans. At the 2014 SOA Annual Meeting & Exhibit, a series of four sessions was designed to address various aspects of shared risk plans:

- Global Programs
- Actuarial Considerations
- Best Practices
- The Future of Risk Sharing

We think that this is only the start. Many more retirement systems can be envisioned (and have been implemented) than we typically consider. Not all of these designs are compatible with the current legislative framework of every country, and that can make their study less immediately applicable for day-to-day work. But exploring this topic can still present valuable lessons. It makes clear that some design aspects we take for granted are actually choices, and alternatives can exist. It leads to a more informed discussion about what stakeholders truly want from our retirement systems. It may illuminate ways in which changes that are permitted under current law can align plans more closely with objectives. And it encourages us to be more effective contributors to a dialog about how to re-shape the retirement systems for the future.

OTHER COUNCIL ACTIVITY

These sessions are only four of more than 20 sponsored by the Pension Section. The development of meeting sessions and webcasts are the mission of our Continuing Education Team. After only a short break, the team will start planning for next year's meeting. This involves identifying session topics, recruiting speakers and arranging the development of material. The team also coordinated the recent Investment Boot Camp for Pension Actuaries sessions in Chicago and Toronto. It is also finalizing the topics for the coming year's webcasts.

Our recent council meeting also included updates on about twenty research projects. These span a range of topics including assumptions, plan design, valuation approaches, the impact of longevity, and societal impacts. The Research Team, along with its associated project oversight groups, oversees the execution of selected projects from beginning to end.

The third major team is the Communications Team. This group is responsible for sourcing and making available information of interest to our members. Current publications include the *Pension Section News*, *Pension Forum*, and a series of podcasts.

The Pension Section Council also works closely with various other committees, task forces and professional organizations. We received updates from the Committee on Post-Retirement Needs and Risks and the Pension Finance Task Force.

PROVIDE INPUT

All of these functions are performed by a diverse group of pension actuaries. We share the goal of trying to further the mission of the Pension Section, which "encourages and facilitates the professional development of its members through activities such as meetings, seminars, research studies and the generation and dissemination of literature in the retirement field."

We'd appreciate your feedback. Please feel free to reach out to me or any other council member. Let us know what you would most benefit from. And also consider whether you'd like to participate in any of these efforts. I'm sure that we'd find something that's compatible with your interests and your availability. ■

Pension Section News Seeking Co-Editor

Are you looking for a way to get more involved with the Pension Section? This may be the opportunity for you! The Pension Section Council is looking for a co-editor for its section newsletter, *Pension Section News*. The section newsletter is one of the most identifiable links between the Pension Section and its members. The newsletter articles help keep members current on the latest developments in the area of retirement plans. The newsletter also gives its editors an opportunity to network with section members, share knowledge on pension issues and trends, and gain experience working on a publication team.

As a co-editor, you'll work on:

- Recruiting articles
- Meeting deadlines (the section publishes three newsletter issues a year)
- Editing articles
- Writing articles
- Working with SOA staff editors (design, final editing and production is performed by SOA staff)
- Technical review (when necessary)

For more information on the position or if you are interested in volunteering for this co-editor position, please contact Sue Martz *(smartz@soa.org)* or Andy Peterson *(apeterson@soa.org)*.

At several points during the last year, the United States Congress has contemplated an extension of the MAP-21 corridor.[2] The proposed changes are often referred to as an "extension" because they would extend the period of time during which the percentage limit around the 25-year average would remain at 10 percent. (See Exhibit 1.) The implications of such an extension would, in general, be similar to the implications of the original provisions—near-term contribution requirements would be deferred and the prevalence of benefit restrictions would be reduced. The specific effects would, however, differ from the effects of the original provisions as the circumstances of the single-employer system have changed since 2012.

The SOA's Data-driven In-house Research (DIR) group recently investigated the specific effects of temporary (five-year) and indefinite extensions of the 10 percent "corridor" limits. Using 5000 market simulations[3] provided by Barrie and Hibbert, a Moody's Analytics company, and a modified version of the PBGC's Pension Insurance Modeling System (PIMS), we projected the effects that these alternative corridor limits would have on statutory interest rates and funding requirements.

As expected, the narrower corridor would increase interest rates used in the calculation of funding requirements for several more years. For example, we estimated that the weighted average of interest rates used to measure funding liabilities for plan years beginning in 2014 would increase from 5.82 percent (using the originally scheduled 20 percent corridor) to 6.51 percent (using the extended 10 percent corridor). While this 69 basis point increase may seem small relative to the 163 basis point increase that occurred in 2012, it is still 207 basis points higher than the 4.44 percent interest rate that would have applied on the pre-MAP-21 basis (a 24-month average).

An extended 10 percent corridor would likely prolong the phase-out of the corridor's effects. In 2012, we estimated that significant effects of the MAP-21 corridor would phase out by 2016. In more than half of our Jan. 1, 2014 simulations,[4] the weighted average interest rate rose above floor levels by 2018 if the 10 percent corridor is extended five years and by 2019 if it is extended indefinitely. While these results may seem to imply that there is little difference between a five-year and an indefinite extension of the 10 percent corridor, they do not illustrate the full range of potential scenarios. Our analysis also found that a 10 percent corridor modified plan year 2026 interest rates in 61 percent of the simulations and an expanded (30 percent) corridor modified rates in 9 percent of the simulations that year. Thus, comparisons of corridor alternatives over more than a few years should consider a range of potential interest rate scenarios beyond a single expected scenario.

As noted previously, any extension of the 10 percent corridor would have the same general effects on funding requirements as the original MAP-21 corridor. The temporary boost in interest rates would defer required funding and reduce the prevalence of benefit restrictions for some period of time. Naturally, the period of time would be related to the additional time that the interest rates used to measure liabilities for these purposes remain at the corridor floor. If rates remain at floor levels for two more years, as described above, required funding would generally take two more years to catch up to the level it would have reached using the original corridor. Using average assumptions based on the Barrie and Hibbert simulations, the system would reach 99 percent funding in 2023 if the corridor remains as originally prescribed and 2025 if the 10 percent corridor is extended five years.

Though an extension of the 10 percent corridor would reduce the prevalence of benefit restrictions, we expect the effect to be small relative to the original corridor. We examined the portion of defined benefit liabilities considered better than 80 percent funded on the applicable statutory basis because the restrictions begin to take effect below the 80 percent threshold. We estimated that 94 percent of outstanding liabilities in 2014 would be considered better than 80 percent funded on the statutory basis if the 10 percent corridor is extended, whereas 92 percent would be considered 80 percent funded if the corridor remains unchanged. Because a large portion of liabilities would be considered above the 80 percent threshold with the original corridor in place, the narrower corridor had little effect on reducing the prevalence of restrictions.

Since we first analyzed the effects of the MAP-21 corridor in 2012, PBGC premium rates have attracted a lot of attention. Recognizing that deferred funding comes with increased premiums, we added an estimate of the potential effect that deferred contribution requirements could have on PBGC variable premiums. If all sponsors maximized their deferral opportunities in our deterministic scenario, we estimated that they would pay a combined additional $10 billion in PBGC variable premiums as a result. Unlike deferred contribution requirements, which move a plan sponsor's terms of payment from one time period to another, increased premiums are a true cost to sponsors. As such, sponsors may want to carefully consider whether it makes sense for them to defer contributions to their plans, weighing, for example, the certainty of the value they hope to extract from deferring contributions against the certainty of increased PBGC premiums.

An indefinite extension of the 10 percent corridor is much more likely to have longer-term implications for funding of the single-employer DB system than an expanding corridor would have. I noted earlier that a permanent 10 percent corridor affected six times as many interest rate simulations as the expanded 30 percent corridor. As such, the interest rates used to target plan funding levels would, over the long-term, bear a stronger resemblance to the very stable 25-year average of interest rates if the 10 percent corridor is effectively made permanent and a weaker resemblance to the 24-month average, which tracks movements in interest rate markets more closely.

Shifting the interest rate basis used to calculate funding requirements from a 24-month average to a 25-year average would alter the existing balance between maintaining stable funding targets and funding plans to market-consistent levels. Our analysis included a brief table to demonstrate this effect. (See Table 1) Relative to a 30 percent corridor, a 10 percent corridor would approximately halve the average year-to-year change in interest rates used to calculate funding targets, making funding targets more predictable. The 10 percent corridor would also increase the variability of the system's funding level over the long-term, which affects the security of benefit promises.

Table 1

Corridor Effect on Interest Rate Stability and Funding Level	Average Change in Stabilized Interest Rates from 2025 to 2026	Likelihood System Is Less Than Funded[1] in 2026	Average Funding Gap in 2026 when System is Less Than 99% Funded[5] (Adjusted for Inflation to 2014)
30 Percent Corridor Limit	0.21%	46.8%	$284 billion
10 Percent Corridor Limit	0.12%	52.4%	$330 billion

The actual effects of an extended 10 percent corridor will depend on sponsor decisions about when and how to fund their plans. We analyzed the effects that an extension would have on required funding levels and found

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that—in the short-term—sponsors would gain greater flexibility in how they time their plan contributions as a result of any extension. Experience since 2012, when the corridor was first implemented, has shown that a significant number of sponsors did not take advantage of the more flexible contribution requirements offered at that time. Returns on plan assets since 2012 have mitigated much of the underfunding that existed at the beginning of 2012, which may reduce the demand for greater contribution deferral opportunities. Finally, the cost of deferring plan contributions continues to rise—at least in terms of variable premium payments. Nonetheless, some plan sponsors will find the ability to defer more contributions useful. As a result, a five-year extension of the 10 percent corridor would cause funding of the single-employer defined benefit system to lag several years behind current standards and continued extensions would have less predictable effects. ■

ENDNOTES

1 See the SOA report on Proposed Pension Funding Stabilization for projections and a more detailed description of the MAP-21 provisions.

2 As of this writing, an extension of the MAP-21 corridor is included in a bill to fund the Highway Trust Fund.

3 The market simulations were calibrated to and projected from conditions as of Jan. 1, 2014. We used historical data for pre-2014 experience.

4 It is important to note that interest rate movements through the first half of 2014 have been in the lower range of our simulations. Lower than expected interest rates would prolong the effects of any corridor alternative, relative to our estimates. It would also increase the disparity of effects between the original and extended corridors.

5 Funded ratios are based on the market value of assets and the present value of accrued benefit payments, which are discounted on the corporate spot curves underlying the stabilized interest rates.

A VIEW FROM THE SOA'S STAFF FELLOW FOR RETIREMENT

By Andrew Peterson

Happy New Year! Is it possible that it is already 2015?

In this issue's "Chairperson's Corner," Aaron Weindling highlights the initiatives of the Pension Section Council and the different operational teams. As with any member-driven organization, the activities sponsored by the Pension Section only happen with the efforts of a strong core of volunteers. Aaron mentioned the names of both the outgoing and incoming council members. Beyond that, we have a core of ongoing council members (listed in the inside cover of this newsletter) and a whole host of other volunteers who serve on the other teams (Continuing Education, Research and Communications), not to mention those that serve on the Committee on Post-Retirement Needs and Risks, the Pension Finance Task Force (jointly sponsored with the American Academy of Actuaries) and one-off projects like research project oversight groups and more. As the staff partner to the Pension Section, I have the privilege or working with and getting to know a number of our SOA volunteers and I would like to publicly thank all of them for their service to the SOA and the actuarial profession over the last year.

In addition, I would like to also specifically recognize the work of the Retirement Plans Experience Committee (RPEC) volunteers, many of whom volunteered on the committee for the duration of the five year time period that it took to develop the new RP-2014 and MP-2014 mortality tables and projection scales. Their volunteer service has been herculean, particularly in this last year when the tables moved from exposure drafts to final reports. While I won't recognize them individually here (their names are in the reports if you are interested), I want to publicly thank them for their service to the profession, in what was often a thankless and underappreciated role.

As we start a new year, I'd like to highlight the 2015 webcast series that the Pension Section will be sponsoring. The dates and currently planned topics for our core series follow in the table below and we expect to add a few more webcasts as specific hot topics develop.

Date	Topic
February 18, 2015	LTC & the Intersection with Retirement Security
April 22, 2015	Derisking or Risk-Shifting? Perspectives of Different Stakeholders
June 24, 2015	Creating Better DC Plans
August 12, 2015	Mortality Improvement Issues
October 7, 2015	Risk Sharing Plan Designs
December 17, 2015	Ethics in a Pension Context

We also are working on plans to again offer our one-day "Investment Boot Camp for Pension Actuaries" seminar based on the good feedback we received from the initial offerings in Chicago and Toronto in 2014. More details on that will be forthcoming.

Finally, if you think you would like to give back to the profession through volunteering, we have opportunities available, from short-term project-based opportunities to 1-3 year commitments participating on our operational teams. (Our Communications Team, in particular, could use additional members right now.) If interested in volunteering, feel free to contact me for more information. Again, Happy New Year! ■

Andrew Peterson,
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LIVING
to 100

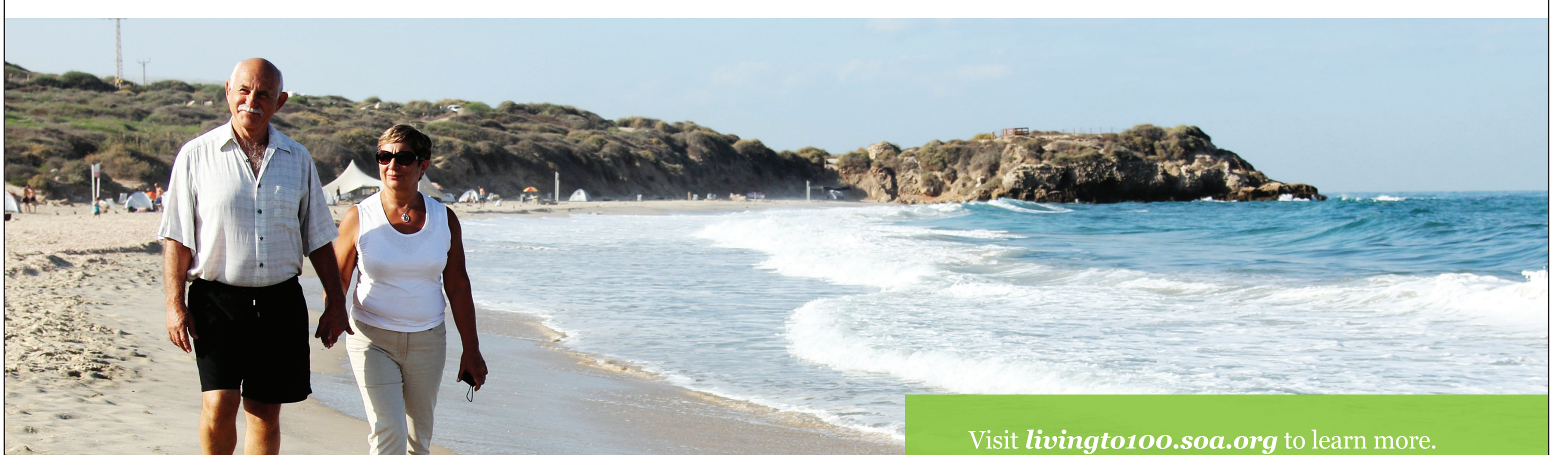
SOCIETY OF ACTUARIES
INTERNATIONAL SYMPOSIUM

2014 Living to 100 Symposium Monograph

Presentations from the 2014 Living to 100 Symposium are now in an online monograph at ***livingto100.soa.org***. The symposium brought together thought leaders to discuss the latest theories, research and implications on longevity and quality of life. Topics discussed included:

- The evolution of retirement;
- Work flexibility for a graying workforce;
- Business implications of living longer;
- Lifestyle and longevity; and
- Mortality trends and projection methods of older age.

The Living to 100 Symposium featured actuaries, demographers, physicians, academics, gerontologists, economists, financial planners, researchers and other professionals. This monograph will help to continue the conversation about how to address living longer, the impact to social support systems and the needs of advanced-age populations.



PERSPECTIVES FROM ANNA

THINKING ABOUT THE FUTURE OF RETIREMENT AND OF EMPLOYER SUPPORT FOR RETIREMENT

By Anna M. Rappaport

The 2014 Pension Research Council annual conference was titled "Re-imagining Pensions: The Next 40 Years." A number of the papers presented have been posted on the Pension Research Council Website. I co-authored a paper with Andy Peterson for the conference titled "Risk Sharing Alternatives for Pension Plan Design." The paper can be downloaded and sometime in 2015, there will be a conference volume published including the papers.

This paper looks at a broad range of risks and a broad range of plan designs, without being limited by current regulatory constraints. It draws on several major sets of research, *Retirement 20/20*, Retirement for the AGES, and the Mercer Melbourne Pension Index for ideas. Some of the ideas are applied in two case studies—the new Shared Risk Pension Plan from New Brunswick, Canada, and the Retirement InSight™ plan from Buck Consultants. One is DB and one is DC. When we merge the background together, it lays a foundation of ideas for the future of a retirement system that will work well. Key ideas from the research foundation include:

- Retirement for the AGES – Four basic principles for a successful retirement system are alignment, governance, efficiency and sustainability.
- *Retirement 20/20* – Pay attention to aligning skills and interests of stakeholders, self-adjusting systems and risk-sharing designs.
- Melbourne Mercer Index – Pay attention to retirement ages, working longer and providing lifetime income.

There has been a major shift from DB to DC, which reduces retirement program risk for the plan sponsor, and shifts that risk to the participant. Such a shift often reduces plan sponsor cost, but it also reduces benefits paid to participants. Such a shift may seem to be a clear win for the plan sponsor, but it is not so simple. Employees may not be able to afford retirement and they may be reluctant to retire. Workforce management problems created for plan sponsors by the shift to DC were discussed by Haig Nalbantian of Mercer at the 2014 Society of Actuaries Living to 100 Symposium, and they were again discussed at the 2014 SOA Annual Meeting & Exhibit. Most traditional DB plans include built-in longer-term disability protection, often in the form of continued benefit accruals. This protection is generally lost when a plan converts to DC and many people working with pension plans forget about this risk. More investigation reveals that longer-term risk management is often out of sight, and that there are other major gaps in risk management.

The paper is a mix of ideas that are "woven together." Some are very basic, and others that seem basic may often be forgotten. I would like to share with you a few of the ideas discussed in the paper. The paper sets forth general ideas for sharing risks. In many discussions of risk sharing we think about risk being allocated between plan sponsors or employers and plan members or employees, but risk can also be pooled among plan members, or shared between different groups of plan members. These methods of risk sharing overlap. Plan design defines the benefits and the obligations of the parties. The financial structure of the plan defines who pays for the benefits and how the cost is shared. Plan design and the financial structure operate together to define how the risk is allocated between the plan sponsor and the plan members. Self-adjusting systems offer methods of adjusting benefits and/or contributions based on circumstances defined by the arrangement. Self-adjusting systems modify the method of risk sharing. Risk pooling spreads risk over participant groups. Plans that cover the employees of more than one employer, or

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early termination of employment. And in DC plans, the plan sponsor has fiduciary risk particularly if the plan is not managed well, workforce management challenges, and the risk that employees will be unable to retire. We need to be careful to focus on the big picture as we think about these alternatives.

The Reimagining Pensions Conference included a number of papers with interesting ideas, and I recommend that readers look at the Pension Research Council website to find them. In 2015, there should be a conference volume including all of the papers. In her paper, "Changing Frameworks for Retirement Security," Olivia Mitchell provides an overview of the content of all of the papers. Don Fuerst writes about Retirement Shares Plans, and David Blitzstein offers new ideas about the role of labor organizations.

cover employees in an industry can be structured to share risk among employers or plan members or a combination. The plan structure again defines the risk sharing. Guarantee funds or third party guarantees, such as insurance, share some of the risk with the guarantee fund or insurer. When we think about this range of potential options for risk sharing and for combining various elements of risk sharing, that opens the question, what options should be available to plan sponsors for structuring of benefits?

One of the other things that Andy and I realized as we wrote the Pension Research Council paper, is that some important ideas are often overlooked as people talk about pension risk. Many discussions of risk focus on investment, interest rate, longevity, and inflation risk. But we should not forget about business risk, the risk of poor decisions, solvency risk, fiduciary risk and public policy risk. How often do you see these risks discussed as well? The traditional discussion of noncontributory DB plans focuses on the plan sponsor risk. But the participant in most private sector plans bears post-retirement inflation risk, the risk that a plan will be modified or terminated, and the risk of

DIFFERENT KINDS OF HYBRID ARRANGEMENTS

Risk adjustment has been applied in practice in the Netherlands, and this was discussed at the Pension Research Council Conference. One of the points made was how difficult it is to apply risk adjustment in practice when the result is a downward adjustment in benefits, rather than just a smaller increase or no increase. In the last *Pension Section News*, a paper on the application of defined ambition concepts in the United Kingdom was discussed by Andrew Vaughn. These ideas have also been applied in New Brunswick, Canada. Andy Peterson and I provide a case study discussion of the New Brunswick Shared Risk Plan. The Pension Section engaged John Turner for an up-to-date review of hybrid plans and that can be found on the SOA website.

There are a variety of ideas and a number of practical obstacles to making them work.

DIFFERENT IDEAS FOR THE FUTURE

We can cluster ideas for the future in several groups.

- Offering new options in DB plans to improve their risk profile for the plan sponsor, and to balance the needs of plan sponsor and plan member in a way that works for both. Our paper shares the New Brunswick case study and there are many more ideas including those used in the Netherlands and laid out in the defined ambition paper.

- Enhancing or supplementing DC plans to improve risk protection and benefit delivery. Our paper shares a case study, and a TIAA-CREF case study is also presented in a Pension Research Council paper. The John Turner paper presents many additional ideas.

- Adding post-retirement benefit management and disability benefits to a DC program.

- Working to get those people not currently covered by the pension system into the system.

While some of these ideas work under existing legislation and regulation in the United States, others do not. The same is likely true in other countries. My suggestion is that future regulatory structures should consider the following:

- Permit both defined benefit and defined contribution plan designs as well as some hybrids

- Don't create unnecessary complexity for the plan sponsor

- Enable and encourage later retirements

- Give plan sponsors access to tools for risk sharing combined with risk pooling, producing a model that is a modification of traditional defined benefit designs

- Mandate effective governance models

- Align interests of stakeholders

- Encourage and enable self-adjusting systems

- Encourage and enable pooling of longevity risk and appropriate management of other risks

- Require a sustainable financial model for all plan structures

- Include fiduciary requirements for plan sponsors

- Authorize mechanisms for small employers to band together.

Policymakers who are addressing the issues of improving the pension system should also keep the following points in mind:

- Policy should encourage and support employer sponsorship of retirement savings.

- Plan options should consider the level of risk to be placed on sponsors and participants and ensure that the risks are appropriate.

- Risk pooling is efficient, but it does not 'create' new money. Rather it allocates the money in accordance with the basic purposes and design of the plan. For risk pooling to work, there must be a reasonably sized pool and a reasonable spread of risk within the pool.

- Plan structures that are authorized need to work for both small and large businesses. Having access to good multiple entity arrangements will be an important factor in making plans available to smaller businesses.

I hope that the readers of this article will use the Pension Section LinkedIn site, and discuss some of their ideas about the future of pensions and how to overcome the practical difficulties in getting there. ■

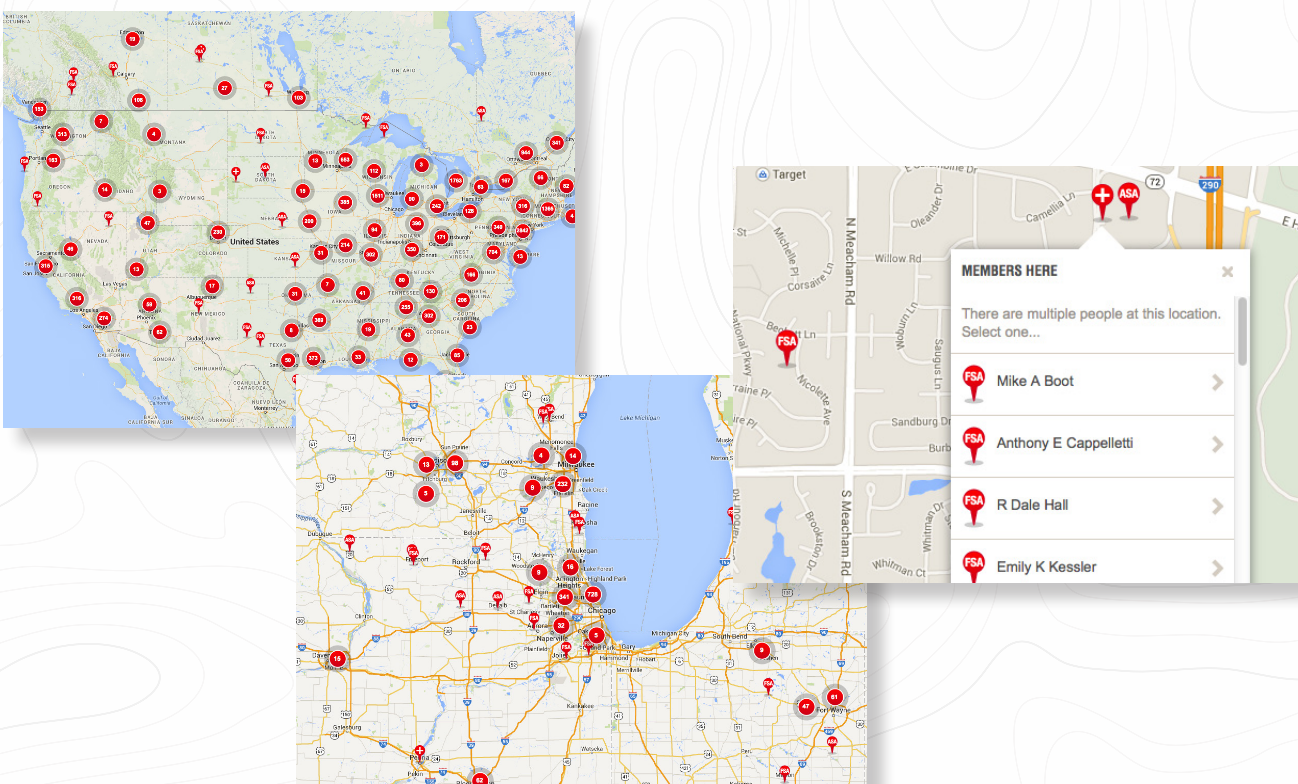
SOA EXPLORER TOOL

Find fellow actuaries around the block or around the globe

The newly-created SOA Explorer is a global map showing you where SOA members, their employers and actuarial universities are located.

- Break down your search by FSA, ASA and CERA
- Click on member pins to find contact information, including LinkedIn and Twitter pages
- Click on employer pins to see SOA members at a particular employer
- Click on university pins to learn about their actuarial programs

To use the SOA Explorer Tool, visit ***soa.org*** and sign in as a member.



THE IMPACT OF BOND DEFAULT RISK ON RETIREMENT BENEFIT OBLIGATIONS

By Steven Draper

Retirement benefits are subject to a variety of risks that must be considered when planning for the future. As actuaries, we evaluate the likelihood of future events. That evaluation sets us apart from other financial professionals. We combine the present value calculation with the likelihood of payment to determine actuarial present value. But are we accounting for all the risks to retirement benefits?

While this is not standard actuarial practice, it may be time to consider how uncertain bond cash flows are used to develop the discount rate assumption. A comparison to mortality is useful. Even though the chance of death for healthy young employees is very low, reasonable mortality is assumed rather than dismissed as immaterial. This is consistent with our actuarial standards that require a best estimate for each assumption.

Since we take other risks into account, why don't actuaries consider default risk in a bond match? Just as there is a chance that a retiree will not live to receive a retirement benefit 20 years from now, the bond purchased to fund that benefit may not pay its full face value. The following table illustrates parallel risks on both sides of a retirement plan cash flow match.

ASSET/LIABILITY CASH FLOW MATCH

Liability		Asset	
Retiree payment due in 20 years	$1,200	20-year bond face value[1]	$1,000
Probability of survival	80%	Probability of payment[2]	96%
Expected payment cash flow	$960	Expected bond cash flow	$960
Default adjusted discount rate	5.0%	Default adjusted discount rate	5.0%
Interest rate/discount factor	0.377	Interest rate/discount factor	0.377
Present value — pension payment	$362	Market value of bond	$362

[1] Select zero coupon AA bond, $1,000 face value payable in 20 years and market value of $362 (yield of 5.21%).

[2] Probability estimate assumes 25% of a hypothetical 91 bps yield spread over AAA bonds is related to default risk.

In this example, the chance of default is considered as part of the yield to maturity for the bond, so a default adjusted discount rate is used rather than the market yield of 5.21 percent. This is because the market price of a bond includes provision for the default risk. In other words, part of the market yield compensates the investor for defaults that are inevitable on a large portfolio. When using this approach, a gain will result when fewer than expected defaults occur between measurement dates. Losses result when more defaults than expected occur.

US GAAP accounting requires actuaries to value an obligation based on high-quality bonds that could be purchased to effectively settle the obligation. The Securities and Exchange Commission's guidance is that bonds with one of the two highest ratings by a recognized ratings agency should be considered high-quality. This keeps the risk of default low in the short term, but cash flows for actuarial valuations are projected decades into the future. Accordingly, shouldn't we estimate the risk that these bonds may default or be downgraded? The adjustment may be small, but without it, an obligation based on matching projected cash flows to high-quality bonds will only effectively settle the obligation in a world with no risk of the bonds defaulting. Since actuaries specialize in assigning probability to contingent events based on past experience, we are uniquely qualified to study the historical rates of default or downgrade for bonds used to develop retirement discount curves.

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RELEVANT LITERATURE

Relevant actuarial and accounting literature does not proscribe the use of a default assumption, but some references support this approach.

1. **Society of Actuaries resources.** The Society of Actuaries (SOA) has repub-

lished an article on SOA.org dedicated to understanding and using bond yield curves. "Understanding the Corporate Bond Yield Curve," by Hofling, Keisel and Loffler, recommends accounting for default risk in valuing liabilities.

Since the SOA posted this article alongside the Citigroup Pension Discount Curve (CPDC), some actuaries might incorrectly assume that the CPDC has been adjusted to reflect default risk. However, the SOA was not involved in making the CPDC, and the CPDC designers did not contribute to the article. Martin Bernstein, the Citigroup contact for the CPDC, confirmed that no adjustment has been made for default risk. Consequently, actuaries need to determine any appropriate adjustment for default risk.

2. **Accounting literature.** Accounting Standards Codification (ASC) 715 provides helpful definitions to describe the amount needed to effectively settle the obligation. The Discount Rate definition references the Actuarial Present Value definition, which includes both the time value of money and the probability of payment. The discount rate should not be used in isolation without considering probability of payment. Furthermore, ASC 715-35-44 states:

   > *The objective of selecting assumed discount rates using that method is to measure the single amount that, if invested at the measurement date in a portfolio of high-quality debt instruments, would provide the necessary future cash flows to pay the pension benefits when due.*

   Unless the risk-free treasury curve is used, expected bond payments will fall short of face amounts in aggregate. The only way to have expected bond payments equal the projected benefit payments, on average, is to take expected default rates into account.

   Taking the risk of default into account by purchasing additional bonds to make up for the expected loss from defaults is analogous to using a lower discount when calculating the present value of the plan cash flows.

   The accounting literature references rates implicit in annuity contracts that could be used to effect settlement of the obligation, but it then points directly to high-quality bond yields which allows plan sponsors to avoid incorporating the insurer risk/profit premium into their obligation. As a result, plan sponsors are effectively their own insurer and bear the risk that defaults may be higher or lower than expected.

3. **American Academy of Actuaries practice notes.** Actuaries in other practice areas are accounting for default risk in their projections. The public policy practice note, Market Consistent Embedded Values, specifies that default risk should be taken into account when matching asset cash flows to benefit payments.

PRACTICAL IMPLICATIONS

As a practical matter, high-quality bond defaults are infrequent. Losses related to default risk occur most often when a bond is downgraded between valuations. If all other assumptions were met perfectly, the bond will still match the projected cash flows. However, assuming the market price included the probability of an impending downgrade, the bond will be likely replaced by a lower-yielding AA-rated bond, resulting in a liability loss.

The SOA website explains that a similar event occurred in June 2012. The yield of the Citigroup Pension Liability Index (CPLI) dropped by 0.20 percent because bonds issued by five banks were downgraded and removed from the CPLI.

What can actuaries do to balance the risk of gains and losses? One approach might be to select the highest-quality bonds among those in the AA rating class such that the risk of a downgrade to an A rating is offset by the risk of an upgrade to an AAA rating. This approach would minimize losses from downgrades or defaults, but may not completely eliminate them.

Another idea would be to develop an assumption for the portion of the yield curve's spread over the risk-free rate that is applicable to default risk and back it out. This leaves intact the portions of the spread attributable to other factors such as the liquidity premium and the default risk premium.

The consideration of bond default risk on retirement benefit obligations may offer a possible area for improvement in pension and retiree medical actuarial practice. Moving forward, those with deeper expertise may examine it further and propose solutions. ■

The views expressed are those of the author and do not necessarily reflect the views of Ernst & Young LLP.

RETIREMENT INCOME PLANNING: AN INTERVIEW WITH DAVID A. LITTELL

By Anna M. Rappaport

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The New York Life Center for Retirement Income (the Center) at The American College provides retirement income education for financial advisors. Much of the work of the Center is a video library freely available at the website. Many of the videos will be of interest to actuaries. In addition, the Center has been a driving force behind the Retirement Income Certified Professional (RICP®), a professional designation for financial advisors. This is an interview with David Littell, the Director of the Center and the manager of the RICP program.

WHAT ARE MAIN GOALS OF THE CENTER?

The primary objective of the Center is to elevate the knowledge of financial service professionals so that they can better serve their clients. Through our website we provide basic information for those new to retirement income planning, as well as cutting edge ideas through over 300 short video interviews with experts in the field. We also think it is important to create a community of credentialed advisors who have gone through a rigorous educational process and supported the creation of the RICP® designation. We have also begun sponsor research and recently completed a retirement income literacy survey, discovering that older Americans do not have a good grasp of basic concepts.

WHO CAN USE THE MATERIALS FROM THE CENTER?

The video library is freely available to anyone who is interested in retirement income planning. The content is available at our website as well as on YouTube. We encourage use of the material, and videos can be linked and embedded in other websites, and can be used as training material.

WHICH TOPICS MIGHT BE OF THE MOST INTEREST TO ACTUARIES?

We cover a wide range of topics relating to retirement income planning so every actuary should be able to find material of interest. More specifically, actuaries may be interested in the many videos discussing the range of income strategies that advisors are using today, or the robust section on when to claim Social Security benefits. Areas that can be important to a retirement income plan that actuaries might want to learn more about include tax planning, long-term care planning, and using reverse mortgages in a retirement income plan.

ARE THERE ANY PARTICULAR VIDEO SEGMENTS YOU WOULD LIKE TO HIGHLIGHT?

I'll mention three. First, I like the interview with Bob Klein in which he compares deferred income annuities with indexed annuities that have guaranteed withdrawal benefit riders—both cost-effective approaches to buying guaranteed lifetime income prior to retirement. Second, I think Wade Pfau's discussion of "Safe Savings Rates" changes the way we should look at saving for retirement. Third, this interview with Manish Malholtra provides a retirement income case study showing how to approach choosing an appropriate retirement income plan.

ARE ANY ACTUARIES INCLUDED AMONG THE EXPERTS INTERVIEWED?

We have interviewed Anna Rappaport several times, mostly discussing the research of the SOA's Committee on Post-Retirement Needs and Risks. Here is a video in which she discusses research on how people make retirement decisions. She has also discussed the SOA's Retirement Decision Briefs that can be used by advisors to get their clients to consider the right questions before making key retirement decisions.

THERE IS NO PROFESSIONAL CONSENSUS ABOUT MANY POST-RETIREMENT PLANNING TOPICS. HOW DO YOU HANDLE TOPICS ON WHICH THERE ARE DIFFERENT OPINIONS?

Retirement income planning is a relatively new discipline and it's an exciting time in the field as we have a lot of different ideas and strategies being promoted. Both on our website and in the RICP® curriculum, we simply present the range of good ideas, as we see each having something to offer to our growing knowledge base. For example, a long-line of research supports the 4 percent safe withdrawal rate, however it is based on looking at past investment performance. We have other researchers using predictions about future investment returns who have come up with very different results.

I also think different strategies can appeal to different types of consumers so advisors should learn about all of them. Building a retirement income floor makes sense for those that are marginally funded for retirement and are most concerned about meeting basic expenses. On the other hand, maintaining a diversified portfolio and taking systematic withdrawals may work better for the individual who is well funded and is more concerned about leaving a substantial legacy. Another interesting strategy, asset dedication, may be appealing to the individual not wanting to annuitize but looking for more income security. This approach uses the bond portion of the portfolio to guarantee income for a specified number of years.

CAN YOU TELL US ABOUT THE RICP PROGRAM? HOW MANY PEOPLE ARE PARTICIPATING?

The *Retirement Income Certified Professional* (RICP®), is a three-course professional designation for financial advisors, to help them be better prepared to offer comprehensive retirement income planning for their clients. The first course provides a process for building a plan, and the next two courses do a deep dive into the important areas of planning, which include everything from choosing an income strategy to health care and long-term care planning. We also cover two areas in which advisors can provide tremendous value to their clients, when to claim Social Security benefits, and tax planning strategies for the retiree. The curriculum includes many of the video interviews created by the Center, providing students with a wide range of voices and perspectives in the retirement income field. The program has been well received and in two years we have more than 850 advisors who have completed the designation and over 5000 students enrolled in the program. Students have been reporting that they find the material practical and that they can use what they are learning in their practices immediately.

IF SOMEONE HAS INFORMATION THAT THEY THINK WOULD BE OF INTEREST, CAN THEY CONTACT YOU AND ASK TO PARTICIPATE?

Absolutely, we are looking to build and improve the content at the Center and in the RICP® curriculum all the time. We also have the view that retirement income planning should be comprehensive, so all topics relating to retirement income planning are important to us. If someone is interested in participating, they should email me, David Littell at *david.littell@theamericancollege.edu.* ■

ROAD TO IMPROVE PUBLIC PENSION FUNDING

By Thomas B. Lowman

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Disclaimer: The views and opinions expressed herein are those of the individual author and do not represent those of the Society of Actuaries.

Many outside of the public pension arena, including insurance company actuaries, often misunderstand how the role of a consulting public plan actuary differs from the role of an insurance company actuary. The work of the SOA Blue Ribbon Panel provides several examples of this misunderstanding. The chairperson of the Blue Ribbon Panel said that the principal power in governance is the actuary. While that may be true in the insurance industry, it is certainly not the case for public pensions, and I suspect it is not the case for Social Security. However, the opinions of public plan actuaries do have some influence.

Some of the SOA Blue Ribbon Panel recommendations were good, but some showed a misunderstanding of the role of the actuary and also a misunderstanding of the role of the Actuarial Standards Board (ASB). The Panel asked that ASB adopt their policy recommendations. I'll consider four of the recommendations:

1. Funding the actuarially recommended contribution: This clearly is not within the control of the actuary. This is a policy judgment made by elected officials. We may believe politicians are short sighted if they choose to hire more police officers rather than properly fund pensions. However, this requirement to properly fund the plan cannot be an actuarial standard set by ASB.

2. Use Entry Age Normal as the funding method: Again this might be a best practice in most cases but the ASOPs do not set best practices. If we make this a requirement, how do we explain why FASB's Projected Unit Credit (PUC) is bad when it is not? Why ERISA plans use unit credit? How unit credit might be far superior for a variable annuity plan even in the public sector? Certainly some methods are prescribed, but there are many questions about why a particular method would be set as a minimum standard. Pension actuaries familiar with working with these different methods may be better apt to understand these differences than insurance actuaries.

3. Use of median investment returns expectation: I believe this is also a best practice. However, why is the mean return unacceptable and, as with PUC, also a required FASB basis? Could ASB make this best practice a minimum standard? Yes, but the Panel did not present a full case.

4. Solvency supremely more important than level budgeting: This is what I believe to be the largest difference between public pension plans and the insurance industry. The "premium" source for public plans is not as limited as in the insurance industry—though it does have limits. The amount of resources to be allocated to public plans is a political decision, not an actuarial decision. Historically, level budgeting has been more important to governments. I believe plan solvency may deserve more attention than it has been given historically, but the Panel leans too far in that direction at the sacrifice of level budgeting.

The draft of the risk ASOP defines Risk Appetite as "The level of aggregate risk that an organization chooses to take in pursuit of its objectives." The plan sponsor, not the actuary, gets to make this decision. It is not our role to make this decision; it is our role to help sponsors understand the current and future risks. However, there is no free and easy way to do this. I asked the Illinois Department of Insurance to provide the likelihood that an insurance company would become insolvent. I did not expect an answer and I did not get one. Would it be

valuable to know? Yes. Is the information easy to get and something everyone wants to share? No.

If an actuary is an advisor, how can we strengthen these systems when the plan sponsor makes the decisions? The lack of regulation cannot be filled by ASB. ASB can help in some areas but will not be able to fix things like "fund the Actuarially Required Contribution." I suggested to the Blue Ribbon Panel that they recommend drafting model funding and governance language to be adopted by the states just as the NAIC does for insurance. The Panel decided to focus on the ASOPs instead. I don't think model language should look like the insurance rules and I don't think drafting language will be easy to create. It is one thing to write rules to regulate others as the NAIC does for insurance companies. It will be even more challenging for governments to write regulations for themselves.

The Public Plans Community of the Conference of Consulting Actuaries (CCA) has strengthened practice by publishing a White Paper on public plan funding that is directed not only to actuaries but also to plan trustees and plan sponsors. I would like to see public pension actuaries promote this type of analysis and I hope more actuaries, especially those in the insurance industry, embrace my suggestion of model governance language for states to adopt. As we move forward, we need to recognize that all areas of actuarial practice are unique and face different challenges.

Does the ABCD have a role in improving public pension plan funding? While I have served on the ASB Pension Committee, I do not have firsthand experience as a part of ABCD. The one experience I did have with ABCD involved actuarial opinion shopping. I thought ABCD should have taken action. The ABCD can and should do more in this area while still allowing reasonable differences in opinion.

Public pension actuaries need to be central to the solution when it comes to rewriting ASOPs and trying to narrow practice (including things like use of old mortality tables) and actuary shopping. Non-pension actuaries can participate, but they need to understand the differences between pensions and insurance. ■

IMPORTANT INFORMATION FROM THE LIVING TO 100 PROJECT: SOME COMMENTS FROM A PENSION ACTUARY ABOUT THE IMPLICATIONS OF LONGER LIVES

By Anna M. Rappaport

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The Society of Actuaries Living to 100 symposia offer a mixture of research about increasing life expectancy, high age mortality data and modeling issues, and the societal implications of longer life. There have been five symposia to date in 2002, 2005, 2008, 2011, and 2014. A research report is available on the SOA website that summarizes the first four symposia, and includes abstracts of all of the papers presented. The report identifies common themes throughout the symposia series and describes areas of agreement and disagreement.

Monographs have been published from each of the five symposia as a permanent record both the papers and write-ups of the panel discussions. The 2014 symposium monograph (which includes all papers and panels) has just recently become available and I suggest you browse through it to find content useful for you. This article focuses primarily on the 2014 symposium and on the discussion panels that focused on societal implications of longer life, particularly implications for business and human resources. I moderated both of these panels.

Another useful resource: While this article is primarily about implications for business, pension actuaries will be particularly interested in the paper on "Mortality Projections for the Social Security System of Canada," from the Office of the Chief Actuary, in Canada. This paper provides insights into (much larger than I expected) mortality differences between the U.S. and Canada. (General Session V)

Pension actuaries are very interested in mortality projections and much was discussed about them in the 2014 symposium. As this topic has been reported elsewhere, it will not be discussed in this article.

PANEL ON BUSINESS IMPLICATIONS OF LONG LIFE

What are the business issues linked to longer life spans? Several of the panelists offered different perspectives on this topic. Nigel Nunoo from the Prudential noted "When the pension plan gets in the way of the business plan, leading companies around the world turn to pension risk transfer." Sally Hass, a workforce strategist and financial educator pointed to factors that influence whether an employer is willing to adapt to an aging workforce. They include the adequacy of incoming talent to meet company needs, the profitability of the company and rate of growth, the culture and values, the type of business, and the age of the company and its leadership. Haig Nalbantian from Mercer offered different views of business needs and a perspective on when it is important for the business to adapt. He contrasted companies with talent shortages to those companies that currently are experiencing slow growth and maintain a talent strategy oriented to building from within. Companies with talent shortages need to retain experienced people that might otherwise retire while the slow-growth companies with a build strategy need to avoid delayed retirement. In the absence of growth, the build-from-within strategy does not work well unless opportunities open up.

As we think about employment, companies face considerations both with regard to retaining longer service people, and providing an attractive environment for them. Furthermore, they need to consider whether to hire older people as new employees or temporary employees. Tim Driver, President of RetirementJobs.com provided perspective on why businesses hire older people. They have experience and life skills, and can offer a quick response staffing solution. They are often productive immediately, particularly where there is lot of knowledge required for a job. Because of this, they fit well and are used in positions where employers have difficulty in filling the job. They can be extremely helpful in improving customer satisfaction. For organizations with over age 50 customers, older employees are often better at establishing a rapport with these customers. They have lower turnover, and are good at creating goodwill. For some companies, hiring these workers also helps meet diversity goals. While Tim pointed out the many benefits of hiring older people, the panelists recognized that many companies are reluctant to hire older workers and that older workers often have a harder time getting jobs.

MORE ABOUT CHANGING BUSINESS OPPORTUNITIES

The business implications panel (General Session II) focused on areas of business opportunity linked to longer life. As we think about business implications of long life, we want to ask: which areas of business will be affected by an overall older population? My response is many—as people age or change in any way, they will use different products and services. Three areas that will experience big change are health care, financial services and housing. This session's panel included discussions from a sample of three areas for business change: financial services, represented by Nigel Nunoo from the Prudential; employment, represented by Tim Driver from RetirementJobs.com; and housing, represented by Cindy Hounsel, of the Women's Institute for a Secure Retirement. These are just examples to spur further thinking. Messages about these topics were also found in other sessions, and in some of the papers.

Many organizations are responding to longevity risk by changing their pension plans to shift more risk to participants, i.e., they are moving from DB to DC. At the same time, they may also be shedding the risk in existing DB plans. New strategies have emerged in the marketplace to enable organizations to do this. In the panel, Nigel Nunoo told us about some of these strategies and the issues linked to them. He approached this from the perspective of the opportunities for financial services companies. Elsewhere in the monograph, there is another panel about risk management strategies for individuals (Session 5C) and that also offers insights about product approaches. Nigel Nunoo also provided insights about the opportunity for financial services companies to offer products and services to help employees manage funds after retirement. The opportunities exist to help both plan sponsors to support the post-retirement period and to help individuals directly.

One of the consequences of the shift to DC (combined with some of the market volatility of the last 15 years and the decline in housing prices about five years ago) is that many people are trying to work longer. One of the consequences of longer life is that some actuaries and other professionals are pointing to the desirability of people working longer. The second major focus of this panel was on employment, particularly focused on opportunities targeted to older workers. While some people are able to stay on in long-term jobs, and work in their long-term profession, often with former colleagues, many others are not able to do so. RetirementJobs.com offers different types of employment opportunities to older workers, and provides an internet based system for matching jobs and workers. They have also identified and certified age friendly companies. While they offer opportunities to older individuals, such opportunities are not a fit for everyone. Tim Driver told us that some older persons are very prepared for work, whereas others have difficulty, in part because they are not flexible and ready to fit into the evolving workplace. Part of assisting older workers is helping them understand current workplace demands and be better prepared for the evolving workplace. It is important to find job options that bring employers and employees together in a way that fits both of their needs. Different types of work arrangements are one route to this. These ideas have been under discussion for a long time, but the number of employers using them is limited. Tim Driver pointed out older persons may seem well suited for certain types of employment on the surface, but they may be much better suited for other jobs. In turn, employers are more likely to recruit older persons for specific types of jobs, such as bank tellers, other bank personnel, caregivers, cashiers, other retail positions, customer service, sales and nurses. Much more was said about job options which work well in the panel on Human Resources Implications.

It seemed to me that working longer, retiring differently and retiring later were big themes that emerged several times at the 2014 symposium—very different than prior years. Several of the papers picked up this theme as did the Human Resources panel. Two papers, both presented in Session 3B, that should be of particular interest are my paper "How Well Have Retirement Systems Adapted to Longer Life?" and Jonathan Barry Forman's paper "Supporting the Oldest Old: The Role of Social Insurance, Pensions, and Financial Products."

The last big theme in the business implications panel was housing. Cindy Hounsel talked about the importance of people aging in place, and the growing focus on giving people that option. She also talked about a range of housing options, and she talked about the types of community support services that can help someone age in place. I was struck by the very long list of services she described. A number of the services offer growing opportunities, and can be provided by larger organizations, individuals or very small firms. There have been a variety of senior housing options available for a long time. There are multiple attractive options for people with significant resources, but the options are very limited for those with little money. New options are emerging also. Three ideas that are getting increasing attention today are the "village movement," co-housing and naturally occurring retirement communities. The "village movement" provides for people to band together in a neighborhood or community so that they can help each other out, and have a variety of social interaction. There are over 100 villages and they vary in what they do. Housing was also discussed in the panel on long-term care.

MORE ON HUMAN RESOURCES IMPLICATIONS OF LONG LIFE

Session 2C Panel: "Developing a Winning Strategy to Address the Good, the Bad and the Wrinkled of Our Aging Workforce" focused both on challenges and obstacles to older worker employment and on what employers might do in response to longer lives. In addition, it examined how individual needs and interests and employer needs and interests intersect. Age discrimination in employment (including hiring) is prohibited in the United States, but many observers would indicate that older workers face obstacles, and that there is still discrimination against them. While older workers have lower turnover, they are usually believed to have higher health and disability costs. Benefits costs for employers of older workers depend on the structure of the program. Under some pay structures, pay increases with length of service, and longer service employees may be viewed as expensive, particularly if they are in jobs that do not have a lot of specialized knowledge attached to them. In some jobs, 20-25 years experience is extraordinarily valuable, particularly if individuals keep learning and adding to what they know, but others can be fully learned in a few weeks or a year. Where things have changed a lot, institutional and historic knowledge might be very valuable, or it may be a barrier to effective functioning in the new environment. Culture and stereotypes are also a source of bias against older workers in some settings.

The human resources panel focused on barriers to the use of older workers. While the legal structure protects older workers from discrimination, at least on paper, it makes employers concerned about the legal risks and potential for trouble. The panelists indicated that the legal structure inhibits innovation and experimentation, and I believe it is a barrier to hiring older workers. There are both reasons for and concerns about hiring older workers. When a company hires an older worker and it does not work out, there is always the potential for an age discrimination suit. Costs are clearly an issue. Some jobs have stringent physical demands, and the ability to meet them may decline over time. In such jobs, productivity and disability may be a challenge. Technology and the ability of the generations to work well together are also issues. While some older persons are very good with technologies, others find them difficult and are slower to learn new technologies. At all ages, people vary in their flexibility and their willingness to embrace change.

Haig Nalbantian is an economist, and co-leads the Workplace Sciences Institute at Mercer. His discussion confirmed the belief that many actuaries have had for years. Some organizations are experiencing difficulties in talent management as a result of discontinuing their DB plans. As expected, people who have only DC retirement plans tend to retire later. Furthermore, economic conditions influence their retirement timing, and when there are poor economic conditions, that delays retirement. If markets are doing very well, people with larger DC balances may be encouraged to retire earlier in some situations. Haig provided an overview of different analytical approaches to examining the internal labor market within a firm and showed how predictive modeling methods can identify and illuminate challenges related to the aging workforce. These analytical approaches allow organizations to better understand how their programs and benefits influence their businesses as a result of decisions made by employees.

Don Fuerst provided a case study showing how Aerospace Corporation uses its retirees to support its business. Retirees are allowed to work part-time on a limited basis. This is an organization with many scientific people who have hard to replace knowledge, and who are probably interested in working longer. Rehire of retiree programs are much more common than formal programs that allow people to phase down gradually.

Some older persons are not interested in working. Of those who want to work, not all older persons are attractive as employees. The fundamental issue is matching of skills to employer needs. But there are a variety of personal characteristics and workplace habits that help define the individuals who are very hireable and those who are well prepared for new challenges. Tim Driver provided insight into what they find. Some of the characteristics of those who are not prepared for new challenges include poor technology skills, living in the past and being stubborn and set in their ways, and not being willing to take direction from a younger person. Often these people come across as grumpy and entitled. Some of the characteristics of the very hireable individuals include being hopeful and enthusiastic, being a team player, being excited about learning new skills, and being ready for a new experience. Tim Driver emphasized the importance of counseling individuals looking for work to help them better understand what would make them employable.

Sally Hass provided a range of adaptive solutions and innovations that employers may offer. They include flexible work arrangements like retiree rehire, job banks of retirees, part-time employment, change of work assignments, phased retirement, work with a flexible schedule or place, adjustments to benefit eligibility to support work options, time off for caregiving, enhancing Employee Assistance Program offerings to support elder care, long-term care insurance, sabbaticals, leaves of absence, and knowledge transfer programs.

OVERALL THEMES AND MOVING AHEAD

Overall, the 2014 Living to 100 Monograph offers a variety of different discussions about workforce and business issues. There are several themes that emerge:

Population aging affects many businesses and much of society. It creates new opportunities and changes old ones.

As the population ages, working longer is a very big issue—one that is important to individuals and society.

Businesses are very mixed in their response to this idea, but they will need to cope with an aging workforce.

It is important to deal with the barriers to older persons working, and adaptive programs can very helpful.

The long-term impact of DB plans on organizational staffing and business results related to talent is often overlooked when decisions are made.

As actuaries, we play a number of different roles in the organizations we serve and in society as a whole. The information in these panels and papers can be used in a variety of different ways. At a minimum, we should understand the environment in which the systems we are working operate. Such an understanding should inform program design and the assumptions we use for estimating costs and calculating reserves. We may also wish to seek out broader roles. Many aspects of business are affected by changes in demographics and the environment. When this happens, it is important to apply analytical techniques that take these changes into account. This may call for different forms of modeling.

As actuaries, we can also advocate on issues that are of importance to us. Two issues come to mind as I think about the discussions in these panels. First, people and society (and businesses) would be well served if more attention were paid to creating thoughtful job options and using older workers well. Second, when DB plans are looked at and change is considered, sometimes their upsides and long-term impacts are forgotten. We should focus on the upsides as well as the negatives. I hope that more of us will become active as we think about influencing change in our society.

You are encouraged to look at the panel transcripts and papers, and to start discussions on this topic on the Pension Section LinkedIn page. ■

PHASED RETIREMENT FOR FEDERAL WORKERS

by Martin McCaulay

The U.S. Office of Personnel Management (OPM) issued final regulations on Phased Retirement, a human resources tool that allows full-time federal employees to work part-time schedules while starting to draw retirement benefits. Agencies began to send their requests for Phased Retirement to OPM in November 2014. Employees who are eligible for Phased Retirement and want to continue working on a part-time basis may do so with the agreement of their agencies. During Phased Retirement, the employee will receive a partial annuity and will keep accruing additional service credit for their final annuity.

Phased Retirement combines something that is good for the employer and the employee. For the employer, it provides an opportunity to keep skilled workers longer on a part-time basis to allow for more time for succession planning. For employees, this provides the option to retire gradually, and to move from full time employment to a total exit from the labor force in steps. Also, some employees have issues like family members needing care that make it difficult to work full time. The SOA Risk Survey and other research show an interest in gradually moving between work and retirement.

The following questions and answers on Phased Retirement are from OPM's website.

WHAT IS PHASED RETIREMENT?

Employees participating in phased retirement will be paid for the part-time service they continue to provide the government and will receive additional credit for that service toward their full retirement. These employees will also begin receiving annuity payments, consistent with the retirement benefits they were entitled to prior to entering phased retirement status, pro-rated for the portion of the workweek they spend in retirement.

When the Phased Retiree fully retires, the revised annuity calculation will provide pro-rated service credit for additional time worked during phased retirement.

This law incents participants with valuable experience to phase into retirement by providing phased retirees with more income than they would earn working part time, and more income than they would earn by fully retiring. Once these individuals fully retire, they will be entitled to a greater annuity than if they had fully retired at the time of transition to Phased Retirement, but less than if they had continued employment on a full-time basis during the period of Phased Retirement.

WHAT IS THE PURPOSE OF PHASED RETIREMENT?

Phased Retirement will encourage the most experienced Federal employees to extend their contributions to the Nation, and will operate as a tool to ensure continuity of operations and to facilitate knowledge management. The main purpose of Phased Retirements is to enhance mentoring and training of the employees who will be filling the positions of more experienced employees who are preparing for full retirement. It is intended to encourage experienced employees to remain, in at least a part-time capacity, until less experienced employees

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are fully equipped to fulfill the same duties and responsibilities as those employees who wish to retire.

An effective Phased Retirement plan has been a long-sought goal. However, under prior law, the problem was that an individual who was retirement eligible but wished to continue employment on a part-time basis generally had little economic incentive to do so because an employee's potential retirement benefits would often be equal to or greater than their salary would be for part-time employment.

Phased Retirement will in essence permit an individual to retire from part of their employment, while continuing the remainder and continuing to earn additional retirement benefits proportionately based upon the additional less-than-full-time employment.

HOW WILL THE PHASED RETIREMENT PROCESS WORK?

To understand the concept of Phased Retirement, consider two half-time employees who fill one full-time job. Employee one retires while employee two continues working. Employee one receives an annuity based on half-time employment, and employee two continues to work half-time for half-pay. Eventually, employee two retires, and receives an annuity based upon half-time service, including credit for the time worked after employee one retired. Now assume that employee one and employee two are the same person. That is in essence how Phased Retirement operates.

While there are additional computational details, these are the basics. At entry into Phased Retirement, the employee's annuity will be calculated as if fully retired and then divided by two. That annuity would be paid while the individual worked a half time schedule receiving half pay.

When the Phased Retiree fully retires, there will be a computation of the annuity that would be payable if the employee had been employed full time and then divided by two prior to adjustment for survivor benefits. That amount would then be added to the original Phased Retirement Annuity, and that combined amount would then provide the basis for survivor annuity adjustment and benefits.

The individual's income during partial and full retirement appropriately reflects the individual's situation. During the partial retirement period, the income will be between full retirement and full employment, and the Phased Retiree would be increasing their lifetime retirement income. At the time of full retirement, the individual would be appropriately compensated for the value of both full-time and part-time service, with an annuity greater than if they had fully retired at the time of transition to Phased Retirement, but less than if the individual had continued employment on a full-time basis during the period of Phased Retirement. ■

WE'RE NOT FINISHED WITH THE MOVE TO DC RETIREMENT PLANS: HOW ACTUARIES CAN HELP

By Steve Vernon

The move to defined contribution (DC) retirement plans requires participants to be their own investment managers and their own actuaries. As such, they must make three crucial decisions:

1. How much to save while they're working,
2. How to allocate their savings among different investments, and
3. How to make their money last for the rest of their lives in retirement, no matter how long they live and no matter what happens in the economy.

THE BASIC PROBLEM

Unfortunately, this expectation is highly unrealistic; most plan participants don't want to spend the time necessary to learn about the appropriate investing strategies, and many might not have the capability to understand them as well. Behavioral scientist Dr. Richard Thaler expressed this challenge well when he said:

"For many people, being asked to solve their own retirement savings problems is like being asked to build their own cars."

Most people would never want to build their own cars, and they couldn't, even if they tried, but that's not a derogatory judgment on their intellectual capabilities. The same is true of most people when they're asked to be their own investment manager and actuary.

Recent innovations in DC plan design—auto-enrollment, auto-escalation of contributions, and target date funds—have made significant progress toward the first two challenges described above. These innovations still need refinement; plan sponsors must hone the calibration of sufficient contribution rates and the glide paths that are appropriate as participants approach and enter into retirement. But there's not much doubt that the basic concepts have improved retirement security.

The third challenge still needs to be adequately addressed: How can participants use their retirement savings to generate reliable lifetime retirement income? Currently, the most common situation is that retiring employees elect a lump sum payment from their plan, and then they're either on their own to generate retirement income, or they must find a financial planner who can help them. For most plan participants, it's a challenge to find planners who are skilled at generating retirement income and aren't conflicted by the way they're compensated.

THE CHALLENGES WITH GENERATING RETIREMENT INCOME

For participants who manage their own savings in retirement, ideally they'd consider and weigh many quantifiable risks:

- Market/sequence of returns
- Longevity
- Excessively high withdrawal rates
- Inflation
- High fees
- Insurer insolvency
- Liquidity/access to savings
- Inadequate protection for surviving spouse

They would also have the fortitude and discipline to manage considerable behavioral risks:

- Inadequate understanding of the issues that affect income generation
- Temptation to spend more today
- Mistakes, fraud, or cognitive decline
- Poor/biased advice
- Inability to assess and self-execute

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Participants need to make decisions on deploying retirement savings in retirement that reflect the following factors:

- Claiming Social Security
- Existence of defined benefit pension, if any
- Role of continued work
- Expected pattern of living expenses
- Deploying home equity
- Amount of debt
- Level of income taxes
- Threat of high expenses for medical or long-term care
- Desire to leave a legacy

In the real world, it's a rare individual who has both the intellectual capability and the emotional discipline to successfully address these risks and factors. In our modern world, we routinely accept help with complex problems from skilled experts, such as engineers, doctors, lawyers, and accountants, and generating retirement income is an example of such a complex problem.

THREE WAYS TO GENERATE A RETIREMENT PAYCHECK

There are basically three valid ways to generate a retirement paycheck that can be expected to last for life:

1. Invest your savings, and use the investment income—interest and dividends—for retirement income. Principal is left intact.

2. Invest your savings, and withdraw principal and investment income systematically with a method that's intended to make your money last for life, although there's no guarantee, and you might outlive your savings if you live a long time or experience poor investment returns.

3. Buy an annuity from an insurance company, which will guarantee an income stream for the rest of your life, no matter how long you live.

A fourth method of generating retirement income is to structure an income stream for a specified period of time at the end of which savings are exhausted. With this method, either the specified period is such that there's only a small chance of outliving savings, or another stream of income kicks in after the specified period has elapsed, such as a deferred annuity, a.k.a. longevity insurance.

There are many variations on these four retirement income generators (RIGs), each generating different amounts of retirement income and each having their pros and cons. From the participant's perspective, the most important features of RIGs are expressed by the acronym **A-LIFE**:

- **A**mount of initial retirement income

- **L**ongevity protection. Is the income guaranteed for life?

- **I**nflation protection. Is it possible the income will increase to counter the effects of inflation?

- **F**lexibility and potential for a legacy. Can the participant access savings through retirement, and are unused funds available for a legacy after the participant's death?

- **E**xposure to market risk. Is it possible for the income to decrease or stop altogether if investment experience is poor?

There's no "one size fits all" RIG that can successfully address all the above factors, and retirees will need to make tradeoffs between these goals. Retirees will also differ in these areas:

- Tolerance for risk regarding expected investment returns and inflation, depending, in part, on other sources of retirement income as well as the amounts of nondiscretionary and discretionary living expenses.

- Degrees of optimism or pessimism about the economy and capital market returns.
- Life expectancies based on family history and lifestyle.
- The self-discipline required to manage savings in retirement.

HOW ACTUARIES CAN HELP

Actuaries are ideally suited because of their training and professional characteristics to help plan participants address the risks and factors noted above. Some actuaries have chosen to become financial planners for individuals, helping retirees one-on-one and reflecting their unique goals and preferences.

This article, however, advocates another way that actuaries can help: They can design a program of retirement income that can be offered in employer-sponsored DC plans, more easily referred to as "mass customization" of retirement income solutions.

To continue with the previous car analogy, there's a wide variety of cars that meet consumers' varying needs and preferences—think sedan, sports car, minivan, and truck. Most people are able to determine their preferences and buy the car that best fits those requirements without knowing how internal combustion engines work or any of the other science and engineering factors that go into producing an automobile.

Similarly, actuaries can be the engineers of DC retirement plans, designing retirement income packages that meet the different goals and circumstances described above. Actuaries can then work with plan communicators to develop materials that help participants make informed decisions that best reflect their goals and preferences, using simple descriptions of the salient features

of the various options, such as the **A-LIFE** methodology.

HOW THE SOA IS HELPING

The Society of Actuaries (SOA) is currently conducting research to help actuaries design retirement income packages in DC retirement plans. In 2013, the SOA Committee on Post-Retirement Needs and Risks (CPRNR), together with the Stanford Center on Longevity (SCL), published the report, "The Next Evolution in Defined Contribution Retirement Plans: A Guide for DC Plan Sponsors to Implementing Retirement Income Programs." That paper defined the various RIGs, stochastically modeled six basic RIGs to demonstrate their characteristics, discussed the issues and business case for implementing programs of retirement income, summarized the fiduciary issues involved with this issue, contained checklists for implementing such programs, and included a glossary of relevant terms. This report is a good place for professionals to start their learning about this important issue.

In 2014, the SOA/CPRNR and SCL again teamed up to publish the report, "Foundations in Research for Regulatory Guidelines on the Design and Operation of Retirement Income Solutions in DC Plans." This report addresses the legal uncertainty and risk that DC plan sponsors currently face when implementing programs of retirement income. In addition, the SOA/CPRNR and SCL are currently working on a project that will help define retirement income solutions that could be considered optimal, using stochastic forecasts together with efficient frontiers. Initial results of their research should be ready in early 2015. The reports mentioned above can be found on the SOA website.

Until recently, defined contribution plans have been primarily used as capital accumulation plans, without much attention paid to how they'll operate in retirement. Actuaries have a significant business opportunity to help DC plans evolve into true retirement plans that generate sufficient and reliable retirement income. In essence, actuaries can help "pensionize" DC plans in a modern environment. This will help millions of American workers retire with security and confidence. ■

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