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Behavioral Finance Research Digest
for plan sponsors and their advisors

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HOW SHOULD PEOPLE MANAGE LONGEVITY RISK?

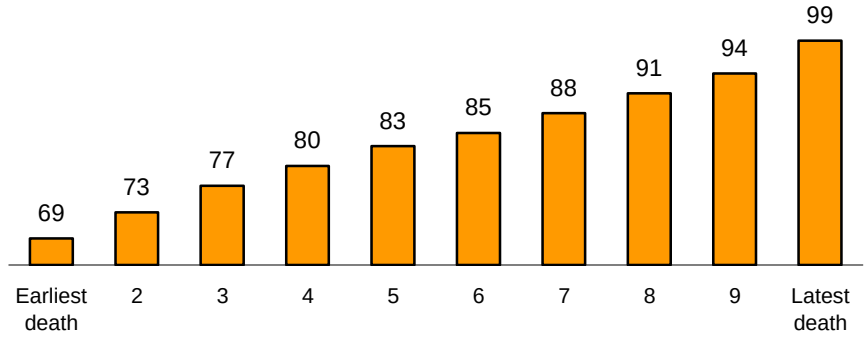
Most research on retirement savings has been dedicated to the accumulation phase. Some of the questions researchers have investigated include why employees do not save enough and how they invest their money. As people reach retirement, it is equally important to understand investor behavior as it relates to the decumulation stage. This is the focus of this issue.

One of the key concerns individuals face in retirement is longevity risk. Put differently, what are the chances that retirees might run out of money, especially those who live longer than average? How significant is longevity risk? Is it something plan sponsors and their advisors should be concerned about?

To illustrate the degree of risk, consider 10 individuals who make it to age 65. Now try guessing when the first of the 10 individuals is expected to die. Similarly, take a guess at when the last of the 10 is expected to die.

The answers are displayed in Figure 1, using unisex actuarial tables. As you can see, the earliest death is likely to occur at age 69, whereas the latest death is likely to occur at age 99. Put differently, one in 10 individuals would have to fund just four years of retirement income, whereas one in 10 would have to fund as many as 34 years of retirement income.

FIGURE 1: VARIABILITY IN LONGEVITY FOR 10 PEOPLE WHO REACH AGE 65



Longevity risk is significant. Of 10 individuals who reach age 65, one would live just four years and another would live as long as 34 years.

Given longevity risk, what should plan sponsors, advisors and plan participants do? In particular, should an individual buy an annuity? If so, should a person choose to annuitize all retirement savings or just a portion of it?

Yaari (1965) was the first academic to address these important issues. He concluded that under certain assumptions, people should annuitize 100 percent of their retirement savings. This extreme prescription is mainly driven by Yaari assuming no bequest motives. In other words, Yaari assumed that retirees do not care what happens to their money after they pass away or whether they have any left after they die.

Realizing that many people do have bequest motives, such as leaving money to their children, Davidoff et al (2005) have investigated how bequest motives affect the optimal level of annuitization. They find that bequest motives decrease the level of optimal annuitization, but people should still annuitize a substantial portion of their retirement savings.

To illustrate the point made by Davidoff et al, consider someone who decides to annuitize two-thirds of his wealth. In this case, the annuitant enjoys a predictable lifetime stream of income, while the heirs also enjoy a predicable inheritance equal to one-third of the initial wealth.

Another interesting perspective is offered by Sinclair and Smetters (2004), who explored unexpected health shocks and their costs. They assume significant uninsurable healthcare costs and prescribe minimal annuitization. In their model, individuals must maintain liquid assets to pay for unexpected healthcare costs.

The academic work on optimal annuitization is mixed – suggesting some, but probably not full, annuitization.

To summarize, it is important to recognize that longevity risk is significant. However, academics are mixed on the course of action. Trying to reconcile the conflicting theoretical models, it seems like some, but not full, annuitization might make sense.

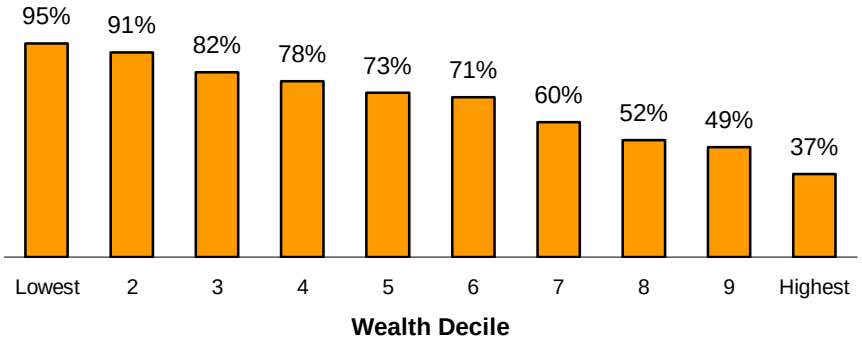
HOW DO PEOPLE ACTUALLY MANAGE LONGEVITY RISK?

Davidoff et al (2005) predict retirees should have at least some form of guaranteed lifetime income. Of course, guaranteed lifetime income could be received from different sources, such as social security benefits paid by the government, defined benefit pensions paid by the employer, or an annuity purchased by the retiree. In this section, I will review the extent to which retirees have secured lifetime income and how they generally handle longevity risk.

Dushi and Webb (2004) explored the balance sheets of couples who turned 65. In particular, they calculated the fraction of financial and retirement wealth that has been annuitized. I am going to focus on the subsample of individuals who are not covered by a defined benefit pension, reflecting people who have to live on social security benefits and their own savings.

Figure 2 reports the fraction of wealth that is annuitized by wealth decile. It is evident that most people have the majority of their wealth annuitized. On average, 75 percent of wealth is annuitized. Only the wealthiest retirees have less than half their wealth annuitized.

FIGURE 2: PERCENTAGE OF WEALTH ANNUITIZED AT AGE 65



To better understand the high levels of annuitization in the US, it is important to note that virtually all annuitization is in the form of Social Security benefits. Since the US Social Security system does not allow lump sum distributions, the observed levels of annuitization are simply a reflection of compulsory annuitization. There is almost no voluntary annuitization taking place.

Given the financial pressures facing many social security systems around the globe, benefit payments might be reduced in the future. And, in the case of privatized social security systems, guarantees might be eliminated. As a result, we might observe much lower levels of annuitization in the future.

What would happen in the absence of mandatory annuitization? Would retirees voluntarily annuitize? And, would those who do not annuitize run out of money?

To better understand the propensity of plan participants to annuitize, consider Army personnel who were offered a choice between a lump sum distribution and lifetime income. The lump sum distribution was actually a very bad deal, implying a discount rate of 18 percent! Yet, Warner and Pleeter (2001) report that 90 percent of the enlisted personnel elected the lump sum distribution. This suggests that plan participants are actually averse to annuitization and are unlikely to choose annuity payments on a voluntary basis.

Plan participants are averse to annuitization.

Annuitization is, of course, just one of several solutions to longevity risk. People could set up a systematic withdrawal program that is adjusted over time as new information about investment performance and expected longevity arrives.

Holden and Zick (2000), however, report that the spending rules retirees set on their own are suboptimal. Retirees spend too much during the early years of retirement, leaving too little for the later years. In particular, income for older widows falls by 47 percent following the death of their husbands. As a result, about one in five ends up in poverty.

Retirees often spend too much, too fast.

In summary, as long as there is some compulsory annuitization, individuals will enjoy guaranteed lifetime income. However, without compulsory annuitization, individuals are unlikely to annuitize. I will next discuss why retirees find annuities so unappealing.

BEHAVIORAL BARRIERS TO ANNUITIZATION

Davidoff et al (2005) predict retirees should annuitize. However, retirees rarely purchase annuities. One of the reasons for the lack of voluntary annuitization might be compulsory annuitization by social security programs, and in the UK, compulsory annuitization of retirement saving accounts. However, I believe there are also behavioral factors at play, making annuities an unattractive proposition.

One of the key behavioral barriers to annuitization is the combination of inertia and regret aversion. Unfortunately, individuals have to actively search for annuities, since plan sponsors often offer neither annuity products nor other decumulation products.

Inertia and regret aversion are significant obstacles to individuals actively searching for decumulation solutions. First, it takes time and effort, and many plan participants procrastinate and never find the time to deal with the issue.

Second, even if plan participants end up spending the effort to locate an annuity product that fits their needs, they might regret the decision down the road. For example, suppose the annuitant gets a terminal disease shortly after buying the annuity, then he/she might regret annuitizing. Even the thought of potentially losing out on payments discourages the use of annuity products.

A unique feature of regret is its asymmetry. Specifically, research in behavioral science suggests that people feel more regret when a bad outcome is caused by taking an action as opposed to not taking an action. In the case of annuitization, regret aversion predicts keeping the status quo and not purchasing an annuity or another decumulation product.

Next, suppose a retiree *is* willing to spend the time and effort thinking about the decumulation phase. Even then, it is hard to locate the right product if you know very little about financial planning. While there is not enough research about financial literacy in the domain of decumulation products, the general level of financial literacy among plan participants is very low (see Benartzi and Thaler, forthcoming).

In the case of annuity products, I believe plan participants are totally confused. Many, for example, confuse accumulation

products, such as variable annuities, with decumulation products, such as immediate income annuities. How could we expect retirees to buy products they know very little about?

To fully understand the behavioral obstacles to annuitization, suppose a retiree spends the time and effort learning about annuities and understands enough to make an informed decision. Would he/she purchase an annuity? Probably not, as annuities are perceived as losing control over your money.

Most people love controlling their money and lifestyle, and I am definitely one of those sharing these preferences. In the case of annuitization, the essence of the question is how people frame the issue and whether they over-value control.

Let me start with framing the issue. Intuitively, people feel that buying an annuity means losing control, as they lose control of the timing and size of payments. However, there is no reason why annuities could not be framed as taking control of your life and ensuring you will not run out of money. It is all about framing.

Having said the above, annuities are intuitively being framed and perceived by participants as losing control, not gaining control. Could it be, however, that people over-value control? Consider, for example, the case of lottery tickets. Many lottery players insist on picking their own "lucky" numbers. Are they over-valuing control, something that has often been referred to by behavioral science researchers as the "illusion of control"?

> Inertia, regret aversion and the illusion of control are a few of the behavioral obstacles to annuitization.

Given all the behavioral barriers to annuitization, what should plan sponsors and legislators do? Legislators around the globe have taken very different approaches when it comes to the decumulation phase.

In the US, Canada and Australia, retirees are required to withdraw funds from their retirement saving accounts starting at approximately age 70. While the requirements spell out the minimum withdrawal, there is no maximum withdrawal limit. In other words, retirees who do not plan well could run out of money very quickly.

Interestingly, the minimum withdrawal formulas often encourage over-spending. In the US, for example, the minimum withdrawal formulas are based on life expectancy. If you have $300,000 and are

expected to live 20 more years according to actuarial tables, you must withdraw $15,000. However, there is no provision for margin of error such as outliving the average person.

The UK has taken a very different approach, spelling out the *maximum* rather than the minimum withdrawals, while also implementing mandatory annuitization at age 75. In other words, the focus is on retirees not spending their money too quickly.

US plans encourage withdrawals, whereas UK plans control withdrawals.

So what should plan sponsors and their advisors do? I believe the first step is to decide whether or not you view the decumulation stage as part of your fiduciary responsibilities. Your views on this issue should be incorporated into your investment policy and objectives statement.

If you view the decumulation stage as an integral part of your fiduciary responsibilities, the next step is to review the variety of solutions in the marketplace. Unfortunately, in this area, one size does not fit all.

For example, a sponsor offering a generous defined benefit plan with annuity options might conclude that employees are already annuitizing enough of their benefits and there is no need for further annuitization. Perhaps such a plan sponsor would decide to offer a systematic withdrawal program.

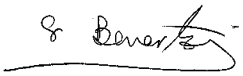
A plan sponsor offering only a defined contribution plan, however, might consider offering annuity products. Those who are somewhat more paternalistic might consider defaulting people into annuity products. However, this is easier said than done from a fiduciary perspective. What happens if longevity increases dramatically and the annuity provider fails on its promises?

I would like to end with an airplane analogy, first suggested to me by Professor David Blake of the Pensions Institute at Cass Business School. Would you consider designing a plane that takes off, flies across the ocean, and then lacks the capability to land? The consequences of being on such a plane would be devastating.

Some retirement saving plans, however, do resemble such a plane. In particular, we encourage employees to join retirement saving programs, we teach them how to invest, and then we forget about the "landing" or the decumulation phase. It is time for us to start evaluating the different landing options.

I hope you enjoyed reading the 401(k)now research digest. If you have any comments, suggestions or feedback, feel free to send me an email at benartzi@ucla.edu.

Sincerely,



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