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This issue of *The Journal of Retirement* is the first to have a special theme. Three of its articles are devoted to the subject of target-date funds (TDFs). One article addresses some basic investment issues with the TDF, the second considers its role as an investment vehicle for the unsophisticated investor, and the third contributes to the debate over the merits of the *to* approach (freezing the asset mix at the retirement date) versus the *through* approach (continuing to de-risk after the retirement date).

These three articles are followed by articles with topics ranging from the perils of investing in the years prior to retirement to the potential role of deferred income annuities in a defined contribution (DC) plan, Social Security replacement rates, and the behavior of contributions to DC plans just before and during the Great Recession.

“Two Determinants of Lifecycle Investment Success,” by Jason Hsu, Jon Treussard, Vivek Viswanathan, and Lillian Wu, considers the implications for TDFs of the relationship between the stage of the lifecycle an investor has reached and the relative impact on portfolio value of contributions and investment returns. It is a truism that contributions play the major role in portfolio accumulation when an investor is just starting out and contributions are high relative to the portfolio balance, whereas investment returns play the major role in the years approaching retirement. However, it is less well understood how large the effects can be of increasing contributions early on. Similarly, adopting a high-risk allocation strategy in the second half of working life has a far bigger impact on the expected final value of the portfolio than applying it to the first half.

It may not be easy to increase contributions early in a worker’s career, but the article’s simulations illustrate that such a strategy could pay off handsomely. The authors suggest, however, that young investors may overreact to sharp declines in the stock market and that it may make sense for them to adopt a relatively cautious strategy. This investing stance is not that of a TDF, which begins with a high-risk allocation and gradually reduces it over time. The authors also argue that more attention be given to the asset-allocation issue later rather than earlier in working life.

In “Investor Sophistication and Target-Date Fund Investing,” Michael Guillemette, Terrance Martin, and Phillip Gibson argue that it is possible for a financial instrument or investment to be less than optimal for a sophisticated investor but satisfactory for a less sophisticated investor. In the specific case of target-date funds, for

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example, where the glide path is predetermined, a sophisticated investor might be able to do better with a customized glide path, one that reflects his or her attitude to risk and human capital, among other influences. However, an unsophisticated investor might be better off with an investment that is on autopilot, even if the way its asset allocation might change over time might not be strictly the best.

The authors base their work on a state-by-state survey with over 25,000 respondents. Respondents' financial sophistication was assessed on the basis of their answers to questions that are commonly used to assess financial literacy. The respondents falling in the bottom three quartiles were deemed to have low sophistication. Based on their regression analysis, they conclude that the respondents with low financial sophistication were about 22% more likely than those with high sophistication to be relying primarily on a TDF. The article concludes that the development of the TDF may be enhancing the welfare of Americans approaching retirement by providing them with an instrument that meets their particular needs.

The "to-vs.-through" debate addresses the contentious issue of whether a target-date fund's asset allocation should stop changing when the retirement date has been met or whether the share of risky assets should continue to decline past the target date. The article "Reexamining 'To vs. Through': *What New Research Tells Us about an Old Debate*," by Matthew O'Hara and Ted Daverman, makes a strong case for the to side of the debate. The basic argument the authors present draws on fundamental research by Paul A. Samuelson and other distinguished economists. Samuelson argued in a series of articles that the riskiness of a portfolio (he disregarded labor income) should not change over time. Although there is a valid argument for de-risking during working life, given the bondlike character of labor income, once the prospect of further income from labor has been exhausted, there is no rationale for further changes in the composition of a portfolio. The article also describes a model based on the standard assumption of utility maximization that can be used to project glide paths, saving rates, and consumption levels in retirement.

The five or so years leading up to retirement can be critical to a retiree's future well-being. People in this age bracket can find themselves torn between preserving what they have accumulated and leaving the stock market altogether and adopting a gambling-for-redemption strategy, in

which they shift to a risky allocation strategy that can leave them seriously below their targeted retirement income. Given the relatively few years left to work and save, a conservative strategy is very understandable. Investment decisions as retirement approaches have to be made with great care.

In "Individuals Approaching Retirement Have Options (Literally) to Secure a Comfortable Retirement," Bryan Foltice examines the critical final five-year period leading up to retirement and analyzes whether traditional asset-allocation strategies, like some combination of equities and fixed-interest instruments, effectively and consistently assist individuals in reaching their retirement income goals. These traditional strategies are evaluated against alternative, option-based investment strategies that assure a certain amount of retirement income, after adjusting for inflation, while maximizing stock participation with the remaining funds in the portfolio through the use of options.

The article's simulation exercises find that the traditional investment strategies have a higher expected yield over the five-year preretirement period. However, after applying a constant relative risk aversion (CRRA) coefficient and calculating the certainty equivalent of each strategy, the leveraged option-based investment strategies are shown at relatively high levels of risk aversion to be preferred to the traditional asset-allocation methods. Since most individuals approaching retirement are very risk averse, these alternative strategies should be seriously considered in making this important asset-allocation decision and its implications should not be overlooked by practitioners.

Deferred income annuities (DIAs) have for some time been attracting the attention of economists, insurance companies, and financial specialists. DIAs may well be an economical way of providing longevity insurance—insurance against the risk of outliving one's savings—that would prove to be more attractive to Americans than life annuities have been. The Treasury recently issued regulations that would clarify the terms on which DC plans could offer these instruments to their members.

In "Allocating to a Deferred Income Annuity in a Defined Contribution Plan," David Blanchett provides a timely survey of the institutional, financial, and economic issues that arise with DIAs. He addresses the implications for the demand for DIAs of the gender-neutral pricing that would apply in DC plans to DIAs, as well as the fiduciary

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issues they entail. The article contains a good summary of the pros and cons of annuities (guaranteed lifetime income) in general. The article also reports on a simulation exercise that sheds light on the determinants of demand for DIAs and makes the point that their bondlike nature would have to be taken account of in the asset-allocation guidelines of a TDF.

The concept of the replacement rate—a measure of income in retirement relative to income in the last years of working life—is one of the workhorses of retirement financial planning, despite the reservations many economists have about its usefulness. The replacement rate that financial planners use is a ratio of income in retirement—the Social Security benefit, pension income, and other income—to an average of income in the last year or years of work, usually indexed to consumer prices. Typically, financial planners will assume a target for the replacement rate of their clients of about 70%. Retirement income can be lower than income during working life because tax rates decline, saving for retirement is no longer necessary, and work-related as well as temporary expenditure commitments come to an end.

Social Security replacement rates are also calculated, given the importance of the Social Security retirement benefit to most retired Americans, but the Social Security Administration (SSA) uses a different denominator—a working lifetime average of wages indexed to the economy-wide wage. If the economy-wide wage increased by 20% over the past seven years, then wages seven years ago would be increased by 20% for the purposes of calculating lifetime

earnings. Because consumer prices normally increase by less than wages, using them as the index would raise income less, as Exhibit 1 illustrates.

In the exhibit's hypothetical example of a worker who claims her benefit at age 66, calculating income by indexing it to the general wage level raises income in the year she turns 61 by 20%. Indexing earnings by the CPI raises it by only 10% in that year. When the average wage index rises by more than the CPI, as is assumed here, the replacement rate calculated using wage indexation will be less than the replacement rate calculated using price indexation. Basing the average wage on the last five years of earnings, as is done in the example, does not have a huge effect on the replacement rate. If, however, the replacement rate is calculated over a lifetime of earnings, the effect can be quite pronounced.

The main but not the only subject of the article “Measuring and Communicating Social Security Earnings Replacement Rates,” by Andrew Biggs, Gaobo Pang, and Sylvester Schieber, is the impact of wage indexation relative to price indexation on measures of the replacement rate. The authors make clear that the issue is of more than technical interest. The replacement rates calculated by Social Security have been used to support recommendations for a large increase in Social Security benefits and to support arguments that a majority of Americans will suffer inadequate income in retirement. Numbers aside, the authors find that there is no justification for the use of wage indexation, which they argue is not supported by the standard lifecycle theory of saving.

EXHIBIT 1 Two Different Replacement-Rate Measure

Age	61	62	63	64	65
Nominal earnings	\$35,000	\$38,000	\$41,000	\$42,000	\$40,000
CPI (indexed to age 65)	110	108	106	103	100
Average wage index (indexed to age 65)	120	115	111	105	100
Earnings indexed to the CPI	\$38,500	\$41,040	\$43,460	\$43,260	\$40,000
Earnings indexed to wages	\$42,000	\$43,700	\$45,510	\$44,100	\$40,000
Social Security Benefit (first paid at age 66)			\$17,000		
Replacement rate, CPI indexed		41.2			
Replacement rate, wage indexed		39.2			

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The article addresses a number of related thorny issues. For example, should replacement rates be calculated for individuals or for households? Calculating them for households really makes more sense, since it is the combined incomes of a couple that counts, not their incomes as individuals. The correct way of doing it is, however, more demanding of data. Another issue is whether benefits should include spousal benefits or be limited to a retiree's work-related benefits.

The authors calculate replacement rates in various ways and find that the CPI indexed calculation is always substantially higher than the wage indexed calculation (see Exhibit 6 for details). They acknowledge that all replacement-rate calculations are imperfect, but emphasize that Social Security's calculations are on one extreme of a range of plausible values.

The dominant role now played by 401(k) and other DC plans as employer-provided pensions underscores the importance of prudent investment of plan balances. It is also very clear that retirement security requires consistent and adequate rates of contribution. Studies of the role of 401(k) plans in retirement security tend to assume that contributions are made consistently and at adequate rates. In their article "The Impact of Employment and Earnings Shocks on Contribution Behavior in Defined Contribution Plans: 2005–2009," Irena Dushi and Howard Iams use a dataset derived from W-2 longitudinal data matched with data from the Survey of Income and Program Participation (SIPP) to address the question of the consistency of the behavior of contributions. Specifically, they take a look at the behavior of contributions in 2005–2007 and 2007–2009, the period of the Great Recession. They find that, in contrast to the generally held belief of inertia of contributions (that is, little

change in contributions from period to period), workers' contributions are in fact quite variable. The variability is not simply the result of the extraordinarily difficult conditions of the labor market in 2007–2009. Even in the earlier period, and even when workers had stable earnings and did not change their jobs, they find almost one in two workers made an active decision to change the level of their contributions. There is a significant increase in the probability of a cessation of contributions because of a job change or decreased earnings prior to the crisis.

The authors also report on a "what if" experiment in which they attempt to gauge the impact on plan balances of workers at age 62 of the effect of the Great Recession, given the contribution patterns of the members of their sample. They make assumptions about the recovery in contributions of the members of their sample that depend on whether they increased or decreased contributions during the sample period. One finding is telling: those employees who had a job change in both 2005–2007 and 2007–2009 and decreased their contributions over both periods are projected to have an account balance almost 60 percent below the no-recession scenario, in which contributions are higher.

The authors conclude that changes in a worker's employment status can lead to substantial reductions in contributions, and stress the need for projections of DC pension wealth to take account of them.

Finally, I invite the reader to look at my review of Moshe Milevsky's latest book, *King William's Tontine*, which is an excellent read.

George A. (Sandy) Mackenzie
Editor

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