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Fundamentals of Private Pensions was first published in 1955. Since then it has been utilized on the exam syllabus and as a helpful resource for pension related issues. The SOA recently spoke with Mark Warshawsky, Olivia Mitchell and Bob Sanford about th ...
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## CHAIRPERSON'S CORNER

*By Penny Bailey*

Since spring is suddenly here (or arguably almost summer), it reminds me of how quickly time is passing. Maybe it's the fact that the winter here in the Midwest was so mild that makes it seem as if everything is running together, but I'm pretty sure I've felt this way regardless of the amount of snow and frigid days between the falling of the leaves and their return. I haven't spoken to anyone in recent months that hasn't complained about not having enough time.

As we think about time passing so quickly, it can be a reminder of our mortality. Who better than actuaries to reflect on mortality and the impact that it has on our work? It comes into play in so much of what we do as pension practitioners—the calculation of our liabilities, the value of the lump sums payable to participants and the need for greater understanding of lifetime income requirements.

The Pension Section Council has several projects underway that are steeped in mortality and longevity issues. Hopefully many of you were able to listen to the May 16 webcast "Building a Framework for Measuring Retirement Income Adequacy." During the webcast, we explored the SOA research paper "Moving Beyond the Limitations of Traditional Replacement Rates." In this paper, the researcher finds that conventional replacement rate targets are not adequate in their traditional role as a tool for retirement planning or evaluating retirement preparedness due to the limitations outlined in the paper. If you did not get a chance to listen to the webcast, I encourage you to check out the paper on soa.org.

Another webcast on mortality issues was also just completed. As I hope most of you are aware, the SOA recently released a new interim mortality improvement scale—Scale BB. Please refer to the article in this edition of *Pension Section News* for a detailed discussion. The June 6 webcast

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sponsored by the Pension Section provided an introduction to the new scale along with an overview of new techniques being used in the analysis of mortality improvement trends. As actuaries, there is an expectation that we are well-versed in mortality issues and this was a great opportunity to ensure you are educated in the latest thinking (a recording can be ordered from the SOA if you were not able to attend the live event).

The Pension Section Council recognized that there is a wealth of information on mortality, but it is sometimes difficult to find the data. As such, a group was formed to help organize the mortality information on SOA.org. If you visit the Pension Section Council mortality resource webpage, you'll find extensive information on mortality topics organized in easy to navigate sections including tables, standards of practice, surveys and introductory articles, mortality models, mortality and socioeconomic status, p-splines/smoothing, mortality and longevity risk, and relevant SOA sessions. For example, an article from *Benefits Canada* entitled "An Age Old Story (Longevity Risk)" discusses quantifying longevity risk along with strategies for mitigating that risk in pension plans. It would be a worthwhile use of CE time to explore the resource webpage and expand your actuarial horizons.

We are also looking for opportunities to partner with the American Academy of Actuaries on its initiative on lifetime income. The Academy has a taskforce jointly sponsored by Life and Pension Practice Councils trying to encourage lifetime retirement savings through different approaches. The council, through the Committee on Post-Retirement Needs and Risk, is considering research to support this effort including a potential project to determine how and why people make decisions to take annuities or not and a review of the barriers to offering lifetime income options in DC plans. You can certainly expect to see more information on this topic in the future.

We all know that there is lack of understanding among non-actuaries about what actuaries do. However, I doubt very many people who have been in the profession for any length of time haven't heard the question "how long am I going to live?" in response to telling someone that they are an actuary. At the root of what most actuaries do, and especially pension actuaries, are mortality and longevity issues. The council is excited to be a part of education and research on this very important topic.

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## NOTES FROM THE EDITOR

*By Raymond Berry*

This edition has a variety of articles and you should make the effort to read all of them. There are also links to more detailed articles if we have sparked your interest in a topic.

Please send us any articles that you feel may be of interest to others in the Pension Section. Just send us a link to the article and we will review the article and also contact the author regarding permission to re-print.

Until recently I thought CMS stood for the Centers for Medicare and Medicaid Services. (Not sure why the acronym is not CMMS.) But CMS also stands for Content Management System and the Society of Actuaries recently used this concept to organize the content of the material on the SOA website, soa.org. Actuaries actually reviewed the documents and assigned them to broad categories. The point is that this effort, along with other changes, greatly improved the search function and capabilities on the SOA website.

If you haven't used the search feature on the website, spending a little time to familiarize yourself will be very worthwhile. There is an advanced search feature for searching phrases and also a "refine your search" feature which can quickly limit the number of documents you need to review to find the item you desire. See the website for details.

In other news, the American Academy of Actuaries recently released an issue brief titled "An Actuarial Perspective on the 2012 Social Security Trustees' Report." As a pension actuary I often get asked about Social Security. This brief will keep you current on the financial status issues.

Thanks to all the authors for their contributions to this issue.

*Raymond Berry, ASA, EA, MAAA, MSPA, is consulting actuary at Alliance*

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# A VIEW FROM THE SOA'S STAFF FELLOW FOR RETIREMENT

*By Andrew Peterson*

In my last column for the February *Pension Section News (PSN)*, I highlighted the importance of retirement actuaries learning more about mortality improvement and longevity-related topics. That theme is continued in this issue in an article I co-authored with Larry Pinzur, the chair of the SOA's Retirement Plan Experience Committee, as we call attention to the recently released Mortality Improvement Scale BB exposure draft report.

While mortality is not the intended theme of this issue's column, that topic also is related to the late-April news made by Ford that I want to briefly highlight. Ford announced a voluntary program to provide lump-sum payouts to salaried retirees and former employees in the United States in exchange for receiving no further payments from the company's pension plan in the future. While it is early going in that program, it has nevertheless garnered much media attention and the attention of other plan sponsors. I wrote a short article for the SOA blog on the topic and there was a healthy discussion on the topic going for awhile on the SOA's LinkedIn group.

In talking with several consulting actuaries, I understand that Ford's announcement is prompting plan sponsors to ask about the implications for their plans. I've also received a suggestion from a pension section member about possible research ideas that might focus on following Ford's experience and the "success" of their de-risking strategy. The Pension Section Council intends to discuss the implications of this announcement for our members at an upcoming meeting.

Finally, in past columns I've mentioned that one of the unique aspects of my staff fellow role is to attend various retirement-related seminars and policy-events. In February I attended an event in Washington, DC

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sponsored by the rather unusual alliance of Covington & Burling, the Pension Rights Center, and the Urban Institute, called "Re-Imagining Pensions: Using Innovative Pension Plan Design to Reduce Risk and Increase Retirement Income." The event was consistent with the themes we (as the SOA Pension Section) have been working on in our Retirement 20/20 project. And similar to our Retirement 20/20 events, the audience represented a wide variety of constituencies including policy-makers, regulators, plan sponsors, unions, employees and the benefits consulting community.

There were three distinct panels that presented specific plan design options with an emphasis on risk sharing and facilitating secure retirement income. For a bit more detail on the context I encourage you to see the separate article in this *PSN* issue or feel free to browse the event website where presentations and video are available.

While there were many interesting presentations, a key observation for me was the level of engagement from key U.S. administration officials. Three administration speakers were Mark Iwry, Deputy Assistant Secretary for Retirement and Health Policy, Department of Treasury; Joshua Gautbaum, Director, Pension Benefit Guaranty Corporation; and Phyllis Borzi, Assistant Secretary of Employee Benefits Security Administration, Department of Labor. Not only did they speak, but at least two of them stayed for the majority of the symposium participating and listening to other panels even after they were finished speaking (not necessarily a usual occurrence based on other events I have attended).

Getting positive solutions for better retirement designs was a key goal of this event, as it is for Retirement 20/20. While I believe that innovation needs to be driven by the private sector, the regulatory framework is a key aspect for enabling and not inhibiting successful innovation. Mark Iwry observed that there may be a need to change statutory rules to allow for more flexibility and called for evidence-based results to move creative ideas forward. The "evidence-based results" is something we as actuaries should strive to provide. As such it was encouraging to me to hear the policy-makers and regulators participating in this event and being open to new ideas. I acknowledge that much work is needed and it can be difficult to move from talk to action. But I am happy to report that the actuarial profession was well-represented at this event and is understood to be a key contributor to better solutions.

I encourage you to review at least one presentation from this event as a way of expanding your thinking.

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# PERSPECTIVES FROM ANNA: FOCUS ON POST-RETIREMENT RISK - UPDATE ON SOCIETY OF ACTUARIES ACTIVITIES

*By Anna Rappaport*

I chair the Society of Actuaries Committee on Post-Retirement Needs and Risks and am proud of its 15 years of research and reports. This column provides an update on some new partnerships and recent projects, and an overview of the committee's accumulated body of work. It also offers some personal perspectives. The research reports, Decision Briefs and papers reflecting the work of the committee can be found on the Post Retirement Needs and Risks web page.

Our work started in the mid/late 1990s out of a concern that not enough attention was being paid to what happened to people and their money *after* retirement. At that time, it seemed that nearly all of the focus on retirement planning was on how much money to save—and how to save it—and not on how that money would ultimately be used. The good news is that today more people are paying attention to the latter, but as luck would have it, the challenges with regard to the former are greater, as many employers have terminated or frozen their defined benefit plans, put the brakes on their company match of defined contribution plans and reduced their support for retiree health benefits.

The economic fluctuations of the last decade have increased the need for individuals to take a greater responsibility for managing their own retirement planning. Working longer can help those who have not saved enough, but nearly half of working Americans retire earlier than planned, often due to job loss, illness or family members needing care. Along the way, we learned that for many middle class Americans, investments in housing were a major part of their assets (excluding the value of occupational defined benefit plans and Social Security) as they neared retirement. To further compound the challenges for some, the recent downturn in residential real estate served to further jeopardize their

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prospects for retirement income security. So, it seems that our work continues to take on ever greater importance and more people seem to be paying attention to it.

My personal goal is for our work to make the world a better place. I want to make a difference and this goal is shared by the many people contributing to the work of the committee.

Our major on-going work is the Society of Actuaries Post-Retirement Risk Survey. This survey focuses on how Americans nearing retirement and those who are already retired view post-retirement risk. As far as we know, it is the only ongoing survey focused on the post-retirement period. Surveys are conducted every two years and combine repeated questions with major new areas of emphasis, chosen for each survey based on current conditions. The project oversight group for each survey selects topics based on what they view as most important and not already covered well elsewhere. Special reports are issued, as deemed appropriate, on these major new areas of emphasis. For the 2011 survey, for example, the special areas of emphasis were the understanding of longevity risk, working in retirement, and the impact of the economy on those nearing and at retirement. Reports on these issues are being released in 2012.

We have had several interesting projects in the past year:

Our work has taught us that there are gaps in knowledge about post-retirement risk. We have also learned as we look around in the broader world that financial literacy is a huge problem. Scientific thinking has shifted from expecting that decisions are made on a rational economic basis, to focusing on understanding other ways that people make financial decisions. Behavioral finance studies such decision making. We are now partnering with the Rand Behavioral Finance Forum to increase our understanding of how people make retirement decisions. This partnership gives us access to some different research data and the potential to test out ideas about financial decision making in general, and retirement-based financial decision-making in particular. Actuaries—whether interested in retirement or any other financially-based area of practice (i.e. all of you)—should check out their web page.

One of the topics we have been exploring with other partners is, unsubtly titled, "Running out of Money." We took a different approach in exploring this topic. We partnered with the Urban Institute and the Women's Institute for a Secure Retirement (WISER). The three organizations gathered a small group of about 15 researchers and experts in program implementation to share insights. The members of the group provided a number of studies and advance reading, and then discussed the key issues and concerns. Some of the discussion was provocative. We will be preparing a report referencing the key information provided and the discussions from the roundtable. The report should be available later this year.

Another topic we have been working on is the "Middle Market" (for those who are not from financial service companies, that means the "Middle Classes.") Some of us believe that our work should be heavily focused on the middle classes. People at the lower end of the economic spectrum rely primarily on public programs, and there is not much we can do that will affect them. (Public policy input from the actuarial profession comes from the American Academy of Actuaries, and not from our work.) At the other extreme, those people who have a lot of wealth are primarily concerned with wealth preservation and tax management. Addressing such issues is outside of the scope of most of what we do. It is the middle class who are trying to arrange a decent retirement for themselves in the face of constrained resources, trade-offs and difficult choices. It is this class we hope to benefit, whether helping people directly as they think through issues, or offering ideas for products or approaches, or providing their individual and communal advisers with useful and important information. Our earlier studies, *Segmenting the Middle Market*, Parts I and II, provided insights and some discussion of key issues and possible areas for strategies. These can be found on the committee web page.

This last project was started in 2011 and builds, to a large extent, on the above themes. Our partners are the Financial Planning Association and the International Foundation for Retirement Education (InFRE), and we are trying to learn how planners approach retirement planning for the middle market and how what they do differs from what they do for those with more money. The Financial Planning Association surveyed its members, and we are working together on focus groups to learn from planners. The report from this project should also be out later this year and will include results of the survey and focus groups.

We are also addressing the middle market through a separate project: *Segmenting the Middle Market* – Part I will be updated using 2010 Survey of Consumer Finances data when it becomes available later this year. The original work on *Segmenting the Middle Market* used the 2004 SCF data base. Another group is looking into the relevance and possible context of a further project on the middle market.

Finally (well, almost), another project in process is a study of Blended Families, and how they view retirement risks. Here we are partnering with the MetLife Mature Market Institute. For the last decade, we have looked at how the public views post-retirement risks. This work will take that research in a new direction and help us understand how differences in family types affect retirement security and risk management. Families are an important part of long-term security, but does it matter that many are second or later marriages, or not married at all, and that children may be from prior marriages? This study will hopefully provide new insights and raise new questions for further investigation.

Several other projects completed in the last year were also very important. The 11 Decision Briefs released in January 2012 represented our biggest project to date. They respond to our research and bring together many ideas to help individuals make better retirement (both pre and post) decisions. This project was a major step forward in making the work of the committee useful to the general public and to those who advise them.

We also updated *Managing Post-Retirement Risks* in 2011. This is the third edition of the "post-retirement risk chart," and it offers to users an identification of risks, a very general inventory of management strategies, and comments.

At the 2011 SOA Annual Meeting, the papers prepared in response to the Call for Papers on *Retirement Security in the New Economy* were presented. The monograph is available online.

We are delighted to have the opportunity to enter into new partnerships, and to expand both the intensity as well as the scope of our work. We are also very pleased with the many volunteers—both actuaries and colleagues from outside of the profession—who participate in our projects. Some of the volunteers have been with us for many years, and others have joined their first project group in the last year or two. Our work benefits greatly from having multi-disciplinary project groups reflecting a range of professional and personal perspectives. I am very pleased to be part of this effort and truly feel that we are contributing value to Americans, to the global retirement community and to the actuarial profession.

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## STOP TALKING, START WALKING—THE SECURE CHOICE PLAN BUILDS RETIREMENT SECURITY

*By Leon F. (Rocky) Joyner Jr.*

American private sector workers are woefully ill prepared for their retirement years. The Center for Retirement Research of Boston College has estimated a retirement savings deficit of $5 to $8 trillion for American households in their peak earning and saving years (ages 32 to 64) to maintain their standard of living in retirement and remain robust contributors to the national economy. The calculation took into account all major sources of retirement income and assets, including Social Security, traditional pension plans, 401(k) plans, and personal savings. The alternatives to adequate retirement income are extended working careers or settling for a reduced living standard with greater reliance upon governmental support services.

The pension leg of the traditional three-legged stool model of Social Security, an employer sponsored retirement pension plan, and personal savings (including any employer sponsored 401(k) plan) is practically nonexistent today for private sector workers. Pension plans in the private sector are becoming increasingly rare. According to an Employee Benefits Research Institute March 2011 study, only 30 percent of full time employees working for medium and large companies are covered by a defined benefit plan. The number covered by small business is even lower.

Alternatively, coverage for public sector workers is extremely high with approximately 85 percent of employees covered by employer-sponsored retirement plans, the majority of which are defined benefit pension plans.

Recently, the National Conference on Public Employee Retirement Systems (NCPERS), under the leadership of executive director Hank Kim, began a process to consider how the strength and efficiency of the public sector pension model could be used to enable secure retirement for all

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American workers. Despite what you may read in the press and hear from some politicians, public sector pension plans continue to provide meaningful benefits and have many advantages. In particular, these plans can achieve low administrative costs and investment expenses through the economies of scale offered by their size. The pooling of assets also provides the opportunity for professional investment management that can provide better benefits for lower cost than a typical individually managed defined contribution plan while also providing lifetime income to participants. Public pensions are nearly universal in all states and as such can provide an easy platform for employers in the state to offer benefits without having to get into the plan sponsorship business while improving portability (employees can stay within the plan within multiple employers in the state). Utilizing the public pension model and focusing on retirement security for all, the Secure Choice Plan was created.

To this end, NCPERS established six guiding principles for designing the "Secure Choice Pension" (SCP). These principles are:

- Overriding Principle: A partnership among private sector workers and employers, and public sector plan sponsors, to build retirement savings
- Provide secure lifetime retirement income
- Provide flexibility, portability and simplicity
- Manage and share risk
- Leverage the investment power of public plans
- Augment (and not replace) existing retirement savings programs

In applying these principles, SCP embraced:

- Risk sharing among participating employers and workers
- Hybrid plan design approach
- Portability and simplicity
- Conservative funding requirements
- Transparent governance through a Board of Trustees
- Flexibility in sharing any potential underfunding due to
    - Improvements in life expectancy
    - Plan investment experience
    - Employer withdrawals

From these base principles and design specifications, SCP was developed and stress tested. As noted earlier, SCP is intended to be the missing pension leg of the three-legged stool. SCP is NOT intended to replace either Social Security, employer sponsored 401(k) plans, or personal savings. An employee needs all of these components to build a secure retirement.

### The Benefit Design

The SCP design is a very basic, career accumulation benefit. It does not include any subsidized early retirement benefits, credit for prior unfunded service or significant early career death or disability benefits. It is designed to provide about one-third of the income necessary for a secure retirement.

The basic elements of SCP are as follows:

- Retirement at age 65
- Notional account balance accumulating at 6 percent of salary each year
- Interest credited based on U.S. Treasury notes
- Minimal 3 percent career average interest rate credited to the notional account balance
- Immediate vesting
- Life annuity at retirement, no lump-sums permitted

The chart below shows that Social Security plus personal savings of 6 percent of salary (including 401(k) savings) with investment earnings of 5 percent annually is expected to replace about 55 percent of pay at retirement for a career worker. The benefit from SCP is expected to add an additional 29 percent totaling 84 percent. Even if the economic conditions result in application of the 3 percent minimum, the total combined replacement ratio is estimated to be 66 percent.

| Entry Age | Expected Social Security Replacement Ratio[1] | Replacement Ratio from Expected Personal Savings Including 401(k)[2] | Total Replacement Ratio with Social Security and Personal Savings Only | Expected SCP Replacement Ratio[3] | Total Replacement Ratio with SCP |
|---|---|---|---|---|---|
| 25 | 30% | 25% | **55%** | 29% | **84%** |
| 35 | 26% | 18% | **44%** | 21% | **65%** |
| 45 | 17% | 11% | **28%** | 13% | **41%** |

[1] Calculated using 2011 Social Security bend points and assuming career earnings consistent with national average. For ages 35 and 45, the replacement ratio is prorated to reflect the fraction of a participant's 35 years of covered earnings used in Social Security Primary Insurance Amount calculation which would be earned under their tenure with their current employer if they worked until age 65.

[2] Calculated using assumed salary increases based on age, an average investment return of 5 percent per year, annual accruals to the account balance of 6 percent of salary, retirement of age 65, and annuity conversion based on PBGC annuity valuation assumptions.

3

Calculated using assumed salary increases based on age and an interest crediting rate of 5 percent per year to the notional account balance.Source: The Segal Company

### Funding SCP

To assure adequate long-term funding as well as protection from near term possibilities, SCP funding takes a “belt and suspenders” approach. Funding redundancy is built in with four layers of protection.

- Layer 1: Benefit Design
- Layer 2: Annual Contribution
- Layer 3: Dividend Reserve Fund
- Layer 4: Termination or Withdrawal of an Employer

#### Layer 1: Benefit Design

As noted earlier, the plan of benefits is designed to minimize the potential for underfunding. To achieve this goal, the plan design offers:

- No subsidized early retirement
- No past service liability at plan inception
- Conservative annuity conversion, including generationally projected mortality
- Possible reduction to the minimum level of benefits accrued if future experience is negative
- Limited potential gain-sharing from positive results

#### Layer 2: Annual Contribution

The required annual contribution will be a combination of two amounts. The first amount is the “Standard Funding Contribution.” This annual amount is the sum of the normal cost and a 15-year level dollar closed amortization of any unfunded accrued liability. The normal cost and accrued liability are based on 7 percent discount rate, appropriate salary scale, RP-2000 Combined Healthy Mortality blended 50/50 male/female projected generationally with Scale AA, five-year asset smoothing method, and entry age normal funding method. The Standard Contribution may never be less than the normal cost.

The second amount is referred to as the “Conservative Funding Calculation.” This calculation is the normal cost, plus a 20-year, level dollar closed amortization of any unfunded accrued liability as of the valuation date. The accrued liability is determined using the same assumptions and methods as the Standard Funding Contribution except that the discount rate assumption is equal to the annual crediting rate for the year (assumed to be 5 percent for modeling purposes) and the mortality assumption will be projected an additional 20 years. Assets in this calculation will be the lesser of actuarial value and market value.

The Annual Contribution is equal to 70 percent of the greater of these two amounts, plus 35 percent of the lesser amount. The 105 percent total sum provides an extra level of conservatism.

### Layer 3: The Dividend Reserve Fund (DRF)

Based on plan experience, the SCP will create a DRF by reserving an amount, which is equal to 70 percent of assets in excess of 110 percent of the Conservative Funding Calculation accrued liability. This reserve is available, at the discretion of the trustees, to either grant a retiree dividend or allocate toward plan funding to provide relief for employers. The retiree dividends granted may be reduced to the minimum benefit guaranteed by the 3 percent career interest accumulation if subsequent experience does not support their continued payment.

### Layer 4: Termination or Withdrawal of an Employer

In the event that the first three layers of protection fail to prevent an underfunded position and a participating employer should terminate when the plan is underfunded, then the trustees must implement a methodology for eliminating the underfunding. These four options are available for the trustees to allocate the underfunding:

- Assess the terminating employer a withdrawal amount, similar to the withdrawal liability assessed to terminating employers under ERISA multiemployer plans
- Establish an insurance pool using plan premiums to provide termination coverage
- Cover the liability from a dedicated reserve
- Limit future benefits to the amount that could be supported by assets at termination

### Stress Testing

Segal stress tested the SCP design by modeling a sample employer's assets, accrued liabilities, and contributions under varying economic conditions. The sample employer assumes 25 employees with ages uniformly distributed over the working career and an average salary of $40,000.

The modeling assumed a 50/50 annuity and fixed income portfolio net of 0.5 percent for expenses. Stress Test 1 assumes all assumptions are met including 7 percent annual return. Stress Test 2 models investment returns from 1990 to 2000 and Stress Test 3 uses years 2000 to 2010.

All three tests provide very stable contribution rates the first six years. Predictably, Test 1 is stable for all years. In Test 2, the positive returns begin to reduce required contributions and create a DRF around year seven. Test 3 remains very stable through year 9. Year 10 shows the impact of 2008, but even this poor investment return scenario does not appear to be a catastrophic increase. Furthermore, even under Test 3, after 11 years of very difficult investment returns, the plan remains overfunded using a 7 percent discount rate assumption and assuming investment returns over the long term of 7 percent.

A summary of each stress test is shown below:

- Stress Test One - View Chart
- Stress Test Two - View Chart
- Stress Test Three - View Chart

### Summary

There has been much discussion about the looming retirement savings crisis. So much so that the national vision of retirement is becoming blurred. What does retirement mean? Will there be a generation that will never be able to stop working? The SCP concept moves the discussion from one of talk to one of walk. SCP may not be the only remedy but it is one that builds on existing retirement savings programs—Social Security, IRAs, and defined contribution arrangements—to provide meaningful additional income, which can be the difference between inadequate retirement income, and retirement security.

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# UNDERSTANDING LONGEVITY: ACTUARIES WORKING WITH FINANCIAL PLANNERS

*By Cheryl Krueger and Anna M. Rappaport*

The Society of Actuaries Committee on Post-Retirement Needs and Risks (CPRNR) has been focusing on post-retirement risks and how they might be addressed for nearly fifteen years. One of the most important planning decisions for individuals is how long of a future time period they will plan for. Key to this issue are life spans and their variability. Traditionally, financial planning is based on planning to a certain age or range of ages.

In the spring of 2011, Anna received a request to work with NAPFA University, the continuing education program of the National Association of Personal Financial Planners (NAPFA), an organization of fee-only planners, to bring information about mortality to them in a way that would help them be effective in working with their clients. A small working group was established, and Cheryl took the lead in putting together a joint presentation, which she and Rick Miller presented to several professional audiences. The sessions at the NAPFA annual meeting in May 2012, titled "Understanding Longevity: What to Tell Your Clients," were recorded and will soon be available for purchase at NAPFA's online store.

Note about the collaboration: The CPRNR has been collaborating with different groups to bring a multi-disciplinary focus to its work and to offer its findings to others to whom it may be useful. The collaboration with NAPFA is important because financial planners are individuals who help people solve a broad range of financial problems. This is one of several efforts to work with the planning community. Cheryl and Rick Miller spoke at NAPFA University in November 2011, and again at the NAPFA National Conference in May 2012. Anna spoke at the Financial Planning Association Retreat in 2010 and at the Wisconsin Financial Planning Association in 2011, bringing SOA research to planners. There is also an ongoing joint project with the Financial Planning Association (FPA) and the International Foundation for Retirement Education (InFRE ) on addressing

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the needs of the middle market.

Planning for the next collaborative presentation is expected to start in summer 2012.

The working group's discussion leading up to the presentation focused on identifying the key facts about mortality, how a planner could discuss these facts with clients, what kinds of information to give to clients, and what related practices might prove most informative and valuable. The working group focused on understanding how the perspectives of actuaries and planners may differ and how best to explain the issues. At about the time the presentation was being finalized, the SOA received a call from the FPA. The FPA had just finished its periodic survey and had added a new question: what ages were financial planners planning to in their retirement projections? The FPA's survey results on this question were also reflected in the presentation to NAPFA and in a subsequent article published in the *Journal of Financial Planning*.

In this article, we review some of the key information presented as part of the NAPFA University presentation and in the December 2011 *Journal of Financial Planning* article, "Mortality Assumptions: Are Planners Getting It Right?"

First of all, it might be helpful to understand how most financial planners reflect longevity in their projections. Projections are developed that show funding of the clients' major goals, typically including a retirement goal. Assumptions are developed to reflect interest or asset earnings rates, taxes, inflation, future pension and Social Security income, goal amounts, etc. Since the financial plan is typically for an individual or couple, an "end date" is selected to determine whether the goal is expected to be fully funded or requires additional funding or other adjustment. The "end date" reflects the longevity assumption the financial planner is making for that individual or couple. In this article, we use the term "planning age" to identify the age at death assumed in the financial projections for the client—the "end date."

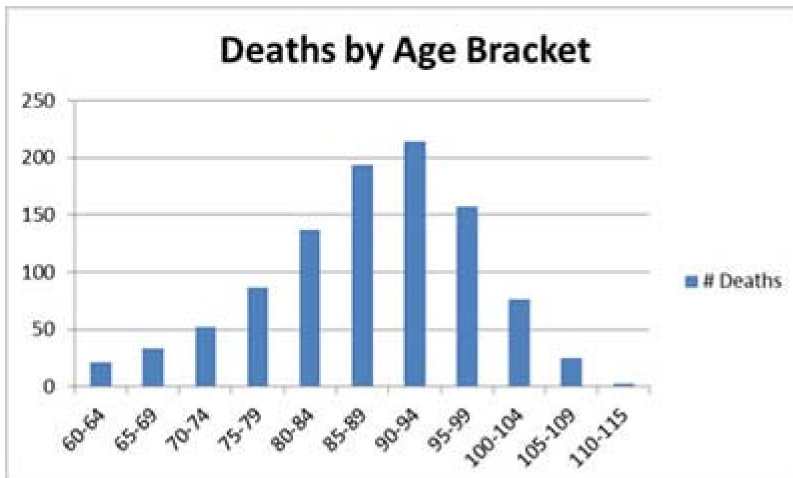
Our presentation to financial planners started with some key takeaways:

- People are likely to live longer than they think
- Longevity is variable—averages can mislead
- Substantially all couples eventually will become singles
- Longevity is positively related to education and income
- Longevity is increasing
- Longevity is expensive, and
- Longevity is an insurable risk.

With respect to overall longevity, the maximum life span for humans is currently assumed to be 120 years. It was interesting to note that some financial planners did use age 120 as their planning age, and this was the oldest “end date” noted in the survey. We also know that few individuals live beyond age 100, that the average life expectancy at age 65 is into the mid-to-late 80s, and for many couples one spouse will live into his (or more usually, her) 90s. However, if you ask most people in their 50s how long they think they’ll live, they’ll estimate something around their life expectancy, or to age 85 or so.

Life expectancy is simply one statistic; approximately half of a group is expected to live fewer than or more than this number of years. For example, Table 1 shows how many of a group of 1,000 60-year old females are expected to die within each of the five-year groupings shown.

Table 1 - Deaths by Age Bracket, 60-year old females



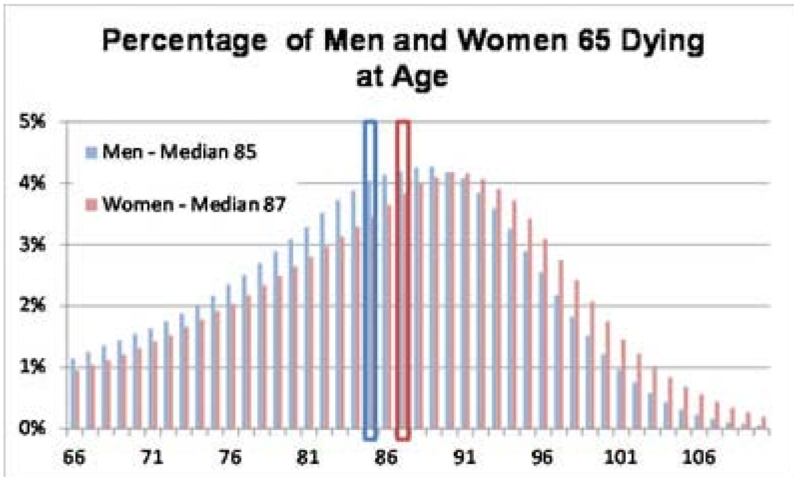

While the life expectancy age for this group is age 87.4, over 20 percent of this group is expected to die between the ages of 90 and 94, and over 26 percent are expected to die at age 95 or later. As you can see, life expectancy *provides guidance* for setting a planning age; but is unlikely to be an *appropriate* single planning age.

And so, in the case of life expectancy, we noted that the “plan-to-age” approach risks understating lifespan unless the “plan-to” age is 100 or older.

The financial planners were interested in the sources of mortality assumptions. Many are familiar with the general population tables from the CDC, and are aware of the life expectancy calculator on the Social Security Administration’s website. Most have also heard of annuity tables such as the Annuity 2000 table and the GAM table. We noted that the general population tables are based on populations that are likely less healthy than the typical higher-net-worth financial planning client. We referred planners to the SOA’s website to find copies of all of these tables.

One of the key points of our discussion was the variability of longevity. As mentioned, a single planning age is typically chosen for financial planning projections. However, as we see from the following table, the probability that an individual now age 65 will die at the planning age is *less than 5 percent* for all future ages. And while death within two or three years of the chosen planning age may not significantly impact the outcome of the plan, death outside of that range might mean the client dies leaving a life insurance need for irreplaceable income (e.g., pension or Social Security), or outlives their nest egg.

Table 2




We suggest that the "plan-to-age" approach is overly simplistic, and can be enhanced through contingency planning for both shorter and longer lifespans.

In the case of "early death" planning, financial planners should discuss with their clients the expected level of living expenses on the death of each partner. Also, the planner and clients should understand the impact of a single death if the surviving partner lives a long time afterward. This is especially important when a significant portion of income will be lost on the death of one of the partners, for example, Social Security, single-life pensions, or leaving much of the couple's wealth to non-spousal heirs.

Also important to planners is the quality of life of older clients. It is interesting to note the findings in the following table, showing that while women live longer than men, they also tend to spend more of their life expectancy in various stages of disability. This finding has an impact on how we plan for couples or single women, with or without strong family support.

Table 3

Division of Life Expectancy (in years) by Health States (U.S. Data)

| | Age | Non-Disabled | Mild or moderate disability | More severely disabled | Total Life Expectancy |
|---|---|---|---|---|---|
| Men | 65 | 12.3 | 1.5 | 1.5 | 15.3 |
| | 75 | 6.8 | 1.4 | 1.6 | 9.8 |
| | 85 | 2.9 | 1.0 | 1.8 | 5.7 |
| | 95 | 0.8 | 0.6 | 1.9 | 3.3 |
| Women | 65 | 13.7 | 3.0 | 2.8 | 19.4 |
| | 75 | 7.0 | 2.6 | 3.0 | 12.5 |
| | 85 | 2.5 | 1.7 | 3.0 | 7.2 |
| | 95 | 0.5 | 0.8 | 2.5 | 3.8 |

We also presented data on how longevity is increasing with time in two different contexts. One, people are living longer, so while family history is important, the age of death for a client's parents should take into consideration that a 65-year-old now lives longer than a 65-year-old thirty years ago. Workers need to consider saving more to spread resources over a longer future lifespan. Secondly, as clients age, their life expectancy increases as survivorship is reflected. From Table 4 we see that a female, age 65, has a life expectancy to age 85, while an 85-year-old now has a life expectancy of age 93. And while financial plans are meant to be adjusted with time, it is difficult for most 85-year-olds to find additional income to support an extending life expectancy.

Table 4

Important Idea: Life Expectancy Extends

| Current Age | Male Life Expectancy (to age) | Female Life Expectancy (to age) |
|---|---|---|
| 5 | 82 | 86 |
| 60 | 85 | 87 |
| 65 | 85 | 88 |
| 75 | 88 | 90 |
| 85 | 93 | 93 |

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Possible solutions for the dynamic longevity problem include purchasing or retaining life insurance to protect the living standard of a surviving spouse, planning to reduce inflation-adjusted expenses as needed, and considering immediate and longevity annuity solutions to insure against the tail end of the longevity curve. In all cases, it is important to review Social Security and occupational pension strategies (looking at survival of both partners or only one), and considering the longer portfolio horizon implied by longer lifespans.

We summarize longevity considerations that are needed for each financial plan:

- What is the life expectancy assumption for the client's financial plan?
- How does the planning horizon impact other plan assumptions and recommendations?
- How do we reflect differences in lifespans between spouses/partners?

As part of the presentation, we presented case studies. These demonstrated the relative portfolio amounts needed to fund various lifespans, and also showed the use of an immediate annuity as a solution to reduce the risk posed by longevity.

### How did the planners react to the presentation?

Besides going through the data and its implications, we also referenced the Life Expectancy Calculator on SOA.org, and went through one of the life expectancy surveys on livingto100.com. The audience was a bit amused with some of the personal questions included in the Living to 100 calculator! One planner noted that he has used the website as a tool with some of his clients.

Because of the volume of material and to allow time for discussion, the presentation was made over two sessions at the December 2011 and May 2012 NAPFA meetings. After the first session, we received many positive comments and it looked like most of the people who'd attended in the morning also came to our 4 p.m. follow-up session. We got lots of interaction and questions (Rick is a spectacular presenter and excels at engaging his audiences). Several people complimented us and were very enthusiastic that the topic was being discussed. One planner came to tell Cheryl his daughter is interested in being an actuary.

After the afternoon session ended, NAPFA University Chancellor Bob Maloney came up and thanked us and asked us to pass on his gratitude to all on the working group for helping with this effort. The working group consisted of Anna Rappaport, Steve Siegel, Cheryl Krueger, Rick Miller (NAPFA), Joe Tomlinson, and Andrew Peterson.

*Cheryl Krueger, CFP®, FSA, is a financial planner who specializes in retirement planning for middle-market boomers. She owns Growing*

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PENSION SECTION NEWS

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IN THIS ISSUE



# SIX WAYS TO REDUCE PENSION COSTS AND COMBAT VOLATILITY

*By Bret Linton*

In the best of times, sponsors of defined benefit (DB) plans enjoy what is essentially a free ride in terms of funding their pension plans. That was the case from 1982 through 1999 when strong stock market returns made it virtually cost free to provide retirement benefits. With the volatility of the economy in the last decade, pension plans again require funding and have experienced similar volatility. DB plan sponsors are asking what their options are to stabilize pension costs and expenses.

## Demise of DB Plans is Exaggerated

As a result, many organizations have considered alternatives to providing retirement benefits through a defined benefit pension plan. It is believed that many plan sponsors have frozen their DB plans and switched to defined contribution (DC) plans as their primary retirement benefits. This trend is not as widespread as popularly believed. Among Fortune 1000 companies, there were 417 active DB plans and 190 frozen plans in 2009. In 2010, those numbers changed only slightly to 378 active plans and 208 frozen plans. Most of the decrease in defined benefit pension plans has come from small plan sponsors whose economies of scale are not as significant (e.g., small doctor offices or sole proprietor plans).

In addition, the trend toward freezing DB plans is much less prevalent in the public sector than it is in private industry. In the private sector, 22 percent of participants are in frozen plans, compared to only 9 percent in government employer programs. And even within the private sector, only 11 percent of union workers participate in frozen plans compared to 28 percent of non-union workers.

## Alternatives to Pension Freeze

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Significantly, the DB market has evolved in the past few years to create new DB strategies and modify existing ones in ways that make them compelling alternatives for many organizations. For example, Bureau of Labor Statistics data show that after freezing existing DB plans, 11 percent of private companies turn around and create a new DB plan. This isn't as mysterious as it sounds. In most cases, these are new cash balance plans. Cash balance plans grew in number from just over 1,000 nationwide in 2001, to nearly 5,000 by 2007.

In the remainder of this article, we will focus on the rationale for cash balance plans as well as five other strategies that employers are considering if they currently offer DB plans. The six strategies are:

1. Liability-driven investing
2. Funding relief
3. Modifications to current DB plan
4. DC conversion
5. Cash balance plan
6. Cash balance plan plus DC

We'll examine each approach in terms of out-of-pocket costs to the plan sponsor and the expected volatility of those costs. At the end of this survey, we'll offer some general guidelines on how employers can tackle the decision of which strategy or strategies to incorporate in their programs.

### Liability-Driven Investing

Liability-driven investing (LDI) represents a shift of strategic focus for sponsors of DB plans who had previously depended on the equity portion of their portfolios to drive the funding of their pension plans. LDI strategies do not focus on total asset return. Instead, they seek to generate a return at or above the market-based growth of the liabilities, thus controlling the volatility of pension expense.

Although LDI represents a major change on the policy level, it is actually relatively simple to implement. At opportune times, the plan sponsor changes the asset allocation to reduce exposure to the volatile assets in the portfolio, investing instead in assets that act like the liabilities. Typically, these are corporate bonds with a duration that matches that of the index used to value the liabilities.

Switching to LDI has minimal impact on participants and requires the same amount of the plan sponsor's time as any change of managers would entail. LDI will significantly reduce the volatility of funding the plan, but the cost may be high, assuming there is an opportunity cost from foregone equity returns. (In down markets, LDI represents a cost savings as well.)

### Funding Relief

On June 24, 2010, Congress passed the Preservation of Access to Care for Medicare Beneficiaries and Pension Relief Act. This legislation was in response to the financial crisis, designed to give plan sponsors some extra breathing room to fund their pension obligations. Plans that choose to adopt this strategy are allowed extra time to amortize big losses they were exposed to during any two plan years between 2008 and 2011. Relief is still available for the 2011 plan year.

Currently, the Pension Protection Act requires that any gain or loss be amortized over seven years. Under the provisions of the Pension Relief Act passed last year, plans have two options to extend the amortization period. They can choose a nine-year schedule where the first two years are interest only; both interest and principle must be accounted for in years three through nine. The second option allows a 15-year amortization period without triggering the benefit restrictions that normally apply.

Plans that employ either of these funding relief strategies would be subject to a matching contributions requirement for any employee's compensation in excess of $1 million; the same rule applies to any extraordinary dividends or redemptions. The benefit of these strategies is the potential to reduce costs. By spreading the plan's cash requirements over more years, there is potentially more time for market returns to make up for recently experienced losses. However, in terms of volatility, the pension plan's position would probably remain the same.

### Modifications to Current DB Plan

Every employer has its own particular philosophy about benefits. The traditional defined benefit plan provides a great incentive to attract and retain long-term employees. In today's environment, many employers choose to retain the traditional DB plan, but modify the plan design to control costs. One option is to reduce the existing benefit formula. For example, instead of providing 1.5 percent of final average pay, the sponsor could reduce its obligation to 1 percent applied either to all employees or to future hires only. Alternatively, the sponsor could adopt a different, less costly funding formula such as a career average benefit formula or similar type formulas.

Other options include the reduction of ancillary benefits, such as disability benefits or early retirement subsidies. Such reductions are clearly takeaways relative to the status quo. Nonetheless, they would still allow the plan sponsor to provide a larger benefit to employees when they retire and provide a richer benefit than a DC plan at a lower cost than a typical DC plan.

### DC Conversion

Freezing the DB plan and replacing it with a DC plan is the first option that many employers think about when looking to reduce pension expense and volatility. Of course, the cost of the DC plan will vary depending on plan design. The employer can elect to contribute a flat percentage of pay with or without a match for participant contributions. Or the employer contribution can be tiered, based on age, service, or points, which is a combination of age and service.

In a DC conversion, the volatility of contributions will clearly decrease, as all of the market risk is transferred to participants. The employer experiences a small amount of volatility related to fluctuations in payroll and the number and amount of employee contributions that need to be matched each year. However, the cost savings may be ephemeral, at least over the short term. Even a frozen DB plan must be funded in order to pay for benefits for employees who are still owed a pension at retirement.

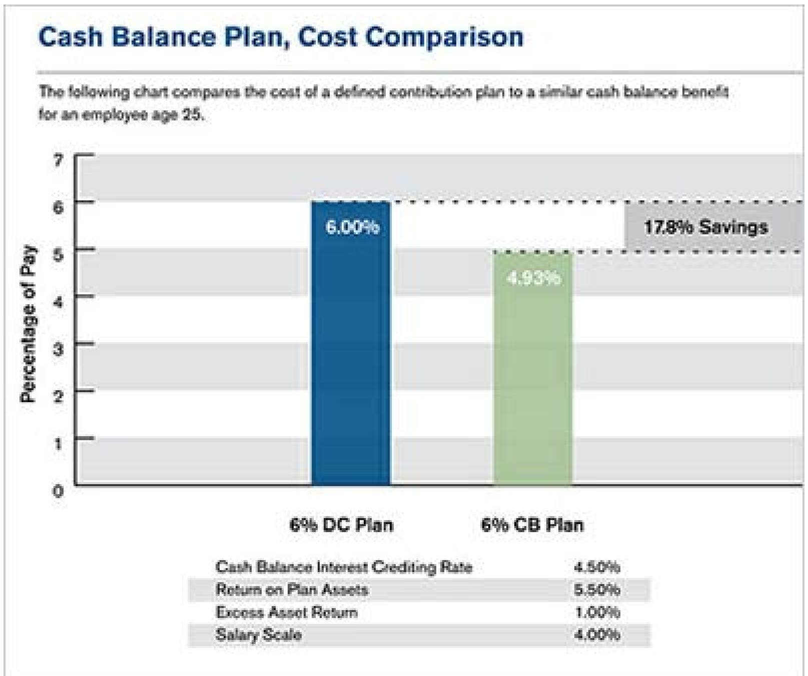
While a DC plan can reduce the cost to the plan sponsor, the cost savings comes at the expense of the employees. A much reduced retirement benefit is usually provided when plan sponsors switch to a DC plan. A point also worth noting is that providing a similar level of retirement benefit through a DC plan actually costs the plan sponsor more money, mostly due to the loss of economies of scale and the loss of positive investment experience.

### Cash Balance Plans

Cash balance plans are often referred to as “hybrid plans” because they provide participants with the feel of a DC plan even though they are, in fact, DB plans. The plan sponsor remains responsible for investing assets and paying a benefit upon retirement. But the formula is based on a set contribution rate for current employees, plus a fixed rate of return, which is always positive no matter what the market returns.

The cash balance plan can be a good deal for employees who get a guaranteed rate of return without having to shoulder as much market risk. Their statements read more like a savings passbook than an investment account which means the benefit is easy to understand and appreciate. Cash balance plans also benefit employers who can choose exactly how much risk they want to take. They can decide to employ an LDI strategy that matches the promised benefit with an investment of similar duration typically corporate bonds. Or they can choose a more aggressive investment strategy that seeks returns in excess of the rate of return promised to employees.

To take an example, in a DC plan all of a promised 6 percent annual contribution would come from the organization's operating account. With a cash balance plan, sponsors could enjoy a discount of 1 percent or more derived from the plan's investment program exceeding the guaranteed rate of return. Most plans sponsors promise a conservative rate of return in cash balance plans. However, volatility is less in a DC plan, because no investment returns are guaranteed. Below is a chart illustrating the cost comparison of a defined contribution plan to a cash balance pension plan.




Given the assumptions listed, providing a 6 percent cash balance plan would cost the plan sponsor less than 5 percent of payroll. The 6 percent defined contribution plan would cost the plan sponsor 6 percent of payroll. This is a 17.8 percent savings to the plan sponsor over the working career of an employee hired at age 25 and retiring at age 65.

### Cash Balance Plus DC

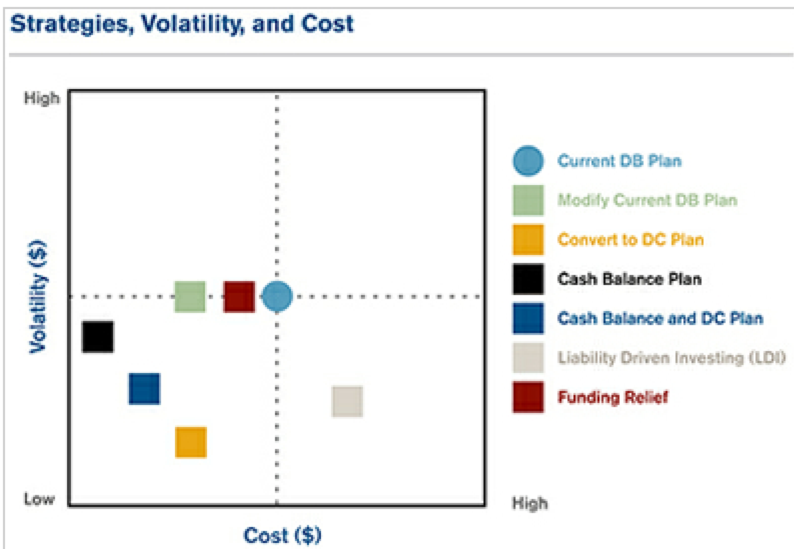
The last option explored here is a cash balance plan supplemented by a DC plan. We can look at this as an alternative for an employer that was thinking about instituting a DC plan with an 8 percent annual contribution. Instead, the organization could contribute 4 percent of salary to a cash balance plan, plus 4 percent to a defined contribution plan. The advantage to employees is significant enhancement of retirement security through diversification.

As with the pure cash balance approach, the employee still receives a guaranteed return from the DB component of the program. This corresponds to the fixed income allocation in a diversified approach. The amount committed to the DC plan can then be invested more aggressively, including a significant percentage of equities with higher expected returns.

In many respects, this option represents the best of both worlds. Employees get a well- structured investment program that's easily understood, provides employees with the opportunity to have control over their investments, and is portable. Similarly, employers have the opportunity to satisfy employees' interest in earning high returns, yet still have the ability to pay for part of the benefit out of investment returns. Not surprisingly, the cost and volatility of this option lands right between those of the pure DC and cash balance options.

### Choosing The Right Option

Two of the main concerns for plan sponsors are the potential volatility and cost of their defined benefit pension plans. The following chart illustrates how each of the six options detailed above may affect the volatility and cost of the pension plan. The actual extent of the cost savings or reduction in volatility will depend on the level of the changes made and the specifics of each plan.




Which of these options is right for a particular organization's retirement program? The decision-making process is best begun by systematically posing a series of questions. It also helps to have appropriate tools to collect the data and expert guidance in evaluating it. Typical questions include:

- What are the key objectives for each group of employees covered by the retirement programs?
- How do the objectives for the benefits policy align with overall corporate objectives?
- What is the desired level of funding?
- What level of volatility is acceptable?
- How much flexibility is needed to make plan changes?
- Is a change in employee behavior sought as a result of plan changes? If so, how are responses to be measured?
- How will the plan work under different economic conditions in terms of both investment performance and employee response?

### Decision Tools

Of course, the strategic questions about plan objectives can be answered by a policy review conducted by members of the retirement committee. The remaining topics require some degree of data collection and analysis. These don't necessarily have to be complex. In many cases, questionnaires and surveys are helpful in quickly spotlighting key priorities.

Further insight can be gained by graphing survey results in a scatter diagram, similar to the one reproduced above. Instead of labeling the axes "cost" and "volatility," we could use "employee reaction" and "competitiveness" to get a better understanding of how effective each strategy would be in achieving growth and retention goals.Another effective tool shows each participant on a plot with age as one axis and the DC contribution percentage needed to replace the existing DB benefit on the other. Other tools generate information such as the demographic impact of the plan changes, the effectiveness of different options in terms of employees' income replacement ratios, cost projections, and Monte Carlo simulations of the probable outcomes of asset liability management (ALM) strategies.

### To Freeze or Not to Freeze

There's no doubt that the past decade has been a difficult one for sponsors of traditional DB plans. Regardless of the market environment, it is simply prudent for plan sponsors to review the alternatives to see if a new approach would better serve the retirement needs of beneficiaries. However, prudent decision making requires a thorough evaluation of trade-offs. Recent trends to terminate or freeze DB plans and replace them with a "3 percent DC solution" appear to be motivated solely by cost concerns.

Examining a full range of options based on objective criteria is a more thoughtful approach. Logically, a more thorough vetting process makes it more likely that the new solution will stand up over the long term, so the retirement committee will not find itself re-addressing the same issues and investing in big changes every three to four years.

Controlling pension expense and volatility is a complex problem, so it's important to identify a program that will adapt to market conditions and remain aligned with corporate objectives. When the economy eventually turns around, the new program needs to be attractive to employees and competitive as a retention tool for key personnel. That way, whether it's the best of times or the worst of times, the organization can retain its focus on its core business.

*Bret Linton, FSA, EA, MAAA, FCA, is consulting actuary with Milliman in Boise, ID. He can be reached at Bret.Linton@Milliman.com.*

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[1] Plan sponsors can now get an accurate preview of the costs and benefits of changes in specific plan provisions. Please see *Milliman's Retirement Readiness Index* by Janet McCune and Doug Conkel.

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## RE-IMAGINING PENSIONS CONFERENCE

*Editor's Note: The following quick summary of the Re-Imagining Pension symposium was prepared by an actuary in attendance.*

On Feb. 22, 2012, Covington & Burling, LLP, the Urban Institute, and the Pension Rights Center cosponsored *Re-Imagining Pensions: Using Innovative Pension Plan Design to Reduce Risk and Increase Retirement Income*. The conference was divided into three main panels with a final summary and next steps discussion.

### Summary

The first panel covered pension designs to share and reduce risk. The designs presented included the following:

- POPP (Plain Old Pension Plan) was presented by Judy Mazo, retired from the Segal Company, and was originally presented in Conversations in Coverage in 2003-4.
- Adjustable Pension Plan was presented by Rich Hudson of Cheiron. This plan is essentially a variable annuity DB plan with a floor benefit as adopted by the UFCW union.
- Portfolio Cash Balance Plan was presented by Robert Newman of Covington & Burling and is a cash balance plan with interest credits based on the return on an individually appropriate portfolio of investments.
- Retirement Security Funds was presented by Karen Ferguson of the Pension Rights Center. This design idea is a collective DC plan modeled after the Dutch system which would be run by financial services firms. Employers commit to a fixed contribution which is matched by employees (a "reverse match") and benefits are adjusted by the fund based on actual investment experience.

The second panel covered pension designs to increase coverage and

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adequacy. The designs presented included the following:

- Secure Choice Pension was presented by Hank Kim of NCPERS. This idea was originally presented in September 2011 and is the subject of a white paper. The concept is a public sector state plan with a segment covering private sector small business employers willing to participate.
- Super Simple Plan was presented by Pamela Perun, a retirement income policy consultant. This is a design she originally presented in May 2008 (white paper) . It is a DC plan that employers may voluntarily adopt with no nondiscrimination testing and no limits on HCE deferrals, but all employees must receive a uniform contribution.The third panel covered pension designs to expand lifetime income options. The designs presented included the following:
- Social Security as a Source of Annuities was presented by Eugene Steuerle of the Urban Institute. His ideas are to essentially make changes to the Social Security System to allow and encourage partial distributions, encourage deferral of Social Security benefit commencement, simplify the earnings test, and allow the purchase of additional benefits so that retirees have more options for structuring their retirement income.
- Income Plus Plan was presented by Jeffrey Maggioncalda of Financial Engines. He explained their approach for structuring an individual's defined contribution account balance payout streams to provide income over retirement. Their broad approach is to commit 65 percent of the portfolio to fixed income for base payouts to age 85, set aside 15 percent for longevity insurance at age 85 and use the remaining 20 percent for a growth portfolio to provide cost of living increases through retirement.

Additional summaries of the designs can be found on the event website.

### Commentary & Observations

The focus of the discussion was ideas to expand pension benefit options in the voluntary, private-sector pension system. While the ideas were generally ones that have already been discussed in the past, this session was unique in that advocates for employees, employers, unions, and the government worked together to pursue new types of pension designs.

The presentations of the panelists made it evident to me that the design and delivery of retirement benefits in the future may include a number of different approaches. Workers changing jobs may collect a mix of account-based benefits, fixed annuities at traditional early/normal retirement ages, and longevity annuities deferred to later ages. The Income Plus Plan presented by Financial Engines seemed to recognize this trend and attempts to create a process to build an individualized plan for financial security during retirement from the available pieces.

Workers under the traditional three-legged-stool approach historically focused on saving what they could during their employment years with the expectation that Social Security and employer-provided pensions benefits were designed to provide a basic level of retirement security as they approached their retirement years (and earlier, as well, in the event of their death or disability). Under a more flexible approach to benefits in the future, workers will need to constantly monitor and adjust their benefit plan participation (particularly at the time of job changes) to ensure that their death, and disability benefit needs all continue to be met and that their retirement savings is on target. However, it is unlikely that employees will have the time or talent to effectively handle these difficult financial planning tasks without significant help. Unless the government and/or employers provide a mechanism for workers to obtain the needed assistance, many workers, including the lowest paid who most need the help, will go without it. Thus, even if employers shift most of the financial responsibility for retirement savings to their workers, the nation needs employers to continue to provide guidance and assistance to their workers in planning for their benefit needs.

The government can also help workers by facilitating a retirement system in which workers can shift their retirement savings among the available approaches to the one that best meets their individual needs. The government recently provided guidance to facilitate annuities and longevity insurance in DC plans. However, additional flexibility was not added to DB plans. A worker with a small frozen DB plan benefit may find it more advantageous to convert that small annuity benefit into a larger, longevity annuity. Employers may also find it attractive to provide DB benefit accruals payable at age 85, rather than at age 65, if such an alternative was legally viable. It was encouraging that government representatives at the session understand that our pension system must be changed to allow more flexibility or none of these new plan designs will ever be able to be adopted.

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## PENSION FUNDING STABILIZATION

*By Martin McCaulay*

*Editor's note: The Society's Rapid Research Initiative recently released a report, analyzing the effects of the bill on the DB system as a whole, as well as individual plan sponsors. The report reviews potential changes to the pattern and volatility of contribution requirements, the transparency of plan funded status, and the solvency of the system. For a recent blog post on this topic which includes a link to this report, click here.*

Senate Bill 1813, Moving Ahead for Progress in the 21st Century or MAP-21, authorizes appropriations for federal highway spending and includes pension stabilization provisions that would apply to sponsors of defined benefit plans. Section 40312 of the Bill would stabilize pension funding by putting a corridor on segment rates based on a 25-year average. The corridor would start at plus or minus 10 percent of the 25-year average and increase by 5 percent each year until reaching 30 percent. The pension funding stabilization would be expected to generate $9 billion in revenue for highway funding. The Bill would also amend IRC Section 420 to extend the period for allowing transfers of excess pension assets to retiree health accounts, and to allow the transfers to be made to retiree group term life insurance accounts as well.

If a segment rate for a month is less than or greater than the applicable minimum percentage of the average of the segment rates for a 25-year period ending with September 30 of the calendar year preceding the beginning of the plan year, then the segment rate for the month would be equal to the applicable minimum or maximum percentage of the average, whichever is closest. The applicable minimum and maximum percentage ranges are 90 percent to 110 percent for 2012; 85 percent to 115 percent for 2013; 80 percent to 120 percent for 2014; 75 percent to 125 percent for 2015; and 70 percent to 130 percent after 2015. The IRS would determine the average annually and provide rates for any years in which

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rates are not available.

The amendments would apply with respect to plan years beginning after Dec. 31, 2011. A plan sponsor could elect not to have the amendments apply to any plan year beginning on or before the enactment date for determining the adjusted funding target attainment percentage. Based on current interest rates, the corridor would increase the rates for funding requirements and decrease minimum contributions for 2012. Contribution requirements could decrease by 15 percent to 30 percent in the short term.

Senate Bill 1813 was introduced by Senator Barbara Boxer [D-CA] on Nov. 9, 2011; reported by the Senate Committee on Environment and Public Works on Nov. 11, 2011; and passed the Senate on March 14, 2012 by a 74-22 vote. The Bill has not passed the House of Representatives. Members of Congress appointed to the House-Senate Conference Committee began meeting on May 8, 2012 to reconcile differences between the House version and the Senate Bill.

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SOCIETY OF ACTUARIES

PENSION SECTION NEWS

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## NEW MORTALITY IMPROVEMENT SCALE EXPOSURE DRAFT RELEASED BY SOA – IT'S YOUR MOVE...

*By Laurence Pinzur and Andrew J. Peterson*

*For the first time in nearly 20 years, pension actuaries in the United States need to understand the implications of a new mortality improvement scale. The SOA has initiated an extensive communication program designed to help actuaries prepare for important discussions with plan sponsors about longer life expectancies in the United States. How do you plan to get up to speed?*

In March 2012, the SOA's Retirement Plans Experience Committee (RPEC) released an exposure draft of *Mortality Improvement Scale BB*. The document describes RPEC's development of an updated mortality improvement scale intended as an interim alternative to Scale AA, which many pension actuaries currently use to project base mortality rates into the future. The release of the interim Scale BB is part of a comprehensive review of pension-related mortality assumptions that is currently in process. The RPEC is scheduled to complete its Pension Mortality Study in late 2013 or early 2014, at which point the SOA is expected to publish new base mortality tables to replace RP-2000 and new mortality improvement rates to replace Scale AA. Given that the study is still more than a year from completion, the RPEC decided to release the interim improvement Scale BB for the projection of base mortality rates beyond calendar year 2000.

With the release of this new scale, both the RPEC and the SOA Pension Section Council are committed to educating actuaries in the retirement area both on the specifics of Scale BB and the broader topic of mortality improvement and its implication on retirement plans. A number of resources are currently available and more efforts are being planned. In addition to the March exposure draft, the RPEC recently released "Questions and Answers Regarding Mortality Improvement Scale BB," which addresses many of the more frequently asked questions dealing

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with the development and application of Scale BB. In addition, the SOA Pension Section Council is developing continuing education sessions on the topic. Specific opportunities include a June 6, 2012 webcast (recording available), sessions at the SOA Annual Meeting in October (and other actuarial meetings) and a resource page of various papers and articles on mortality issues.

In contrast to prior mortality improvement tables, Scale BB is based on a new methodology that blends historic mortality improvement experience with expected future longevity trends in the United States. RPEC first produced two-dimensional gender-specific arrays of mortality improvement rates (based on age and calendar year) from which Scale BB was derived. Scale BB is intended to be applied on a fully generational basis to mortality rates with base year 2000. For actuaries who are currently using one of the RP-2000 base tables, therefore, the process for assessing the impact of switching from Scale AA to Scale BB is particularly easy. (Actuaries who are using mortality tables with base years prior to 2000, e.g., 1994, should refer to item B2 in the Q&A document regarding the appropriate application of Scale BB.)

It is important that pension actuaries understand the issues associated with mortality improvement in the context of our professional responsibility. Of particular relevance for actuaries practicing in the United States is ASOP 35, which requires an explicit assumption regarding mortality improvement (Section 3.5.3). The type of pension plan (private sector, public sector, multi-employer, etc.) and purpose of the valuation (accounting, funding, settlement, etc.) will determine the actuary's specific role in the assumption setting process, from "choosing" to "advising" to using something prescribed by regulation. Nevertheless, regardless of the role, actuaries are often viewed as the experts on mortality and longevity topics. Therefore, getting up to speed on Scale BB is important for all pension actuaries whether advising private sector plan sponsors as they start thinking about year-end accounting disclosures and future years' budget projections or making recommendations for funding in a public sector context.

As an introduction to the Q&A document, the remainder of this article features select Q & A's that are likely of particular interest to retirement actuaries.

Q: Why did the SOA release an interim mortality improvement scale in early 2012 when it expects to provide an official replacement for Scale AA in late 2013 or early 2014?

A: Early on in the current Pension Plan Mortality Project, RPEC found that

Scale AA was not tracking well with recent mortality improvement trends in the United States. While more time is needed to construct the ultimate replacement for Scale AA, RPEC believes actuaries should have access to an improvement scale that reflects more recent mortality improvement experience. Releasing the interim Scale BB also provides some lead-time to the developers of pension valuation software to enhance their software to handle two-dimensional mortality projection scales (see Question A3 from full Q&A document) and provides RPEC time to gather feedback and respond to questions from the actuarial community.

Q: Does the 1.0% long-term rate, implicit in the development of Scale BB, take into consideration the rise in obesity levels among the U.S. population?

A: RPEC reviewed numerous studies on the topic of future mortality trends, many of which presented arguments for the slowing of future mortality improvement in the US due to increasing levels of type-2 diabetes, coronary heart disease and cancer, all of which could be linked to rising obesity levels. On the other hand, a number of studies presented arguments for continued (and, in some cases, increasing) improvement in US life expectancies, citing advances in medical technology, genetic engineering and new pharmaceuticals. The 2011 Technical Panel on Assumptions and Methods, in their *Report to the Social Security Advisory Board*, considered factors affecting life expectancy gains, including obesity and smoking, and concluded:

*"In 2006, as a consequence of the high prevalence of smoking and obesity, the U.S. life expectancy of 77.7 years was lower than that of most other high-income countries. These behavioral effects will likely continue to depress U.S. life expectancy. Yet, despite their increase for decades, indicators of smoking behavior and obesity have recently plateaued (National Research Council 2011). Therefore, it is reasonable to assume that the adverse impact of these behaviors on life expectancy will remain at current levels rather than continue to rise..."*

RPEC placed significant weight on the analyses presented in recent Technical Panel reports in the selection of the 1.0% long-term rate. In particular, the 2007 Technical Panel on Assumptions and Methods recommended that 1.0% be used for the average long-term mortality improvement rate under the SSA's intermediate-cost assumptions. The 2011 Technical Panel recommended an even larger upward revision, but the RPEC decided that 1.0% was most appropriate for the interim Scale BB.

Q: What factors should an actuary consider when trying to decide whether to adopt Scale BB?

A: According to Section 3.1 of ASOP 35, an actuary "should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment." Section 3.3.1 of ASOP 35 goes on to add that the actuary "should consider the assumption universe relevant to each type of assumption identified..." and that relevant sources include "studies or reports of general trends relevant to the type of demographic assumption in question (for example, mortality improvement in the United States)."

As mentioned in the answers to Q&A A1 and A2 (from full Q&A document), the Scale BB report and a number of other recent studies have documented that Scale AA has not matched up well with recent mortality improvement experience in the US. Not only is the data used to develop Scale BB approximately 20 years more current than the data used to develop Scale AA, the actuarial methodology underpinning Scale BB is considerably more advanced, blending actual past mortality improvement experience with anticipated future longevity trends. Given the more up-to-date data set and the enhanced methodology, it seems reasonable to expect that actuaries will give particular credence to the findings in the Scale BB report when selecting a mortality improvement assumption.

If the group being valued is large enough, a traditional mortality experience study could be useful in comparing the effectiveness of different mortality improvement scales over the recent past. Starting with the same base mortality rates, one set of actual-to-expected (A/E) ratios could be developed with expected deaths calculated using the mortality projection scale currently assumed, and a second set of A/E ratios developed with expected deaths calculated using Scale BB. A comparison of the resulting A/E ratios could provide useful information with respect to general mortality improvement trends of the covered group over the study period.

Of course, situations exist where the differences in mortality improvement assumptions have little impact on plan obligations, and the materiality language within ASOP 35 comes into play. For example, the decision regarding possible adoption of Scale BB for a cash balance plan whose participants overwhelmingly elect lump sum distributions could fall into this category.

### Q: Why does RPEC recommend generational mortality over static projections?

A: At the time Scale AA was introduced, most valuation systems did not support generational mortality projection. One alternative was to create a static mortality table by projecting the base table rates with Scale AA to the valuation date plus the duration of the plan's liabilities. The most visible application of this approximation is U.S.-qualified plan funding valuations based on the prescribed static mortality tables. While this technique tends to produce results that are reasonably accurate in the aggregate, different segments of the covered group tend to be over- or undervalued, depending on the demographic profiles of the various segments relative to the entire group.

RPEC also found that the static approximation to the full generational mortality assumption does not work as well with Scale BB as it did with Scale AA. In addition, static projections do not work well within a two–dimensional mortality framework, since it becomes difficult to incorporate cohort effects into a single static table used for a group including individuals with many different years of birth. In light of these considerations, and since virtually all valuation systems now support generational mortality projection, RPEC encourages pension actuaries to adopt Scale BB on a fully generational basis.

Q: Why is RPEC considering mortality improvement scales that vary by factors other than gender and age?

A: In its investigation of recent U.S. mortality improvement trends, RPEC had at its disposal more advanced tools than were available to the developers of previous mortality improvement scales. Some of the tools, such those that produced the two-dimensional heat maps (see Figures 3(M) and 3(F) in the Exposure Draft), helped RPEC identify long-term US mortality improvement trends that previously had for the most part gone unnoticed. For example, "period" effects show up as strong vertical patterns, while year-of-birth "cohort" effects show up as diagonal patterns in the heat maps. Interestingly, "age" effects—which would show up as purely horizontal patterns—are generally absent from Figures 3(M) and 3(F). This implies that age alone does not seem like a very effective way to project long-term mortality improvement in the United States.

New mortality improvement methodologies, such as the model developed by the Continuous Mortality Investigation bureau in the United Kingdom, not only allow for the recognition of recent age/period and cohort effects but also allow for the blending of these effects into a long term expected rate of mortality improvement. In other words, the mortality improvement scale is not just projecting past trends into the future but also allows for an expectation of the level of future long term mortality improvement.

For these reasons the RPEC is seriously considering two dimensional mortality improvement tables as the standard for future pension related mortality improvement scales.

In conclusion, the SOA is doing its part by providing multiple opportunities for pension actuaries to understand the development and implications of the updated mortality improvement rates. The next move is yours...

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## FUNDAMENTALS OF PRIVATE PENSIONS ROUNDTABLE INTERVIEW

*Fundamentals of Private Pensions* was first published in 1955. Since then it has been utilized on the exam syllabus and as a helpful resource for pension related issues. The SOA recently spoke with Mark Warshawsky, Olivia Mitchell and Bob Sanford about the history of the book, its usage and the upcoming tenth edition.

Download a copy of the interview.

Mark: I'm Mark Warshawsky, director of Retirement Research at Towers Watson. My involvement in the book project is that I am one of the co-authors of the ninth edition. I led the effort for Towers Watson in terms of bringing together the authors and other resources, setting the new outline for the book, and establishing the timetable so that we could get the ninth edition, which is the current edition, out in a timely manner.

Olivia: I am Olivia S. Mitchell, director of the Pension Research Council. The council is a research center at the Wharton School of the University of Pennsylvania that was founded by Dr. Dan McGill in 1953. With a great deal of help from others, we have spearheaded the process of keeping *Fundamentals of Private Pensions* up to date, collaborating with wonderful people such as Mark and his colleagues.

Bob: I am Bob Sanford. In terms of my relationship to the book, I'm the curriculum chairperson of the SOA education system and a past chair of the curriculum committee for the SOA's retirement track. We've used the text heavily within the retirement track over the years. Also, I've been in this business 30 years, so I have studied this book as a student; I've used it as a practitioner; and I've seen many updates of the book on SOA curricula for actuarial exams that have been given over the years. That is my familiarity with the book.

Kathryn: Please tell us about the history of the book, *Fundamentals of*

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*Private Pensions*. We understand the first edition was published in 1955.

Olivia: Let's turn the clock back to remember what the U.S. economy looked like back in the 1950s, a time of substantial growth in corporate pensions. During World War II, pensions had spread rapidly because of Supreme Court rulings and also because benefits were introduced as a key component of compensation during the wage price control period. Yet, though pension coverage and expenditures had become widespread in the American economy, there was very little written about them. Professor Dan McGill, my predecessor at the Wharton School, was prescient in taking on the task of writing one of the first books about American pensions.

In putting together the first edition of *Fundamentals of Private Pensions*, McGill recognized that many different stakeholders in the retirement security world would benefit from understanding the history, actuarial and legal structure, and economics of corporate pensions. Moreover, he wanted to teach the next generation about the fact that pensions are a microcosm of everything finance, economics, and human resource management. After he wrote the first edition and it proved popular, the book was then updated and revised whenever a major piece of pension legislation was passed. The goal was to provide students, actuaries, plan sponsors and policymakers a chance for "one-stop shopping" for everything pension-related. That takes us to where Mark Warshawsky came into the picture for the 9th edition.

Mark: Well, actually I'll take it back a couple of editions even before that, based on my knowledge of what occurred. In the sixth edition, McGill added a co-author, Don Grubbs, a well-known actuary. This was important because the actuarial material in the book is very significant, in terms of the funding rules and some of the legal issues, like the qualification rules. Then, in the seventh edition, Towers Watson (or actually our predecessor company, Watson Wyatt) became very heavily involved, and there were several co-authors added: John Haley, an actuary; Syl Scheiber, an economist; and Kyle Brown, an attorney—all at the tops of their respective professions in the pension area. They did both the seventh and eighth editions, and, as Olivia indicated, they personally represented the eclectic nature of the book, and contributed to the growth in the book.

Scheiber added the economic dimension. Brown covered a lot of developments on the legal side, and Haley followed up on the developments in the actuarial field and actuarial rules. That takes us to the ninth edition. I was brought on, with my economics and government background, including the development of the Pension Protection Act of 2006, to join the co-authors. I feel very proud to be a part of the book project.

When I was starting out as a young economist interested in pensions, I relied heavily on this book, not only as a textbook, but as a reference book. I think a lot of people use it for that purpose as well. If you want a fairly quick or a fairly understandable description of, let's say, how the non-discrimination rules, which are very complex, work or how the basic funding rules work, Fundamentals serves that purpose very well.

Olivia: I would also point out that this book is widely read, not only in the United States, but also elsewhere. Our Canadian counterparts find it of interest, as do colleagues in Latin America and Asia. This is because when anyone needs to understand what it means to have a funded pension and how to design it, the fundamental notions and structures are the same the world over. Naturally, one must adapt pensions to the local legal environment. But the book has been translated into Japanese and Portuguese; I hope to see the day that we can also translate into Chinese.

Bob: Building on what Mark said, one quality of this textbook that I think makes it stand out is that it strikes a wonderful balance between technical content and content that can easily be understood by a non-practitioner. I've even used it and seen it used by others in situations when you're working with a client, an HR manager or a finance manager, who just wants to study up on why things are the way they are. If you want to go into the details of the regulations, you can do that with the book, but the book also gives you a nice layman's context for a lot of the things we deal with as pension professionals. I've seen the book used a lot in that regard.

Kathryn: That leads us into question number two: What is the involvement and use of Fundamentals by the actuarial profession?

Mark: I'll begin, but I think it would be great for Bob to add his thoughts here as well. There are several purely actuarial chapters, and they have changed over time in line with the legislative and regulatory changes. The actuaries have made sure that those chapters are technically correct and also give the motivations behind the rules, particularly focused on the funding rules. So there's a discussion of actuarial cost factors, funding rules for both single and multiemployer plans, and then really a very nice chapter recording of the historical development of the financial accounting for pensions. This latter chapter is a great resource for understanding how, over time, from the '50s through the present, financial accounting for pensions has developed; this is another actuarial chapter.

Bob: There are two core retirement practice area SOA exams that candidates must get through to attain the FSA designation, and the McGill Fundamentals book is used heavily on both of those exams. In prior years, it has also been used in the SOA's e-learning modules where we want to give student actuaries, who may end up in any one of the tracks that are offered, a flavor of what's going on with pensions. The book has been used extensively throughout the education system.

One thing that was very notable to our committee in 2011 was that we undertook the task of having an outside expert look at our retirement track syllabus. We engaged the services of an economics professor from Williams College to get someone from the outside to see if he thought our syllabus was manageable, relevant and in accordance with current economic principles. He did review the economic content of the syllabus, but, in addition, he looked at our syllabus from the perspective of a professor and an educator. He commented on how well the material is (or is not) organized, the amount of material covered, etc. The result of his review was that he recommended replacing a number of articles and short study notes that we had on the exams with chapters from the Fundamentals book. It was his opinion that the text does a better job of presenting the material to candidates, particularly with respect to the investment material on the syllabus. He was a real fan of this book.

Mark: That's good to know.

Kathryn: Olivia, I know you mentioned that the book has been translated into some other languages, and it is great that it's being used globally and internationally. I know Bob mentioned using it with HR managers, but are there other people outside of the actuarial professional who use this book?

Olivia: Indeed. I have assigned chapters to my benefits classes, and to my doctoral students needing to know about pension design and structure. Several other college professors use it in teaching as well. These students need to understand the role of retirement plans, why employers find them attractive, how employees benefit from them, and how policy can make them work or harm them. Many of the younger students I meet today have only ever seen a 401(k) plan, and yet when the MBAs find employment in firms with defined-benefit plans, they will need to understand how to manage the risks and benefits from such plans.

Mark: One other sector that I'm aware of—admittedly not a very large group, but an important group—is folks on Capitol Hill and in the Washington policy environs, both in the regulatory agencies and in the legislative branch. Very few people come in as experts on pensions, but there are a lot of people—maybe staffers for a committee—who need to know about pensions because legislation is being considered and they're thrown into the mix suddenly. This is a nice text if they need to get up to speed very quickly. I know it's been used in that context as well, over the years.

Bob: This is really a question instead of a comment, but maybe Olivia or

Mark would know. Obviously lawyers have to have some knowledge of ERISA law, and accountants have to have some knowledge of pension accounting. I would be curious to know whether Fundamentals is part of the syllabus for the CPA or bar exams.

Mark: The one thing that's somewhat related to that is Kyle Brown, who has been one of the authors now for the last three editions, has taught ERISA in law school as an adjunct professor. I know he has used the text in his course.

Kathryn: What's new in the ninth edition?

Mark: As Olivia indicated, one of the emphases of each new edition is the passage of a new piece of major legislation. In this edition that certainly is true: the Pension Protection Act (PPA) of 2006 was passed. It was indeed a very major piece of legislation, not just in regard to the funding rules, which were totally revised, but there were a lot of provisions relating to hybrid and defined-contribution plans, particularly the automatic enrollment movement I think got a big boost. Qualified default investment arrangements also got a big boost through PPA. There were also a lot of changes in the multiemployer plan rules. All of those changes were reflected in the text, so it was a major rewrite on everything in terms of the legal environment and the funding rules, as well as an explanation of the economic motivation for the changes.

I'm very gratified to hear about the approval of the professor from Williams College on the investment chapters, because those were also completely rewritten. Not really a criticism of the past chapters, but they needed significant updating in the sense that there had been a lot of developments in the reality of investments and strategies for retirement plans, both for defined-contribution and defined-benefit plans, as well as in the theory of investing for retirement plans, which had grown enormously in the professional literature. We basically added three chapters.

Another change is that we added a lot of material to the chapter of the book that focuses on the question of how defined-contribution plans should operate in terms of paying out benefits and how participants might face that choice in terms of the question of distributing retirement account assets. In the academic literature, it's called the annuity puzzle: why people don't purchase annuities or if they should.

Overall, all the data and statistics were updated through the year before the publication. We edited, sliced and diced, removed some material that had gotten a little old, and added new material. Kyle Brown, who is the author of the legal sections, did major revisions, particularly discussing the hybrid plan issues that have been very active in the last several years.

Olivia: I would add that the last chapter offered a look ahead at the future of pensions, including the outlook for baby boomers. In new editions, we may try to expand more on these themes.

Kathryn: That leads us into the next question: What are the plans for the 10th edition—the who, what, when and where?

Mark: We haven't exactly finalized plans for the 10th edition, but Towers Watson has committed to continuing its support. We're having some internal discussions among authors—John Haley; Olivia, replacing Syl Scheiber; Bill Belanger, replacing Kyle Brown; and me—as to how we might change it; therefore, what I say here is quite tentative.

But one major change, again reflecting the underlying changes in the retirement system, would be a further reflection of the movement away from defined-benefit plans to defined-contribution plans, as defined-contribution plans themselves have developed over the years. I think that would be a shift in the book but without taking away the essentials of the defined-benefit part, which are still very valid and relevant, and serve as a very important function of the book. So this is just a change in emphasis to reflect the reality of what's going on there in the field.

Olivia: The tension has always been between wanting to be encyclopedic, versus wanting to make sure that somebody can pick the book up. McGill's first edition was only about 200 pages, and now its north of 800 pages. We must also recognize that students today are different: they're somewhat less likely to pick up a book, and they are more likely to go online or download a text to their e-reader. For this reason, we're pondering how to reconfigure the book, perhaps divide it into two volumes, or perhaps structure it in an electronic format. Bob, do you think the people that you come across would be amenable to an e-book version?

Bob: Yes, I think that people would be very much amenable to e-books. In terms of SOA candidates, there is already syllabus material for the exams that is available by links to online sources. We even have links to media such as webcasts and podcasts that are becoming part of syllabus material; thus the movement away from the printed page is definitely happening.

Olivia: Of course we must also discuss the options with our publisher, Oxford University Press. I would also like to see more discussion on international pensions and pensions for multinational firms, as our readership grows more international. Moreover, there are some very interesting pension models that our stakeholders could be appropriately exposed to, so they have an informed view of some of these alternatives.

Bob: The need for good international material is actually a current need of the syllabus committees. We're always trying to include that content on the exams, and mostly what we find as syllabus sources are consultant articles that are likely written based on a project that a consultant did. Some international content that is a bit more pedagogical would be very helpful.

Mark: I think that would be a great addition. In fact, as Olivia mentioned, we did add in this edition a chapter on the future of pensions. If we were to develop that further, in particular to have that background of what's going on around the world, that represents a great learning laboratory as to what other countries and other systems have done.

Olivia: I would also like to point out that Mark's firm, Towers Watson, is global in scope.

Kathryn: The final question that we have here is that there's been a lot of controversy, particularly in public pension plans as of late, and we're just wondering how you address an issue like that when the industry is still trying to come to a consensus on these issues.

Mark: Directly answering your question about public pension plans: The book is consciously devoted to private plans. We mention Social Security as a relevant part of the system—for example, many private plans are integrated with Social Security so you need to have a very good understanding of Social Security; that's Chapter 2 in the book. I believe in that context we very briefly mention public plans, but we do not really take them on; they're a subject in their own right.

But I will say with regard to your broader question of how we deal with controversial issues and the question of consensus: If there's a sense in the profession and in the literature that there is a tendency toward a primary viewpoint or a consensus, that's what we'll include in the book. I think the authors have had a good sense of that over the years. The book is reviewed by outside practitioners and scholars, and so they keep us on the straight and narrow. If there's an area where there is still controversy, we'll reflect that; for example, there is still controversy within the actuarial profession about the appropriate discount rate to use in valuing a pension, and so we mention both sides of the issue. I'm sure Olivia and Bob would have more to say.

Olivia: Indeed, one area where there is substantial controversy is regarding how to do pension accounting. The Europeans do it one way; we do it a different way in the U.S. corporate environment; and state/local governments do it a third way. Accordingly, this is an area where we will have to scope out the key similarities and identify some of the differences.

This will provide a strong foundation if someone were going to work in Europe on a corporate pension regime; in any event, they would still need to pay attention to not only the accounting rules in that country but also the tax issues and other conventions. So we are not global in scope, but the book does have a lot to teach the rest of the world.

Bob: In terms of how we address controversial issues in the syllabus material and the exams themselves, we actually welcome taking on these issues. People who are writing questions for the exams are always trying to come up with new question ideas. Current, relevant issues within the profession can provide a nice context for good exam questions. Mark mentioned the discount rate issues; these issues have been discussed as they relate to private plans for longer than they have for public plans. The issue of how or if the asset structure supporting the plan should affect the selection of a discount rate is an argument that continues to churn within the actuarial profession. There definitely have been past exam questions that ask the students to think about these issues and evaluate the arguments around them. We generally provide material in our syllabi that gives both sides of the issue. Similarly to what Mark indicated, if there's a primary school of thought within the profession as it relates to a specific issue, we will emphasize that conclusion in the syllabus. Where there is brisk dialogue around both sides of an issue, we find it very instructive to include it and think that exposure to a variety of viewpoints will make our candidates think critically and ultimately be better professionals.

Kathryn: Those are all the questions that we had. Is there anything that anyone else wanted to add, something that we didn't ask or that you think is important to note about the book or to include?

Olivia: One last thing I would like to note is that my research has shown a widespread dearth of financial literacy around the world, a particularly critical gap in the wake of the financial crisis. In the 10th edition I hope we provide much-needed help to fill the gap in terms of making sure the next generation can understand the value of pensions in a very uncertain world where we will all be living a very long time in old age!