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Pension Section News

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

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

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Chairperson's Corner

By Julie Curtis

This is my last article as the Pension Section chairperson and as an elected member of the Pension Section Council. The three-year term as an elected member has gone by quickly for me. It's been a privilege and a pleasure to work with the other members and with the volunteers and SOA staff. It's gratifying to see so many dedicated actuaries are practicing at the highest standard and keeping the profession vibrant and relevant. I will leave the council with a strong appreciation of the work that many volunteers give selflessly and with a new group of kind, funny and fiercely intelligent friends.

Many members of the council mentioned to me that when they first joined, they felt intimidated by the group's knowledge and intensity. So did I. Even now, when we dive into technical issues, I am in awe of my colleagues' depth of knowledge. Over the past three years, I've learned that many of us enter the role a little overwhelmed, but we find that with time and patience, we quickly become contributing members of the team.

I've also learned that many of the Pension Section's most important roles are filled by non-elected volunteers who oversee the continuing education, research, publications, communications, and public outreach. These volunteers move the profession forward and ensure that our practices can grow, adapt and help the public. Without these volunteers, we would not have the *Pension Section News*, *The Pension Forum*, *Pension Section Update*, webcasts, podcasts, Investment Boot Camps, SOA conference sessions, or the many, many research projects and papers that shape our profession, educate the public, and examine current practices and concepts.

My personal involvement with issues the SOA is now addressing has made me a better, more thoughtful actuary. Volunteering on work groups for topics such as credibility theory and reviewing the extensive work being done on current projects such as mor-

tality tables, public pension finance, pension risk, and post-retirement needs and risks have been a rewarding challenge.

The role of retirement actuaries is being re-defined, and although traditional pension plans are not as common as they once were, the need for educating plan sponsors and the public about retirement security is greater than ever. Pension actuaries are in a strong position to fill that need and to advance related research.

During our last in-person meeting, council members reviewed the existing research projects and developed an extensive list of potential new areas to explore in the coming years—topics that include elements of plan de-risking, DC plan design alternatives, bond market capacity, and making retirement plans more accessible.

Although I will miss being a part of the council, it is satisfying to know that the council's future membership will be dedicated and dynamic. This year, we had seven excellent candidates running for the three open council seats, and all seven brought extensive, diverse experience.

Pension actuaries who are interested in the work of the Pension Section Council, but are not voting members, can participate on a non-voting basis as a "Friend of the Council." Friends can provide important insights and contributions to the work of the council and to the section. I plan to become a friend this year and hope that other pension actuaries who would like to participate in research, education, or keeping the retirement practice current and relevant will also join as a friend or volunteer:

<https://www.soa.org/about/volunteer/default.aspx>

I look forward to following the council's contributions in the coming years and am grateful to have been able to participate these last three years. ■



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A View from the SOA's Staff Fellow for Retirement

By Andrew Peterson

One topic I've covered regularly in this column is mortality. This topic has been especially relevant for U.S. pension actuaries in light of the new mortality tables and related work released by the SOA Retirement Plans Experience Committee (RPEC) in the last several years. To that end, I thought it would be good to recirculate an update from RPEC that was sent in a July 2016 *Pension Section Update* to SOA Pension Section members on the basis that it never hurts to publicize an important message more than once.

AN IMPORTANT UPDATE FROM RPEC

The Retirement Plans Experience Committee (RPEC) currently has three projects underway:

1) Mortality Improvement

The following describes some recent developments regarding mortality improvement and RPEC's plans for the RPEC_2014 model and resulting scales.

Timing

As indicated in the MP-2015 report, RPEC is planning on providing annual updates to its mortality projection scales, and expects to publish Scale MP-2016 later this year, probably in late October.

Annual updates have a number of advantages including:

- A decrease in the lag time between the most recent data used in the improvement scale and the date of application of that scale.
- More stable financial results, especially during multi-year periods over which mortality improvement is consistently increasing or decreasing.

Reflecting Additional Years of Data

The MP-2015 scales were based on the latest U.S. population mortality data through 2011 published by the Social Security Administration (SSA).

In conjunction with the release of the 2016 Trustees' Report, the SSA has published mortality rates for 2012 and 2013. At a minimum, the MP-2016 scale will reflect these additional two years of SSA mortality rates, the same source of data underpinning MP-2014 and MP-2015. RPEC is also researching other sources of U.S. mortality improvement data that are reliable, current, and consistent with the mortality rates prepared by SSA in order to reduce the lag time.

While the more up-to-date information available from other sources may not be considered as complete and as accurate as the SSA data, some trends can be seen from the recent information. This data indicates that the mortality improvement rates in the five years 2010–2014 are significantly less than the rates in the previous ten years 2000–2009.

Implications for the RPEC Mortality Improvement Model

The RPEC_2014 model used to develop MP-2014 and MP-2015 is based upon the following underlying principles:

- Short-term mortality improvement rates should be based on recent experience.
- Long-term mortality improvement rates should be based on expert opinion.
- Short-term mortality improvement rates should blend smoothly into the assumed long-term rates over an appropriate transition period.

RPEC continues to believe that these principles are valid. As mortality experience emerges, RPEC continues to assess the committee-selected parameters, and will revise them, if appropriate, to reflect recent experience and future expectations and to enhance the year-to-year stability of its mortality projection model. Before adopting any other model that is significantly different from the current model, there would be a full exposure cycle.

In addition, RPEC is committed to an ongoing assessment of the effectiveness of the current model and continues to research new developments and emerging best practices in mortality improvement modeling from the U.S., U.K., Canada, and other countries.

2) Public Pension Plan Study

In August 2015, RPEC initiated a mortality study on members of public pension plans in the United States. This study focuses on mortality experience during calendar years 2009–2013. The committee intends to examine variations in mortality by job classification and geography. The data collection for this study has ended and work is now underway validating the data. Data collection and validation are slightly behind schedule. RPEC

anticipates presenting preliminary results in late 2017 with final publication of new mortality tables in 2018.

3) Private Pension Plan Study

In June 2016, RPEC initiated a new study of private sector pension mortality experience. In addition to reviewing mortality results in aggregate, the committee intends to examine variations in mortality by demographic and employment characteristics (e.g., collar type, industry).

RPEC requests your participation in this study. If your firm has any private-sector pension experience data for the 2010–2014 calendar years, please consider contributing it for our study. Express your intent to participate by contacting Patrick Nolan by email at pnolan@soa.org or phone at +1 847-273-8860. The data collection deadline is Sept. 30, 2016.

If you have any questions about any current RPEC projects, please contact Patrick Nolan at the Society of Actuaries. ■



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Perspectives from Anna: Retirement Advice and the Employer

By Anna M. Rappaport

BACKGROUND

Every year, the Society of Actuaries (SOA) Committee on Post-Retirement Needs and Risks (CPRNR) selects some major topics for new projects. In 2014, the committee decided to explore employer approaches to retirement advice, and commissioned a research paper on that topic. Michael Finke, then at Texas Tech and now the dean of the American College, was commissioned to write this paper. Step two of the project was to develop a guide for employers.

It turned out that this project was more interesting and challenging than expected, and more challenges surfaced along the way. While there was a lot of literature on retirement advice and planning, we found that there was very little that identified and sorted out the approaches employers might consider and use to support planning and help employees make better decisions. We also learned that the community of planning professionals includes a very diverse population with different business models, as well as education and qualifications. That situation was

complicated because some of the professionals were paid for providing advice, others for selling financial products and some a combination of the two. We learned that different types of professionals were regulated very differently by different agencies, depending on their business model and role. We also knew that there is no consensus about the right solutions and approaches to some retirement planning questions. All of that made it confusing to sort out the issues and clearly define the choices for the employer community. I believe the SOA research makes tremendous strides in advancing the literature on employer advice that is available to employers, particularly if the two reports are looked at together.

During the time that the SOA was doing this work, the Department of Labor was working on new fiduciary regulations. There has been a great deal of controversy surrounding these regulations, but final regulations were issued in April 2016. The new regulations expand the definition of fiduciary. They respond to concerns about conflicts of interest and retirement advice that was not always in the best interests of participants. My hope is that the new rules will help participants get a positive result more often.

One of the big questions going forward is how middle income individuals will get help when they need it. One of the concerns expressed in the CPRNR's 2012 Report: *The Impact of Running Out of Money in Retirement*¹ roundtable discussion was the limited supply of impartial and readily available financial advice for people who are not affluent. This is a group of individuals who are usually not prepared to pay for such advice and who have different challenges than the affluent. While much of the advice for the affluent relates to helping with investment management, the less-than-affluent often have little money to invest, and most of it may be part of a 401(k) plan, at least until they retire. However, this group faces many financial challenges, and many people need some help and support. It is unclear how the new environment will impact the options available to middle income individuals and couples. In any case, the efficient delivery of impartial services will be important if the advice is to be available at a cost that matches the likely available resources. Employer-sponsored programs and automated services offer two possibilities for decision support for this group.

THE ROLE OF EMPLOYERS

Employers have long been fiduciaries with respect to the retirement plans they sponsored. And as such, they are required to consider the interest of the participants in the management of the plans. The U.S. Department of Labor regulates these plans and it released final rules on April 6, substantially revising the definition of ERISA fiduciary for both defined contribution and defined benefit plans.² The new rules, which become effective on April 10, 2017, may accelerate changes in the provider mar-



ketplace. For a review of the employer issues related to the new rules, see the Plan Sponsor Council of America (PSCA) analysis.³ The rule is long and complex, and plan sponsors will want to review their strategies with their attorneys.

Employer programs continue to be a very important part of the retirement savings opportunities for many people. Middle income Americans put most, if not of all, of their retirement savings in plans sponsored by their employers, and many of this group do not have access to independent financial advice. Employer programs are a major source of communication about financial security and information to help employees make better decisions and benefit plans.

The types of communication support offered by employers is evolving. Aon Hewitt's *Hot Topics in Retirement 2016*⁴ show that nearly all employers (89 percent) indicated they are very or moderately likely to add tools, services or communications to expand their financial well-being focus. When asked why they are doing this, 85 percent said it was the right thing to do. The top three tools to be offered in 2016 are basics of financial markets (43 percent), budgeting (34 percent) and debt management (33 percent). All of these topics illustrate the growing appreciation of the importance of having a good foundation for financial education.

The SOA publication *Retirement and Investment Advice: A Guide for Employers*⁵ identifies a range of approaches that are available to employers to help employees make better retirement decisions. The approaches range from completely personalized approaches and somewhat personalized approaches with target date funds and guidance, to general education and plan design, which are not personalized at all. Advice can be found in the form of robo-advice, one-on-one, or managed accounts. Most of the approaches are helpful to those who are "do-it-yourself" type individuals, whereas managed accounts offer a "do-it-for-me" approach.

HOW THE RULES MAY IMPACT EMPLOYEE BENEFIT PLAN SPONSORS

I have been listening to others and thinking about the new rules and how they might impact individuals and employer offerings of advice. Several key points come to mind:

- Absolutely nothing has changed with respect to the individual's need for advice, and the level of financial and retirement literacy. The SOA research regularly has shown that individuals' retirement planning time horizons are too short and there are major gaps in planning. However, public awareness of the issues surrounding retirement advice, as well as employee interest in having access to more help, may change as a result

of these rules. These issues have gotten a great deal of attention. The new rules are likely to focus more attention on the importance and value of employer-sponsored advice and decision support.

- Many employer-sponsored plans offer good investment options and low fees. Employee interest in leaving their funds in their employer's plan may increase, and vendors supporting defined contribution plan management may increase their offerings of payout options and support for the post-retirement period. I predict that more money will stay in employer plans longer after retirement.
- Plan sponsors were fiduciaries prior to the new rule and they will still be fiduciaries. There could be some changes in how they execute that duty. At a minimum they will need to make sure that their vendor contracts are in compliance with the new rules.
- Products in the IRA market will get a lot more scrutiny and attention. If people or administrative firms connected to the employer plan are offering IRAs, the employer will likely be interested in understanding the offer and making sure that it is reasonable, that the arrangement is in compliance with the new rules, and that it is well disclosed. I would expect that some IRA products will be modified—new ones will appear and some will disappear.
- The minimum standards for education and qualification of representatives dealing with IRAs and other retirement matters may well go up. Many of them will be subject to fiduciary requirements for the first time.
- Some companies will change the way they compensate the people who are representing their IRA products.

EXAMPLES OF SHORTER-TERM STRATEGIES FOR EMPLOYERS

Remember that many of the methods employers can use to help employees make better decisions and secure good retirement outcomes are unaffected by the change in the rules. Financial wellness programs that help employees understand how to manage their finances but do not involve the sale of any product and are not connected to any financial product offer a good solution to helping employees. And as indicated by Aon Hewitt, financial wellness programs are rapidly growing in popularity.

Employers can also concentrate on specific issues. For example, Social Security claiming decisions are a huge issue for many middle income families. There can often be a very large difference in outcome depending on the strategy chosen. Employers can start by telling employees that this is an important issue and

maybe pointing out the options. They could also offer access to a tool to help employees evaluate the alternatives. Many record keepers and providers offer such tools, and the employer will probably want to review the tool before recommending it. Alternatively, the Consumer Financial Protection Bureau offers a tool⁶ to help employees understand social security claiming alternatives. That tool focuses on the individual rather than the household, but it offers considerable help compared to where many people are. And the SOA offers a decision brief on Social Security claiming.⁷

At a minimum, employers can support employees by helping them ask the right questions, as well as helping them with a path to do the analysis. Some of the employee questions with regard to defined contribution plans include:

- Can I leave my money in the plan after I retire?
- What investment and payout options are available and what expense charges apply?
- Which options offer guaranteed income for life?
- What risks are connected to each option?
- Are they a good deal for me?
- If I roll over my money to an IRA, what are my investment and payout options?
- What charges apply?
- Which payout option is best for me?
- Should I use a combination of several options?

CONCLUSION

As more employees are reaching retirement age and more attention is being focused on helping them get a good result in retirement, plan sponsors can offer tremendous value and support in this area and I encourage them to think about whether

or not they wish to offer advice and how. I also encourage them to revisit what options their plan offers for the retirement period, and whether or not they wish to expand their offerings. The SOA research report, *The Next Evolution in Defined Contribution Retirement Plan Design*⁸ should be helpful in setting up a framework for the evaluation of plan design options.

I am very proud of the work of the Committee on Post-Retirement Needs and Risks and hope that it's work will help lead to a better result for many Americans. ■

ENDNOTES

- 1 <https://www.soa.org/Research/Research-Projects/Pension/Running-Out-of-Money.aspx>
- 2 <https://www.dol.gov/ebsa/regs/conflictsofinterest.html>
- 3 http://www.psc.org/uploads/govt_affairs/2016/PSCA_Fiduciary_Rule_Final.pdf
- 4 <http://www.aon.com/attachments/human-capital-consulting/2016-hot-topics-retirement-financial-wellbeing-report.pdf>
- 5 <https://www.soa.org/Research/Research-Projects/Pension/2015-investment-retirement-advice.aspx>
- 6 <http://www.consumerfinance.gov/retirement/before-you-claim/>
- 7 <https://www.soa.org/research/research-projects/pension/research-managing-retirement-decisions.aspx>
- 8 <https://www.soa.org/Research/Research-Projects/Pension/research-2013-next-evol-dc-design.aspx>



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Helping your Employees Choose Between a Lump Sum or a Monthly Pension

By Carol Bogosian and Anna M. Rappaport

Employer-sponsored retirement plans are an important source of retirement security for those employees with long service in companies that provide these plans. For many employees, the employer-sponsored plan is their most important source of retirement funds in addition to Social Security. If the employer offers a defined benefit plan with a lump sum option, the distribution choice the employee makes may be the most important financial decision of their life. The choice is not easy, and once made, is irrevocable.

The Society of Actuaries recently released a new decision brief, “Lump Sum or Monthly Pension: Which to Take?” which offers a discussion of the choice, the considerations and a summary of pros and cons.¹ This brief is the newest addition to a series of decision briefs—guides designed to help employees make better and more informed retirement decisions.²

The “best” retirement option decision depends on an individual’s situation and priorities. Many of these decisions involve trade-offs, and experts often do not agree on the best course of action. In the practice of medicine, there are very often widely accepted treatment protocols for various conditions. In retirement practice, there are many areas where there are no generally accepted “best practices.” The situation can be particularly challenging in that many individuals do not plan for the long term, and the choices have different ramifications depending on whether they are considered through a long-term vs. a short-term perspective.

Important points for employees to think about with regard to the distribution decision include:

- The composition of their overall portfolio and their resources for retirement. Employees with a significant 401(k) balance or other financial assets have different considerations than those who primarily have a defined benefit plan plus Social Security.
- Individual tax situations.



- The availability of guaranteed income for life to protect against outliving assets. It should be noted that sources of guaranteed life income will probably not be inflation protected.
- The portion of regular recurring expenses covered by Social Security and the amount of additional monthly income needed to maintain a desired standard of living. Electing guaranteed income from a retirement plan is often a better choice than purchasing an annuity in the open market. But if the amount of additional income needed is less than the income provided by the plan, then the lump sum option may be a good choice.
- How important liquidity is to the household, including how important it is to leave a bequest.
- How the distribution choice will affect a surviving spouse.
- The value of flexibility in investing and spending retirement income funds
- The impact of the decision on other benefits, such as retiree health benefits.
- Investment and money management skills—employees who choose lump sums must invest the money and manage the drawdown, and potentially can lose it if investments do poorly. The availability of the funds may also become targets for elder fraud and scams.
- Health status—employees in poor health who are likely to die fairly soon are probably better off with a lump sum. How-

ever, if a spouse is to be considered, then a joint and survivor annuity may be a better choice.

- Whether or not a retiree has long-term care insurance. Retirees without long-term care insurance may need significantly more liquid assets.
- The position of the retiree with regard to supporting other family members. This may require more liquidity.

The decision brief has deliberately been written to objectively explain the issues involved in the decision, and not to favor any particular or combination of financial products.

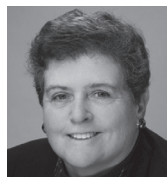
The decision brief includes an example of a middle income couple nearing retirement and takes them through the considerations and a thought process involving multiple scenarios. The discussion should help employees think through the issues as they make this important decision. ■

ENDNOTES

- 1 <https://www.soa.org/Files/Research/Projects/research-2016-lump-sum-mrd.pdf>
- 2 <https://www.soa.org/research/research-projects/pension/research-managing-retirement-decisions.aspx>



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Interview with Sudipto Banerjee, Ph.D.



Sudipto Banerjee is the researcher responsible for the Employee Benefit Research Institute (EBRI) research on spending in retirement discussed in the article “Thinking About Spending in Retirement: Findings From SOA and EBRI Research.”

TELL US A LITTLE ABOUT YOURSELF.

I am a part of the EBRI retirement research team. My research interests are centered around the economic issues people face in retirement. These include studying how and why household income and spending change in retirement, understanding annuitization preferences, documenting effects of nursing home stays on household portfolios, etc. I finished my Ph.D. in economics from The Ohio State University in 2011 and have been with EBRI since then. In 2015, I was honored as one of the 50 Influencers in Aging by Next Avenue (PBS).

WHAT IS THE BACKGROUND OF THE EBRI RESEARCH ON SPENDING IN RETIREMENT?

When I started working on these issues, I found a lot of great research and advice for workers who are saving for retirement. For example, at EBRI, we do a lot of research using our own individual retirement account (IRA) and 401(k) databases on topics such as contribution behavior, asset allocation, etc. But I found that research on retirees is relatively scarce, and as a result of that, most studies just assume how people are going to behave in retirement. For example, the retirement ad-

equacy studies, which use income replacement rates, assume that replacing a certain percentage of pre-retirement income throughout retirement will lead to a successful retirement. Does this mean post-retirement spending will also be a certain percentage of pre-retirement spending throughout retirement? What if people make lifestyle changes as they age and their health deteriorates? Does their spending still remain unchanged? How about different subpopulations of retirees? Do singles and couples need to replace the same percentage of income? Is it the same for those entering retirement with or without a mortgage? Of course, to answer these questions we need a deep understanding of spending in retirement. So, we started working on retirement spending as a part of the greater issue of retirement adequacy.

WHAT DATA SOURCES DID YOU CHOOSE AND WHY?

For all our work on retirement spending we used data from Consumption and Activities Mail Survey (CAMS), which is a supplement of the more well-known Health and Retirement Study (HRS). HRS is the most comprehensive national survey of older (50 and above) Americans and is often referred to as the “gold standard” for data on retirement research. It is an incredibly rich data source that includes very detailed information on income, assets, health, labor force participation, etc. CAMS collects data on 36 spending categories. The most important advantage of using CAMS is its link with HRS. Because all CAMS households are part of HRS too, spending data can be analyzed together with income, health and labor force behavior data. The other advantage of both HRS and CAMS is that both are longitudinal surveys, which means the same groups of people can be studied over long periods.

WHAT SURPRISED YOU THE MOST ABOUT THE FINDINGS?

I am not sure if I was surprised, but there were definitely some findings that stood out. First, nearly half (45.9 percent) of households spent more in the first two years of retirement than they did before retirement. More importantly, these households were almost evenly distributed across different income groups. Even after five to six years of retirement, almost a quarter (23.4 percent) of households spent 20 percent or more than they did before retirement. This gives us an idea about the highly individual and flexible nature of post-retirement spending. The other finding that stood out to me is how stable some types of out-of-pocket medical expenditures (doctor visits, prescription drugs and dentist visits) are throughout retirement. On average, they don't really change with age.

WHAT DO YOU THINK IS APPROPRIATE FOR INDIVIDUALS TO EXPECT AND PLAN FOR?

I think the most important thing is to have an individual plan based on the needs and desires of the individual household. The

data shows that there is a lot of variation in spending after retirement, so following any rule of thumb may not work out for many. More precisely, for someone planning to retire in a year or two, it might be a good idea to track their monthly and annual expenses in detail. Then figure out how and which expenses they anticipate to change following retirement. Of course this doesn't have to be accurate down to a penny, but this will give them a good idea

about how much income they will need to support their regular expenses. This information, combined with their expected Social Security benefits, will help them to figure out a safe withdrawal strategy. I think going through a process like this will help future retirees understand where they stand in terms of retirement preparedness and consequently help them adjust their income or spending or both so they can have a confident retirement. ■

Thinking About Spending in Retirement: Findings From SOA and EBRI Research

By Anna M. Rappaport

The Society of Actuaries (SOA) has been studying the management and understanding of post-retirement risk for more than 15 years. These studies have consistently found that a key method of risk management used by retirees is managing their expenses. The Employee Benefit Research Institute (EBRI) has analyzed household spending by older Americans using data from the Health and Retirement Study (HRS) and the Consumption and Activities Mail Survey (CAMS). This article includes some highlights from the EBRI published reports linked to some of the findings from the SOA research.

The SOA research consists of eight biennial surveys of the U.S. public about post-retirement risk and several sets of focus groups. The 2015 SOA focus groups interviewed middle-income individuals in the United States and Canada who had been retired for at least 15 years.



OVERALL SPENDING

The SOA surveys and focus groups consistently have shown “reducing spending” as the primary risk management strategy. The 2015 focus groups indicated a willingness to reduce spending and discussion of moving from spending on “wants” to focusing on “needs.” Those surveyed expressed pride about frugality. The EBRI reports provide insight into types of spending by age and how spending changes by age, but they did not deal with shocks and unexpected expenses. Note that the SOA research tells us what people say they expect and how they describe what they do.¹ The EBRI research, on the other hand, looks at data and tells us what people have actually done as reported in the HRS.

Several EBRI reports provide different view on overall spending. Issue Brief 368, February 2012²—**Expenditure Patterns of Older Americans, 2001–2009**, EBRI Notes, September 2014³—**How Does Household Expenditure Change with Age for Older Americans?** and Issue Brief 420, November 2015⁴—**Changes in Household Spending After Retirement**. Additional research focuses on Health Care Spending and Utilization: Issue Brief 411, February 2015⁵—**Utilization Patterns and Out-of-Pocket Expenses for Different Health Care Services Among American Retirees**.

KEY CONCLUSIONS FROM THE EBRI RESEARCH INCLUDE:

- Household spending drops after retirement by age within retired cohorts.
- Housing is the largest area of expenditure by far.
- Health care is the one area of spending that does not decrease by age; mean spending increases both as a dollar amount and a percentage of total. Recurring health care costs—doctor and dentist visits and prescription drugs—remain stable throughout retirement. Non-recurring health services—nursing home stays, home health care usage and overnight hospital stays—increase with age and are much higher in the period before death. The percentage of total spending devoted to health care increases by age group.⁶
- Not surprisingly, spending on transportation, entertainment and clothing decreases more rapidly by age group than housing and food expenses.
- Some categories show a lot more variability than others.

Table 1

Mean and Median Household Spending in 2011 Adjusted to 2013\$ by Age Group

	Age 65-74		Age 75-84		Age 85+	
	Mean	Median	Mean	Median	Mean	Median
Home	\$18,720	\$12,642	\$14,732	\$10,805	\$13,111	\$8,781
Food	4,526	3,982	3,994	3,228	2,520	2,152
Health	4,383	3,104	4,624	3,109	6,603	2,814
Transport.	5,169	4,025	3,666	2,794	1,972	1,241
Clothing	1,311	724	950	569	888	434
Entertain.	4,300	2,380	3,277	1,655	1,609	714
Other	3,583	1,148	3,565	1,034	3,188	734
Total	\$42,805	\$34,036	\$35,315	\$29,884	\$30,610	\$22,263

Source: Figure 2 from EBRI Notes, September 2014—How Does Household Expenditure Change with Age for Older Americans?

HOW DOES SPENDING CHANGE AT RETIREMENT?

The 2015 SOA survey explored expectations and experiences with regard to spending. Personal choices, shocks and unexpected expenses will lead to differences in expenses before, after and throughout retirement. Some of the bigger choices that influence increases and decreases in expenses include travel, downsizing housing or moving to a less expensive area, adding a second home, remodeling housing, and expenses on hobbies. Day-by-day choices, such as eating out and going to the theater and movies, also influence expenses. It appears that most people are planning for lower expenses after retirement. Retirees in the focus groups indicated that they value frugality.

The SOA survey showed that many pre-retirees (people nearing retirement) expect retirement to be less expensive than pre-retirement. Pre-retirees were more than twice as likely to predict lower rather than higher expenses in early retirement (43 percent vs. 17 percent). More than one-third said they think their expenses will stay about the same.

The SOA survey also asked retirees how their expenses compared to what they expected when they first retired. The surprise for many retirees was that their retirement expenses were often higher than what they expected when they first retired. In fact, nearly two-fifths of the retirees (38 percent) said they had found their expenses in retirement to be higher than expected. Retired widows were especially likely to report this situation (44 percent). And only a few—12 percent each of re-

tirees and retired widows—said their expenses were lower than they anticipated. Based on comments made in the focus groups, I would expect many retirees to have higher expenses than anticipated. It seems that many of the retirees plan for cash flows based on regular repeating expenses but do not consider the unexpected.

The SOA survey found that retirees often decrease their spending—at least, their voluntary spending—during their retirement years rather than increase it.

In the SOA survey, half of retirees (49 percent) reported decreasing their spending in retirement, including 20 percent who reported decreasing their spending by a lot. Just 2 in 10 (18 percent) said their level of spending increased since they first retired. The retirees who responded to the SOA survey included people who had experienced different periods of time since retiring.

EBRI did an analysis of changes in spending after retirement published in Issue Brief 420, November 2015—**Changes in Household Spending After Retirement**. The EBRI study showed that some households spent more and some less, but average household spending dropped in the first few years after retirement. The study showed that although average spending in retirement fell, many households experienced higher spending following retirement. In the first two years of retirement, 45.9 percent of households spent more than what they had spent just before retirement.

Spending changes varied by type of spending with the biggest drop at time of retirement in transportation spending. Commuting is a big part of pre-retirement transportation for many households. In this study, the median household had a mortgage payment before retirement but none after retirement. As discussed above, in other studies, spending by age shows different patterns by type of expenditure with declines in most categories and big declines in transportation and entertainment.

The EBRI study of spending after retirement shows that in the first two years of retirement, median household spending dropped by 5.5 percent from pre-retirement spending levels, and by 12.5 percent by the third or fourth year of retirement. But the spending reduction slowed down after the fourth year.

The EBRI study also showed some households increase spending. In the first two years of retirement, 28.0 percent of households spent more than 120 percent of their pre-retirement spending. By the sixth year of retirement 23.4 percent of households still did so.

SHOCKS AND UNEXPECTED EXPENSES AND THEIR IMPACT ON SPENDING

The SOA research focused on the impact of shocks and unexpected spending. Choices made about routine expenditures are very important, but so are unexpected expenses and shocks. A review of the SOA survey data indicates that expenses were much more likely to be higher than planned for those who had experienced multiple shocks. As shown below, the percentage of surveyed retirees who experienced expenses higher than planned increased with number of shocks experienced.

Table 2

The Impact of Multiple Shock Events in Retirement		
Number of Shocks Experienced in Retirement	Percentage Reporting Much Higher Expenses Than Planned	Percentage Reporting Somewhat Higher Expenses Than Planned
No shocks	4%	21%
One or two shock events	6	32
Three or more shock events	16	34

Source: SOA 2015 Risks and Process of Retirement Survey

FOCUS GROUPS PROVIDE SOME INSIGHT INTO SPENDING RATIONALE

The SOA focus groups provided insights into how people think about spending. Frugality and expense management were a big theme. It should be noted that the focus groups were conducted with middle-income Americans and Canadians who had been retired for 15 years or more. There was little evidence of lavish spending. Here are a few quotes about spending from the focus groups.

Focus Group Quotes

- *“We don’t have a lot of money, but we never needed it. We never lived above our needs I guess. I take a couple of trips every year and my wife goes up and visits her brothers. We do basically what we want. We are happy.”—Male, Health Decline Group in Dallas, Texas*
- *“When we retired, we spent/wanted. Now I am spending a greater percentage on needing and not as high a percentage on wanting.”—Female, Marital Change in Chicago, Illinois*
- *“My spending has gone down terrifically, because I don’t go on vacation very ... well, I haven’t been on vacation now for a couple of years. I’m older. I don’t know, I just don’t need stuff anymore.”—Female, Marital Change Group in Chicago, Illinois*
- *“When I was working and making a considerable amount of money every year, I didn’t shop. If I needed something, I would go buy it. I never thought about shopping. I will tell you something, my wife and I have made shopping and coupon clipping, of course using the internet, a hobby.”—Male, Low Asset Group in Baltimore, Maryland*
- *“Now today, I am basically on a fixed income, from investments to Social Security to my pension. Well, when you are the average housewife, I’m speaking for myself and a lot of my neighbors, you can have a couple pair of jeans and t-shirts and you get along just fine. You don’t have to go out and spend a lot of money.”—Female, Health Decline Group in Chicago, Illinois*
- *“But I watch what I buy and a lot of things I don’t even buy anymore because it’s too expensive. When I go to the grocery store, [I think] ‘I don’t really need that.’ Whereas back in the good old days, you bought what you wanted. It didn’t seem to be that expensive.”—Female, Health Decline Group in Edmonton, Alberta*
- *“We buy what we want, but if there is not enough money there, I am going to watch what I got there. I don’t want to spend, so I am basically the same, because I haven’t changed in my thinking of how I buy and what I don’t buy and how I spend and how I don’t spend and govern accordingly.”—Male, Health Decline Group in Kitchener, Ontario*

- *“I’ve always kept a record of my expenses and income and tried to live within my income. And what’s left over, if there is anything left over, then you put it aside for whatever, vacation or whatever.”—Female, Low Asset Group in Dallas, Texas*

SPENDING VS. INCOME AND ASSETS

The EBRI Issue Brief 368, February 2012—**Expenditure Patterns of Older Americans, 2001–2009**, looks at spending,

income and wealth by age group. As shown in Tables 3 and 4 below, this research demonstrates that the lower half of the income distribution are spending more than their annual income (and using up part of their wealth, or borrowing to support that spending), whereas the top half are spending less than their income, so that they can continue to save. As shown in Table 5 below, married couples are much better off than single-person households.

Table 3

Year 2007 Median Household Income, Household Spending, Household Nonhousing Wealth, Household Total Wealth by Age Group. In 2010\$ for the Lower Half of the Income Distribution

Age Group	Income	Spending	Income Gap	Nonhousing Wealth	Total Wealth
50–64	\$29,854	\$31,094	-\$1,240	\$18,465	\$84,975
65–74	22,080	25,973	-3,893	21,740	119,778
75–84	18,837	22,360	-3,523	31,367	136,238
85+	14,082	18,629	-4,547	15,969	47,108

Source: Figure 6A from Issue Brief 368, February 2012—Expenditure Patterns of Older Americans, 2001–2009

Table 4

Year 2007 Median Household Income, Household Spending, Household Nonhousing Wealth, Household Total Wealth by Age Group. In 2010\$ for the Upper Half of the Income Distribution

Age Group	Income	Spending	Income Gap	Nonhousing Wealth	Total Wealth
50–64	\$113,123	\$64,945	\$48,178	\$200,288	\$432,863
65–74	70,776	47,838	22,938	239,919	475,332
75–84	53,227	43,066	10,161	326,774	554,358
85+	39,620	34,377	5,243	175,600	365,644

Source: Figure 6B from Issue Brief 368, February 2012—Expenditure Patterns of Older Americans, 2001–2009

Table 5

Year 2007 Median Household Income, Household Spending, Household Nonhousing Wealth, Household Total Wealth by Age Group. In 2010\$ by Marital Status

Age Group	Income	Spending	Income Gap	Nonhousing Wealth	Total Wealth
Couple	\$54,970	\$44,378	\$10,592	\$216,149	\$418,733
Single	21,749	24,065	-2,316	22,927	72,837
Widowed	22,649	26,050	-3,401	44,243	184,515

Source: Figure 7 from Issue Brief 368, February 2012—Expenditure Patterns of Older Americans, 2001–2009

The SOA survey found that most retirees say they keep their spending level at about what they can afford. The majority of retirees indicated they generally find that, at the end of the year, they have spent about what they can afford. Nearly 20 percent said they generally spend less than they can afford, while 10 percent admitted to spending more than they can afford.

However, as shown below in Table 6, retirees who have experienced multiple shocks are more likely to report that they are spending more than they can afford.

Table 6

Spending Levels of Retirees by Number of Shocks	
Number of Shock Events Experienced in Retirement	Percentage Reporting Spending Level Exceeds Affordable Range
0	5%
1-2	8
3+	21

Source: SOA 2015 Risks and Process of Retirement Survey

It appears that unexpected and unplanned-for expenses can contribute to retirees spending more than can be afforded.

FAMILY TRANSFERS, SHOCKS AND UNEXPECTED EXPENSES

In the 2015 SOA post-retirement risk research, one of the major shocks and unexpected expenses experienced by the members of the focus groups and survey respondents was transfers of assets to children (and presumably grandchildren). The focus groups indicate that the shocks were primarily in response to some sort of a “problem”—child had a major illness, lost their job, got a divorce, etc. These payments were one of the shocks that had a lasting impact and were often not dealt with well. My impression is that the parents seemed to feel it was very important to help children when they needed to even if they could not really afford it.

EBRI discusses family transfers in **Intra-Family Cash Transfers in Older American Households**, Issue Brief 415—June 2015. The EBRI report shows that 38 to 45 percent of older households make cash transfers to younger family members vs. 4 to 5 percent of older households that receive transfers from younger family members. The cause of the transfers is not identified. The older households are age 50 and older and analysis covers 1998 to 2010. In 2010, the percentage of households making transfers to children and grandchildren and the amount of transfers by age group was as follows:

Table 7

Intra-Family Cash Transfers by Older American Households

Age Group	% Making Transfers	Average Amount	Average—2 nd Income Quartile	Average—Top Income Quartile
50-64	51%	\$16,272	\$7,411	\$27,378
65-74	39%	\$13,639	\$7,784	\$21,072
75-84	33%	\$14,704	\$9,849	\$22,864
85 - over	28%	\$16,836	\$13,474	\$24,601

Note: Average Amount is average transfer in last two years by households making transfers in 2014 dollars. Averages are shown for all households, and for second and top income quartile.

Transfers are more likely in higher asset and income families, and the amounts are larger.

MINIMUM NEEDS MEASURES

A different approach to thinking about spending for older persons is to develop a measure based not on maintaining the pre-retirement standard of living, but on ensuring that resources are sufficient to meet some minimum level of needs. Wider Opportunities for Women (WOW), through its Elder Economic Security Initiative, worked with Brandeis University to establish a “minimum baseline” for what is required for an elder person to live at a reasonable level.⁷

The index includes a variety of monthly expenses and is developed for both couples and single persons and for renters as well as homeowners. In addition to national averages, indexes were developed separately at the community level in a number of states. Table 8 summarizes key expense items and the Elder Index national average for several elder family types.

Household spending drops after retirement by age within retired cohorts.

Table 8
 The Elder Economic Security Standard Index
 U.S. Average Monthly Expenses for Selected Household Types, 2010

Monthly Expenses	Elder Person	Elder Person	Elder Couple	Elder Couple
	Owner w/o Mortgage	Renter	Owner w/o Mortgage	Renter
Housing	\$372	\$698	\$372	\$698
Food	231	231	424	424
Transportation (private auto)	283	283	346	346
Health care	254	254	508	508
Miscellaneous	228	228	330	330
Elder Index Per Month	\$1,368	\$1,694	\$1,979	\$2,305
Elder Index Per Year	\$16,415	\$20,328	\$23,751	\$27,773

Source: National Economic Security Initiative January 2012 Fact Sheet, citing Conahan, et al. (2006). Values inflated to 2010 using the Consumer Price Index.
 Note: The federal poverty level in 2010 was \$10,380, which can be compared to the indexes for a single person.

I believe that the WOW Elder Index is a much more sound measure of minimum retirement income needs than the poverty level. It is based on actual spending and is calculated by subgroup with different spending needs. The index information was made available by local area. Financial planners and individuals may want to use minimum retirement standards, such as the Elder Index, to establish a baseline, and make a very rough estimate about whether or not there is the potential for significant reductions in an individual's expenditures. Note that many households in the bottom half of the income distribution probably have spending that is not very far from the Elder Economic Sufficiency Index that applies in their geographic area.

SPENDING AND BENEFIT ADEQUACY

Retirement benefit adequacy is a key concern of pre-retirees, and adequacy relates to having enough money to meet spending requirements. Conceptually, spending requirements may be defined in very different ways. Conceptual approaches to adequacy include definitions of spending based on some of the following criteria:

- Equivalence of post-retirement income to pre-retirement standard of living income based on a replacement ratio relationship;
- Sufficiency to cover all forecasted future living expenses; and
- Minimum needs as defined by the poverty or other minimum needs threshold.

The best method for personal planning at retirement age is to be able to forecast expenses, but not everyone can do that. Absent the ability to forecast expenses, then one is left with the question: What is the appropriate goal and approach for making an approximation?

BIG QUESTIONS

As we think about this research data, there is a big question that confronts actuaries and many people concerned with retirement planning. What is the appropriate level of spending to plan for in retirement? Traditional thinking is that retirees need 70 to 80 percent of pre-retirement income adjusted for inflation to maintain their pre-retirement standard of living, but post-retirement spending seems to follow a different pattern. Minimum needs definitions do not differ by person, but income differs a great deal. And some people will be very comfortable within the minimum needs spending definition, while others would have a great deal of trouble managing expenditures at that level.

As we think about the questions related to benefit adequacy, different stakeholders have different questions to think about. Individuals need to think about what to save, when they can afford to retire, and what they can spend. If they do not have enough money, they probably need to think about how to reduce spending during retirement years. Employers who sponsor benefit plans need to decide what support they will provide to employees and their retirees. Policymakers need to decide what Social

Security benefits and social supports to provide. They need to decide how to structure the tax systems.

SUMMARY AND CONCLUSIONS

Spending is a big part of the financial picture for most households. For many households who are 65 and older, available resources put constraints on spending. Others are able to spend what they wish and continue to save. SOA focus groups provide insights into the choices that middle income households are making.

EBRI and other research give us insights into what older people are spending and what they are spending for. The research tells us that:

- Household spending drops at time of retirement and by age during the period after age 65. This is true on average, but there is a great deal of variation by individual household. Some households spend more and others spend less.
- The pattern of household spending by age varies by type of spending.
- Most types of household spending decline from age 65–74 to 75–84 and again to age 85 and up, and seniors spend less than the households nearing retirement.
- Health care needs are greater for seniors than for younger persons.
- Many seniors are frugal and careful about how they spend and are remarkably resilient.

- More than one-third of senior households are making transfers to children and grandchildren.
- Shocks are very important.

We still have a great deal more to learn about how much spending is shock-driven and about how significant the problems are that it causes. Future research should help shed more light on the issue. ■

ENDNOTES

- 1 Sudipto Banerjee, Ph.D., is the EBRI researcher and author of the EBRI Issue Briefs and Notes articles. There is an interview with him in this issue of the Pension Section News.
- 2 https://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=4992
- 3 https://www.ebri.org/pdf/notespdf/EBRI_Notes_09_Sept-14_OldrAms-WBS.pdf
- 4 https://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=3291
- 5 https://www.ebri.org/pdf/briefspdf/EBRI_IB_411_Feb15_HlthExpds.pdf
- 6 See EBRI Issue Brief No. 411, Utilization Patterns and Out-of-Pocket Expenses for Different Health Care Services Among American Retirees.
- 7 Note that WOW is discontinuing operations during 2016 and the Elder Economic Security Standard research is being transitioned to the University of Massachusetts and the National Council on Aging.



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Risk Strategies Pertaining to the Many and Diverse Risks Found in Retirement—More on Decumulation From Our Call for Essays

By John Cutler

As was reported in the last issue of the *Pension Section News*, in the fall of 2015 the Society of Actuaries (SOA) Committee on Post-Retirement Needs and Risks (CPRNR) issued a call for essays focused on three different areas. The three major subtopics were: (1) defined contribution plan risk management strategies; (2) decumulation strategies for retirement; and (3) long-term care financing.

In that last issue we had a variety of award-winning essays addressing these various problems. What was interesting, however, was how many focused on our second topic: decumulation. This issue can be complex because many households have their retirement resources in a variety of funds, some of which are tax-deferred and some of which are not. In addition, some resources may have guarantees embedded in them. Those with multiple sources of funds have choices with respect to which funds to draw down first.

Everyone needs to make decisions about what type of drawdown arrangement to implement. The drawdown decision is also interwoven with the Social Security claiming decision for some households, and with decisions relating to how much protection widows will have later in life. The question here is how to analyze these drawdown decisions and what methods are recommended for the use in drawing upon these various resources in retirement. Perspectives on these issues vary, and there are no generally accepted standards that apply to this issue.

The SOA is pleased to be able to bring you the following essays and interviews with the authors:

- "Decisions Misaligned With Priorities: The Non-Annuitization of Retirement Savings" by Paul J. Yakoboski

- "Decumulation Strategy for Retirees: Which Assets to Liquidate" by Charles S. Yanikoski
- "Decumulation for a New Generation" by Elizabeth Bauer
- "Multiple Objective Asset Allocation for Retirees Using Simulation" by Kailan Shang and Lingyan Jiang
- "Oh, No! Not Another Government Program" by Mark Shemtob

For the call for essays, see <https://www.soa.org/Research/Research-Opps/Call-For-Papers/research-2015-risk-strategies-retirement-essays.aspx> and for the earlier *Pension Section News* articles, see <http://pensionsectionnews.soa.org/?issueID=9&pageID=1> ■



John Cutler served as chairperson for the Project Oversight Group for the Diverse Risks' call for essays. He has been an active member of the Committee on Post-Retirement Needs and Risks for several years. He retired from the Office of Personal Management in 2015 and is now a Senior Fellow for the National Academy of Social Insurance as well as special advisor to the Women's Institute for a Secure Retirement (WISER). At OPM, he was actively involved with health and long-term care issues, and he is the architect of the Federal Long Term Care Insurance Program for federal employees.

INTERVIEW WITH Charles S. Yanikoski

TELL US A LITTLE ABOUT YOURSELF.

I first became interested in retirement in 1980, when my dad asked me at age 62 whether he could afford to retire then. I did what I could without benefit of software, and advised him to hang in there until he was 65. This worked out well for him, but the real lesson for me was that even most people who are smart and mathematically inclined (my dad was a mechanical engineer with numerous patents to his credit) are clueless about retirement finances. For that matter, so was the financial industry (and by the way, it pretty much still is). Eventually I reoriented my entire career toward contributing to solutions in this field.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

As I began to ease into my own semi-retirement last year, I realized that I had a couple of potentially practical ideas that I had never done anything with in my own retirement software business. The essay contest presented a fine opportunity to put those ideas into the public arena, where perhaps someone else

could use them—or maybe they would inspire even better ideas from someone else.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

My essay describes a manual approach to a difficult subject. Software could be developed that would do the same thing in a way that was simultaneously more sophisticated in its decision-making process and less difficult for the individual consumer to use. I am beyond the point in my own career where I want to develop this kind of product on spec, but I would be happy to consult with anyone who wanted to pursue it—or equally happy to see them run with it on their own.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

There are four kinds of groups that have a big stake in sound retirement planning by consumers: financial companies that want to sell financial products, financial advisers who want to sell financial services, employers and employment-related groups (such as pension funds, professional organizations and unions) that are interested in the welfare of their employees or members, and organizations of consumers that consider the financial welfare of their members to be part of their mission. Any or all of these could justifiably pursue such a project.

WHAT ELSE WOULD YOU LIKE TO TELL US?

I wish to state clearly, for the record, that I consider the ideas in my essays to be in the public domain once they are published by the Society of Actuaries, and I disclaim any ownership or other entitlement if some other person or entity chooses to use them either in their current form or in some other form. ■

Decumulation Strategy for Retirees: Which Assets to Liquidate

By Charles S. Yanikoski

When it's time to decumulate, most people have multiple assets from which they can draw. So which asset(s) should go first? Unfortunately, this simple question has no easy answer, either in general, or, typically, in specific cases. Furthermore,

- Making poor choices can have harmful affects which, for middle-income families, may be unaffordable.
- Most consumers know nothing about this subject—it's rarely addressed even in the professional literature, let alone in the consumer literature.
- Most professionals do know something about it but do not have a well-considered and well-organized methodology for choosing which assets to liquidate.
- In addition to the financial effects, choices based on guesswork that proves to be wrong are particularly subject to regret and recrimination.

The more assets one has, the more difficult it is to choose which to liquidate. Furthermore, the decision can be hard even if there are only a few assets because there are many factors that can enter into the decision, some of which are difficult to quantify and some of which cannot be quantified at all.

Among these factors are financial questions dealing with risk, liquidity, income generation, future growth potential, taxation, timing, liquidation costs (including penalties) and portfolio diversification. Nonfinancial considerations include whether the asset is used for personal purposes (e.g., a vacation home, a boat, a work of art) or whether there is a sentimental attachment to it.

THE IDEAL SOLUTION

There is more than one way to approach decisions of this kind. Decisions involving multiple, complex choices are typically best handled by good software. The ideal software would

- Be fully informed about all the assets, including nonfinancial concerns.
- Be fully informed about all other current and probable (or even possible) features of the individual or household finan-

cial situation, including morbidity and mortality, so that both “normal” and exceptional scenarios could be projected. This is necessary so that future cash flows and marginal tax rates can be estimated.

- Know about the individual's desires and fears about money, not limited just to “risk tolerance.”
- Have the capacity to evaluate all the assets against all of the issues previously listed, and to weigh them against one another, producing a financially and emotionally satisfying recommendation, with an English-language explanation of why the recommendation is being made.
- Include an asset allocation analysis to assure appropriate diversification.

Since such software does not exist, however, and is probably not even on the horizon, a more immediately practical approach is worth exploring.

A PRACTICAL ASSET DISPOSAL WORKSHEET

Less ambitiously, an automated spreadsheet could be created to help evaluate each asset based on various factors. Within the context of an essay, however, it is more immediately useful to devise a manual worksheet.

To begin, we identify seven main factors that affect the decision, though most have multiple subfactors. The worksheet (Figure 1) illustrates how the worksheet looks. Instructions explaining use of the worksheet are below, then a sample completed worksheet (Figure 2).

Worksheet Instructions

1. Assign values from 0 to 5 for each of the seven issues listed in the columns, placing the values in the row marked “Column importance.” These values should be 0 or 1 in a column that does not apply to you or matters very little. They should be 4 or 5 in columns where the issue is financially significant or personally meaningful to you. Here are factors to consider in determining these values.
 - a. **Taxes.** Enter a **higher** number if you currently are in a high federal tax bracket.
live in a state with high state taxes on ordinary income, investment income and/or capital gains.
 - b. **Timing.** This has been prefilled as 5—timing is always important!
 - c. **Lost income.** Normally, enter a 3 or 4 here, but it can be lower if none of your assets produce much income, and you live almost entirely from the **sale** of assets and from Social Security, pensions, annuities, gifts from family and/or other sources of income not connected with assets you own.

Figure 1 Worksheet Layout

(List Assets in This Column)	Taxes		Timing		Lost Income	Side Effects		Obligations		Efficiency	Sentiment and Risk		TOTAL SCORE
Column importance	X	5	X		X	X	5	X		X		X	X

- d. **Side effects.** Enter a **higher** number if you are considering the sale of assets that you currently use, or that other people use (such as a vacation home, a car or boat, livestock or farm equipment). Or enter 0 if none of this applies.
 - e. **Obligations.** Also prefilled as 5—if any of your assets are collateral for loans or liens or are pledged for some other purpose, then this is important; if none of them are restricted in these ways, or if the restrictions could be dealt with easily, then this column will have no impact anyway.
 - f. **Efficiency.** Enter a **higher** number if you
 - need cash right away.
 - are concerned about the amount of effort it might take to liquidate any of your assets (for example, real estate).
 - g. **Sentiment and risk.** Enter a **higher** number if
 - you are risk-averse.
 - your asset portfolio is not well diversified and balanced.
 - you or anyone else has an emotional or nonfinancial attachment to any of your assets.
2. **List individual assets you would consider liquidating, and assign values from 0 to 5 for each of them in the narrower of the two columns in each of the eight vertical sections, excluding any columns that have 0's in the row marked "Column importance."** These values should be 0 or 1 in a column where that particular issue has little or no negative effect if that particular asset is disposed of. Enter a 4 or 5 if, instead, you expect a significant negative impact. Here are factors to consider in determining these values asset by asset.
- a. **Taxes.**
 - Enter a **higher** number if sale of this asset generates
 - ordinary income and you are in a high federal or state bracket, even more so if you expect to be in a lower bracket in the future or if this asset might be left to heirs who would be in a lower tax bracket.
 - capital gains and you are in a very low federal or state bracket (such that It would cost you more taxes than additional ordinary income would).
 - a significant capital gain and the asset could have a good chance of being left to an heir (for whom the

asset would get a step-up in tax basis, eliminating the capital gain).

- a short-term capital gain instead of a long-term gain, and this would be disadvantageous to you.
- a tax loss likely to be more valuable some other year.
- Enter a **lower** number if sale of this asset generates
 - little or no tax liability.

a tax loss that can be used to offset other gains, all the more so if there is a chance of this asset going to an heir who would receive a step down in basis.

b. Timing.

- Enter a **higher** number if
 - the market (stock, bond, real estate, etc.) for this asset is below normal, so that selling now locks in losses (or precludes likely future gains).
 - sale of this asset generates a penalty for early withdrawal, a tax penalty, a surrender charge, or other penalty that will shrink or disappear if you dispose of the asset later.

- by contract or for some other reason this asset is due to increase in value or produce a large dividend or other income in the relatively near future.

- Enter a **lower** number if
 - the market for this asset is currently above normal.
 - you feel that even though the asset is currently selling below normal, that's because of a serious problem that probably isn't going away.
 - by contract or for some other reason this asset is due to decrease value or produce a large expense or other loss in the near future.

c. Lost income.

- Enter a **higher** number if
 - this asset produces little or no income.
 - you expect, or worry, that the income it produces will decline.
- Enter a **lower** number if
 - this asset generates unusually high cash income.

Figure 2 Sample Completed Worksheet

(List Assets in This Column)	Taxes		Timing		Lost Income		Side Effects		Obligations		Efficiency		Sentiment and Risk		TOTAL SCORE
	5	X	5	X	3	X	1	X	5	X	2	X	3	X	
Column importance	5	X	5	X	3	X	1	X	5	X	2	X	3	X	X
401(k)	4	20	3	15	4	12	5	5	5	25	5	10	5	15	102
Employer stock	2	10	2	10	1	3	5	5	5	25	5	10	5	15	78
Apple stock	3	15	5	25	3	9	3	3	5	25	5	10	3	9	96
Savings bonds	1	5	0	0	2	6	4	4	5	25	4	8	2	6	54
Bank CDs	0	0	0	0	1	3	5	5	5	25	4	8	5	15	56
Empty house lot	3	15	2	10	0	0	3	3	2	10	2	4	1	4	46

Note: In this sample case, withdrawals from the 401(k) and the Apple stock are about of equal attractiveness. This individual would probably do best to withdraw from one or the other, or from a combination (especially since 401(k) withdrawals and common stock sales have very different tax consequences).

- you have a strong expectation this asset will generate future cash income or capital gains.
- you consider the income this asset produces to be highly reliable.
- income from this asset is tax-free or tax-sheltered.

d. **Side effects.**

- Enter **5**, or
- Enter a **lower** number if
 - this asset, in addition to its financial value, is currently in use by you or someone important to you in a way that would be inconvenient, difficult or even impossible to replace—the more difficult, the lower the number.
 - this asset is highly liquid, so it would be helpful to save for an emergency, and/or it cannot be disposed of at fair value.

e. **Obligations.**

- Enter a **higher** number if
 - this asset is completely unrestricted.
 - this asset will be liquidated or partially liquidated without your choice (e.g., a bond is maturing, or required distributions must be taken from an IRA).
- Enter **0** (or some other low number) if
 - this asset is collateral for a loan you do not intend to pay off, has a lien that you cannot easily clear off, is co-owned by someone else, requires the approval of an uncooperative ex-spouse to liquidate, or is pledged or restricted in some other fashion.

f. **Efficiency.**

- Enter a **higher** number if
 - this asset requires a lot of effort to maintain.
 - it complicates your financial records or tax accounting.
 - it is not very liquid or marketable and might not be sellable at the time you need to do it.
- Enter a **lower** number if
 - this asset is trouble-free.
 - it would be time-consuming or expensive for you to dispose of it.

g. **Sentiment and risk.**

- Enter a **higher** number if

- this asset is risky (because its value fluctuates, income from it fluctuates, its future is uncertain, or you're just not comfortable with it).
- you have too high a percentage of your net worth in this asset, so that there's risk from insufficient diversification in your portfolio.
- you inherited the asset or were talked into acquiring it and you aren't sure whether or why you should still have it.

- Enter a **lower** number if

- this asset helps balance your portfolio, because it's of a different type, from other assets.
- you have a not strictly financial attachment to the asset (e.g., it was given to you by someone you love, it's connected with your past, it supports a cause you believe in, etc.).
- another family member or heir is attached to it and/or hopes to inherit it.

3. **Tally the scores.** In each of the eight vertical issue sections, multiply the individual score for each asset times the overall weighting factor (from "Column importance") and put the answer to the wider column to the right of each asset score. Then add these scores horizontally to produce a total for each asset. Assets with high scores are normally the most ripe to be disposed of.

REALITY TEST AND DECISION

Although the obvious final step is to dispose of as much of the assets with the highest score(s) as needed, this is too simplistic, for several reasons.

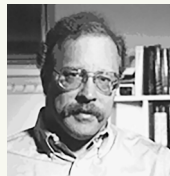
- There might be reasons to either keep or sell an asset that are more important than this method reflects.
- Several assets might have high scores that are only slightly different. The methodology is not so precise or perfect in design that these differences are necessarily meaningful.
- Some assets (e.g., real estate, businesses, vehicles, collectibles) may have to be sold as an entirety, or not at all. It might not make sense to dispose of such assets if the cash needed is not that large.
- Even if the needed cash can be obtained from the sale of a single asset, there may be little reason to actually do so. It might make more sense to take a smaller amount from several places.

- Investments should continue to be diversified. It's important to consider what the asset allocation will be after assets are sold.
- Splitting up the sale of assets can help to optimize income taxes on a year-by-year basis. If some sales generate taxes while others do not (or actually generate losses), then one can mix and match these sales to avoid taxes if one is already in a high bracket, or to generate tax liabilities deliberately if one is currently in a lower tax bracket than normal, or to do some of both. If tax-generating sales would push the taxpayer into a higher tax bracket, for instance, such assets could be sold only up to that limit and then non-tax-generating sales used to avoid entering the higher bracket.

Finally, the user of this worksheet should step back and ask: Am I satisfied disposing of the assets I have chosen? Am I satisfied

with what my portfolio will look like after these sales? If not, there may be some tweaking left to do.

Of course, all decision-making methods and tools enable, at best, to make **prudent** decisions, not **optimal** ones. The method outlined here, though useful, is still simpler than what a well-designed automated system could produce, but for the typical middle class household, it is probably sufficient, and certainly an improvement over less rigorous decision-making processes. ■



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INTERVIEW WITH Elizabeth Bauer



Elizabeth Bauer, FSA

TELL US A LITTLE ABOUT YOURSELF.

I'm a pension consulting actuary in my firm's international retirement practice, but I've also always felt a bit of a misfit, since I'm more interested in public policy and less technical than many of my colleagues. I had a circuitous route here, having studied medieval history as a graduate student before switching gears, and worked in the domestic actuarial practice for eight years before moving to an international focus 11 years ago. I enjoy learning about the differences in retirement systems, and the lessons they offer.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

I enjoy reading and writing about public policy topics, but the latter largely takes the form of a personal blog, so I'm happy to

find opportunities to write for a (wider) audience and work out my thoughts in a more disciplined manner.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

I address three ideas in my essay. With respect to Social Security benefits as a "longevity annuity," there are already voices promoting the existing option to defer collecting benefits to age 70 where possible, so this holds the most promise of becoming integrated into the standard set of retirement planning recommendations. The extension of the age up to which benefits can be deferred with actuarially equivalent increases, is, I'd like to think, a small enough step to be possible with little political wrangling.

A Tom Harkin-style pooled retirement plan would require more political will because of the more complex enacting legislation. The last of these, making annuities more popular and a better value for the money, is of particular interest to me at the moment. It is striking to me that, in the year 2016 in the United States, many employers are concluding that the financially most sensible solution for their retirees' pension liabilities is to purchase annuities, which would have been unthinkable a decade or two ago, and at the same time, many of the pensions my colleagues in Europe deal with are funded via insurance contracts or even deferred annuities—products that are unthinkable in the U.S. individual retirement market. I'm hoping to learn more about these European insurance arrangements in my work and apply the lessons to the U.S. retirement system.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

The "retirement industry" and the retirement punditry need to find a consensus; at the moment there seems to be, politically, a widening gap between those who believe that everything'd be just fine if Americans just saved more, and those who simply prefer an expansion of Social Security to (imagined) European levels of generosity. How to get past this I'm not sure.

WHAT ELSE WOULD YOU LIKE TO TELL US?

Hmm ... at the moment, I could tell you that the Moselle Valley town of Winningen is so cute you want to pinch yourself. But beyond that, I'm still trying to figure out how, in some small way, to play a role in moving the entire Future of Retirement issue forward. ■

Decumulation for a New Generation

By Elizabeth Bauer

How should we, as actuaries, think about the issue of decumulation/spending in retirement? And how should we, as pension actuaries, advise the public at large—or should we?

The answer seems obvious: Defined benefit (DB) plans, once the norm for employees at larger companies, have mostly disappeared for, say, Generation X, leaving them exposed to the investment and especially longevity risks from which they would have otherwise been protected by those pensions; hence, when they reach retirement age, these future retirees should be nudged/incited/required to annuitize some portion of their benefit.

But, up to now, retirees have stubbornly refused to do so—and, truth be told, with good reason:

- Annuities are expensive, when measured against actual and perceived alternatives.
- Consumers distrust annuities, and insurance providers.
- Employees are conditioned to think of defined contribution (DC) as a “pot of money” and want to get the full value, also they’re more afraid to “waste” money by dying too soon than “outliving” the money by dying too late

So, what to do?

THE PRICE OF ANNUITIES

Here’s a quick calculation of a money’s worth ratio (MWR): USAA, a mutual insurance company for service members and their children, offers an online annuity calculator. As of October 2015, a woman age 65 with \$100,000 could purchase, on a single-life basis, an annuity of \$498 per month. Using the most conservative annuity table readily available on my company’s annuity calculator, and the Sept. 30, 2015, Moody’s Aa corporate bond rate of 4.13 percent, produces a monthly benefit of \$553—that’s a MWR of 90 percent. Or, if I work backward to get an equivalent annuity factor, I get an implied actual discount rate of 3.13 percent, or a 100 basis point cost for expenses and margins for conservatism—and that’s assuming that USAA, which sells

online and by phone rather than via agents, has a lower marketing expense than a typical commission-based product.

Is that about right? According to the admittedly outdated information available online, money’s worth ratios are significantly worse in the United States than elsewhere. At a time when, on a corporate bond basis, the U.S. MWR was 0.80, for a 65-year-old female in an annuitant population, the equivalent ratio in Australia was 0.89, or 0.90 in the United Kingdom, 0–0.94 in Canada and 1.08 in Switzerland.¹ In the Netherlands, too, ratios are high.² In the Netherlands and in Switzerland, and formerly in the United Kingdom, annuitization is mandatory, reducing marketing expenses and antiselection issues. In addition, the annuities in question are deferred annuities, where the provider may offer more generous annuitizations subsidized by lower accumulation rates.

And how does a typical consumer determine whether this is “too expensive”? There seem to be three strategies retirees follow in deciding how to spend their assets: they either try to live off the interest, follow the “4 percent rule” now in common currency, or pick the age they expect to live to and work backward. This is, at any rate, what the Morningstar Guide to Retirement, which came in my newspaper a couple months ago as a Sunday supplement, tells me. (The guide didn’t have much to say about annuities, not surprising since they’d really rather you kept your funds invested with them.)

What does 4 percent buy you, on our sample \$100,000? A measly \$333 per month, which looks pretty lousy compared to our \$500 annuity, but it’s not apples to apples because the 4 percent rule is meant to offer inflation protection and a bequest to heirs in the event of untimely death, to boot. If I apply some rudimentary math to my employer’s annuity calculator, and assume a long-term inflation of 2 percent, that brings the initial benefit down to \$400; at a 3 percent inflation assumption, the benefit is \$345. In the real world, inflation-protected annuities don’t really exist; instead, they take the form of fixed annual increases. If you add in an expectation for higher expenses and fees than a fixed annuity, it could well be that the actual monthly payment for such an annuity might not be any better than this \$333. And whether the 4 percent rule is “right” in an absolute sense is not necessarily relevant; the point is that it looks like a good deal to a retiree engaged in financial planning.

What about the “pick a life expectancy” method? If we imagine that a retiree plans for living, say, 30 years in retirement, that is, to age 95, then at our corporate bond rate, they could plan on an income of \$485 per month. If they assume, because they’ll be investing in a diversified manner, a higher return, say 5 percent or 6 percent, they could plan on \$535 or even \$600. Is this a sensible strategy? Maybe not. Although it appears to nearly elimi-

nate longevity risk by means of this conservative assumption, it exposes retirees to investment risk. But to an individual retiree making plans, it looks appealing.

And “live off the interest”? Rates are low, but it offers the reassurance of no capital loss, and it offers retirees hope that, even though today’s interest rate environment is low, they haven’t locked themselves into anything and will gain when interest rates increase in the future.

HOW TO MAKE ANNUITIES A BETTER VALUE FOR THE MONEY

To a certain extent, it’s a catch-22: Costs are high because the customer base is small, requiring more in marketing/commission costs and more conservatism for antiselection; however, the customer base is small because the costs are high. To the extent that more customers would reduce expenses, one could imagine a set of **government subsidies** (e.g., tax credits) similar to those for hybrid cars, intended to incent consumers to choose annuities for retirement spend-down, but time-limited with a phase out as volume grows.

Even in a perfect market, in which the volume of annuity sales reduced their cost, there would still be the fundamental issue that asset returns on annuities are hampered by the need to invest in low-return fixed income products. Are there work-arounds? In 2014, Sen. Tom Harkin, D-Iowa, introduced the USA Retirement Funds Act,³ which, among other things, would have established a form of auto-enrollment based **pooled retirement fund**, which would have aimed at providing lifetime income for its participants, but with mechanisms for adjusting benefits as needed to protect the fund’s finances. Such a fund, due to its adjustment mechanisms, could have been less restricted to fixed income investments. In its final form, it might have offered Pension Benefit Guaranty Corp.-like protections outside the realm of employer sponsorship to further enable careful yet diversified asset allocation. Needless to say, the bill, which also included a catch-all set of pension funding and regulatory provisions, didn’t pass and didn’t appear to have generated much interest.

Was the bill inherently flawed? Perhaps it attempted too much, with the auto-enrollment provisions, for instance, or perhaps it was a matter of “wrong place, wrong time,” especially with Senator Harkin now having retired. It’s too facile an explanation to say it was doomed by partisanship, given that pension legislation has historically been bipartisan, even if it’s as simple as the periodic funding relief amendments tucked into larger must-pass legislation. More likely, this legislation had no support base, no constituency pushing for its passage in this or an amended form. The actuarial profession, despite growing concerns about the need for protection against longevity risk, has no real history of political advocacy, especially to the extent that pooled funds would appear to be competitor products to existing 401(k) funds and traditional

annuities (though, in principle, either of these types of providers could expand their business into a new market).

Harkin also envisioned these funds being offered by nonprofits (though perhaps managed by insurers, asset managers and employee benefit administrators), which might have **countered the current consumer distrust of annuities**. As actuaries, we know that the probabilities of death as an annuitant ages are simply baked into the pricing of the annuity, but too many consumers perceive the annuity as a “bet” the insurer makes with the consumer: If you die young, you lose and the insurer wins. To the extent that pooled funds can escape this perception, and can instead re-brand themselves as, similar to mutual insurance, shared risk among your fellow participants in the fund, this may offer a way forward here, too.

Absent these two changes, there’s another seemingly simple legislative change that could offer a cost-effect means of funding annuity income out of retirement savings. The full implementation of late retirement Social Security benefit increases, and the fact that benefits taken at age 70 are 76 percent higher than if taken at age 62, are beginning to make their way into media reporting, though those articles often contain the (quite reasonable) caveat that you don’t get “something for nothing” because the benefits are actuarially equivalent and, if you die young, you get nothing.⁴ But if the opportunity for actuarially equivalent increased benefits due to late retirement were extended even beyond age 70, to age 75, for instance, this would transform Social Security into a longevity annuity for those individuals who are able to spend down their savings in the intervening years, and who would value the longevity protection even at the risk of not collecting a benefit at all should they die early, in a cost-free manner. True, Social Security’s finances are uncertain, but nearly all proposals envision a tinkering around the edges rather than a major reworking of the entire structure.

If no political changes are on the horizon, perhaps there are opportunities for a re-marketing of annuities by means of a competitor in the “rule of thumb” business, advising retirees to direct some portion of their assets to an annuity rather than, or as part of, a bond asset allocation, using a formula keying off of Social Security, other pension benefits (if they exist) and total savings. Such a rule of thumb might be “cover your ‘age 85’ expenses with an annuity, and spend down assets on the rest”—with age 85 expenses defined as your basic daily living needs, stripping out the travel, the golf and perhaps even the maintenance that goes along with car ownership or keeping the four-bedroom family home. (What about medical care and long-term care? I’m hoping someone else figures that one out.) Or advice might be a modification of the standard asset allocation recommendation: To the extent you’re planning on investing in bonds as part of

your portfolio, there's not as much loss, in return expectations, in purchasing an annuity.

PROMOTING ANNUITIES

This all leads to a final question: Why aren't annuity providers doing more to promote their product themselves? I can guess—but only guess—that it's because direct-to-consumer immediate annuities are a small part of their product line and, perhaps, in an agent-based sales structure, agents are more keen on selling other products with higher commissions. Perhaps this will change, as Generation X heads to retirement as the first generation after the end of DB pensions, and as they (OK, *we*) must cope with making our way as the ever-ignored middle child, sandwiched between the two media-darling generations, the baby boomers and the new favorite, the millennials. What's more, the older generation knows annuities primarily as a high-fee retirement savings vehicle that made sense in a pre-401(k) era, when tax-deferred options were few; the lifetime income option is almost an afterthought. Perhaps this leaves them ripe for re-invention for a new generation.

CONCLUSION

The preceding is more a collection of ideas than a single new, compelling insight. Tax credits, pooled retirement plans, Social Security as longevity annuity, new rules of thumb—nothing new

under the sun here. But that's what's needed, isn't it? A variety of strategies and some hard work at implementation, along with an advocacy group that goes to bat for these ideas where political changes are needed. ■

ENDNOTES

- 1 G.A. "Sandy" Mackenzie, "The Role of Private Sector Annuities Markets in an Individual Accounts Reform of a Public Pension Plan," International Money Fund Working Paper WP/02/161 (2002).
- 2 Edmund Cannon, Ralph Stevens and Ian Tonks, "Price Efficiency in the Dutch Annuity Market," Netspar Discussion Paper DP 04/2013-16 (April 2013). The authors calculate their ratios on a government bond basis, which means they're not directly comparable to the others.
- 3 Text available at <https://www.govtrack.us/congress/bills/113/s1979>.
- 4 A quick Internet search turned up two items: Philip Moeller, "Delay Social Security Till Age 70? Not in The Real World," Time Money, May 23, 2014, and "3 Reasons It's Smart to Take Social Security Benefits at 62," The Motley Fool, Dec. 30, 2015.



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INTERVIEW WITH Kailan Shang



Kailan Shang, FSA, CFA, PRM, SCJP

TELL US A LITTLE ABOUT YOURSELF.

I am a life actuary with diversified experience including pricing, risk management, predictive modeling, research and entrepreneurship. I worked at several life insurance companies before I started my own insurance technology and consulting company with my friends.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

We have been doing several projects focused on helping individuals build insurance plans and assess their retirement readiness. We found that current popular asset allocation methods for retirement planning do not offer enough flexibility to accommodate different goals of retirees even though, in theory, the methods may be economically sound on an aggregated level. The essay contest is a good way to share our research ideas and potentially provide an additional asset allocation options for retirees.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

A few key factors that are critical for bringing the new asset allocation method to the real world are effective communication with and education of retirees, good knowledge of household

planning, economic environment and simulation techniques, and a passion to build and test new things.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

Actuaries, financial planners and employer-sponsored pension plans can play an important role to put the new asset allocation method into practice.

WHAT ELSE WOULD YOU LIKE TO TELL US?

We are actively building an online tool that implements the simulation-based multiple objective asset allocation method. The tool will be available for everyone who wants to try the new asset allocation method. You should be able to use the tool in three to four months at <http://www.wiseallocation.com>. ■

INTERVIEW WITH Lingyan Jiang



Lingyan Jiang

TELL US A LITTLE ABOUT YOURSELF.

I am a consultant at Swin Solution Inc. My focus is on economic research, personal financial planning and fund selection. I am responsible for developing a highly personalized asset allocation framework focusing on wealth growth and income protection.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

After my son was born I began to realize that retirement is a very important issue. I have many goals and I need to prioritize those goals according to their importance. So I started to find a systematic way to do this. The Essay Contest provides a good opportunity to share my thoughts on that.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

As far as I am concerned, communication and education of retirement planning are important to make personalized asset allocation widely assessable. Convenient online tools can also help promote the new asset allocation method for retirement planning.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

Pension sponsors, government and all employees should get involved to make retirement asset allocation plans more personalized and easy to understand. An appropriate asset allocation plan for retirement is essential for retirement readiness and retirement security.

WHAT ELSE WOULD YOU LIKE TO TELL US?

I believe that everyone should think about retirement as early as possible and start to make their own retirement plan. ■

Multiple Objective Asset Allocation for Retirees Using Simulation

By Kailan Shang and Lingyan Jiang

The asset portfolios of retirees' serve many purposes. Retirees may need them to provide stable cash flow to cover living costs. They may gradually sell their assets when social retirement benefits and asset cash flows are not enough to meet financial needs such as unexpected medical costs. They may also want to leave a certain amount of their estate to their children. Multiple objectives with different levels of importance lead to a complex asset allocation problem for retirees.

MULTIPLE OBJECTIVES

Depending on the retiree's specific situation, a variety of objectives are expected for asset allocation.

1. **Current income** With limited income after retirement, a retiree is likely to draw down his/her asset to pay for living costs. Assets that can generate stable and regular cash flow are more favorable.
2. **Liquidity.** A higher level of liquidity is needed for retirees compared to workers. A reduced amount of income leads to a higher probability that assets need to be sold to meet liquidity requirements. Liquid assets with less bid-ask spread are more favorable for retirees.
3. **Purchasing power.** Retirees are concerned with maintaining their living standard in case of hyperinflation. Assets that grow with inflation are preferred.
4. **Longevity risk.** Retirees are also concerned they may outlive their assets. Annuity products that protect retirees from longevity risk need be included in the asset allocation plan.
5. **Wealth growth.** A higher return is always better; however, it may not be the top priority.
6. **Estate.** Some retirees may want to leave an estate for their heirs. This also needs to be considered in the asset allocation

plan depending on the importance of this objective to the retiree.

7. **Time horizon.** The asset allocation plan for a new retiree would be very different from that for a retiree after 15 years of retirement.
8. **Tax minimization.** Retirees would also want to take advantage of tax-efficient assets to reduce both estate tax and investment income tax.
9. **Relative importance of multiple objectives.** The final asset allocation plan needs to find an appropriate balance among multiple objectives according to their relative importance to the investor.

CURRENT METHODS

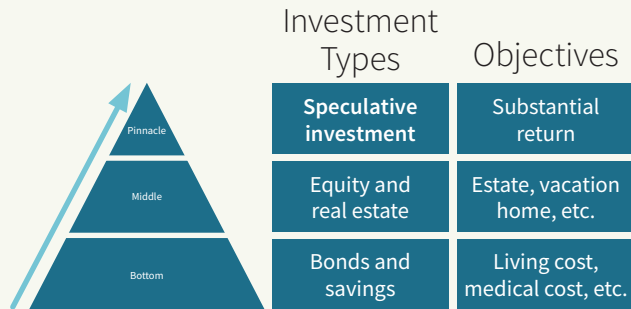
Existing asset allocation methods normally focus on a subset of the multiple objectives of retirees in an approximate way. Age-based asset allocation uses this rule of thumb to determine the allocation between equity and fixed income securities: (100 – age) percent of assets is suggested to be invested in equity. This can only provide high level guidance to limit the risk without recognizing specific situations of each retiree. Many other objectives are neglected by this method.

Asset allocation based on modern portfolio theory such as mean-variance optimization has the goal of maximizing the expected return given a specified level of risk. The risk level is determined by the investor's willingness and ability to take risk. In theory, this single objective decision-making method can lead to the maximal expected economic value for investors. However, some objectives of retirees need to be translated into a risk-aversion score and the translation could be quite ambiguous and subjective. Other objectives such as current income and sufficient liquidity conflict with the goal return maximization and are hard to be incorporated into the model. The optimal solution is also very sensitive to assumptions of the expected return and volatility of each asset class and correlation between asset classes.

Contrary to asset allocation based on modern portfolio theory, asset allocation based on the risk pyramid sets the allocation plan by meeting individual objectives sequentially. It starts from the most important objective such as paying basic living costs and uses the most conservative assets such as bank savings and government bonds to achieve the objective. It then goes up to less important objectives such as estate or vacation and uses riskier assets to support them. Retirees are willing to accept uncertainty for a higher expected return for less critical objectives.

Figure 1 shows the risk pyramid including objectives and corresponding asset classes. The pyramid structure does not consider

Figure 1 Asset Allocation Based on Risk Pyramid



all the objectives together, nor does it consider the diversification between asset classes. The resulting asset allocation plan is not economically optimal.

The asset allocation method based on the analytic hierarchy process (AHP)¹ explicitly considers the multiple objectives and their priorities when choosing an allocation plan. Investors need to provide pairwise assessment of objectives regarding their importance. Asset allocation plans are ranked by the weighted performance for all the objectives where the weight is based on the priorities of the objectives. However, the resulting asset allocation is often subjective and not economically optimal.

None of the current methods discussed above has a clear way to find the optimal solution when considering all the objectives together. A more direct method is needed to make sure all objectives are incorporated in the optimization process according to their relative importance.

SIMULATION-BASED MULTIPLE OBJECTIVE ASSET ALLOCATION

The simulation-based multiple objective asset allocation method objectively assesses each allocation plan against multiple objectives in a consistent way and provides a more holistic picture of possible outcomes. This information is critical for finding the optimal allocation plan. The optimization is based on the weighted performance relative to multiple objectives. The implementation follows several steps:

1. With a specified asset allocation plan, the retiree’s future income and spending under different economic, mortality and morbidity scenarios are projected. Under each scenario, the projected result is checked against each objective in terms of whether the objective can be met and how well it is met. The weighted performance is used to measure the aggregate performance regarding the objectives. The weight is the relative importance of each objective. The

return measure is the average of the weighted performance in each scenario. The risk measure could be the volatility, value at risk (VaR) or tail value at risk (TVaR) of weighted performance.

2. Repeat the exercise for all possible asset allocation plans.
3. Construct the efficient frontier using the average weighted performance as the return measure and the volatility/VaR/TVaR as the risk measure.
4. Choose the portfolio on the efficient frontier according to the investor’s risk tolerance.

Figure 2 illustrates the process of simulation-based multiple objective asset allocation.

EXAMPLE

A simplified example is illustrated here to show the process of simulation-based multiple objective asset allocation. Assume a male retiree at age 65 is considering his asset allocation plan. He has five objectives:

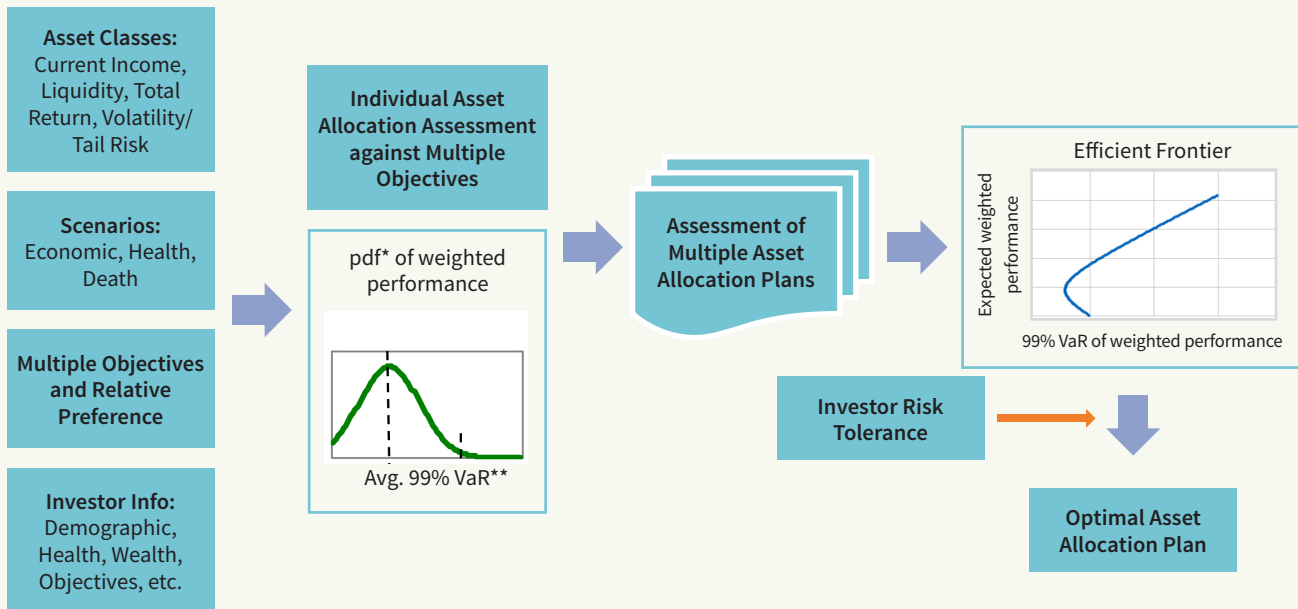
1. High current income no less than 2 percent of the asset value (CI)
2. Maintain the purchase power of the portfolio (PP)
3. Maintain sufficient liquidity to cover living costs and unexpected medical costs (AL)
4. Minimize longevity risk (LR)
5. Leave an estate of \$100,000 for his children (ES)

Table 1 shows the retiree’s relative preference of the five objectives.

Table 1 Relative Preference of Retirement Objectives

	CI	PP	AL	LR	ES
CI	1	5	3	1	7
PP	1/5	1	3	1/2	5
AL	1/3	1/3	1	3	5
LR	1	2	1/3	1	7
ES	1/7	1/5	1/5	1/7	1

Figure 2 Simulation-Based Multiple Objective Asset Allocation Process



* pdf: probability density function

** 99% VaR is one of many possible risk measures and is for illustration only

The suggested scale for AHP by Hobbs and Meier (2000)² is used. For example, CI is moderately more important than PP. The reciprocal means that the relationship of the two objectives is switched.

- a. 1: If the two attributes are judged to be equally important
- b. 3: If attribute I is judged to be slightly more important than attribute II
- c. 5: If attribute I is judged to be moderately more important than attribute II
- d. 7: If attribute I is judged to be strongly more important than attribute II
- e. 9: If attribute I is judged to be extremely more important than attribute II
- f. 2,4,6,8: If intermediate values between two adjacent judgments are needed

Based on the preference matrix, the weight assigned to each objective can be calculated by dividing each entry by the sum of the column and then taking the average of the row, as in the AHP (see Table 2).

Each objective has its own measure of performance. The measurement could be performed for the entire time horizon to get

Table 2 Weight of Retirement Objectives

	CI	PP	AL	LR	ES
Weight	36%	18%	21%	22%	3%

Table 3 Performance Measure of Retirement Objectives

	CI	PP	AL	LR	ES
Type of measure	Average	Average	Worst	Average	Average
Performance measurement	1.5	2	0.9	0.75	-0.8

the average performance or the time period with the worst performance. The measures need to be normalized before calculating the weighted performance. In this example, normalization is omitted for simplicity.

1. **CI:** (current income rate – 2%)/2%. Current income rate is the weighted average of savings interest rate, bond coupon rate, stock dividend rate and real estate rental income rate.

Table 4 Asset Class Profile

Asset Class	Expected Return	Risk	Liquidity	Current Income
Government bond	Low	Low	High	High
Stock index	High	High	Low	Low
Short-term savings	Very low	Very Low	High	Medium
Real estate	High	High	Very low	Very low
Life annuity	Medium	Low	Low	High

2. **PP:** $(\text{investment return} - \text{inflation rate})/2\%$
3. **AL:** $(\text{AL} - \text{living cost} - \text{unexpected medical cost})/(\text{living cost} + \text{unexpected medical cost})$
4. **LR:** $(\text{age at which assets are outlived} - \text{age @ life expectancy})/(99^{\text{th}} \text{ percentile of the age} - \text{age @ life expectancy})$
5. **ES:** $(\text{estate @ life expectancy} - 100,000)/100,000$

Assume under one scenario, we get the performances against the five objectives shown in Table 3.

The weighted performance using the weights derived from the preference matrix is 1.22.

The retiree only considers four asset classes and one life annuity product. Assets are assumed infinitely divisible for simplicity although constraints can be added according to the reality. See Table 4.

The retiree’s financial information is summarized in Table 5.

Table 5 Example: Financial Information

Net invested asset	\$200,000
Real estate (residence)	\$300,000
Retirement income (social program)	\$2,000/month
Current living cost	\$3,500/month
Contingent medical cost	\$100,000

Stochastic scenarios including interest rate, equity return, inflation rate and mortality rate are used to generate the distribution of the aggregate performance. See Table 6.

By testing multiple asset allocation plans, the relationship between the return measure (average weighted performance) and the risk measure (average weighted performance – worst 1% performance) can be established. See Figure 3.

A weighted performance of zero means that the minimum requirement is met. The efficiency of an asset plan can be measured using the risk measure divided by the (return measure – 0). The investor needs to have a minimum expected weighted performance of 0.5 with less than a 1 percent chance of having a performance less than –0.1. Based on this risk tolerance, we can find the optimal asset allocation plan with the highest Sharpe ratio. See Table 7.

IMPLEMENTATION CHALLENGES

Assessing the relative preference of multiple objectives is a difficult task and could be time consuming. Normally, pair comparison is used to help investors quickly choose the more important objective of the two. But the number of pairs an investor needs to compare could be large. For example, nine objectives would need 36 pairs³ of comparisons to finish assessment. In addition, the comparisons may be inconsistent. An investor may prefer objective A to B, prefer objective B to C and prefer objective C to A. Consistency of the matrix needs to be checked, as suggested by Saaty (1980, 1994).⁴ Inconsistent preference inputs need to be communicated to the investor and adjusted.

For an integrated analysis using scenarios including economic and insurance risk factors, the correlation among risk variables need to be reflected. For example, an unexpected rising inflation could cause lower stock returns due to the rising input cost. Inflation may cause lower purchasing power and also higher medical costs. This would require complicated modeling using correlation matrices, copula or structured models. In addition, the result could be very sensitive to the correlation assumption. Stress testing is needed to test the robustness of the resulting optimal asset allocation plan.

Table 6 Assumptions of Stochastic Scenarios

Stochastic Scenarios Assumption						
Insurance Assumption						
Mortality (MR)	2008 Valuation Basic Tables (VBT) with 20% volatility					
Economic Assumption*						
Initial yield curve	Term	Risk Free Rate (%)				
	1	0.30				
	2	0.64				
	3	1.05				
	4	1.54				
	5	2.03				
	7	2.74				
	10	3.42				
	30	4.35				
Interest rate model (IR)	One-factor Hull-White model ($\sigma = 10\%$, $\alpha = 0.05$)					
Equity model (EQ)	Log-normal model (Risk premium= 4%, $\sigma = 25\%$)					
Real estate model (RE)	Log-normal model ($\mu = 4\%$, $\sigma = 25\%$)					
Inflation rate model (IN)	Log-normal model ($\mu = 2.3\%$, $\sigma = 13\%$)					
Correlation among variables		MR	IR	EQ	IN	RE
	MR	1	0	0	0	0
	IR	0	1	0.1	0.6	0.05
	EQ	0	0.1	1	-0.1	0.7
	IN	0	0.6	-0.1	1	0.2
	RE	0	0.05	0.7	0.2	1

* The economic assumptions used are for illustration purpose. They are based on the same framework used in Kailan Shang et al., "Pension Plan Embedded Option Valuation," Society of Actuaries report (2013). Details are not listed here, as they are not the focus of this article.

Protection types of insurance products are also included in the financial planning. Unlike assets that return and risk depending on investment performance, the benefit of insurance products depend on insurance events such as death and sickness. Traditional approaches cannot be used for optimization

that considers insurance products. A simulation-based multiple objective approach can consider assets and insurance products together using cash flow projection, but it significantly increases the number of asset allocation plans that need to be tested.

Figure 3 Performance (Return vs. Risk)

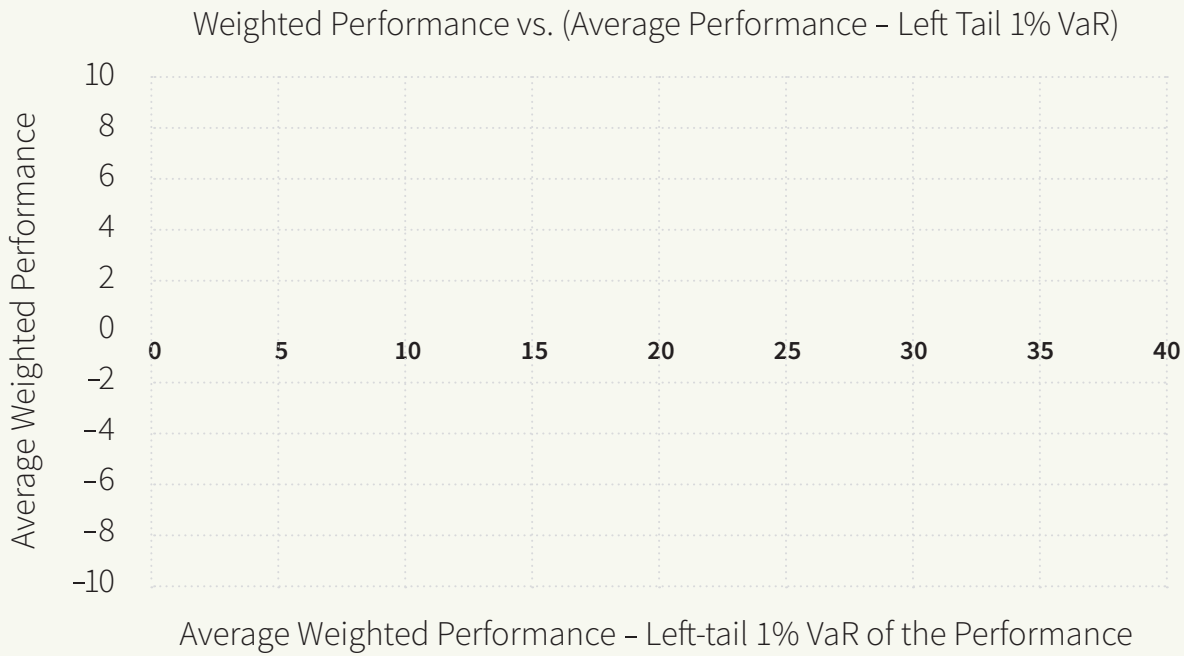


Table 7 Optimal Asset Allocation Plan

Savings	Bond	Equity	Real Estate	Annuity (Monthly Payment with 2% Annual Increase)	Weighted Performance	Risk	Sharpe Ratio
10%	90%	0%	0%	500	1.94	1.96	1.01

Time horizon is an important factor in asset allocation planning. The asset allocation plan needs to be reviewed regularly to reflect a changing time horizon.

CONCLUSION

A simulation-based multiple objective approach can systematically assess asset allocation plans against multiple objectives and use the aggregate performance to find the optimal plan. It is a flexible and extensible framework that can incorporate different objectives, asset classes and insurance products.

By projecting the cash flows over the time horizon, the new approach can easily measure the performance. At the same time, it requires more inputs and advanced modeling. ■



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ENDNOTES

- 1 Steven Le, "Asset Allocation: An Application of the Analytic Hierarchy Process," Journal of Business & Economics Research 6, no.9 (2008).
- 2 Benjamin F. Hobbs and Peter Meier, Energy Decisions and the Environment: A Guide to the Use of Multicriteria Methods (Boston:Kluwer Academic Publishers, 2000).
- 3 $C_3^2 = \frac{9 \times 8}{2} = 36$
- 4 Thomas L. Saaty, The Analytic Hierarchy Process: Planning, Setting Priority, Resource Allocation, 2nd ed. (Pittsburgh, Pa.: RWS Publications, 1980); Thomas L. Saaty, "How to Make a Decision: The Analytical Hierarchy Process," Interfaces 24, no. 6 (1994): 19-43.



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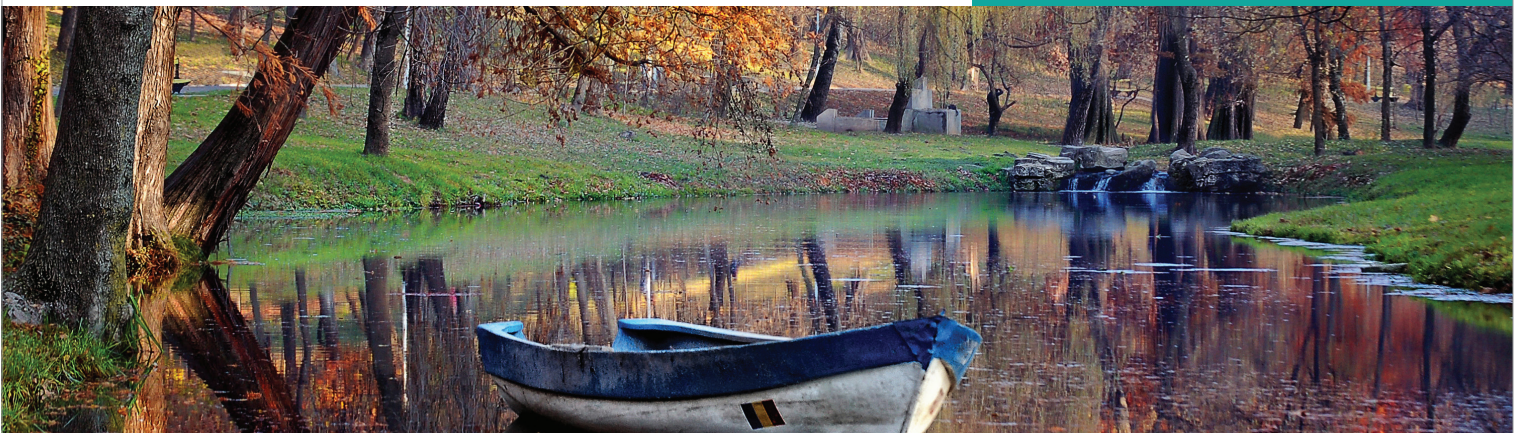
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INTERVIEW WITH Mark Shemtob



Mark Shemtob, FSA

TELL US A LITTLE ABOUT YOURSELF.

I am employed as both a consulting actuary and certified financial planner. My financial planning business is much more recent. I was drawn to it five years ago as a way to be involved with retirees on an individual level who rely on actuarial products, strategies and solutions to insure financial security. I am an active volunteer with the American Academy of Actuaries serving on four committees, all with a focus on retirement issues. I also write frequently for The Actuarial Foundation on topics covering retirement security.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

One of the major challenges in retirement security lies in unknown years of retirement. Planning for a 30-year time horizon is quite different from a 20-year period, especially in an environment of low risk-free rates of return. The challenge can be tackled by insuring the risk of living beyond an expected number of years—thus the value of longevity insurance. Unfortunately these policies sold individually have yet to receive the traction that I believe they should. The reasons are varied and valid. Thus it came to me that many of the problems with individual longevity insurance could be overcome using a group program sponsored by the federal government. The call for essays encouraged me to put my idea into something more formal.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

Getting any new government program to fruition is a huge challenge. Any hope for success would require several champions among lawmakers. Our profession needs to advance ideas that use actuarial principles to a level of serious discussion among those in Washington. More importantly we need to stress the potential dangerous consequences to society at large of ignoring the risks we face as an aging nation. Though my idea may not seem necessary today, we need to plan for the future. Planning ahead helps to spread costs fairly among those that will benefit in a cost-efficient manner.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

Policymakers, citizens, academics and organizations that support the financial best interests of our older citizens need to be on board. The expertise of actuaries, demographers and those in the finance industry, along with other experts, will be needed to create an effective program.

WHAT ELSE WOULD YOU LIKE TO TELL US?

Our profession is uniquely qualified to be a major contributor in the challenges that face our aging population. It is more than an opportunity. It is a responsibility. ■

Oh, No! Not Another Government Program

By Mark Shemtob

Should any of the readers of this essay believe I have been living under a rock for the last decade, let me assure them I am very aware of the current trend to bash government programs. Such sentiment continues to thrive regardless of the fact that any attempt to curtail Medicare or Social Security is a career-limiting move for politicians. With that as a back drop, I want to outline some very basic ideas regarding a potential new government program.

Our profession is engaged in seeking actuarially based solutions that reduce financial risk. Few risks are more prominent today than the risk of retirees outliving their retirement nest eggs. This has become magnified by increasing lifespans and the demise of traditional pensions. Many approaches and solutions have been advanced over the years, ranging from encouraging changes in behavior such as delaying retirement, to the creation and refinement of insurance products designed to provide lifetime income such as longevity insurance and guaranteed minimum benefit products. Though these solutions have value, they are by no means adequate or appropriate for the vast majority of retirees. Not everyone wants to or can delay retirement. These newer insurance products come with costs, restrictions and risks and are often complex.

Thus there continues to be a need to provide solutions to the challenge to be faced by those seniors fortunate to live many years into retirement but who may not be fortunate enough to have sufficient financial resources. This challenge is generally referred to as longevity risk. However, longevity risk can be viewed differently from the perspectives of different stakeholders. For the retiree, it is the risk of running out of money on account of living longer than the money lasts and thus having to lower one's lifestyle below a reasonable or desired level. From an institutional point of view, such as a pension plan or insurance company, longevity risk can be viewed as the risk that benefit claims on annuity products exceed what has been reserved on account of underestimating life expectancy, thus leading to negative financial consequences. A third take on longevity risk is from the societal point of view; that is the financial impact on all members of society being confronted with an aged population with insufficient financial resources.

Supporting a high percentage of the elder population reduces funds available for other societal needs or desires.

Longevity risk at the individual level can be mitigated through the use of risk pooling. Though solutions exist, they are far from ideal (and often unattractive) for reasons including high cost and complexity. If pricing came down and current solutions more heavily utilized there would be an increase in the longevity risk borne by institutions guaranteeing the benefits. Should those institutions fail, the onus would then fall upon society to act as the ultimate back stop. Thus the risk ultimately falls upon us all when all else fails. We generally look to government to deal with such large societal issues and challenges, thus the logic for considering another government financial security program.

KEY PRINCIPLES

Such a program, a longevity insurance fund (LIF), could be designed based upon the following six key principles.

- **Must be well understood.** Far too many individuals lack an adequate understanding of longevity risk. They often plan for retirement based upon their normal life expectancy. At least 50 percent of these individuals will live beyond that expected age and thus could be prone to outliving their assets. For a longevity insurance program to succeed, it is crucial individuals understand that the purpose of the program is one of insurance, in this particular case, insurance covering the risk of living too long and depleting one's nest egg. Too many individuals lack a proper understanding of how insurance works and that insurance is a most cost-effective way to limit personal risk.
- **Must be universally available and voluntary.** Having a program that is available to all individuals has the benefit of creating public interest and support as well as providing for lower expenses. The voluntary nature of a program is clearly a dual-edged sword. It is likely to be better received by citizens at large but may not be used by those who could most benefit from it.
- **Must be considered fair.** For citizens to support and participate in a voluntary program, they must perceive it as fair. Since fair has no universally accepted meaning, this creates a challenge. A majority of our citizens would agree that a program is fair if some are not favored over others. Unfortunately, this is not always possible. More to be said about this later on in the essay.
- **Must be cost efficient in respect to both administrative expenses and benefit level.** Among the negatives associated with current insurance products designed to provide lifetime income are high expenses. These expenses include adminis-

trative, marketing, sales, company profits and hedging (mortality and investment). For a longevity insurance product to be successful, it needs to be as actuarially fair as possible; that is a high percentage (as close to 100 percent as possible) of premiums paid (adjusted with investment earnings) should be paid as benefits. In addition, expenses to run the program must be very low.

- **Must provide for secure benefits.** Another drawback of current private market longevity type products is counterparty risk, the possibility that insurers will not make good on their promises. This concern becomes even more magnified when the benefits may not be payable for decades. Whether these concerns are legitimate or not when applied to private sector products is not as much an issue as the perception by the potential buyers of these products. For a longevity insurance program to be successful, there needs to be no doubt that benefits will be paid as promised. Having the backing of the U.S. federal government is the single most secure approach currently available.
- **Must provide for some flexibility to account for varying circumstances.** There are clearly individuals that will have no need for longevity insurance. This could be a result of having very large nest eggs or somewhat certain short life expectancies. There are others that have very modest nest eggs. Varying circumstances dictate a need to provide for some accommodations. However, having too much flexibility will complicate the program, which diminishes its value. The creation of a program that can accommodate different circumstances is critical to its success but must be done judiciously.

HYPOTHETICAL PROGRAM

A program might work as follows:¹

- **Eligibility.** Upon attainment of age 65 (or some other age), an individual is offered the option to make a contribution into the longevity insurance fund (LIF).
- **Contribution details.** Single payment from an IRA, 401(k) or personal funds. An additional alternative could be provided that would allow reduction in Social Security benefits to be used to fund the LIF.
- **Benefit payout age.** 80 to 85 (or some other range) at the election of the individual to be made at the time of the contribution.
- **Benefit payout amount.** Accumulated value of contribution to benefit payout age converted to a life annuity based on then current life expectancy (with projections to the extent appropriate) and a market discount rate reflecting then current expected payout period.

- **Prepayout age death benefit.** Full refund upon death within the first two years of contribution funding. Thereafter several options available; must be elected at time of funding.
- **Accumulated value determination.** The contribution funded plus interest. The determination of the interest crediting rate should reflect expected returns on a long-term basis in accordance with the actual investment policy. Additional amounts to be credited based on mortality experience of individual's cohort based on death benefit option selected.
- **Longevity insurance fund.** Structured in a similar manner to the Social Security Trust Fund, however, investments not restricted to government securities. To the extent that it is cost effective and appropriate, the federal government could outsource investment management responsibilities.

As noted earlier, one only needs to look to the popularity of Social Security and Medicare to appreciate how much our citizens rely on the safety nets provided. Criticisms of these programs center on their cost, not their value. The program as outlined above has been designed to limit (though not fully eliminate) the exposure to the federal government as well as to limit the extent of intergenerational wealth transfer. Establishing it as a voluntary program would clearly make it more palatable to many citizens. However, it would have the impact of potentially limiting its use by many who could most benefit from it. Thus its success would be contingent upon an appreciation of the value of protecting one's financial situation should they attain extreme old age. Those that may be reluctant to part with some of their nest egg in hopes of maximizing the amounts that might be available to their heirs must be made aware of the financial strain they will place on their heirs if they live beyond life expectancy and run short of funds. Those retirees without heirs or a desire to leave funds to heirs need to consider what their future would be like in 20 years if their nest egg is depleted. They need to answer the question: Is it not worth sacrificing a small bit of my early year retiree living standard to protect against old age poverty? Alternatives might be considered that would use a default strategy to get individuals automatically covered. This could be done by automatically using a portion of Social Security benefits to fund the longevity benefit. Of course, individuals could opt out if they wish.

PROGRAM FAIRNESS

A couple of comments on the issue of fairness are in order. The program as outlined does offer a sense of fairness from a generational point of view since it is designed to not require future generations to pay for current generations. However, within a generation, the issue of fairness is more complicated. Even though each retiree is paying for his or her own benefit, not all retirees will have the funds available to divert to the purchase of longevity insurance. In addition, life expectancy

differs based upon a multitude of factors ranging from gender to race. Thus the program will have greater value for some than others. I believe the way to consider the merits of such a program is not that it be universally fair but that it improve on the status quo. Though it is true that the program described above will do little or nothing for those retirees who have not accumulated sufficient retirement funds, it does serve a valuable purpose. The program as outlined in this essay is aimed at a different group of retirees—those who have accumulated meaningful funds for retirement but potentially not enough as a result of an uncertain lifespan. Those who have not accumulated sufficient funds will either need to work longer, turn to family for help or seek assistance from government programs designed for the indigent.

CONCLUSION

Some may feel that the idea of a universal longevity insurance program is a solution looking for a problem. Whether there will be millions of elderly citizens faced with significant declines in their standards of living in the future is not possible to predict with any certainty. However, trends seem to indicate an increasing possibility. It is possible that longevity improvements could cease or that retirement nest eggs will last longer than expected due to proper financial management and cooperative financial markets. Whether we wish to leave this to chance or initiate a program focused on dealing with this likely (though not certain) problem is a fair question. Though even if a crisis does not materialize, there are clear benefits to such a program. These include peace of mind for those who utilize it. In addition, knowing that funds are available in the future should a retiree survive to an advanced age may allow for a greater consumption of funds in the earlier stages of retirement. This both improves the personal retirement experience as well as aids the overall economy.

Though Social Security does provide lifetime income, it is seldom on its own sufficient to provide a respectable living standard for our elderly. The majority of our citizens will also rely on nest eggs that cannot last for multiple decades. Thus we need to create additional income sources for the super elderly. Fortunately, we have not yet reached the level of demographic danger that Japan and certain European countries are facing and thus this issue may not seem pressing at the moment; however, waiting for a crisis to be upon us before we take action would be foolish. Whether our citizens would agree that the elderly financial challenge warrants a new government program would likely depend on how it is presented and structured. Whether private industry on its own can deliver a cost-efficient universal solution to the prospect of insufficient financial resources for the very elderly is doubtful. The reality is that certain challenges are too large for any entity other than the federal government. This is likely one of them. ■

ENDNOTES

1 Note that the purpose of laying out a hypothetical program is to add context to the general concepts outlined above and hopefully stimulate discussion and in no way should be considered the author's definitive thoughts on the matter. There are a variety of complications that would need to be considered including, though not limited to, taxation, unisex table challenges and investment policy.



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INTERVIEW WITH Paul J. Yakoboski



Paul J. Yakoboski, Ph.D.

TELL US A LITTLE ABOUT YOURSELF.

I am a senior economist with the TIAA Institute and previously held research positions with the Employee Benefit Research Institute and the American Council of Life Insurers. Adding it up, I've been working on retirement income security issues for 25 years—time flies. A particular interest of mine and the Institute is understanding how individuals manage their retirement savings once they move into retirement.

Outside work, well, I took ice skating lessons with my wife last year. I can't say that I'm good, but I am functional and now really appreciate clean ice.

WHAT ATTRACTED YOU TO THE ESSAY CONTEST?

We had recently completed a survey research project that delved into the decision-making of retirees who had annuitized retirement savings and those who had not. Finding that they shared the same financial priorities was striking and surprising. The essay contest offered a fantastic opportunity to share that work with a broad network of professionals interested in retirement income issues. It was truly gratifying to have the essay accepted.

WHAT STEPS, IF ANY, WOULD HELP MAKE THE IDEAS IN YOUR ESSAY A REALITY?

The challenge is helping individuals to identify and focus on their financial priorities as they approach retirement and then to develop an asset management strategy aligned with those priorities. This is a realm where behavioral economics could be fruitfully applied, analogous to what had been done on the accumulation stage.

WHAT GROUPS WOULD NEED TO BE INVOLVED?

The research community, plan sponsors and providers, and likely policymakers.

WHAT ELSE WOULD YOU LIKE TO TELL US?

It's preaching to the choir, but these essays reflect a growing body of work in an important area—the decisions individuals make once they retire. These decisions are just as important, but even harder than the savings-related decisions made while still working. There's not a lot of wiggle room to "fix" a poor decision made at this stage. ■

Decisions Misaligned With Priorities: The Non-Annuitization of Retirement Savings

By Paul J. Yakoboski

Providing a financially secure retirement is a primary objective for any employment-based retirement plan. For workers covered only by a defined contribution (DC) arrangement, this starts with accumulating sufficient wealth to fund retirement, but that is not enough. A retiree must then manage and decumulate that savings so it provides an adequate and secure income throughout retirement. The primary challenges in doing so are well understood. Retirees don't know what their investment returns will be over the course of their retirement. Nor do they know how long they or their spouse, if they are married, will live. If they decumulate assets "too quickly," retirees risk not having adequate retirement income in later life. If they do so "too conservatively," they can experience an unnecessarily lower standard of living. So adequate savings must be translated into income in a manner that efficiently manages investment and longevity risks.

Asset decumulation is not only a personal finance issue for individuals; it has significant public policy implications too, as growing numbers of workers accumulate retirement benefits solely in DC plans. To this end, the economic rationale for annuitization of (at least some) retirement savings has long been understood. However, annuitization rates historically have been low—very, very low—a phenomenon that is not well understood despite ample research. If retirees are making "rational" decisions based on full information, then low annuitization rates are not a concern. But given what we know about decision-making during the accumulation stage (regarding participation, contribution rates and investment allocation), rational behavior is probably not the norm for many retirees during decumulation.

FINANCIAL PRIORITIES AND NONPRIORITIES AMONG RETIREES

Understanding the decisions that retirees make is a precursor both to identifying whether there is an issue concerning annuitization and to guiding individuals in the right direction given their circumstances. If retirees' choices are consistent with the

pursuit of their financial priorities for retirement, then there is no reason for concern at either a micro and macro level (unless one wanted to argue that some retirees' priorities are flawed and need to be "fixed.") In this case, those who annuitize and those who do not must simply have different financial priorities for retirement.

Alternatively, if the strategies chosen do not align with retirees' financial priorities, then there is an issue to be addressed. This, in fact, appears to be the case with many retirees who choose to not annuitize, according to research by the TIAA Institute.¹ We surveyed 500 retirees who had annuitized at least some of their retirement savings and 500 retirees who had not annuitized any retirement savings. The survey was restricted to those who had retired with at least \$400,000 in DC and/or IRA assets and who had no defined benefit (DB) pension income. In this case, retirement savings and Social Security likely represent the primary sources of retirement income, so management of that savings would be particularly important for retirement income security.

Survey respondents were asked to rate the priority they place on 10 items using a five-point scale ranging from "very high priority" to "not a priority." We found that annuitants and non-annuitants typically share the same top financial priorities for retirement. In fact, they generally share the same top, middle and low priorities. Furthermore, annuitization is consistent with meeting the top priorities.

More specifically, the top financial priorities for retirement among annuitants were protecting spouse's financial security from your death, not outliving savings and assets, and covering basic expenses with a guaranteed income stream. Each was deemed a "very high priority" by over one-half of those who have annuitized and as a "high priority" by more than one-third. The first two priorities also were the most important to non-annuitants, with analogous percentages rating each as "very high" and "high." Having guaranteed income sufficient to cover basic expenses ranked third among non-annuitants, but only one-third rated it a very high priority and another one-third as a high priority. Given these attitudes, there appears to be a disconnect between the top financial priorities of non-annuitants and their decision to not annuitize any retirement savings. Since they have not annuitized, their savings must be drawn conservatively to meet their financial objectives. (See Table 1.)

Not only do annuitants and non-annuitants tend to share the same top financial priorities, they generally agree on the lowest and mid-level priorities. The findings at the low end of the priority spectrum are striking: Items that rate lowest as financial priorities—having the flexibility to adjust your income as need-

Table 1 Top Priorities for Managing Personal Finances During Retirement

How Much of a Priority is [This Issue] When it Comes to Managing Your Personal Finances During Retirement?				
	Very High	High	Moderate	Low/Not
Ensuring the financial security of your spouse if you die first				
Annuitants	57%	36%	5%	3%
Non-annuitants	51%	36%	8%	5%
Not outliving savings and financial assets				
Annuitants	54%	35%	7%	4%
Non-annuitants	49%	37%	10%	4%
Having a guaranteed income stream sufficient to cover basic expenses				
Annuitants	53%	38%	6%	3%
Non-annuitants	36%	35%	18%	10%

Source: Yakoboski, "How Retirees Manage Retirement Savings for Retirement Income."

ed over time, earning a high rate of return on your financial assets, leaving an inheritance and having professionals manage your financial assets—are all consistent with not annuitizing retirement savings. But given that they are low priorities, they should not drive the decision to not annuitize. (See Table 2.)

EXPLAINING THE NON-ANNUITANT DISCONNECT

So, why do some retirees with significant DC/IRA accumulations, but no pension income, choose to not annuitize when all tend to share the same financial priorities and the top priorities are consistent with annuitization? Why the disconnect between priorities and decisions among non-annuitants?

When asked specifically about their reasons for annuitizing some retirement savings, the items annuitants rated highest in importance—cannot outlive the income stream and providing income for spouse if annuitant dies first—aligned with the top financial priorities previously noted. One-half rated each of these reasons as extremely important and an additional one-third rated each as very important.

In contrast, a strong, driving reason did not emerge when non-annuitants were asked about their decision to not annuitize any retirement savings; no item rated “extremely important” among a large share of these retirees. The most significant reason—maintaining direct control of the mon-

ey—was rated as extremely important by only one-quarter of non-annuitants and very important by an additional 40 percent. Furthermore, this top reason does not align with any of their top financial priorities. Rather than a driving reason (or reasons) leading individuals to not annuitize, it appears more likely that non-annuitants simply do not perceive a driving reason to annuitize.

It’s possible that non-annuitants do not understand that annuitization would address their top financial priorities. If so, why not and would a better understanding lead to decisions that are more aligned with priorities?

The survey responses suggest that advice impacts decumulation decision-making and that advice can cut both ways. Almost equal percentages of annuitants and non-annuitants (54 percent and 58 percent, respectively) worked with a financial adviser in deciding how to manage and draw income from retirement savings. Moreover, both groups tended to be equally likely to follow the advice they received. But the advice received was generally quite different between the two groups: Annuitants were more likely advised to annuitize than were non-annuitants, and very few annuitants were advised to not annuitize. Specifically, 60 percent of annuitants were advised to annuitize, versus 21 percent of non-annuitants. (See Table 3.) Thirty-seven percent of

Table 2 Low Priorities for Managing Personal Finances During Retirement

How Much of a Priority is [This Issue] When it Comes to Managing Your Personal Finances During Retirement?				
	Very High	High	Moderate	Low/Not
Having the flexibility to adjust your income as needed over time				
Annuitants	15%	49%	27%	10%
Non-annuitants	25%	45%	26%	4%
Earning a high rate of return on your financial assets				
Annuitants	9%	30%	49%	12%
Non-annuitants	11%	31%	48%	10%
Leaving an inheritance				
Annuitants	6%	26%	35%	34%
Non-annuitants	12%	27%	32%	28%
Having professionals manage your financial assets				
Annuitants	12%	20%	24%	43%
Non-annuitants	10%	20%	24%	46%

Source: Yakoboski, "How Retirees Manage Retirement Savings for Retirement Income."

non-annuitants were advised to not annuitize, and 42 percent received no advice regarding annuitization. It can be argued that receiving no advice about annuitization is equivalent to being advised to not annuitize.

Table 3 Advice Received About Annuitizing Retirement Savings

	Do	Don't	Not addressed
Annuitants	60%	9%	30%
Non-annuitants	21%	37%	42%

Source: Yakoboski, "How Retirees Manage Retirement Savings for Retirement Income."

In addition, the investment decisions that workers make while saving for retirement during their working life have implica-

tions for how they manage savings for income during retirement. By extension, this implies that investment menu design during the accumulation stage matters for decumulation-stage decisions. More specifically, previous research found that retirees who annuitized were more than twice as likely, compared with retirees who had not annuitized, to have saved through a deferred annuity in a DC plan while working.² One-quarter of retirees who have not annuitized their retirement savings participated in a DC plan that offered an annuity investment option in the accumulation phase, and 25 percent of these retirees saved through the annuity. In comparison, retirees who have annuitized were slightly more likely to have participated in a DC plan that offered an annuity investment option, and 45 percent of them saved through the annuity. Additionally, 41 percent of retirees who annuitized participated in a DC plan that offered annuitization as a retirement payout option. It appears that in-plan deferred annuities present an opportunity for participants to become socialized to annuities and annuitization, thus increasing their propensity to annuitize.

CONCLUSION

Retirees with significant DC and/or IRA accumulations and no DB pension income tend to share the same top financial priorities for their personal finances in retirement, irrespective of whether or not they have annuitized any of their retirement savings. Furthermore, each of these top priorities is consistent with annuitization, and the primary reasons cited by annuitants for annuitizing align with these priorities. So why then do others who share the same financial priorities choose instead to not annuitize?

It is possible that non-annuitants simply do not understand that annuitization would address their financial priorities for retirement. If they are not advised to annuitize or if they are not socialized to annuities and annuitization while still working and saving, then they may not see the connection between their priorities and annuitization. In fact, one-quarter of non-annuitants rate their understanding of annuities and annuitization as merely fair or poor. Most non-annuitants do not have a good idea about the income level that annuitizing their savings would provide; among those professing to have a pretty good idea or somewhat of an idea, only one-third give a reasonable answer regarding what \$100,000 would yield if annuitized.

Correcting this disconnect can help ensure that an adequate level of retirement savings translates into an adequate and secure retirement income—one that lasts a lifetime and meets retirees' top financial priorities. ■

ENDNOTE

- 1 See Paul J. Yakoboski, "How Retirees Manage Retirement Savings for Retirement Income: A Survey of TIAA-CREF Participants," TIAA-CREF Institute Data Summary (October 2015).
- 2 See Paul J. Yakoboski, "Retirees, Annuity and Defined Contribution Plans," TIAA-CREF Institute Trends and Issues (April 2010). The analysis was based on a survey of individuals who had been retired at least three years, were not working for income during retirement, had \$200,000 or more in DC and IRA assets at the time of retirement, and had less than \$200 per month in defined benefit pension income. The survey population was not drawn from TIAA participants.



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Financial Decision-Making and Aging: Observations About the 2016 Pension Research Council Conference

By Anna Rappaport and Monica Dragut

The 2016 Pension Research Council Conference focused on “Financial Decision Making and Retirement in an Aging World” and took a big picture point of view. We were very pleased to have the privilege to attend the conference. For us and probably for virtually all of the attendees, there was new information and there were new ideas.

The Pension Research Council¹ is a multidisciplinary retirement research center at the Wharton School at the University of Pennsylvania. It includes representation from leading academics who conduct pension-related research studies, business, labor and the policy community. Disciplines represented include economists, attorneys, actuaries and others. The Pension Research Council holds an annual research conference and publishes working papers and books. The conference papers will be published as working papers later in 2016. Anna Rappaport serves on the Advisory Board of the Pension Research Council. The Society of Actuaries is an associate level member of the Pension Research Council.

SOCIETAL IMPLICATIONS OF LONGER LIFE SPANS

The keynote speaker, Ursula Staudinger from Columbia University, focused on how much life spans have increased in the last 200 years. She took an international perspective and pointed out that it is entirely new for countries to have large aging populations. She talked about long periods of retirement and the importance of rethinking life at the older ages, and how to make it more productive. The aging population has implications for the role of older people in society, sensible retirement ages, families, housing, health, work, assets needed for retirement, and life planning.

Cognitive skills, just like physical skills, have some element of “use it or lose it.”

COGNITIVE DECLINE, POOR DECISIONS AND FRAUD

We frequently hear that there are concerns about cognitive decline. At this meeting the presenters shared substantial research about cognitive change and age. Some cognitive decline is related to illness. There are two different types of cognitive skill: fluid, cognitive deliberation and crystalized cognitive ability. On average, cognitive deliberation shows decline by age while the other tends to be flat or increase with experience. We also learned about signs of cognitive decline and measuring cognitive skill. The papers from this conference are well worth reviewing by those who want to learn more about this topic. One of the papers focused on the question of whether retirement leads to cognitive decline. Cognitive skills, just like physical skills, have some element of “use it or lose it.” Along with the discussion about cognitive decline, we heard about vulnerability to poor decisions and to fraud. Discussants raised great questions about interventions, when and how much, and how this translates into retirement products. Automatic opt-out policies are common during accumulation. It was suggested that maybe industry will be looking at parallel products and approaches for the decumulation phase. A parallel was drawn between some medical interventions and old age issues in retirement; retirement professionals perhaps could be looking at models from medical decision-making. People interested in learning more about cognitive decline can read the papers that deal with this topic.

From another panel, we learned much more about fraud and about efforts to prevent and deal with fraud, including investment fraud and financial exploitation, misappropriation of assets by family members and caretakers. (Of course there are also many other types of fraud.) Financial firms are encouraged to use an “in case of emergency” procedure (and a form is available for this) to have their clients provide them with the name of a family member or trusted friend who the adviser or firm representative can contact in case of emergency. Emergency may include a discrete event or some evidence of confusion or decline. The designated person would not have authority to execute transactions but is someone the adviser can talk with to see

what is going on, and to engage in a conversation if things do not seem to be going well. Merrill Lynch and Wells Fargo were cited as examples of firms that use these procedures. In many cases, this is a more effective and easier route than going to the authorities.

One type of fraud prevention is training the individual to recognize “red flags” to help avoid fraudulent investments or deals. The FINRA Investor Education Foundation has done considerable research on recognizing fraudulent investments and on strategies to educate people about the “red flags.” They offer educational materials. There are also efforts within financial service companies—both brokerage firms and banks to identify cognitive problems and financial exploitation. Sometimes these occur together and sometimes not. The Stanford Center on Longevity has done research with both financial firms and regulators to understand these efforts. The conference papers include papers from both FINRA and the Stanford Center on Longevity.

Some financial firms train their advisers and others who come in contact with clients to recognize signs of cognitive decline and/or exploitation. Examples would be asking the same question repeatedly, asking strange questions, and strange patterns of withdrawal of funds. Some firms may also utilize automated programs to flag strange patterns of withdrawal. Firms having the “in case of emergency” procedure in place can then discuss the situation with the designated person or persons. Of course in some cases that person might be the problem, so this does not always work, but it often can. Within state governments, Adult Protective Services are agencies that can be called in when there is a suspected problem. Some firms will delay payouts for a short period when they suspect a problem.

States have different laws with regard to these matters. The firms may be concerned about liability if they report suspicious activity. The state laws require reporting in some cases and authorize it in others, and they generally protect the firms from liability. The paper by Ryan Wilson, an attorney expert in these matters, outlined six characteristics of a good law to support financial firms dealing with exploitation:

A reasonable initial hold period to allow the firm to stop a transaction before the money is gone. Most proposals have a period of up to 10 days for the initial hold at the firm’s discretion. Firms are in the best position to quickly stop a transaction when they suspect financial abuse. Having an initial hold period longer than 10 days may rest too much discretion with the firm.

Mandatory reporting of suspected cases of financial exploitation. Mandatory reporting is the strongest incentive to encourage financial services firm to report these cases to authorities.

Individuals at retirement age and during retirement have a wide variety of decisions to make.

Ability to extend the hold, with court approval, and including other court-ordered injunctive relief. Requiring court oversight is good for an extension because it protects the consumer against someone at the firm holding a transaction for an unreasonably long period.

Shielding the financial institution and its employees if they acted in good faith and with reasonable care. Shielding financial institutions and employees from civil and administrative liability if they are involved in holding the transaction or making a report is the best incentive to encourage firms and their employees to act in the consumer’s best interest. The shield should be available to institutions and employees who acted in good faith and with reasonable care. Having both adds an additional layer of protection.

Covering all financial services firms. Consumers use products and services from all sectors of the financial services industry. The best proposal covers all three sectors: banking, securities, and insurance.

Training for employees. Financial services professionals are not trained law enforcement officers or medical professionals, but there are signs of financial exploitation they should recognize and are in a position to recognize in their client before other people could reasonably do so. The training should also include state-specific information on how to file a report and the mechanics of holding the transaction. Training is essential to helping firms and their employees have a meaningful role in combating financial exploitation.

Reasonable effort to obtain emergency contact information. Having an emergency contact on file makes the decision of which family member to contact less difficult when the firm is concerned about its client and needs good information in a hurry. Firms should not be held liable if a client refuses to provide contact information.

It was also pointed out that in the case of family, there are often “gray situations” and exploitation is not always clear. For example, consider the situation where someone had a pattern of “gifting” to family members, and finances are now managed by a family member. If the family member continues gifting on the basis that the person would have wanted them to do so, it may be fine and it might not.

DECISION-MAKING THROUGHOUT THE LIFE CYCLE

One paper focused on a move from investment advice to more holistic lifetime financial planning. That paper identified a number of different areas that are important in people's lives, including family, housing, work and health as well as financial management. Merrill Lynch has worked with Age Wave to secure a series of research reports on these domains, and they have employed a financial gerontologist to help them integrate thinking about these areas into the development and setting of financial goals. They are training advisers to work with clients on a much more holistic basis. They are also using partner services to help clients where specific advice is needed in some of these areas. These issues are discussed in the paper "Seven Life Priorities in Retirement."

Another paper looked at the impact of advice delivered at different times during the life cycle, and concluded that the greatest impact was when advice was delivered to young adults. This happens because it can influence results over a long period of time. Another paper looked into how often defined contribution (DC) participants in an Australian plan asked administrative questions and looked for investment and retirement advice. Younger participants were much more likely to have administrative service needs whereas older employees were more likely to seek retirement advice. Men were more likely to seek investment advice.

Another paper looked at the use of different payout options in state-sponsored defined benefit plans. This paper found that the take-up rate of joint and survivor options was not that high. All of the plans seemed to offer life annuities and joint and survivor options, and beyond that options were quite limited. They included Social Security leveling and installment payouts in some of the plans. Eighty plans were analyzed. The authors provided election rates for a few plans, and they discussed some new options that are being considered in one state. Retirement often occurs before age 60 with some retirees continuing in the workforce in new roles. Deferred payout options make a lot of sense, and they are being considered.

TECHNOLOGY AND TOOLS AND HOW THEY FIT IN

Some of the ideas discussed throughout the conference and some observations about the discussion include:

Move to DC plans. It was pointed out that DC plans require individuals to make more decisions and that individuals are not equipped to do well with these decisions. This is viewed as a particular problem post-retirement. There were several comments that the retirement system has moved in the wrong direction.

Post-retirement defaults. This came up a number of times in the discussion with very different perspectives. On the one hand,

there were strong proponents on more annuitization and embedding it in defaults. On the other hand, it was pointed out that this is not right for some people and payout period defaults tend to be irrevocable, unlike defaults during the accumulation periods. It was also pointed out that a 3 percent auto-enrollment default leads to inadequate savings. The default discussion did not link to Social Security as a mandatory lifetime income, but we would do that.

Participants value flexibility. This was pointed out several times.

There was discussion about the need for stronger public policy but it was not clear what those policies should be. One suggestion would be safe harbors for defaults.

I was surprised that there was not more discussion about the importance and role of Social Security. One viewpoint not discussed in the conference is that Social Security benefits should be increased because these benefits are all of the lifetime income that many people will have. It seems much more likely that these benefits will be cut. There was quite a lot of discussion about the importance of the Social Security claiming decision.

Simplicity is important. We need to find a way to simplify the system.

Communication is important and should be targeted differently based on age groups. Discussants encouraged collaboration between different professionals (including psychologists, retirement specialists and attorneys) when drafting materials.

The role of the employer was not a focus of the papers, but it came up in discussion. My experience is that many people will not have any contact with financial professionals or products beyond what is offered through their employer and the benefit plans. Participants varied in their view of the potential for the employer to be involved. One view is that people have many jobs and the employer should not be viewed as a good source of support. Many employers are now offering financial wellness programs to their employees and that was not recognized in the papers or discussion.

RESOURCES AND TOOLS

At various points during the conversation, resources and tools were discussed. These are a few examples.

- The Consumer Financial Protection Bureau offers a Social Security claiming tool.
- FINRA offers educational material on financial exploitation.
- Robo-advisers provide automated investment advice.

- The Society of Actuaries offers a set of decision briefs to help individuals nearing retirement make better decisions.
- The American Academy of Actuaries and Society of Actuaries are jointly sponsoring a longevity calculator.

CONCLUSION

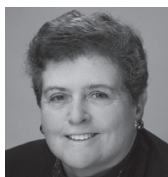
Individuals at retirement age and during retirement have a wide variety of decisions to make. Considerations are often intertwined. The move to DC plans makes the decisions more complex. As individuals age, people who experience significant cognitive decline are less well-positioned to make good decisions. They also become more vulnerable to financial exploitation and fraud. Restructuring the retirement system to pay out more benefits as lifetime income would reduce the vulnerability to fraud. But such changes would have both pros and cons and would not be popular. The discussions at the symposium and the papers leave us with many questions:

- How do we understand and deal with cognitive decline?
- When do family members need to be involved with planning?

- What benefit structures would work better for longer lives?
- What tools can help people make better decisions? ■

ENDNOTE

1 <http://www.pensionresearchcouncil.org/boettner/>



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Survey Says: 2015 Survey of Post-Retirement Risks and the Experience of Long-Term Retirees

By Cynthia Levering

For more than 15 years, the Society of Actuaries (SOA) Committee on Post-Retirement Needs and Risks has focused on improving retirement outcomes. The 2015 Risks and Process of Retirement Survey (the survey) is the eighth biennial study of public perceptions related to post-retirement risks. The survey, which was conducted in mid-2015, targeted some new, specific aspects of risk such as financial shocks (or dealing with the unexpected) and debt in retirement as well as how the experiences of parents influenced their children's planning processes.

This article presents some highlights of the survey findings. The study includes a combination of some repeated questions and special areas of emphasis. New areas of emphasis in 2015 are understanding shocks in retirement, including the impact of long-term care, and analyzing results by income level. Since both the 2013 and 2015 surveys included changes in methodology from the prior surveys (see below), direct year-by-year comparisons of survey results should be considered carefully.

SURVEY FINDINGS AND COMMENTARY

The hierarchy of concerns found in this survey and the strategies for risk management are similar to those found in previous iterations of the study. There is a general consistency in what respondents say is most important and in how they manage risk.

Risks viewed as most important: The retirement risk that most concerns both retirees and pre-retirees is long-term care (69 percent of pre-retirees and 58 percent of retirees are very or somewhat concerned). Rounding out the top three concerns are inflation (69 percent and 52 percent) and having enough money to pay for adequate health care (67 percent and 47 percent). Approximately two-thirds of pre-retirees and 4 in 10 retirees also express concern about the possibility of deplet-

Using the survey and focus group information: The complete survey report can be found at <https://www.soa.org/Research/Research-Projects/Pension/2015-risk-process-retirement-survey.aspx>. Special reports focusing on the areas of emphasis will be released throughout 2016 and will also be made available on the website. The focus group report can be found at <https://www.soa.org/Research/Research-Projects/Pension/2016-post-retirement-experience-15-years.aspx>.

Presentations of survey and focus group results were made at the 2015 SOA Annual Meeting & Exhibit and in a webcast this past February. Presentation materials containing these results and other committee work can also be found on the website. Actuaries are encouraged to share key results with clients and use the results to help establish the need for client action. They are welcome to use results in their presentations with proper documentation of the origin of the material used.

The results demonstrate that many members of the public need help in managing the post-retirement period, and show the value of employers offering support in that regard. They also demonstrate the need for more planning and better use of planning tools. (They do not demonstrate whether planning tools are adequate to handle the post-retirement period.) The results may help advisers and financial service companies identify some opportunities. The results may also be of interest to community groups.

ing their savings (62 percent and 43 percent) and maintaining a reasonable standard of living for the rest of their life (63 percent and 45 percent).

This series of post-retirement risk surveys has consistently found that the top three concerns are inflation, paying for health care costs, and paying for long-term care. Significant changes in economic conditions appear to generate only a temporary change in levels of concern, if any at all.

Keeping results in perspective: *Even though there are many risks that Americans face in retirement and even though retirees are often on their own in dealing with these risks, many people are not too concerned about some of them. A significant number of retirees may not be aware of all of the risks. For example, there seems to be little concern or awareness about the risk of fraud or a scam. However, scams can be devastating. The Consumer Financial Protection Bureau offers a series of materials on scams.¹ On the other hand, one of the top concerns is inflation. Even though inflation is purportedly low,*

retirees may be more affected than others by different things, such as health care costs, that may not be major drivers of general inflation. In addition, many retirees may be invested in fixed income assets, such as money market funds, that currently are earning next to nothing so the value of their investments may not be keeping pace with inflation. There are also significant differences in level of concern by income. Not surprisingly, lower-income retirees and pre-retirees generally show a higher level of concern.

Managing risks: As in previous iterations of the risk survey, both pre-retirees and retirees tend to focus on strategies of saving and spending to manage the risks associated with retirement. A significant percentage of pre-retirees (88 percent) and retirees (86 percent) report they have already eliminated or plan to eliminate all of their consumer debt. Nine in 10 pre-retirees (90 percent) and three-quarters of retirees (74 percent) say they already have saved or plan to save as much as they can, while similar proportions have already cut back or plan to cut back on spending.

Pre-retirees and retirees are much less likely to turn to risk pooling strategies to manage retirement risks (other than health insurance). Half of pre-retirees (50 percent) and 2 in 10 retirees (20 percent) indicate they plan to or have already postponed taking Social Security. Only one-third of pre-retirees and one-quarter of retirees report buying (or expecting to buy) an annuity or choosing an annuity option from an employer plan. There is relatively low interest in financial products for risk management except for health insurance (including Medicare supplements).

The 2015 survey included a question to find out what people were most likely to do if they were running out of money. Reducing expenditures significantly was the top result with 90 percent of retirees and 88 percent of pre-retirees indicating that they would do this. Work was a major area of focus for pre-retirees with 74 percent of pre-retirees indicating that they would either try to return to work or increase the number of hours they were working compared to only 35 percent of retirees. Downsizing housing was also a major area of focus with 65 percent of pre-retirees and 55 percent of retirees choosing this option. Housing is a major area of expenditure, but some may have already downsized. These responses were in sharp contrast to the number who indicated that they would get help from family members, friends or communities. The vast majority did not expect to get such help. Only 20 to 25 percent expected to get help from either family members, or friends and community agencies.

The 2015 survey and focus groups were also designed to dig deeper into what events occurred in retirement that could derail or complicate a retiree's financial status. Overall, these events, considered shocks, had a material impact on many retirees with more than 1 in 3 survey respondents experiencing financial shocks that depleted at least 25 percent of their assets

and more than 1 in 10 retirees stating that they needed to reduce their spending by 50 percent or more as a result of shocks. The types of shocks that were mentioned most frequently included major home repairs, dental expenses, prescription drug costs and divorce.

There is a strong preference for maintaining—or increasing—asset levels in retirement. The most common retirement asset management strategy is maintaining financial assets by withdrawing only earnings and leaving the principal intact. About one-quarter try to grow their assets, but only 2 in 10 plan to spend down their assets. The rest have no plan for how they will manage their assets in retirement. Over 60 percent of pre-retirees and 40 percent of retirees do not have a plan for how much money they will spend each year and where that money will come from. It is encouraging to see that most retirees and retired widows (72 percent) spend about what they can afford each year.

Keeping results in perspective: *Many people do not have enough financial assets at time of retirement and during retirement to effectively use risk pooling strategies such as annuities. An emergency fund is a first priority. Both prior and recent focus group results indicated that many resource-constrained retirees prefer to hold on to assets, making them available as an emergency fund. They try not to spend down their assets and generally limit their withdrawals to the Required Minimum Distribution amounts at age 70½ and later. In the focus groups, some participants even expressed that they didn't like having to take these distributions. This may be an area for future public policy discussions, especially as life expectancies continue to increase. They also appear to be surprisingly resilient in their ability to absorb and adapt to shocks.*

Experience of parents: This is the first of our risk surveys that looked at how parents' experiences influenced their children's risk concerns and planning. About half of the respondents indicated that their parents' experiences had influenced their concerns. The large majority (84 percent of pre-retirees and 78 percent of retirees) of those who are more concerned about their financial security in retirement due to their parents' experiences report that those experiences have impacted their own preparations for retirement either a great deal or some. Only a few (10 percent of pre-retirees and 8 percent of retirees) indicate their parents' experiences have left them less concerned.

Death of a spouse: Few of the respondents expect to experience negative financial consequences from the death of a spouse. Among those who are married, both pre-retirees and retirees believe the death of one spouse would have little effect on the financial situation of the survivor. However, 4 in 10 married pre-retirees think their spouse would be better off financially if they were to pre-decease their spouse. Fewer than 2 in 10 in both groups think the survivor would be worse off.

Keeping results in perspective: *As it has become increasingly clear that there are major gaps in financial literacy and analytical approaches to planning, it becomes much more important and interesting to learn what factors influence how people think about financial risk and longer-term decisions. In particular, many households do not have a good understanding of the impact of the death of a spouse, especially if there was a long period of illness prior to the first death, and if the survivor was a caregiver. It can be a further strain if assets were spent down to care for the person who was ill. Research shows that many people are not doing a careful analysis of their longer-term financial situation, and the impact will be very different depending on the family.*

Overall results: Overall, there is much consistency in the results of this work, and there are some main conclusions that have emerged:

Pre-retiree expectations often do not line up well with the actual experiences of retirees. This is true with regard to retirement age, expectation of working in retirement, and other areas.

Inflation, health care and long-term care consistently are among the risks retirees and pre-retirees are most concerned about. There are several risks, like fraud or scams, which seem like they should be important but retirees show little concern about them.

- Pre-retirees are often more concerned than retirees.
- Reducing spending is the top risk management strategy among those surveyed, followed by increasing savings and paying off debt. The use of risk protection products (other than health insurance) is not very common.
- There are major gaps in retirement planning and relatively short planning horizons are common.
- Longer-term retirees appear to be managing well and are remarkably resilient, demonstrating the ability to absorb and adapt to most shocks. This may indicate the need for future research about traditional measures of retirement adequacy.

Retirement timing: People actually retire at a much earlier age than people say they want to retire. In the 2015 study, the median age at which people actually retired was 60 compared to 65 as the median age when people said they want to retire. This is not surprising when involuntary and “pushed” retirements are considered.

Planning as one nears or enters retirement: Planning tends to be cash-flow-based and short-term—people make decisions based on what they are currently spending for routine expenses compared to the income they expect to receive. Most do not think about setting aside an “emergency fund” for things like major home repairs that can be anticipated (such as replacing a

roof). Planning horizons for both retirees and pre-retirees are consistently only about 10 years, which is inadequate to cover the period of retirement. Almost 3 in 10 report they have not thought about their planning horizon (28 percent of pre-retirees and 29 percent of retirees), and 1 in 10 state they do not plan ahead (10 percent of pre-retirees and 11 percent of retirees).

Working during retirement: Working longer is an important strategy, but many more people say they want to do this than actually do work in retirement.

Long-term care: The survey and in-depth interviews with caregivers found that when significant paid long-term care is needed, it is a major problem—across all of the economic ranges covered by the focus groups and the interviews.

Keeping results in perspective: *Many people are reaching retirement age today without adequate preparation for what faces them. There are two different paths for dealing with this—help people make better decisions and be better prepared, or structure systems to be less dependent on individual decisions. It seems unlikely that there will be much improvement in decision-making, so default options and plans that work without individual action (like so-called “auto features”) continue to be very important. Defined contribution plan sponsors should also consider adding features, such as lifetime income options, to help individuals plan for the post-retirement as well as the pre-retirement period.*

OPPORTUNITIES FOR PENSION ACTUARIES

As pension actuaries, we are responsible for asking the right questions, assessing the risks, and helping our clients think about better solutions. Here are some things to consider:

- What happens when employees can’t retire or retire too early?
- How can current programs be modified to improve risk options?
- What products or plan features can better meet retiree needs?

Here are some more “global” concepts for us to consider:

- How should risk-protection systems change to meet the evolving work and retirement landscape?
- What planning tools can we design to assist people in accumulating assets, deciding when to retire, claiming benefits and spending down assets?
- Can we improve risk-protection products?
- Given how people make decisions, how do we help them better manage pools of assets prior to and in retirement?

- What expertise can we share with and adapt from other financial planning professionals for motivating individuals to plan for retirement?

RESEARCHER AND METHODOLOGY

This survey, as well as the seven prior surveys, was conducted on the SOA's behalf by Mathew Greenwald and Associates Inc. The 2013 and 2015 surveys were conducted online while the prior six surveys were conducted by telephone. The most recent survey was preceded earlier in 2015 by a series of 12 focus groups in both the United States and Canada, which probed longer-term retirees and their caregivers on their actual experiences compared to their original expectations.

Unlike the previous six iterations, which were conducted by telephone, the last two surveys were conducted online. As part of the 2015 survey, 2,040 adults ages 45 to 80 (1,005 retirees and 1,035 pre-retirees) were surveyed in August 2015. An additional 282 responses were collected from retired widows. Individuals were selected for participation using Research Now's nationwide online consumer panel. Two cautions are needed in working with the 2013 and 2015 results: Although some of the questions are

very similar to prior questions, comparisons of direct numerical results should be avoided as the methodology affects responses somewhat, and samples are not random with online surveys.

Survey responses from current retirees and those not yet retired (referred to in these reports as "pre-retirees") are analyzed separately. No effort has been made to oversample individuals with high levels of assets and responses do not provide specific insights concerning high-net-worth individuals. Only 6 percent of pre-retirees and 9 percent of retirees report having investable assets of \$1 million or more. ■

ENDNOTE

- 1 <http://www.consumerfinance.gov/blog/category/scams/>



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New Research on Pension Assumptions

By Vic Modugno

A Society of Actuaries (SOA) Project Oversight Group recently approved a research paper titled “Determining Discount Rates Required to Fund Defined Benefit Plans” by John Turner and three other economists. This should be available soon on the SOA website under Research.

The paper describes a new way to look at pension funding for ongoing plans that is a variant of using expected returns (currently used in public plans). The paper takes into account the risk that contributions will be needed in the future for this year’s benefit accruals. This risk arises from both asset returns and liability cash flows. Currently, both the expected return method and the bond rate method (used in private plans) assume the projected cash flows based upon actuarial assumptions are exactly realized.

This new approach (stochastic funding) has an explicit probability assumption that additional contributions for this year’s benefit accruals will not be needed (60 percent in models in this paper). It also assumes the existence of an employer to make additional contributions in the future. This could also be subject to a maximum amount of additional contributions. The expected return method used in public plans has fixed liability cash flows and a 50 percent chance of not requiring additional contributions. Both expected return and stochastic funding methods assume that the mean and standard deviation of returns for some historical period will apply in the future. Among other issues, they do not take into account parameter uncertainty in the projections.

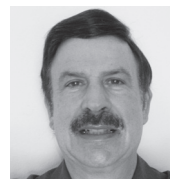
The paper has a fairly complete literature review of all of the methods used in determining discount rates for defined benefit plans. It then goes through a mathematical analysis of the meth-

ods. The method proposed in the paper answers the question: “What is the discount rate needed for determining contributions to assure that current contributions will be sufficient c percent of the time so that future contributions will not be needed to pay off the liability?”

The models used for method in the paper begin with a simple two-period model where either assets or liabilities are risk-free, and move to a more complex, multi-period model where both assets and liabilities are risky. Using a 60 percent assumption of no additional contributions and other simplifying assumptions, the paper runs scenarios with varying investment strategies. One result in the scenarios tested is that increases in returns from increasing risk are offset by the 60 percent requirement and there is no increase in discount rates from moving into riskier investments. One of the perverse incentives in the current expected return method used for public plans is encouraging these plans to move into riskier investments to lower costs. This is happening at a time when plans are maturing with more retirees and an older workforce, which should be funded with more conservative investments.

The model is then generalized and tested where the 60 percent probability is modified such that contributions are needed if the assets fall below some amount (90 percent and 99 percent are used) such that there is a no more than a 10 percent chance that more than 10 percent additional contribution would be needed.

Politicians want to provide maximum benefits for minimal taxes. Deferred compensation valued using aggressive actuarial assumptions is one way to do this. Advocates of expected return methods argue that valuing benefits using bond rates and investing in risk assets would result in a windfall to future taxpayers when higher returns are realized. Bond rate advocates argue that a dollar in bonds equals a dollar in risk assets, and any gains in the future belong in the future since those taxpayers took the risk of losses. The paper proposes a method that produces a rate in the middle, by factoring risk into the expected return method. ■



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Defined Benefit Pension Plans: Gaining Definition and Clarity Through Technology

By David R. Cantor

Everywhere you turn, technology is making things easier, faster and cheaper.

Technological innovations are disrupting traditional business models, improving products, and enhancing the user experience. For example, in the retail investment space, technology across a wide range of companies now enables investors to enter a few pieces of information and come away with professionally designed, custom-created portfolios that can be continuously monitored, tracked and tax-loss harvested by online algorithms—all at a fraction of the price of traditional financial planners.

So why not use similar types of technology to better manage defined benefit (DB) pension plans?

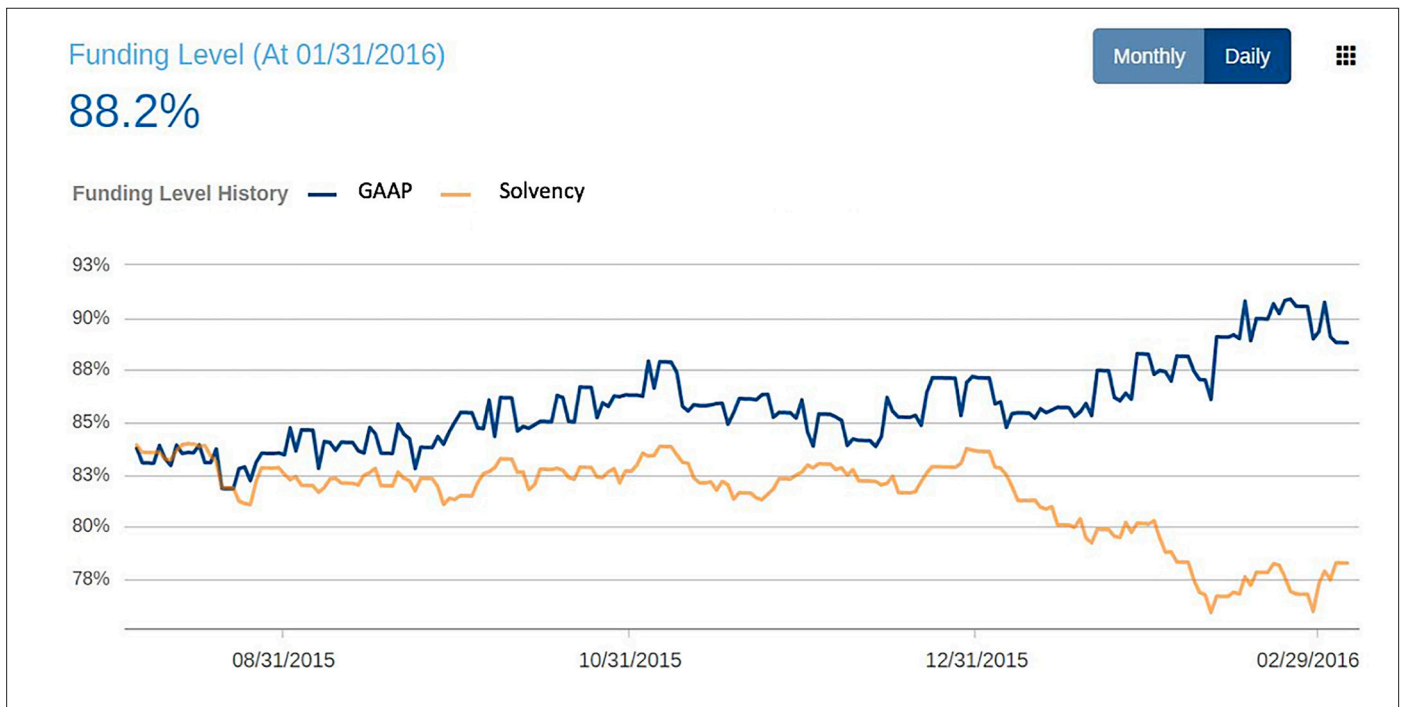
We see clear room for improvement. Consider that during the credit crunch of 2008, the S&P 500 companies that sponsored DB plans saw their aggregate \$94 billion pension surplus (the difference between their pension assets and their obligations) plummet to a \$219 billion deficit. For the last six years, these companies have been trying to improve their plans' funded status, yet despite contributing approximately \$300 billion to the plans, the shortfall has further increased to approximately \$500 billion,¹ all the while paying advisers, such as actuaries and asset managers.

DB plan underfunding has consequences. It's recognized both theoretically, by academics and advisers,² and practically, by analysts and rating agencies,³ as a form of debt that, like any other form of debt, can have adverse implications for the plan sponsor's market risk and cost of capital.⁴

Plan sponsors need to regain control and better manage their plans' costs and risks. Using technology, sponsors can finally have access to the real-time data imperative to informed decision-making and effective execution of overall strategy.

This is not a new revelation. Actuaries and investment advisers have been using technology to assist clients for years. But what has changed recently is the on-demand access to web-based technology platforms available via laptops, smartphones and apps. Each multi-platform access point offers aspects of pension

Figure 1 Funded Status—Monthly and Daily Tracking



plan management in quick, easy-to-use models, which can be accessed by C-suite members and their trusted advisers alike.

Bringing together data from different sources (pension asset, pension obligation and company-specific information) into a common platform has allowed for greater collaboration and helped sponsors make better and faster decisions based on up-to-date analytics and a holistic company view, while saving on costs and eliminating redundancies. Essentially, anyone associated with the plan can get online and get right to work using the same data and updated information.

TECHNOLOGY USES: MEASURE IT TO MANAGE IT

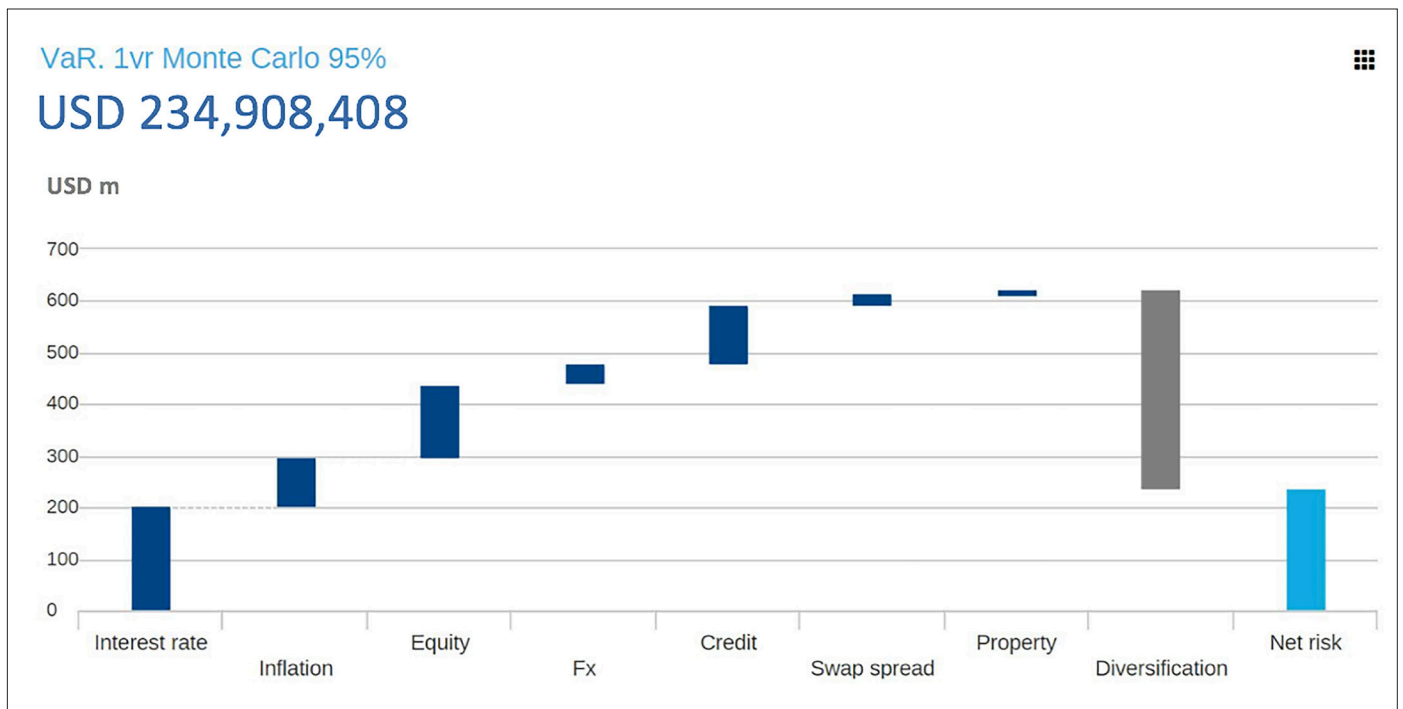
You can't manage what you don't measure. This is an old adage that is certainly relevant for managing pension programs. In the past, pension managers might have needed to wait months for their advisers to calculate the value of pension obligations. Then, the information provided was outdated and no longer relevant. But with the technology now available, pension valuations

can be performed in real time and under a variety of bases (e.g., statutory funding, GAAP and solvency). Pension asset information can also be collected in real time.

By tracking the change in both obligations and assets, the funded status of the pension program can be determined and monitored (Figure 1). Importantly, many plan sponsors adopt investment strategies based on funded status levels, so monitoring this ratio is critical to successful execution of such strategies. Additionally, plan sponsors who are actively looking to transfer their obligations to insurance carriers need a real-time monitoring solution to know when best to execute a transaction.

Technology systems can be set to send email alerts to key pension decision-makers when pension metrics are triggered to notify of a required decision or action. An attribution analysis is also part of the technology, showing what factors contributed to the movement in assets and liabilities and what factors may contribute in the future (Figure 2).

Figure 2 Risk Attribution



Source: Sample pension risk model; PwC

Source: Sample pension risk model; PwC

Figure 3 Stress Test Events

Name of Event	Start of Event (peak)	End of Event (trough)	Duration (days)
Asian financial crisis	01-Jul-97	05-Oct-98	461
Black Monday	19-Oct-87	20-Oct-87	1
Black Wednesday	16-Sep-92	22-Sep-92	6
Bursting of dot-com bubble	21-Mar-00	20-Sep-01	548
Credit crunch	16-Jul-07	06-Nov-08	479
Japanese asset bubble collapse	29-Dec-89	01-Oct-90	276
Russian financial crisis	17-Aug-98	08-Oct-98	52
Scandinavian banking crisis	05-Jul-91	08-Sep-92	431
U.S. savings and loan crisis	02-Jan-87	04-Jan-88	367

Source: PwC

Sponsors can also project funded status and expense under a variety of scenarios in anticipation of year-end results. The technology allows the quick quantification of the impact on key pension metrics of certain “what-if” scenarios and helps the sponsors understand the true risks they are bearing. For example, what would be the impact on key financial variables of one-time shocks, such as a 20 percent drop in equity markets? Other variables, such as changes in interest rates, mortality rates and inflation, can also be evaluated for their impact on assets and liabilities. Sponsors can run the “what-if” scenarios under different investment or de-risking strategies in order to perform a cost-benefit analysis.

We can also use technology to quickly and efficiently examine the impact on key pension metrics of certain historical market stresses, such as a repeat of the 2008–2009 financial crisis. Figure 3 sets out the start and end points of some key events, as well as the duration of the stress event. Unfortunately, during these stress events, sponsors may often find that the company and the pension plan are highly correlated, in terms of their performance.

“What-if” scenario testing should also be complemented with stochastic projections, which model thousands of scenarios representing possible future economic outcomes and then quantify the distribution of outcomes associated with key pension metrics, such as statutory funding requirements and accounting pension expense. This type of analysis allows companies to evaluate a plan’s risk to their organization over specific time periods and various future economic scenarios. Importantly, downside outcomes and the chances that these outcomes may occur can be determined using a stochastic projection framework. It’s the closest thing we have to a crystal ball, albeit still an imperfect one.

Advisers have been using stochastic projections for many years to assist DB plan sponsors. By taking advantage of advances in computing power, however, the new technology is now accessible to the plan sponsor because it can run more quickly, more accurately and more cheaply than in the past.

Technology also allows for a variety of other uses, including the real-time testing of alternative investment strategies, the decomposition of pension risk into various economic factors, the evaluation of hedging strategies, and the assessment of other de-risking initiatives, such as lump sum transactions and annuity buyouts.

DASHBOARD DISPLAYS

Online dashboards help display vital information. They’re not a new technological development, as virtually any content management or data visualization program has come to rely on them in recent years. But visualization of output is key to demonstrating insights and communicating complex results to decision-makers, many of whom may not be familiar with the intricacies of DB pension plans.

A good dashboard system includes at least the following features:

- Produces and monitors output automatically using real-time data
- Makes use of graphs and charts to display output in an easy-to-interpret manner
- Enables a variety of users to access similar information
- Provides a central repository for information collection
- Allows for drill-down into the results
- Has a controlled environment so that accuracy is maintained
- Is easy to access

Having pension information that is both reliable and conveyed in a useful manner allows for effective decision-making on a timely basis and helps improve pension fund management.

Technology can also be used to quickly link performance metrics to dashboards that can also be used by plan sponsors to track their performance against their goals (Figure 4).

Figure 4 Key Performance Indicator Dashboard

Scenario modeled:		Q1 2016 monitoring test				
Current termination deficit (surplus):		\$212m				
Projected next year statutory funding amount:		\$7m				

Category	KPI	Target	Current	Target	Movement	Action
Termination	Probability of reaching full funding on termination basis by 2025	75%	78%			None
	Expected return exceeds discount rate	Minimum 0.5% p.a. difference	0.5%		-	None
	Maximum increases in deficit over 1 year (with 95% confidence)	Less than 15% of current accounting position (\$120m)	\$110m			None—Note risk has increased
Funding	Probability of statutory contributions not exceeding \$5m in any year	65%	70%			None
Liquidity	Ensure cash balance sufficient to pay benefits without impacting overall asset returns	1 to 3 months benefits (currently \$2.5m – \$7.5m)	\$56m			Scope to improve efficiency of capital usage
	Ensure sufficient liquidity in the portfolio to meet unexpected cash requirements	At least 10% of portfolio in liquid assets	11%		-	None

Source: PwC

CHALLENGES TO CONSIDER

We see numerous benefits to using technology to improve management of DB pension funds. There are, however, challenges to using this technology adequately.

Consider the amount of data requested, for example. Technology platforms need to strike a careful balance between the data that's requested versus data that's actually needed. Ease of use makes relying on technology a comfortable crutch, but this ease of use can be overshadowed if too much data is requested.

Other challenges relate to over-reliance on the models. Because new technology can run complex results quickly and display intricate details in a neat, graphical manner, there may not be enough focus on the underlying assumptions (e.g., capital market assumptions), methodology, and other details of the models.

Further, technology platforms aren't always so customizable. One of the trade-offs of being able to run models quickly is that algorithms and output are set beforehand. Therefore, to the extent that a plan sponsor may want to modify something in the technology, it may not be as easy as working with an adviser on a customized solution from the start.

GAINING A CLEAR VIEW

Online pension management tools can give plan sponsors a clear view of their DB plans' assets and liabilities, providing real-time valuations, financial reporting, risk analysis and cash-flow reporting.

Having instant access to plan information can help speed up the decision-making processes and support plan sponsors in confirming that plan assets and cash contributions are being managed effectively.

Technology dashboards can serve as a common platform, enabling sponsors to share the same data with various pension

stakeholders so that discussions surrounding the pension plan all start off with the same, accurate, reliable data. Effective dashboards also allow plan sponsors to grant access to other advisers, avoiding duplication of efforts, saving time, and enabling greater collaboration and better decisions—and, last but not least—reducing costs.

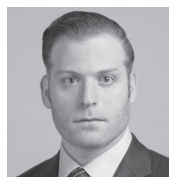
CONCLUSION

Companies that have access to accurate, real-time information in relation to their DB plans will be best equipped to manage their pension risks. These liabilities can often be highly significant so having tools that empower sponsors to monitor and execute in an effective manner can reap important economic and administrative benefits.

From a pension practice point of view, technology will probably also reduce adviser fees on non-value-added services. Advisers shouldn't fear this, but rather embrace technology and utilize it to improve their service offerings. ■

ENDNOTES

- 1 Deutsche Bank Markets Research. S&P 500 Pensions: End of cycles? US Equity Insights. July 31, 2013
- 2 Do a Firm's Equity Returns Reflect the Risk of Its Pension Plan? Jin, L., Merton R, Bodie. Z. *Journal of Financial Economics*, 2006
- 3 Deutsche Bank Markets Research. S&P 500 Pensions: End of cycles? US Equity Insights. July 31, 2013
- 4 When Is It Optimal to Derisk a Pension Plan? Morgan Stanley Pensions in Practice, May 2013



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