



**SOCIETY OF  
ACTUARIES**

**RETIREMENT  
SECTION**

ISSUE 99 SEPTEMBER 2019

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# Retirement Section News

## Issue 99 • September 2019

Published three times a year by the Retirement Section of the Society of Actuaries.

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

To join the section, SOA members and non-members can locate a membership form on the Retirement Section webpage at <https://www.soa.org/retirement/>

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### Publication Schedule

Publication Month: January 2020  
Articles Due: Oct. 17, 2019

The digital edition of this newsletter can be found on the section landing page at <https://www.soa.org/retirement/>

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# Chairperson's Corner

By Deb Tully

**W**hat have you done for me lately? Or better yet, what has the Retirement Section done for retirement actuaries lately? For many of us, as members of the Society of Actuaries and likely several other actuarial organizations, it can be hard to keep up with all of the great resources and information available to us through these organizations. These resources come to us in the form of magazine articles on relevant actuarial topics, research publications like the Society of Actuaries' Retirement Forum, emails notifying us of hot topics or recent developments, links to articles via social media and opportunities to attend webcasts or listen to podcasts offered through actuarial organizations. From the vantage point of the Society of Actuaries Retirement Section Council chair, I have had the opportunity to gain a greater appreciation for what the Retirement Section offers to its members by way of research, tools and resources made available on the Retirement Section's web page.

Did you know that the Retirement Section sponsors a variety of research projects exploring important retirement-specific topics at a deeper level to further enable thought and discussion on the future of retirement? To give you a few examples, the SOA's Retirement Section Research Committee and Committee on Finance Research recently released "Liability-Driven Investment Benchmark Model," a report written by Kailan Shang and Zakir Hossen, along with a corresponding Excel Liability-Driven Investment (LDI) benchmarking tool. The report was released in April 2019 and highlights key considerations for evaluating an LDI framework and how benchmarking analysis can aid in selecting the optimal LDI asset allocation for a pension plan. In addition, the Retirement Section Research Committee also released "Annuity Market Pricing Approaches," a report written by Victor Modugno comparing guidance available to Canadian actuaries to estimate group annuity pricing for solvency valuations to available information in the U.S. marketplace. Actuaries in the United States can benefit from the report by expanding their knowledge on the various sources of group annuity pricing estimates and their limitations (see the article summarizing this research in this edition of *Retirement Section News*). These recent reports and other research projects can be found on the Retirement Section's web page under "Retirement Research."<sup>1</sup> Looking forward, the Retirement Section Research



Committee has several additional research projects in process on topics including communicating DB plan risk, an empirical study on de-risking strategies and the Canadian low interest rate environment, to name a few. We anticipate that these projects will ultimately result in reports and tools similar to those already noted and will be made available to the retirement actuarial community upon their completion.

Further exploration of the Retirement Section website leads to another easily accessible and relatively unknown resource to retirement actuaries—a series of retirement-specific podcasts found under the "Resources" tab of the Retirement Section web page. Thanks to Retirement Section volunteers offering their expertise and insights, the podcasts provide brief, easily digestible discussions on relevant topics and recent SOA projects. The most recent retirement podcasts include multipart podcasts on Retirement 20/20 for Public Plans and Target Benefit Plans. In the future, we also expect to release a series of podcasts on the actuary's role in defined contribution plans. The Society of Actuaries, and the Retirement Section specifically, is looking to expand and highlight the podcast offerings. To that end, if you have an idea for a podcast or have a particular expertise

to provide for a podcast, I encourage you to reach out to Josh Bank, our Retirement Section Communications Committee chairperson, or Mary Stone, SOA Retirement staff fellow.

The "Resources" tab of the Retirement Section web page also lists two widely used resources: the FTSE Pension Discount Curve and the Mortality Resources page. The latter is a convenient one-stop page for the mortality tables and projection scales commonly used by retirement actuaries. There are several other resources on this page and I encourage you to check them out.

These tools and resources offered by the Society of Actuaries Retirement Section are available to retirement actuaries in all employment situations. Whether you are employed by a large actuarial firm and these resources serve as a complement to what is already available to you, or you are an in-house actuary or independent actuary with limited internal actuarial resources, or you are an actuary in job transition or retirement still contributing to the actuarial profession, the Retirement Section resources are valuable to all and accessible at any time.

I encourage every retirement actuary to take some time to become familiar with the information on the Retirement Section's web page. While I've only highlighted a few items in this brief Chairperson's Corner, there is a wide range of information covering a variety of retirement topics available and you are likely to find something that pertains directly to your specific area(s) of professional interest. And with that, you will also find another retirement professional or professionals who share that interest by having participated in the development of the article, tool or report on the website. Happy web page exploring! ■



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#### ENDNOTE

- 1 <https://www.soa.org/research/topics/pension-res-report-list/>



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# A View From the SOA's Staff Fellow for Retirement

By Mary Stone

**T**he Retirement Section Council recently held a meeting in Montreal. We were grateful to be joined by two distinguished Canadian actuaries, Assia Billig, chief actuary of the Canada Pension Plan (CPP) and Michel St-Germain, recently elected president-elect of the Canadian Institute of Actuaries (CIA).

Assia Billig provided an update on the recent changes to Canada Pension Plan/Quebec Pension Plan (CPP/QPP). Enhancements to CPP/QPP went into effect on Jan. 1, 2019. Driven in

part by the decline in employer-sponsored retirement programs (especially in the private sector) and the associated increase in the number of families at risk of insufficient savings at retirement, the additional CPP/QPP benefits increase the overall replacement ratio. The benefit enhancements are funded by additional contributions. The CPP enhancements include sustainability provisions that establish parameters to define by how much and for how long the additional minimum contribution rates which fund the additional benefits may deviate from the legislated rates before action is required to adjust benefits and/or contribution rates. These provisions aim to preserve the financial sustainability of the enhancements, ensuring stability of the additional contribution rates and reducing the risk of reductions in benefits and/or increases in contribution rates. The enhancements are being phased in over 40 years.

Michel St-Germain met with us to speak about the CIA's public statement on "Canada's Actuaries Call for Discussions on Retirement Age." This public statement proposes changes to the target, minimum, and maximum retirement ages for the CPP/QPP, Old Age Security Program (OAS), Registered Pension Plans and Registered Retirement Savings Plan (RRSP) programs. The statement encourages all Canadians to engage in a healthy and much-needed discussion of changing societal needs



and the best retirement program designs to support those needs. Significantly, the proposed changes do not include reductions in benefits, rather the focus is on adjusting retirement expectations to reflect the changing realities of longer working periods and longer life expectancies. Those participants that defer commencement of these retirement programs will receive higher lifetime income with inflation adjustments, providing enhanced protection later in life.

The Retirement Section Council is continuing to pursue opportunities for retirement actuaries to consider focusing on defined contribution (DC) plans for a broader, more holistic view of retirement.

Both Canadian topics were very interesting and demonstrate how valuable it is to share experiences across countries to spur thinking on such important issues.

The Retirement Section Council is continuing to pursue opportunities for retirement actuaries to consider focusing on defined contribution (DC) plans for a broader, more holistic view of retirement. With the recent passage of the SECURE (Setting Every Community Up for Retirement Enhancement) Act in the U.S. House of Representatives by a vote of 417–3, strong bipartisan support may lead to passage by the Senate in the near future. This legislation could lead to increased use of annuity options and overall greater focus on the payout phase of defined contribution plans. The SECURE Act includes a safe

harbor provision for plan sponsors to select annuity providers in order to offer annuity options inside of a 401(k) plan. The Act also includes required disclosure of lifetime income that the plan account balance is expected to generate in retirement. Actuaries have a great deal to offer in helping plan sponsors evaluate and communicate annuity and other distribution options within defined contribution plans as well as in designing lifetime income disclosures that are reasonable and useful to plan participants.

Following along the theme of ensuring retirement needs are met in today's environment, the Society of Actuaries has sponsored several research projects focused on retirement income, primarily in employer-sponsored defined contribution plans. There are five projects in this series, all done in collaboration with the Stanford Center on Longevity. Four of the projects have been completed, covering considerations for plan sponsors and analytical models to evaluate the effectiveness of various strategies. The fifth project is complete and ready for release soon. It focuses on a retirement drawdown strategy of late claiming of Social Security plus taking the Required Minimum Distribution as a default option. As with the CIA retirement age public statement, claiming Social Security at a later age generates a higher amount of inflation-protected lifetime income.

In closing, I encourage everyone to stay informed about the changing regulatory framework in the U.S. and Canada. The Retirement Section will continue to support research and other opportunities for retirement actuaries to enhance their knowledge and skills in the evolving retirement landscape. ■



Mary Stone, FSA, EA, MAAA, FCA, is staff fellow—Retirement for the Society of Actuaries. She can be contacted at [mstone@soa.org](mailto:mstone@soa.org).

# Notes From the Editor

By Mathieu Laurendeau

Welcome, section members, to the final issue of *Retirement Section News* for this year. In this issue you will find articles on various topics including:

- Risk transfer from DB plans,
- approaches for estimating annuity market pricing, and
- an interview with Anna Rappaport on her professional career path.

I would also like to point out that for this issue, we received articles from “external” contributors who wanted to share their



ideas/point of view with the readers. If you have any interesting ideas or topics that you would like to share with the *Retirement Section News* readers, I encourage you to contact me directly by email. ■



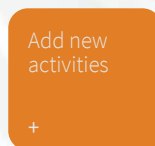
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# Perspectives From Anna: Important Issues Related to Retirement Security—Reports From Discussions

By Anna Rappaport

I attended three different meetings in May 2019: the annual meeting of the Plan Sponsor Council of America (PSCA), the annual symposium of the Pension Research Council and an Employee Benefit Research Institute (EBRI) Policy Forum. Together these three meetings offered different perspectives on what is important to different stakeholders as we think about retirement security today. This Perspectives offers my views after participating in these three different conversations and thinking about what I heard.

The PSCA focused heavily on the issues of importance to plan sponsors and on practical solutions to improve the operations of plans. The Pension Research Council meeting provided a series of papers<sup>1</sup> with an academic focus. The 2019 topic was “Remaking Retirement: Debt in an Aging Economy.” The EBRI policy forum focused on current retirement policy proposals and their potential impact and reactions to them, as well as current research and trends related to health care and financial wellness.

## THE POLICY ENVIRONMENT

Both proposed federal legislation and the development of state-sponsored plans are expected to extend access to retirement plans through the employer to those who do not have it now. At a minimum, these plans will offer payroll deduction and enrollment linked to the workplace. There is an expectation that there may be federal pension legislation, formerly labeled RESA and now labeled the SECURE Act. One of the big issues in this legislation is open MEPs, which will enable entities to sponsor multiemployer plans when there is otherwise no relationship between the entities. The sponsor of the MEP will have the fiduciary liability and be responsible for compliance, freeing the employer from these responsibilities. The idea is to increase the number of smaller employers who offer access to

some arrangement for retirement savings. This is very important because people are much more likely to save for retirement through a plan offered at the worksite than through an individually secured individual retirement account. The expectation is that these newly authorized arrangements will be easy for small employers. This legislation has been under consideration for several years, but it is unclear how many new employers will choose these programs as long as they are voluntary.

An alternative approach is for the states to adopt savings plans that offer coverage to people who are not covered by employer plans. A number of states are working on them, but not many have been implemented yet. Unlike the open MEPs, some of these state plans would have a mandate so that employers who are not sponsors of a plan will be required to do payroll deduction for the state plan. This may encourage them to set up their own plans or join the open MEPs if they get started. These plans will bear watching. It's quite possible that the state plans may face challenges, but that will be known only after implementation. They are being set up to not fall under ERISA and the participants will not have the same level of fiduciary protection as under ERISA.

Both proposed federal legislation and the development of state-sponsored plans are expected to extend access to retirement plans through the employer to those who do not have it now.

The SECURE Act will also likely have several provisions dealing with lifetime or post-retirement income, including a safe harbor for annuity purchase from a DC plan and a requirement to show income on DC plan statements. That is based on the legislation as proposed in May 2019.

There is also another effort in Congress—the Retirement Security and Savings Act—sponsored by Senators Portman and Cardin, that “... addresses four major opportunities in the existing retirement system:

- Allowing people who have saved too little to set more aside for their retirement;
- Helping small businesses offer 401(k)s and other retirement plans;



- Expanding access to retirement savings plans for low-income workers without coverage; and
- Providing more certainty and flexibility during Americans’ retirement years.”

The Government Accounting Office, in a recent report, called for a major study of national pension policy. None of the current activity addresses all of the issues the GAO raised. The last major study of U.S. pension policy was during the Carter administration.

### Employer Activities and Interests

There were several areas of benefit plan design and structure that got attention in the meetings. These areas include:

- Income options for the post-retirement period—there was a lot of discussion and there seems to be a number of firms developing approaches but not much has actually happened. Two of the provisions in the Secure Act would make this easier. There was discussion about how to use behavioral finance more effectively to get good outcomes for the post-retirement period. There appears to be a lot of agreement about the need for organized rational solutions for retirement income and the payout period but not much agreement about the specifics. Many employers and

retirement experts recognize that the long-term success of the defined contribution system depends on successful outcomes during the payout period.

- Health savings accounts (HSAs)—these arrangements are growing in popularity and are viewed as a preferred method of pretax savings and funding for medical care (but also for retirement in general). They are being integrated with 401(k) as a retirement approach and there was an example/case study discussed at the PSCA meeting. Administrative systems are evolving. The big question that comes up repeatedly is whether it is better to save first in a 401(k) or an HSA. One answer to this question is to save in the 401(k) up to the match limit, and in the HSA up to its limit, and only then more in the 401(k). There are likely different opinions on this topic. Some vendors are producing planning tools and statements that enable employees to look at the interaction of different combinations of HSA and 401(k) contributions.
- Student loan payoff provisions linked to retirement plans—there was a session at the PSCA on legal issues including a legislative proposal and a private letter ruling. There is a private letter ruling supporting a company making contributions to the 401(k) (similar in general concept to a match) when the employee makes loan repayments.<sup>2</sup> There seems to be quite a lot of interest in this, but I do not have a clear

picture of the pros and cons. Two of the reasons for wanting to do something about this are its appeal in recruiting and the impact of large student loans on an individual's finances. It appears that the consequences of large student loans can easily be years of paying them off, delayed family formation and delayed homebuying, all leading to delay in saving for retirement.

- Health costs are rising and continuing to crowd out and consume retirement savings—not a new topic.
- Financial wellness continues to be a hot topic. There was discussion about holistic approaches to financial wellness, but that does not seem to include comprehensive attention to risks in some cases. One of the things mentioned in discussions of wellness is personalization, and big data plays a major role in supporting enhanced personalization. There is a strong focus on debt, cash flow, and budgeting. There are as many definitions of financial wellness as there are groups participating in some way in this market.
- Auto features including auto-enrollment, default investments and auto-increases have grown in popularity over the years. However, it was pointed out that each feature is a two-edged sword. They increase participation but tend to inhibit personal engagement. When employees have to make choices and study options, there is a better chance that they will be more engaged in taking charge of planning for retirement.

Most of the topics that came under discussion are not new but the capabilities of systems that will need to support them are still evolving. Plan provisions are being refined and software and planning tools are being improved. There is regular discussion about what is needed to make a DC plan an effective retirement vehicle.

## RESEARCH ON DEBT AND RETIREMENT SECURITY

The Pension Research Council papers focused on the growth and importance of debt. There has been a significant increase in both personal and institutional debt in a number of countries. Research from the IMF indicates that added debt often leads to greater economic growth for one to three years, and to slower growth thereafter. It leads to more fluctuation in business cycles and deeper recessions. The paper “Understanding the Macro-Financial Effects of Household Debt: A Global Perspective” provides an exploration of research into results from 80 countries. Among advanced economies, the median debt ratio rose from 52 percent of GDP in 2008 to 63 percent in 2016. The U.S. is not the country with the most personal debt relative to size of the economy. Canada and the UK have relatively more personal debt. Italy has relatively little. Japan and the U.S. are

in the middle. The paper “Aging and Debt in Japan” provides insights into these five countries.

Personal debt has grown significantly. Many of the conference participants were very concerned about the impact of growing and lingering debt on retirees. There are differing views on this point, and others did not see it as a major problem. The Society of Actuaries report “Financial Risk Concerns and Management Across the Generations”<sup>3</sup> provides insights into what people say about how important debt is in managing finances. That study indicated that of the retired generations (early boomers and silents), 63 percent said they had debt, and 14 percent said that their level of debt was complicating their ability to manage their finances. In contrast, 77 percent of the millennials said they had debt, and 34 percent said debt was complicating their ability to manage their finances. For Gen X, the figures are 83 percent and 26 percent. For the early boomers, they are 74 percent and 17 percent. Participants in the Pension Research Council discussion projected that the next cohorts will be worse off in retirement. The decline of defined benefit plans, increasing medical costs, shifts to fewer jobs with good benefits, and longer periods of retirement are all potential contributing factors to greater financial insecurity for retirees.

Personal debt is different at different points in the cycle. There has been a particularly large growth in student loan debt, particularly for Millennials. Mortgage debt (and home ownership) has not grown for millennials, while mortgage debt is the greatest among Generation X. There is some student loan debt at all generations. It can be for the individual at that age, or for a child or grandchild. Retirees are more likely to have mortgage debt than in the past. The Pension Research Council symposium includes considerable floor discussion. While the papers focused heavily on retirees, there was a lot of focus on millennials in the floor discussion.

One of the issues discussed was whether there was a clear link of personal debt to the great recession. There was no definitive answer to this question, but it seems clear that some individuals were affected a great deal by the great recession and that they experienced long-term effects. Two areas of importance were job losses with long periods until the next—often much lower paid—job, and big declines in housing values. Some people experienced foreclosures, but even those who did not were often affected by the declines in housing values. Housing values in some areas have fully recovered while many others have not.

At the Pension Research Council meeting, the paper “Financial Distress Among the Elderly: Bankruptcy Reform and the Financial Crisis” focused on bankruptcies and foreclosures and their impact on retirees. Both of these challenges present growing problems for retirees. This paper indicated that the percentage of bankruptcy filings by the elderly increased from

6.0 percent in 2000 to 7.2 percent in 2008, and to 13.5 percent in 2017. The corresponding numbers for foreclosures are 6.8 percent, 6.6 percent and 10.7 percent. The elderly constituted 17.4 percent of the population in 2000, 17.0 percent in 2008 and 20.6 percent in 2017. The increases in population are less than the increase in bankruptcy filings and foreclosures. Still, the elderly are less likely to encounter these situations than the population as a whole. The paper explored the impact of the 2005 bankruptcy reform and the financial crisis and finds that while they increased the number of bankruptcy filings, they do not explain the full impact on retirees.

Another paper, “Nightmare on Main Street: Older Americans and the Mortgage Market,” documents the increasing percentage of older Americans with mortgages, the increasing amounts of those mortgages and the increasing rate of foreclosures. While the older individuals did better than the younger population, they still had many problems. Of the families age 75 and over, 6.3 percent had mortgage debt in 1989 and that had increased to 24.2 percent by 2010. The median value of the mortgage debt was \$11,800 in 1989 and \$52,000 in 2010. Foreclosure rates at ages 75 and older were 0.33 percent in 2007 and 3.19 percent in 2011, an almost ten-fold increase. Foreclosures were higher for subprime mortgages and for nonwhite borrowers.

Other issues included the influence of debt on retirement decisions and fragility.

### MY VIEW OF WHERE WE ARE TODAY

It is widely recognized that debt is a major problem for many households. Debt has increased as a challenge over time. For any individual household, debt can be good or bad, or something in between. Debt has enabled a much better life for some families, by helping them to get education that supported a good career, or by helping them buy an affordable house, or by helping them establish a good business, strong credit rating, and so on. For others, it has become a major problem and they have become overextended. Maybe they borrowed too much, or ran into problems, making it difficult for them to repay the debt. Student loans are particularly likely to be troublesome for people who did not finish their programs and for some who enrolled in online programs. The same people who have problems with debt tend to also have problems with budgeting and managing

day-to-day expenses. SOA research on financial management across the generations consistently found that meeting day-to-day expenses—often artificially fueled by easy credit—are the top priority.<sup>4</sup>

Employers and advisors have recognized the importance of day-to-day money management and using debt wisely. This has led to the development of financial wellness programs and the trend to move from retirement education and planning to a focus on broader, lifelong financial wellness. These programs vary and overall they incorporate a wide variety of different options. They will continue to evolve as employers work to help employees do a better job of managing their own finances.

The retirement system as it exists today works well for people with many years of service covered by a reasonably generous retirement plan, be it DB or DC. But for many others it does not work well. Proposed legislation may fill in some gaps, but it does not deal very well with the big picture. There is a need for a more comprehensive review of policy. We need to preserve what is working well and fix what is not. ■



Anna M. Rappaport, FSA, serves as chairperson of the Committee on Post-Retirement Needs and Risks and the Steering Committee for the Aging and Retirement Strategic Research Program. She can be contact at [anna.rappaport@gmail.com](mailto:anna.rappaport@gmail.com).

### ENDNOTES

- 1 The papers from the Pension Research Council will be published as working papers later in 2019 and most of them will be included in a book to be published in the next year or two. They will be available for download from the PRC website. In the interim, this article provides links to the 2019 PRC Symposium presentations on these working papers and to a prior paper.
- 2 It was also reported that attempts to get more general regulatory guidance on this issue have not been successful. Provisions related to student loans and linking them to 401(k) are included in proposed legislation.
- 3 This report is one of a series of reports analyzing a 2018 survey of the U.S. public by generation. The number of people surveyed was 2,001. The population surveyed covers all income levels. The Pension Research Council papers analyzed various surveys of financial information over time and recently. This survey looks at what people said.
- 4 Financial Perspectives on Aging and Retirement Across the Generations, Society of Actuaries, 2018.

# Settling Pension Liabilities: An Interview With Matthew Bond

By Patrick Ring



**Matthew Bond, FSA, EA, MAAA**, is a partner with Aon Consulting.

**M**atthew Bond, FSA, EA, MAAA, is a partner with Aon Consulting and an expert in risk management and longevity analysis. He supports plan sponsors with pension risk assessments, pension risk transfers, and a wide variety of other topics. Matthew also helps develop Aon's practice-wide tools, training, and other guidance and speaks regularly at the Enrolled Actuaries meeting.

In recent years, sponsors of defined benefit pension plans have increasingly sought to understand and mitigate their risk exposure. Risk transfers to participants (through lump sums) or to insurers (through annuity purchases) are now an important risk management tool. Consulting actuaries often advise clients on which strategies (if any) to pursue.

I am pleased to interview Matthew Bond, who will provide an overview of risk transfer strategies and considerations for United States qualified pension plans.

**Patrick Ring (PR): How did you get interested in pension risk transfers?**

**Matthew Bond (MB):** In 2012, the risk transfer market dynamic changed suddenly. Groundbreaking transactions by General Motors and Verizon signaled a shift to larger deals and broadened the range of strategies in play.

I help many clients design and implement pension risk transfers. In addition, I develop firm-wide consulting and tools, present related internal and external training, and founded an Aon team focused on longevity trends and opportunities.

**PR: Why are plan sponsors interested in managing pension risk?**

**MB:** Over the past several decades, many pension plan sponsors have reduced or eliminated benefit accruals. Therefore, pensions are increasingly viewed as a legacy issue, posing financial, administrative, and compliance distractions from core operations.

With the dotcom bubble bursting in 2000 and the Great Recession starting in 2008, plan sponsors encountered two so-called perfect storms in less than a decade. Fluctuating markets increased plan sponsors' concern about volatility of pension results and its impact on their organizations.

The trend toward holistic risk management has been reinforced by regulatory and accounting changes. Those changes generally have moved contributions and financial reporting toward a mark-to-market basis.

**PR: How have plan sponsors acted to address pension risk?**

**MB:** Plan sponsors initially focused mainly on mitigating risks within their plans. Common strategies include making discretionary cash contributions and adjusting assets to more closely track liabilities.

These actions mitigate volatility, but leave residual economic and demographic risks. Meanwhile, intensified audit and compliance requirements and sharp increases in Pension Benefit Guaranty Corporation (PBGC) premiums have driven up the cost and effort of managing pensions.

In response, pension plan sponsors are increasingly looking to transfer the risk and responsibility of managing some or all of their participants' benefits.

**PR: What are the options for transferring pension risk?**

MB: Risk can be transferred through offering lump sums to participants, buying annuities from an insurer, or a combination of these strategies.

**PR: What are the pros and cons of lump sums in general?**

MB: For deferred vesteds and actives, lump sums do not have to include the value of pre-retirement death benefits or any early retirement subsidies. Therefore, their lump sums are often paid at a discount to accounting liability.

Participants who are not living off their pension benefits tend to value liquidity. With a robust communications campaign, typical uptake of lump sums is around 60 percent for deferreds and higher for actives (in terminating plans), varying by plan demographics and other factors. Because these participants are usually many years away from death, their decision is rarely driven by health status, minimizing adverse selection.

In-service lump-sum distributions are only allowed for actives older than 62 or when the plan is terminating (possibly with a residual plan spinning off). These restrictions make in-service lump sum offers less attractive to plan sponsors and participants.

For annuitants, IRS policy regarding lump sums (absent plan termination) has changed repeatedly. These lump sums were prohibited before 2012, allowed from 2012 to mid-2015, prohibited from mid-2015 to March 2019, and then re-enabled. Retiree lump sums provide another risk transfer opportunity to plan sponsors, especially those that have exhausted other options. However, annuitant lump sums also present potential financial, administrative, and public relations drawbacks.



**PR: What are the pros and cons of annuity purchases?**

MB: Annuity purchases complement lump sums, resulting in at least one viable risk transfer option for almost any participant group within a plan.

For deferreds and actives, annuity purchases tend to be relatively expensive, since the form and timing of payment are not yet known and benefits are payable many years in the future.

For annuitants, the form and timing of payment are known and the time horizon is shorter, producing more competitive insurer pricing.

One advantage of annuity purchases is that the plan sponsor controls the population to buy out, without needing participant consent/elections. Therefore, there is more certainty about the outcome of the process.

**PR: What risk transfer solutions are most prevalent today, and why?**

MB: For deferred vesteds with lump-sum benefit values up to \$5,000, it is common to mandate a lump-sum distribution. Administrative costs and per-participant PBGC premiums generally do not scale with benefit size, making small lump sums an efficient way to mitigate plan management costs.

For benefit values higher than \$5,000, lump sums cannot be mandated. However, many plans historically have offered voluntary lump-sum distributions to deferred vesteds on an ongoing basis. These distributions provide participants with flexibility and produce gradual de-risking as part of regular plan operations, but they usually make a plan less attractive to insurers in a plan termination.

Voluntary lump-sum windows for deferred vesteds have been very popular in recent years. In fact, most sponsors of large plans have offered one or more deferred vested windows in the past several years. These windows can be executed without terminating the plan, often produce savings versus accounting liability, and are popular with participants.

The dollar amount of insured annuity buyouts has been growing at a cumulative annual rate of 60 percent per year since 2011, increasing from about \$1 billion in 2011 to around \$28 billion in 2018.

The growth in buyouts has primarily been driven by transactions for annuitants, especially those with smaller benefit amounts. In many cases, annuitant benefits can be bought out at close to or only a few percent above the accounting liability.

These transactions are often structured to maximize the reduction in participant counts (and associated administrative costs and PBGC premiums), relative to the assets deployed and dollar amount of markup over accounting liability.

**PR: How does plan size impact risk transfer opportunities?**

MB: For larger plans, it is common to segment the population into tranches and strategically transfer risk in phases. For example, a plan sponsor might sequentially offer a deferred vested window (or series of windows), buy out annuitants with smaller benefits, and terminate the residual plan.

For smaller plans, the incremental execution costs of a phased series of transactions may not be worthwhile. Therefore, waiting until the plan is ready for termination as a single transaction remains the most common risk transfer strategy for smaller plans.

Similarly, larger plan sponsors that have exhausted the “low-hanging fruit” opportunities may find it cost-effective to pursue more esoteric strategies. Those strategies can include in-service lump-sum offerings, repeated plan terminations with associated spinoffs, or risk transfers coupled with changes in the plan year. These strategies can produce additional risk reduction and/or PBGC premium savings.

However, for smaller plans, these strategies would typically entail prohibitive execution costs and effort.

**PR: What are the implications of risk transfers for participants?**

MB: For lump-sum offers, participants should think carefully about their financial situation, consult with family members who may be impacted by the decision, and strongly consider seeking professional financial advice.

A lump sum provides liquidity. This can help protect a participant against emergency expenses, allow the participant to clear high-cost debt, or enable deferral of Social Security commencement. The latter strategy can provide greater lifetime income and more protection against longevity risk, since Social Security benefits are indexed to inflation.

By taking a lump sum, a participant assumes the investment risks and costs associated with managing the assets and the longevity risk of outliving their assets. Participants generally should not take the lump sum if they are uncomfortable managing the resulting assets and/or prefer the security of guaranteed lifetime income. Participants should also be wary of the potential for tax consequences and investment fees to erode the value of their retirement savings.



In an annuity purchase, participants retain their current benefits (including future timing and payment form options for nonannuitants). Therefore, for a qualified pension plan, an annuity purchase usually has no direct financial impact on participants.

**PR: How do you see the risk transfer market evolving in the next three to five years?**

MB: I predict a continuation of the trends that have occurred since 2012.

Annuity purchases will continue to grow—though probably not at a 60 percent annual rate. Plan sponsors will continue to explore more exotic deal structures as the easier opportunities are exhausted.

In-service lump-sum offers have historically been quite rare. As active populations age (especially in long-frozen plans), significantly more plan sponsors may consider lump sums or other settlement options for these participants.

When market conditions are poor, plan sponsors have usually viewed termination as too expensive. When markets are good, sponsors have tended to forget the downside risk and retain their plans. I think this dynamic has changed; so many plan sponsors may terminate their plans if and when financial markets next move in their favor. ■



Patrick Ring, ASA, volunteers as a member of the SOA Retirement Section Council's Communications Team. In addition, he is assisting SOA in fine-tuning and optimizing the Retirement Section's web page on [SOA.org](http://SOA.org). He can be reached at [pringactuary@gmail.com](mailto:pringactuary@gmail.com).

# Opinion: The Replacement Ratio Dinosaur—A View From Jurassic Park

By Fred Munzenmaier

The article “Replacement Ratio: The Dinosaur of Retirement Planning” (February 2019 issue of *Retirement Section News*) pokes a stick through the fence at us dinosaurs in the Replacement Ratio Cage here at Jurassic Park.

Of course, the term dinosaur has come to mean something that is unwieldy in size, anachronistically outmoded, or unable to adapt to change.

At least two other recent publications have mentioned the need to evolve from overdependence on replacement ratios:

- The Aon/Hewitt white paper, “The Changing Nature of Retirement” (<https://www.aon.com/attachments/human-capital-consulting/2017-HRE-march-issue.pdf>) and
- An article from the Society of Actuaries’ *International News*, “Replacing the Replacement Rate: A Better Way to Determine Retirement Income Adequacy.” (<https://www.ryerson.ca/content/dam/nia/about/isn-2017-iss-71-macdonald.pdf>)

## SOME HISTORY

As one of the dinosaurs in the retirement industry, my own magnum opus was inventing and carrying out the first Aon/Georgia State University replacement ratio study. It was 1988, and Aon was Alexander & Alexander (A&A). Not widely known, there was a third partner. A large corporation funded part of Georgia State’s involvement along with A&A. The corporate partner withdrew its name from the study when it was determined that some of their union-negotiated plans did not generate the replacement ratios found in the study.

The three partners (A&A, Georgia State, and the anonymous corporation) agreed that a replacement ratio study based on real data using academic research protocols would be valuable in at least six ways, to wit:

1. We wanted to pin down many of the numbers in the report of the President’s Commission on Pension Policy (circa 1980) that were, at best, out of date or at worst, plucked out of the air. A&A presented its findings in a booklet titled *The Replacement Ratio Puzzle—The Missing Pieces Are Found*. Georgia State published its own paper, *The RETIRE Project Report*. I like to think this study became the best known of its kind in the actuarial community at that time.
2. It was a busy time for dinosaurs who were later herded into the Defined Benefit Plan Cage at the Park. Replacement ratios were very helpful in designing or redesigning the benefit formulas in defined benefit plans where “on average” outcomes are important.
3. At the time, there was still optimism for a formal national retirement income policy envisioned in the President’s Commission report. Thirty-plus years have passed, and little hope remains for that.
4. Almost every time there is a change in the income tax laws, Social Security, or Medicare, there are retirement needs implications. By changing these components in the replacement ratio formula accordingly, one can gauge the impact of such changes on retirement income needs.
5. At the individual level, replacement ratios provided a target to shoot for when a person considers his or her accumulated and future savings in combination with Social Security and any employer pension. In other words, looking at replacement ratios might be a first step for an individual to examine their behavior early in their career to confirm they were on track for a comfortable retirement.





6. Union negotiations. The corporate partner was very interested in this topic. They cared about the welfare of their hourly workers. If they were spending too little or too much on retirement benefits for any group of employees, then replacement ratios were a way to measure it, on average. Sometimes, replacement ratios indicated they were providing too much, and dollars could be reallocated to other areas such as health care. Replacement ratios were a valuable piece of information for our partner at the bargaining table.

### WHY POKE AT THE REPLACEMENT RATIO?

The three partners never claimed that replacement ratios were the be-all and end-all of retirement planning, particularly at the individual level. They recommended that adjustments be made when analyzing the needs of specific individuals.

I see no reason why replacement ratios must fight with the concepts explained in the articles that are the reason for this article. Each of the concepts along with the replacement ratio concept are reasonable and provide tools for planning at the individual level. Every person approaching retirement faces a different set of circumstances. Use the tools that best fit the situation.

To counter what appeared in the recent articles, I would highlight:

- The replacement ratios are fully transparent. You know where the data comes from, and you can see each component of the formula. A person can adjust the ratio to his or her situation accordingly. How do you come by the 4 percent rule or the 11 times rule, respectively advocated in the dinosaur article and the Aon white paper?
- Pre-retirement needs versus post-retirement needs vary a lot by pre-retirement income level. Social Security varies dramatically by income level. The rules promulgated in the articles do not seem to fully take these factors into account.
- The new concepts are defined-contribution oriented while replacement ratios are slanted toward defined benefit. Similarly, replacement ratios help most to guide in the buildup toward retirement. The new articles focus on how to manage your savings after you retire. This seems to be the main criticism of replacement ratios.

- Unfortunately, we are far more in a defined contribution world these days. Lest we forget there are still many public sector and union-negotiated defined benefit plans. Millions of active employees are still covered by these plans, and replacement ratios can be helpful to people fortunate enough to be covered by one.

### OLD VERSUS NEW

The term *dinosaur*, as used, connotes old, outdated, antiquated, archaic, dead, old school, extinct. But are we to disregard the wisdom of great philosophers like Yogi Berra just because it's from a long time ago?

Facetious, of course. But principles explained by the oldest of retirement planners, Ben Franklin, still work great. Read *The Way to Wealth* from 1758, and *The Art of Making Money Plenty*:

- Work hard, and be honest.
- Spend a penny less each day than you earn.

Since the glory days of replacement ratios, I have muddled my own way into retirement. I believe lessons from Ben Franklin are as valuable as new-fangled replacement ratios or other concepts.

The words of Franklin—old, but still good.

### IN CLOSING

Aon/Hewitt and Georgia State University seem to have given up on replacement-ratio study updates. I encourage them to review the six motives for the original study that were already noted. There remain very good reasons for replacement ratios. The *Consumer Expenditure Survey* data are there and cheap to obtain. I speculate that the spreadsheets are prepared and waiting for new data.

Why not? ■

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# New Research on Estimating Annuity Market Pricing in the U.S. and Canada

By Victor Modugno

The Society of Actuaries (SOA) recently published “Annuity Market Pricing Approaches,” a report sponsored by the Retirement Section Research Committee. It examines the Canadian Institute of Actuaries (CIA) methodology of developing solvency valuation assumptions, compares it to methods used in the U.S., and considers if it could be used in other markets, such as U.S. group annuities or individual annuities. The report is available on the SOA website <https://www.soa.org/resources/research-reports/2019/annuity-market-pricing/>. This report contains references and sources of data used in this article.

The CIA issues guidance in the form of an educational note on assumptions for group annuity pricing for hypothetical wind-up and solvency valuations. The CIA obtains annuity buyout quotes quarterly from seven insurers on three hypothetical groups with low, medium and high duration liabilities. For annuities with cost-of-living adjustments (COLAs), four companies provide quotes. The average of the best three quotes is used. The interest rates are derived from these quotes using projected Canadian pension mortality. These interest rates are then expressed as a spread over yields on government of Canada marketable bonds with maturities over 10 years. For consumer price index (CPI)-indexed annuities, one spread is used for all durations. This spread, which is currently negative, is applied to yields on the benchmark government of Canada real-return long-term bonds.

In applying this guidance, the actuary calculates the duration of the liability by the change in value for a one basis point change in rates at 3 percent. This duration is then compared to the durations of the hypothetical groups. If it falls in between, linear interpolation is used to determine the spread. This spread is added to the government bond rate on the date of valuation and projected Canadian pension mortality is used. The other assumptions are left up to the actuary, subject to standards of

practice. The educational note is not binding, but deviations would need to be justified.

Unlike Canada, there are no educational notes on solvency valuations with quarterly rate updates in the United States. The most analogous, formally documented guidance available to all U.S. pension actuaries is Code of Federal Regulations Part 4044. CFR 4044 prescribes an approach for calculating, in limited situations, liabilities of terminating private-sector single-employer-defined benefit plans. CFR 4044 mandates not only interest and mortality but also expense and early retirement assumptions. Under the CIA method, the expenses and other assumptions are those used for the hypothetical groups.

To calculate CFR 4044 rates, the PBGC collects 14 sample male annuity rates for a range of ages (30 to 80) from participating insurers quarterly. In recent years, three to six insurers have participated. Outliers (generally rates 12.5 percent greater or less than the average at age 65) are eliminated. The interest rate is then extracted from these average annuity rates using the UP-94 mortality table with a static projection to the current year plus 10 using scale AA. The rates are fitted to a select and ultimate rate where the rate changes in 20 or 25 years. In recent years, there has been very little difference between select and ultimate rates. An average of these rates and the previous quarter's rates are used to produce interest rates. This rate, along with the same mortality basis and PBGC expense and early retirement assumptions, is used in annuity valuations for the next quarter.

Unlike Canada, there are no educational notes on solvency valuations with quarterly rate updates in the United States.

Starting in 2017, the PBGC is using a yield curve for the valuation of its liabilities. The PBGC changed the mortality to RP-2014 with generational projection MP-2016. The information available on the yield curve is from the PBGC's 2017 actuarial report: “PBGC used forward yield curve interest factors which were derived from a recalibration based on the prices from the two most recent ACLI [American Council of Life Insurers] surveys (March 31, 2017, and June 30, 2017) to value PBGC's liabilities. The interest factors so determined for the September 30, 2017, valuation vary annually from 1.54% in year 1 to 2.44% in year 31 and beyond.” A proposal to revise Reg. 4044 to use this methodology is under consideration, possibly for next year.

The CFR 4044 interest rates to be used for July 1, 2018, to Sept. 30, 2018, were based on the average of rates calibrated to ACLI annuity price surveys received for Dec. 31, 2017, and March 31, 2018. Thus, the rates lag the market by six months on average. This lag is a shortcoming for this method's applicability to approximate current annuity prices. If there had been a significant change in interest rates during that period, the asset and liability values would be out of whack. A plan invested in a matched portfolio of high-grade bonds could develop spurious surplus or deficit. The Canadian method's lag is only a quarter's credit spreads, which would be minimal compared to possible changes in interest rates. The asset and liability valuations are close. The PBGC method has some advantages in using net rates and then adding expenses and early retirement subsidies, customizing the cost to the plan's characteristics. The elimination of outliers from the average, although rarely done, is another advantage.

Turning to other approaches, the FTSE Pension Discount Curve and Liability Index (formerly Citi Pension Liability Index and Citi Pension Discount Curve) is calculated based on a universe of AA-rated corporate bonds from the FTSE U.S. Broad Investment-Grade Bond Index (USBIG) and the yields of the Treasury model curve. This index was developed for accounting standards.

The Treasury HQM corporate bond yield curve was constructed to calculate Current Liability for single employer pension plans

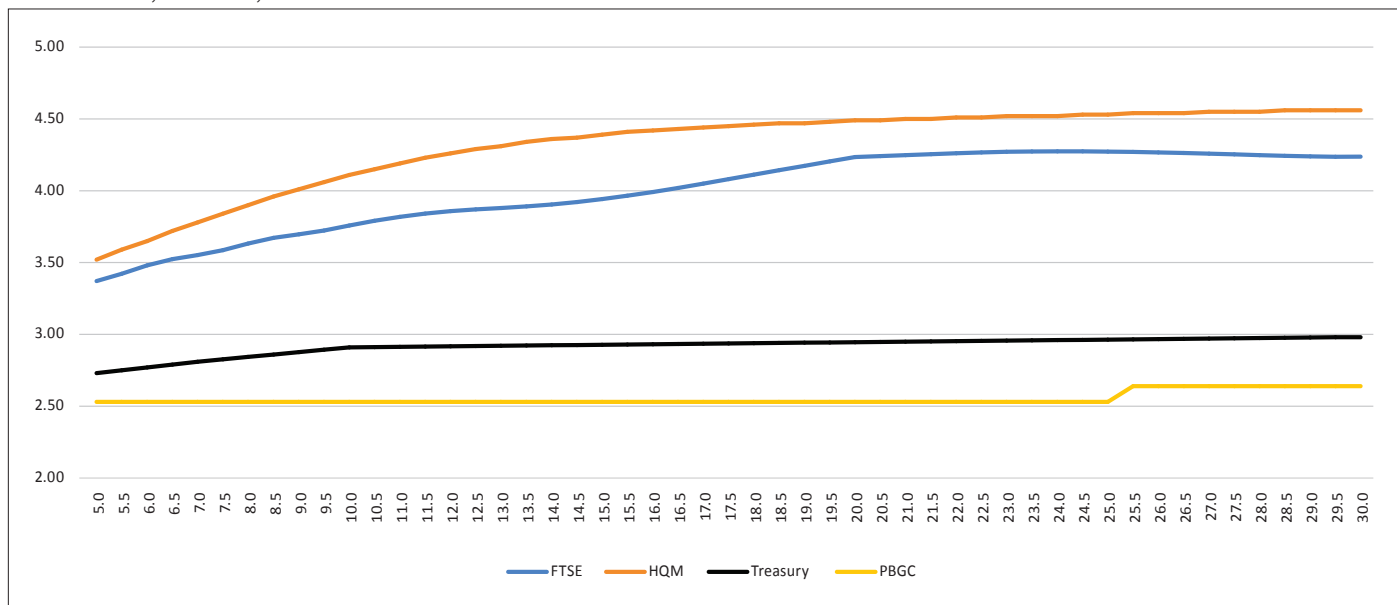
and remains in use to calculate the full yield curve funding target liability under PPA. It contains bonds of the three highest ratings—AAA, AA and A. Most of the bonds are A, making this a slightly lower credit than the FTSE.

There are consultants that have indexes and other information on group annuity pricing. Mercer publishes pension discount yield curve and index rates in the United States monthly. Aon publishes analysis of insurer pricing, Aon Annuity Tracker. Brentwood Asset Management's website has current interest rates for various types of group annuities.

Figure 1 compares FTSE Pension Discount and HQM on June 29, 2018, with CFR 4044 rates (PBGC rates). A Treasury yield curve is included for comparison. The anomaly of PBGC rates pricing through Treasuries may be partially due to the lag in rates. The rates on June 29, 2018, are based upon the average of survey rates between March 31, 2018, and Dec. 31, 2017. On Jan. 2, 2018, the 10-year treasury yielded 2.46 percent, which is below the PBGC rate of 2.53 percent. Difference in mortality assumptions between the insurers and PBGC is also a factor. Mortality improvement has been much higher than predicted by scale AA. Thus, the PBGC mortality rates are higher than current mortality at important ages.

If the CIA methodology for approximating group annuity prices were to be employed in the U.S., it would be most effective if many insurers participate in the quarterly survey.

Figure 1  
Yield Curves, June 29, 2018



For public plans, which often have CPI annuities, there is no required calculation of plan termination liability and the accounting standard uses assumed returns on investments. The interest rate for plan termination liabilities would likely be close to zero, as in Canada.

Unlike group annuities, there is no need for guidance to estimate prices for individual annuities. In the United States and Canada, there are several websites where quotes can be obtained for individual annuities. Indeed, the problem is too much data. There are many websites, companies and annuity types in this market. Given that an exact price of an annuity can be easily determined, why use an estimation method?

A group annuity pricing survey like the ones done in connection with the SOA's 2001 papers on 30-year Treasury rates and DB plans was completed. Sixteen insurers were identified as currently active in the U.S. group annuity closeout market, compared to 11 in the 2001 survey. Ten agreed to participate, the same number as in the 2001 survey. These ten included the major companies in this market. The following is a summary of these responses.

- Mortality assumptions. In the 2001 survey, eight companies used variants of the GAM while two used the RP. The mortality improvement was scale AA. In this survey, no companies used GAM for pricing and only one company used

scale AA for mortality improvement. Many companies used internally developed mortality assumptions, which were closer to the RP-2014. Three companies used the RP. Most companies used the MP-2017 or variants of this scale for improvement. A couple of companies used Social Security Administration (SSA) data to develop mortality improvement assumptions. Only one company had assumptions that were close to the Reg. 4044 bases (UP-94 projected 34 years using scale AA). Most said their assumptions were closer to the PBGC Annual Report basis (RP-2014 projected generationally using MP-2016). Unlike the 2001 survey, most companies are underwriting mortality using different assumptions based upon industry, ZIP code, collar and annuity size. Many companies would use plan-specific mortality data if credible.

- Interest assumptions. Seven companies use a yield curve for pricing, while two use rates that vary by duration. Five use rates from investments, which in one case was compared to an index rate. Three use indices and the remaining two use yield on an assumed investment portfolio.
- Expense assumptions. None of the companies had different expenses for buy-ins, but many do only buyouts. Three companies had assumptions that were like the PBGC's. The others that gave details used per life charges, percent of premium or interest rate reductions to reflect expenses.



- Early retirement assumptions. In the current low interest rate environment, subsidized early retirement factors have become much less important. Indeed, in some cases, the subsidies are negative (i.e., result in gains). One company mentioned that they were more concerned about late retirement increases than early retirement. Of the eight companies pricing early retirement subsidies, three used assumed retirement ages, while five used retirement scales. Six companies considered plan experience in choosing early retirement assumptions.
- Optional forms, including lump sums. Most companies would price these based upon experience. Some would decline cases with too many lump sums or other subsidized options that could not be modeled.
- Special circumstances. Size (too big or too small) was given as a reason to decline by many companies. Administrative complexity, too many lump sums or other optional forms that were difficult to model, disability benefits if not based on Social Security, COLAs and too many deferred were reasons for declination. Of companies indicating a minimum size requirement, the lowest was \$20 million.

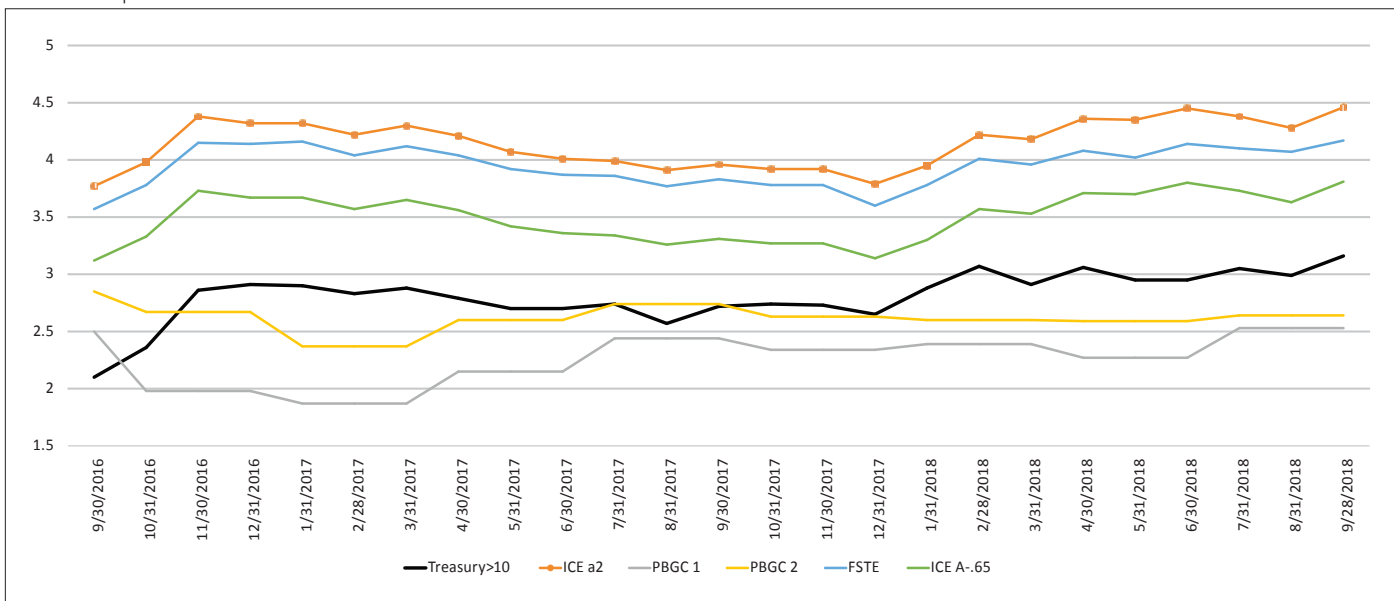
A model of insurer pricing was built based upon the foregoing survey, NAIC risk-based capital requirements, assumed expenses and return on capital/profit charges. For an investment strategy, a duration matched portfolio of NAIC 1 (A or higher) rated

publicly traded bonds was chosen as represented by the ICE Bank of America Merrill Lynch Corporate A bonds 15+ (C8A3). This has an effective duration of 14, which is representative of a buyout with both retired and non-retired lives.

Redundancies are applied to NAIC capital charges giving a total required surplus of 3 percent. The target after tax return on this surplus is 10 percent, and surplus earns 4 percent pre-tax, and the tax rate is 21 percent. The required spread rounds to 0.30 percent. We have added 0.20 percent for overhead and investment management expenses, 0.05 percent for asset defaults and 0.10 percent for administrative expenses, giving a total spread of 0.65 percent off the A bond rate. We have ignored surplus and tax strain, which are no longer an issue. For mortality, the RP-2014 was projected using MP-2017 generationally.

Figure 2 compares the model company's pricing rate (ICE A-.65%) to the PBGC rates (PBGC rate 1 for the first 20 or 25 years, PBGC rate 2 for years thereafter) and the FTSE AA yield on June 29, 2018. Treasury yields are there for comparison. As expected, the model pricing rate is inside the AA rate (averaging .45% lower). However, it's higher than the PBGC rates, averaging 1.2% percent higher than the PBGC initial rate. This is due in part to the lag in the PBGC rates. These rates are the average from two to three quarters ago. During periods of rising interest rates, PBGC rates will lag the current market. Another reason is that the insurers participating in the survey may be using more conservative mortality assumptions.

Figure 2  
Rate Comparison



Encouraging more insurers to participate in the ACLI/PBGC survey could lead to a more robust approach.

To examine this, the cost for \$1,000 per month for life for a healthy male annuitant age 65 was calculated on the PBGC and model company basis. The PBGC basis is UP-94 projected scale AA static 34 years at 2.53 percent for 25 years and 2.64 percent thereafter. The effect of the 11 basis points higher rate after 25 years adds about 1 basis point to the initial rate or 2.54 percent, which gives a cost of \$182,490. The rate for the model was developed by interpolating C8A3 (15+ years) with duration 14 and C7A3 (10 to 15 years) with duration 9 to match the liability duration of 10, giving 4.3 percent. The model uses RP-2014vMP-2017 at 3.65 percent, giving a cost of \$169,490. The price difference of 7.5 percent equivalent to 0.75% percent in interest rate at duration 10. This leaves 0.36 percent attributable to mortality. The PBGC rates are based upon an average of the rates on March 31, 2018, and Dec. 31, 2017. Using the average of the model rates on those dates gives a net rate of 3.11 percent, 0.54 percent lower, making the lag the more important factor.

The CIA's quarterly guidance in the form of an educational note on group annuity pricing for solvency valuations provides an excellent approximation to group annuity prices in Canada. It could work in the United States, assuming sufficient insurer participation. Currently less than half of the insurers in this market provide sample indicative rates to ACLI for the PBGC

survey. Without sufficient insurer participation, the CIA method of pricing three hypothetical annuity quotes will not work in the U.S. This also points to a potential future problem in Canada—decline in participation over long time periods. Back in the 1980s, there were efforts to encourage insurers to participate in the PBGC survey and participation was better.

Encouraging more insurers to participate in the ACLI/PBGC survey could lead to a more robust approach. Perhaps a website can be set up where rates could be entered by participating companies. A study comparing actual pricing on closeouts to PBGC pricing completed in 2000 could be repeated to validate PBGC methodology.

There is no need for an estimation of individual annuity prices in either the United States or Canada since these are readily available on websites. The same companies that treat sample indicative group annuity rates as closely guarded secrets publish on the internet exact buyable quotes for any age or benefit for individual annuities. The mortality and expenses may be different, but the underlying investments for individual and group annuities should be the same. A method of using individual annuity rates downloaded from the internet to estimate group annuity pricing could be developed using historical individual annuity quotes. The stickiness of individual annuity quotes needs to be factored into the algorithm. This could be a future SOA research project. ■



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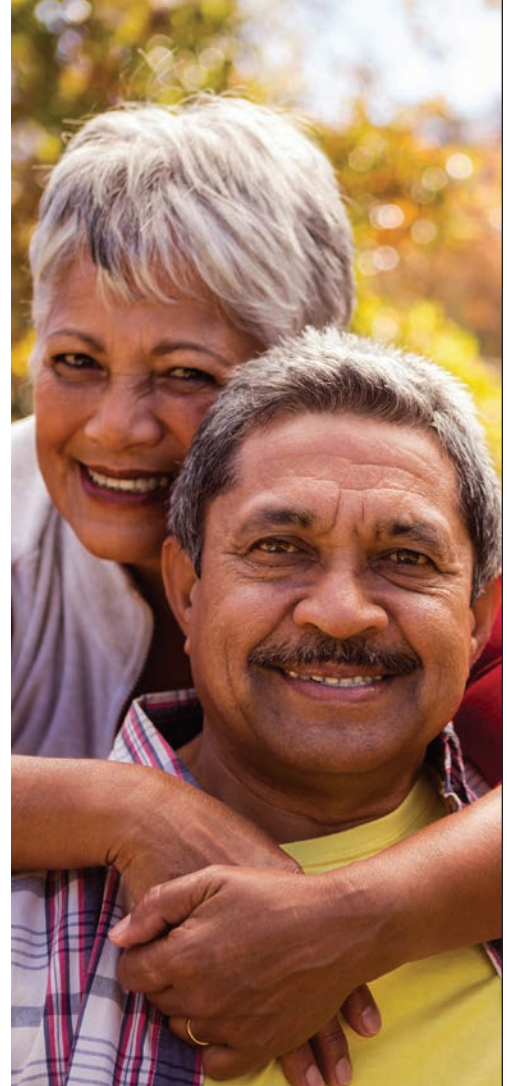
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# An Exploration of Lifecycle Finance

By Matthew Brady

**M**any retirement actuaries have experience developing, implementing, and monitoring liability driven investing (LDI) strategies for plan sponsors. These strategies typically involve modifying a plan's investment strategy to remove a significant portion of the investment and interest rate risk now or at some point in the future when specific triggers are met. The tactics often involve the use of fixed income assets to cash flow and/or duration match the liabilities.

In the spirit of helping actuaries expand their roles in an evolving defined contribution world, this article explores the application of LDI and de-risking strategies within defined contribution and individual retirement accounts.

The economic theory behind this approach is called the lifecycle hypothesis, or lifecycle finance. Developed in the 1950s by Nobel laureate Franco Modigliani and extended later by many economists including Paul Samuelson, Robert Merton, and Zvi Bodie, the lifecycle hypothesis assumes that individuals value smooth consumption over their lifetimes and try to avoid abrupt changes in consumption. You purchase disability insurance to avoid losing your primary income source upon illness or injury. You purchase life insurance to provide an income stream for your family in the event of an untimely death. You save for retirement to provide a safe and reliable source of income to fund your expenses after you leave the labor force.

There are myriad approaches for saving and investing for retirement, but only one—the lifecycle finance strategy—focuses on securing a safe income floor in retirement. Coincidentally, this is achieved using methods familiar to retirement actuaries.

Zvi Bodie lays out this strategy in his book *Worry-Free Investing*.<sup>1</sup>

1. **Set goals**—identify how much you can save for retirement, when you might want to (or need to) retire, and how much income (*not wealth*) you will need in retirement. You should be realistic about your retirement age and plan for a range of years, rather than a specific year. Remember, most retirees end up retiring earlier than planned.<sup>2</sup>



2. **Specify targets**—determine the minimum amount of income you will need in retirement to fund living expenses (e.g., food, clothing, shelter, and health insurance); the amount of retirement income you will receive from Social Security, pensions, and annuities; the amount of income you will need in addition to Social Security, pension, and annuities (the retirement income floor); and the type of investments that you will use to fund the retirement income floor. Bodie suggests Treasury Inflation Protected Securities (TIPS) and Inflation Linked Bonds (I Bonds) as the safe and reliable way to accumulate and fund this retirement income floor. In today's low rate environment, it will be expensive to secure the minimum income necessary to meet living expenses, but delaying Social Security may significantly reduce the cost of the retirement income floor.
3. **Compute your required no-risk savings rate**—determine how much you would need to save annually in TIPS and/or I Bonds in order to fund the retirement income floor. In today's low rate environment, individuals will likely need to save more and/or work longer to fund their retirement.
4. **Determine your tolerance for risk**—if you have a high savings rate and/or are flexible on when you would like to



retire, then you have more capacity for risk and risky assets (e.g., equities). The common perception is that young people have a long time for equities to generate excess returns over safe investments, but the lifecycle theory implies that capacity for risk, not time, should determine asset allocation.

5. **Choose your risky asset portfolio**—once you have allocated enough to safe investments (e.g., TIPS and I Bonds) to cover the retirement income floor, then you can determine how much of the rest of the portfolio to allocate toward equities and other risky investments.

In the prior issue of *Retirement Section News*, Anna Rappaport called attention to the four biggest risks that individuals face in retirement: investment risk, interest rate risk, inflation risk, and longevity risk.<sup>3</sup> Lifecycle finance is intended to mitigate all four risks.

Investment risk is mitigated by using TIPS and I Bonds, which are backed by the U.S. Treasury, to fund a safe stream of retirement income. Investment risk is only present within the portion of the portfolio that will be used to fund discretionary expenses and even that may be subsequently used to increase the level of the retirement income floor.

Interest rate risk is mitigated by using individual TIPS securities, TIPS funds/ETFs, and I Bonds to cash flow or duration match the retirement income floor. If rates rise, then the value of the safe assets will decrease but so will the value of the liability (the retirement income floor). Similarly, if rates decrease, then the value of the safe assets will increase, as will the value of the liability. There are a variety of short, intermediate, and long-term TIPS funds available to allow individuals to easily duration match their liabilities while still holding liquid securities.

The lifecycle finance method is a sound economic and financial theory for individuals to save for retirement, but it cannot be implemented if individuals have little or no retirement savings.

Inflation risk is mitigated due to the fact that TIPS and I Bonds are indexed to inflation, as measured by the Consumer Price Index (CPI). If inflation unexpectedly increases, then TIPS and I Bonds will compensate by delivering an income floor that similarly rises to match new price levels.

Last, longevity risk can be mitigated by purchasing an annuity—specifically a Single Premium Immediate Annuity (SPIA), Deferred Income Annuity, or a Qualified Longevity Annuity Contract (QLAC)—to provide guaranteed income over the individual’s lifetime. In fact, if the portfolio of TIPS and I Bonds are cash flow or duration matched to the retirement income floor, then abrupt changes in interest rates near retirement will not have a material impact on the individual’s ability to purchase an annuity.

While this approach mitigates all four risks, some may be concerned that it would be prohibitively expensive, especially compared with other retirement withdrawal strategies. Table 1 illustrates the cost to provide a \$40,000 income using a TIPS portfolio duration matched to provide 30 years of retirement income and a CPI-adjusted SPIA. Both approaches provide an initial withdrawal rate just slightly below the “4 percent Rule” while providing secure inflation-adjusted income for life in retirement.

Table 1  
Cost to Provide a \$40,000 Income

	Beginning Annual Income	Balance Needed at Age 65	Withdrawal Rate
TIPS Ladder*	\$40,000	\$1,074,535	3.6%
CPI-Adjusted SPIA**	\$40,000	\$1,102,109	3.7%

\* Derived by author using Daily Treasury Yield Curve Rates as of May 17, 2019. Source: <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=realyield>

\*\* Based on a couple age 65 living in Texas who purchase a 100% joint and survivor annuity as of May 17, 2019. Source: [www.BlueprintIncome.com](http://www.BlueprintIncome.com)

The challenge with annuities is that many issuers do not offer inflation adjusted SPIAs. Additionally, in the last issue of *Retirement Section News*, Mary Hardy described findings from a recent research study by the Canadian Institute of Actuaries (CIA) that showed an alarming number of retirees do not like annuities: “When given a hypothetical amount of money available to them at their hypothetical retirement, 84 percent would not pay even half of the market price for a life annuity, and most wouldn’t buy one at any price.”<sup>4</sup>

The CIA survey highlights another significant challenge with retirement planning for society—61 percent of respondents had little property wealth and savings (less than \$200,000 for single respondents and \$300,000 for married/common law respondents).<sup>5</sup> The lifecycle finance method is a sound economic and financial theory for individuals to save for retirement, but it cannot be implemented if individuals have little or no retirement savings. For these individuals, implementing the lifecycle finance strategy while delaying Social Security by continuing to

work and using home equity to generate retirement income via a reverse mortgage may be the best options on the table.

Indeed by delaying Social Security, individuals may find that most, or even all, of their living expenses are covered by Social Security, and safe investments are only needed to cover living expenses from retirement until Social Security begins. This approach might closely resemble Steve Vernon's "Spend Safely in Retirement" strategy.<sup>6</sup>

The benefits of the lifecycle finance method are that it provides a safe approach to save for retirement and a secure source of floor income during retirement. Similar to pension plans, each individual has his or her own idiosyncratic needs, wants, and risks that should be considered. Actuaries are viewed as experts on the topic of LDI and de-risking strategies for pension plans. As a result, actuaries are uniquely situated to help defined contribution plan sponsors, individuals, and even themselves implement the lifecycle finance approach by developing and distributing tools and methods that focus on income (rather than wealth), LDI strategies, and personalization. ■



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#### ENDNOTES

- 1 Bodie, Zvi. *Worry-Free Investing: A Sure Way to Achieve Your Lifetime Financial Goals*. Prentice Hall, 2008.
- 2 *Retirement Survey Report Key Findings and Issues: 2017 Risks and Process of Retirement Survey*. Society of Actuaries, 2017.
- 3 Rappaport, Anna M. "Perspectives From Anna: Evolution of Retirement and Risk-Sharing Ideas." *Retirement Section News*, Society of Actuaries, Feb. 2019.
- 4 Rappaport, Anna M. "Retirement Consumption, Risk Perception and Planning Objectives in Canada: An Interview with Mary Hardy." *Retirement Section News*, Society of Actuaries, Feb. 2019.
- 5 Hardy, Mary, et al. *Retirement Consumption, Risk Perception and Planning Objectives*. Canadian Institute of Actuaries, June 2018.
- 6 Vernon, Steve. "How to 'Pensionize' Any IRA or 401(k) Plan." *Stanford Center for Longevity*, Nov. 2017.

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# An Interview With Perspectives From Anna's Anna Rappaport

By Josh Bank

**A**nna Rappaport's column Perspectives from Anna has appeared in every issue—ever—of the *Retirement Section News*. Same for more than a decade prior to our name change from *Pension Section News* a year ago. Among too many other prestigious positions and awards to Google (I tried and got tired after many result screens) much less to mention, Anna was a member of the ERISA Advisory Council, later served as president of the SOA and was a recipient of SOA's 2018 Outstanding Volunteer Award.

*Retirement Section News* is pleased to present our recent interview with Anna.

## **Retirement Section News (RSN): What is your educational background?**

AR: I graduated from high school in Baton Rouge, Louisiana, in 1956. I attended the University of Chicago and majored in math but did not complete my undergraduate degree. I returned to the University of Chicago Booth School of Business in 1980 and completed my MBA in 1985. I became an ASA in 1960 and an FSA in 1963.

## **RSN: How did you choose to become an actuary?**

AR: I started working in 1958 with a lot of math background but without having finished college in an environment where there were not many jobs for women with such a background. I learned that by passing the actuarial examinations I could have a much better career and many good options. These jobs were more open to women than many. I got a job as a clerk in the valuation department of New York Life, started passing actuarial examinations, and was moved into the actuarial career path program after I had passed what were then the first three examinations. At the time I took the actuarial examinations, there was no specialization, and everyone took the same exams. The New York Actuaries Club offered classes in preparation for the exams and that was a great help to me in learning the specialized mathematics.

## **RSN: How did your parents influence your career and life choices?**

AR: My parents were refugees from Nazi Germany, coming to the United States as young adults, my father in 1933 and my mother in 1937. These were difficult economic times and the job market was very challenging for them. After studying law in Germany, my father shifted to a career in social work after Tulane University admitted him to graduate school based on his German education. He devoted his life to improving the circumstances of people who needed help. He felt that doing what was right and what would improve people's lives to be his life work. My mother was a math and German teacher. One of the things that she specialized in was working with students who had difficulty learning math. She was very creative and invented a variety of games to help students learn math.

They were an inspiration to me. I carried forward the interest in math and in helping people. The actuarial profession has offered me a great platform to build on—one where I helped my employers and clients and did work that is worthwhile for Americans generally.

In reviewing my early jobs, I was surprised to realize how important job variety was for my career.

## **RSN: You spent nearly 20 years working in the life insurance industry. How did your career progress during that period?**

AR: In reviewing my early jobs, I was surprised to realize how important job variety was for my career. New York Life had a fairly large actuarial department. Assignments were rotated in the actuarial program and we were being trained to advance to more senior roles later on. I passed my actuarial exams attaining fellowship over a five-year period and that was noticed.

The job market for actuaries was very good at the time I started. In the early 1960s, I moved from the New York Life to Standard Security Life, a small publicly held and innovative life insurance company with a very small actuarial department. There were five of us in the department including two credentialed actuaries. This was an amazing opportunity because I got the chance to work on many different projects at the same time. I participated in product development, valuations, and preparation of financial information as well as working with the brokers who sold the company's products. We all got to see how various functions in

the company fit together. It was hard work and a great learning experience. During that time, I also taught part-time at the College of Insurance in New York, including courses on the administration of life and health insurance and the marketing of insurance products. I learned a lot from that also. Like many smaller and innovative companies, the company's future was unclear. Searching for better opportunities, I moved on.

My third experience in the life insurance industry was at the Equitable in New York. I found a job at the Equitable focusing on the future of the life insurance industry. It was essentially a research role within the actuarial department. During that period, I focused on a variety of different areas of change and corresponding models for meeting personal financial needs. What I learned from my three years at the Equitable served as a good springboard for the next phase of my career.

**RSN: Were you active in the actuarial profession while you were in the life insurance industry?**

AR: Yes, I got my fellowship at age 23 in 1963 and that was unusually young. An article in the *New York Times* got me early notice because of my age and gender. Actuaries were awarded

their diplomas at a Society of Actuaries meeting. The Society of Actuaries was concerned about getting some younger actuaries involved with volunteering. I joined my first SOA committee shortly after attaining fellowship. I was elected to the Board in the late 1960s and served as Treasurer in the 1970s. (The SOA had a different Board and Executive Committee structure at that time.)

My first paper, "Consumerism and the Compensation of the Life Insurance Agent," was published in the *Transactions of the Society of Actuaries (TSA)* in 1974. This marked me as an outspoken advocate for the consumer and an individual willing to take on controversial topics.

My second paper, "The Education of the Actuary in the Future," was coauthored with Peter Plumley and published in the *TSA* in 1975. We also coauthored a paper titled "The Impact of Social and Economic Changes in Financial Security Systems" published in 1978.

The SOA exams were not specialized when I started. The first introduction of separate content was in 1976, when the SOA included one exam exclusively for U.S. candidates and



one for Canadian candidates. In the early 1970s, I chaired the implementation committee for the U.S. specialty exam. Peter Plumley was general chairperson of the Education and Examination Committee and that is how we met each other. (We later married after working together on this assignment and some others for the SOA.)

My SOA volunteer experience helped broaden my horizons and build professional contacts. I also learned how to work with groups of people and collaborate. My contacts were invaluable when I was interested in another career move.

**RSN: What led to your switch into pensions?**

AR: By 1976, I had spent nearly 20 years in the life insurance industry and had very interesting jobs. I was interested in having a senior management role but felt that the life insurance industry was not ready for women in senior roles. I was concerned that getting another job in life insurance would not offer any opportunity for growth. So, I decided it was time to try something new. Congress passed major pension legislation, the Employee Retirement Income Security Act (ERISA) in 1974. ERISA became effective in 1976 leading to a great need for many more pension actuaries. Two forces—my interest in something new and big opportunities for pension actuaries—propelled me in that direction.

**RSN: How did you happen to choose Mercer?**

AR: The Marsh and McLennan companies, a major global insurance brokerage and risk management organization, had recently consolidated its benefits operations into Mercer. I had professional contacts that got me an audience at a high level. Mercer was trying to recruit pension actuaries at all levels. Mercer recognized the fact that I was currently a very well known actuary with substantial recognition in the Society of Actuaries and a focus on the future of financial services. I was hired at a reasonably senior level even though I had no prior pension experience.

An important part of the work of consultants was dealing with clients and helping them solve problems in our areas of expertise. My work with the brokers and agents at Standard Security and within the actuarial profession helped position me to work with clients to solve problems.

I joined Mercer with the idea that roles within the firm were flexible and this certainly turned out to be true. Individuals who had talent and special interests could work in partnership with management to tailor a role where they could make a good contribution to the firm. This was very different from some firms where assignments and roles were much more rigidly determined.

My SOA volunteer experience helped broaden my horizons and build professional contacts. I also learned how to work with groups of people and collaborate.

**RSN: How did your career start and how did your career progress in Mercer?**

AR: Let me take you through the typical work cycle of an actuary in Mercer in the 1970s and 1980s. Each individual in the pension actuarial groups was assigned to a number of client teams. The team would request and receive employee data from the client, and often needed to review and edit it, resolve data problems, set up the valuation considering plan changes, process the valuation, analyze results, communicate to clients and prepare valuation reports. Communication to the clients could be in a formal report, letter or a series of tables. There were no spreadsheets or personal computers at this time. Secretaries typed the reports, letters and tables. The actuary interacted with the client to determine what needed to be done and also what assumptions needed to be used. There was a lot of thought given to reasonableness checking and quality control.

While I participated in some of the aforementioned tasks, I did not progress through the usual team and manager roles. Within Mercer, I was fortunate to connect with people throughout the firm early on. Mercer had hired me in part because I was knowledgeable about demographic and other change and had focused on a number of different financial services issues. In 1978, there was more benefits legislation. ERISA had brought on huge changes, but more was being piled on. Benefits requirements were added to the Age Discrimination in Employment legislation and there were new requirements imposed on disability plans. Mercer management took a bold step and produced a daylong client seminar on current demographic and social issues and their relationship to benefits and compensation management. The seminars were conducted in more than 10 locations in the U.S. I had the opportunity to play a leadership role in these seminars and to give the keynote address on social and demographic change. While the seminars primarily were for clients, they also influenced the consulting practice, and this gave me a lot of visibility and credibility within the firm. I joined the firm being well known within the actuarial community and after the seminars I was better known within Mercer.

A few years after I joined Mercer, I participated in planning and conducting regular internal seminars and training programs. I



served on committees connected to these meetings, developed topics and materials, and also helped facilitate some of them. My work had changed so that I was contributing to the firm beyond the work I was doing for my clients. My participation in so many of these sessions enabled me to meet and build relationships with more colleagues. Ultimately, I had a role working directly for the U.S. retirement practice.

**RSN: How did your career progress and what was significant?**

AR: By the time I had been at Mercer 10 to 15 years, my days were a combination of client work and special assignments. I did not start as a beginning actuarial student at Mercer and there were not well-defined career steps for me except that I did ultimately become a worldwide partner. There were special topics and assignments that were quite interesting.

While I never had a defined new business responsibility, I worked on a number of exciting new business opportunities and some of my contacts became Mercer clients. I was also fortunate to be able to help other offices with some assignments requiring different expertise.

The typical corporate retirement program for larger Mercer clients included a defined benefit pension plan (or often several for different groups of employees), some company sponsored savings plans and retiree health benefits. When I started at Mercer, there was no actuarial recognition of retiree health benefits as a retirement benefit, and they were financed on a pay-as-you-go basis and charged to earnings in the same way. The accounting profession came to realize that retiree health was more like a pension and it should be accounted for like a pension. I worked on early valuations that no one would believe. I experienced some of the challenges of realizing that retiree

health plans may not have documents. In companies with multiple benefit patterns for different employee groups, sometimes the only way to really know what the benefits were was to find out more about the claims that were administered. There were a lot of challenges and things were changing. I started to write regular articles on retiree health and had a column on that topic in *Compensation and Benefits Management*. That column continued from 1992 until I left Mercer at the end of 2004.

Another interesting assignment that I had for several years was to help Mercer manage its relationships with the actuarial organizations and help Mercer to have representation in professional committees. I also worked on many Mercer publications.

**RSN: Were there any events that led to a major change in responsibility?**

AR: I was elected president of the Society of Actuaries in 1996. There were several steps in the process of moving from president-elect to president and past president. I was very fortunate that Mercer supported me in this role, and I worked out a different set of responsibilities while in this role. I visited as many Mercer offices as I could during that process and helped with client seminars in some.

After I completed my term as past president in 2000, I continued within Mercer as a member of the U.S. retirement practice, working on intellectual capital and special projects. During that time, I remained very active within the actuarial profession and helped Mercer to maintain those relationships. I also was publishing regularly, and I was one of the best-known professionals within Mercer. I ultimately retired at age 64 at the end of 2004.

**RSN: Were there any major themes that followed you throughout your career?**

AR: Yes. I would point to several:

- A focus on the consumer or individual
- Need to identify, anticipate and respond to change
- Changing demographics and societal aging

And through my life there was a persistent background of changing technology.

These themes repeatedly surfaced in my writing, in assignments at work, and in my volunteer work. The consumer focus was particularly evident at Standard Security and in my later Society of Actuaries work. Change and demographics were dominant themes at the Equitable, they were underlying issues in my

Mercer work, and they were ever present in the volunteer work at the Society of Actuaries.

As president of the SOA, I had two main priorities—one to focus on how the profession was addressing the needs of the aging society and a second one to build relationships between the SOA and other professional organizations with common interests in employee benefit plan education and research. Both of these priorities turned into 20-year projects and I am still working on them.

**RSN: You developed a reputation and were ultimately elected president of the SOA. Did you pursue any strategies that helped you develop your reputation?**

AR: I did several things that helped me build and maintain my reputation. They included publishing many articles both within and outside of the actuarial profession, speaking up in professional circles and in other matters, service on SOA committees and on the Board, building contacts, and staying in touch with them. During my Mercer years, I often circulated articles I wrote and other things of interest to Mercer contacts throughout the firm. This offered me a way to stay in touch with people I was not directly involved with through current projects. My first publications in 1972 and 1974 focused on the consumer. I have published consistently since then and since retiring from Mercer have been a regular contributor to the *Retirement Section News* with Perspectives from Anna, to the Conference Board's Human Capital Exchange, and to *Benefits Quarterly*.

I served on the SOA Board over four decades—the 1960s, 1970s, 1980s and 1990s. I was maybe the only person who ever did this. Because of various changes in rules, I was able to be on the Board five separate times and for more years (14) than would be permitted today. Because the SOA had a major focus on bringing in younger people to Committees, I was first elected to the Board at a very young age.

**RSN: Was networking important to your career?**

AR: Absolutely. While I recognize that today and knew it by the time I joined Mercer, I am not sure when I first recognized it. I was able to build a very good network within the profession early on because of my professional service. This was very valuable to me at various times and it is still valuable. Today I also have a network within the employee benefits community, and I have been working for 20 years to build bridges between the actuarial profession and other organizations involved in employee benefit research and education. One of the things that I have done a great deal of is making introductions. I have been attending the National Academy of Social Insurance and Pension Research Council meetings for more than 25 years and find them very

useful for building and maintaining contacts. This is an area often overlooked by actuaries as they manage their careers.

**RSN: How did technology affect your career?**

AR: While many of the themes that I have dealt with have persisted and rolled along, technology has changed throughout my career and enabled many of the things that I did.

When I was first employed, I had never seen a calculator, let alone a computer, although many companies were using mainframe computers. The New York Life had desk calculators, which were about the size of a typewriter, having very limited capability and costing more than \$500. I used them at work for my first few jobs. At Standard Security, I wrote Fortran programs for a small mainframe computer with printing done on a separate computer using instructions provided through a plug board. For many years, most actuarial work was done by hand or required writing stand-alone programs, which were limited in scope because computer capacity was expensive and coding was not easy. Estimation was a vital part of any good actuaries' toolbox.

During my time at Mercer computers got larger, more powerful, and computer capacity dropped in price. My husband and I got our first personal computer in 1984 when there were no personal computers in my office at the time. I became an early advocate for personal computers and spreadsheets. The technology moved from office-specific valuation systems to firmwide systems and extensive use of personal computers by the time I left. E-mail became commonplace in the middle of my stay at Mercer. During my last 10 years at Mercer, it was common to have work teams from multiple locations. These changes were important to some of my opportunities. While work groups and committees met in person most of the time in the 1980s, all of that changed. During my last 10 years, I worked from our Chicago home some of the time, and during part of the year, worked more remotely from warmer climes most of the time.

My professional work since leaving Mercer is heavily facilitated by technology and the ability to work remotely. I do not have an office outside of my home, and most of my work can be handled with either phone calls or through electronic communication with few in-person meetings.

**RSN: How long after formal retirement did it take you to establish a new pattern of activity? What adjustments did retirement require?**

AR: I believe that people should establish a "life portfolio" of activities to remain active after retirement. By the time I retired from Mercer, I had established a number of activities that would

continue into retirement and this made the adjustment easier. I was very focused on phased retirement long before leaving Mercer and had been writing and speaking about these issues for years. Two years before I retired, we started spending part of the winter in a warmer setting, and I worked remotely for part of the year. I retired on December 31 and promptly headed to our winter home. I did not really experience very much of the change until we returned home in the spring. I missed the office, my coworkers and the structure of my job. But there was plenty to do and it was relatively easy to decide to continue with some independent consulting. Some of the issues I needed to deal with were getting technology set up so I could function, defining my brand and telling my story, finding suitable peer review, and coping with contracting issues. For more about this story, see my article, "Reboot, Rewire or Retire: Personal Experiences with Phased Retirement and Managing a Life Portfolio," which tells my story after leaving Mercer and becoming a phased retiree.

**RSN: You were president of the SOA in 1997–98 and have held many volunteer positions within the actuarial community. How important was that to your life, to the actuarial community, and to the population in general?**

AR: Serving as a volunteer in the actuarial community has been important to me for many years, and I have benefited through personal growth, satisfaction and development of contacts. However, my goal has always been to contribute to the community and give back and to help the community be more effective in society overall. It is my hope that the work we are doing benefits many Americans. My major goal today is to make a difference by what I do.

It is hard for me to measure how effective that has been, but it has been very gratifying to achieve a number of different awards over my career. In 2019, EBRI presented me with a major award, the Lilywhite Award, and in 2017, the PSCA presented me with their Lifetime Achievement Award. I am also the recipient of an SOA President's Award. WEB selected me as the Employee Benefits Professional of the Decade at the time of their 10th anniversary.

**RSN: Have you participated in governmental advisory groups and not-for-profits outside of the actuarial profession?**

AR: Service to the population overall might also be measured by participation in governmental advisory groups. I served as the actuarial representative on the ERISA Advisory Council in 2010–2012, on the Technical Panel to the Social Security Advisory Board in 2003, and as a member of the GAO's Retirement Security Advisory Panel for several years. I served a term on the advisory committee to the Joint Board for the Enrollment of Actuaries.

I am a member of the Women's Institute for a Secure Retirement (WISER) Board and the advisory Board of the Pension Research Council. I previously served on the Board of the National Academy of Social Insurance.

**RSN: During your working years, did you have a life beyond work and professional activities?**

AR: I have one child, Jennifer, and my husband has four children. Together we have nine grandchildren and five great-grandchildren. I have always considered family very important and we work to get together with them and stay in touch.

I am an artist as well as an actuary. You can see some of my work on my website. There are several different components to my work. I have enjoyed doing abstract paintings and collages, both in watercolor and mixed media for years. I also have done some landscape and flower painting, including some abstraction. I am a member of the Chicago Urban Sketchers and am an active urban sketcher. We draw on location in ink, pencil, watercolor and more. I try to find my own way and make my own rules. When asked whether I colored inside or outside of the lines, I replied that I make my own lines. ■



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# Global Pension Reform Spotlight: France

Translation by Josh Bank and Mathieu Laurendeau  
Introduction by Josh Bank

**E**ffective Jan. 1, 2019, France’s two major national supplementary (tier II occupational) pension programs, AGIRC and ARRCO, were merged, resulting in the new (name guesses anyone?) AGIRC-ARRCO retirement program for private sector salaried employees and their managers.

Previously, the supplementary pension program was divided into two distinct plans: the ARRCO plan for non-management employees and the AGIRC plan for executives (the latter also contributing to ARRCO). Supplementary pension contributions are deducted from wages. They are then counted as points. Before the reform, the values of the AGIRC and ARRCO points were different. From now on, the system switches to a single point pension system, with a single AGIRC-ARRCO point value and a single point count for each employee. As of 2019, the supplementary pension contributions are spread over two salary brackets for all employees (whether managers or non-managers). The first salary bracket is equal to the social security ceiling. The second salary bracket is between this ceiling and eight times the same ceiling. Contributions are funded 60 percent by the employer and 40 percent by the employees.

The detailed terms of the pre- and post-merger plans are beyond the scope of this article. You can Google (right, again!) “AGIRC-ARRCO” for brief summaries by some of our larger consulting firms and other interested parties. Our purpose is to expose you, as well as we can as fellow amateur global politics nonprofessionals, to the sort of language (and implied strategies) used in select countries to move pension reform legislation through (or past) the general population. It is noteworthy that these changes to the AGIRC-ARRCO plan were able to go through parliament without major demonstrations.

The following is a combined Texan and Québécois effort to convey in translated form how another OECD government is trying to avert the oncoming old age financial crisis that the World Bank described in 1994—the year they published their seminal “*Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth*” (available from Oxford University Press, but probably free, in pre-read form, on the World Bank’s website.)



## AGIRC-ARRCO PREAMBLE<sup>1</sup>

### The Principles that Underlie the Supplementary Pension

Considering the National Interprofessional Agreement of Oct. 30, 2015, relating to supplementary retirements AGIRC-ARRCO-AGFF (*Association Générale des Institutions de Retraite des Cadres, Association pour le Régime de Retraite Complémentaire des salariés* and *L’Association pour la Gestion de Fonds de Financement*, respectively) which foresees the completion of a National Interprofessional Agreement to establish, on Jan. 1, 2019, a joint supplementary retirement plan, named AGIRC-ARRCO, recapturing the entirety of rights and obligations of the AGIRC and ARRCO plans established, respectively, by the National Collective Agreement on Executive Retirement Plan of March 14, 1947, and the National Interprofessional Supplementary Retirement Agreement of Dec. 8, 1961.

The AGIRC-ARRCO supplementary retirement plan, which is under the responsibility of employers and salaried employee organizations at the national and interprofessional levels, is founded on principles of contributory, transparency, and solidarity, and relies on the following considerations.

The retirement plan operates on a pay-as-you-go basis and on points. It is based on interprofessional and intergenerational solidarity, so that active employee contributions each year finance the payment of retiree pensions as well as setting aside reserves



that allow demographic trends and economic uncertainties to be faced head-on.

These reserves are managed in a socially responsible manner, subject to the imperatives of profitability, security, liquidity and performance expected of the funds. In particular, environmental, social and governance criteria will be taken into account in setting the plan's funding policy.

The supplementary retirement plan follows a constraint of overall financial equilibrium, implying multiannual planning that is tied to the monitoring of the plan's obligations.

This multiannual management, based on explicit objectives and relevant indicators, ensures the sustainability of supplementary pensions.

It takes into account imperatives linked to:

- The fundamental principles of supplementary retirement and the implementation features notably tied to the functional parameters and the requirement of a sufficient level of reserves.
- The external environment to supplementary retirement, notably developments, both demographic (increase in life

expectancy ...) and economic (economic growth, unemployment rate, inflation ...).

The plan relies on efficient management that controls costs while guaranteeing the best service quality to salaried and retired participants as well as participating employers.

The AGIRC-ARRCO plan fulfills a mission of general interest.

Its governance and management, entrusted to employers and salaried employee organizations at the national and inter-professional levels, are operated under general principles of transparency, effectiveness of service rendered and male-female parity as defined and adapted by the National Interprofessional Agreement of Feb. 17, 2012, on the modernization of gender parity. Moreover, in order to avoid all conflicts of interest, appropriate measures are defined in statutes of the joint management organizations of the plan.

### **Article 1. Supplementary Retirement Plan for Salaried Employees**

A supplementary retirement plan, known as AGIRC-ARRCO, established by the accompanying National Interprofessional Agreement, is effective from Jan. 1, 2019, for the benefit of salaried employees who are mandatorily covered by the general social security plan's old age insurance or by agricultural

or salaried retirees social insurance, in accordance with article L.921-4 of the Social Security Code.

Regulation of the current plan is defined from chapters I to VII. This plan is implemented by a Federation along with supplementary retirement institutions as defined in chapter IX.

The AGIRC-ARRCO Federation is the result of the merger, on Jan. 1, 2019, between the AGIRC and ARRCO Federations, in accordance with the arrangements in article L. 921-4 of the Social Security Code.

Within the framework of a merger, the Federation with the smaller population of participants and members delivers the entirety of its goods, rights and obligations, assets and liabilities as of Dec. 31, 2018, without exception or reservation, to the Federation with the larger population of participants and members. The stipulations covering these operations are the object of an agreement between the Federations concerned.

The present agreement is effective for an undetermined period. It puts in place an interpretive joint commission defined in section 1 of Chapter IX.

## Article 2. Former Agreements

The current agreement revises the Executive Retirement Plan of March 14, 1947, and its amendments and the National Interprofessional Supplementary Retirement Agreement of Dec. 8, 1961, and its amendments, effective on Jan. 1, 2019; it enforces the term of the National Interprofessional Agreement of Feb. 10, 2001, creating the Association for management of the Finance Fund of AGIRC and ARRCO (AGFF) on Dec. 31, 2018, and brings to an end the structural finance Association created by the agreement of Feb. 4, 1983. The AGIRC-ARRCO federation mentioned in the preceding article assumes the rights and obligations of these two associations.

## Article 3. Amendment of the Agreement

Amendment of the present agreement is called for if some revision of legislation or regulation comes to modify, simultaneously and for the same purpose, employer obligations or salaried employees' benefits.

## Article 4. Agreement Membership

Those national and interprofessional organizations who, by their characteristics are eligible but who are not presently signatories of the agreement, may join at any time.

Said membership, which cannot be predicated on any condition or reservation, is reported by the new member organization to the signatories via registered letter. It is valid starting on the day following notice to the General Work Directorate and to the Registry of the Prud'hommes Council of Paris, (Greffe du Conseil des Prud'hommes de Paris), in the conditions provided for by law.

The organizations of employers and salaried employees at the national and interprofessional level who join the present accord participate in plan management as defined in Chapter IX, at the same level as signatory organizations. ■



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## ENDNOTE

- 1 Preamble to the "Nov. 17, 2017, National Interprofessional Agreement establishing the AGIRC-ARRCO supplementary retirement plan" (Accord National Interprofessionnel du 17 novembre instituant le régime AGIRC-ARRCO de retraite complémentaire)



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