

# 401[k]now

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Behavioral Finance Research Digest  
for plan sponsors and their advisors

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# BEHAVIORAL GLIDE-PATHS

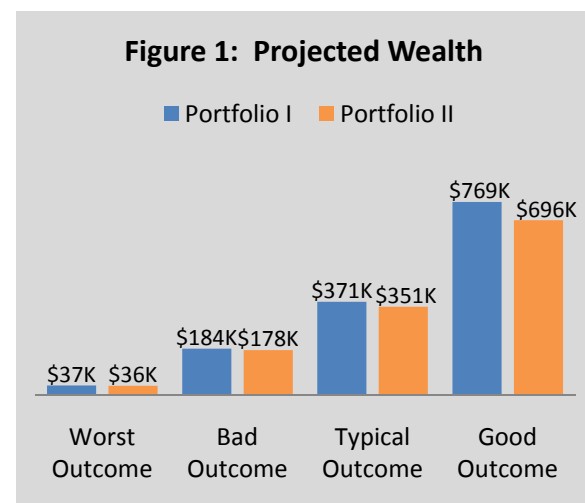
*Executive Summary: Should plan sponsors offer funds that reduce equity exposure over the lifecycle, keep it constant, or maybe increase it over time? From the perspective of Monte Carlo simulations and projected wealth, it might not matter, because many different glide-paths actually provide similar long-term outcomes. However, from the perspective of plan participants who get hypersensitive to losses near retirement, standard downward sloping glide-paths that reduce risk over time still seem to make the most sense.*

Target date funds have received a lot of attention by the popular press, regulators and legislators over the last few months. Many observers are questioning the glide paths used by fund managers, that is, the relationship between age and asset allocation.

To illustrate the intricacy of selecting a particular glide-path, Poterba et al (2009) consider two alternate paths. One path follows a typical downward sloping curve with the equity exposure decreasing from about 90 percent to 30 percent over the lifecycle. The other path sticks to a fixed equity allocation of 53 percent, which the researchers found to be the average allocation over time (weighted by account balances).

The researchers then run Monte Carlo simulations to estimate the retirement wealth that the two competing glide-paths are likely

to provide. The results of their exercise are displayed in Figure 1. In particular, Figure 1 depicts the worst outcome (1<sup>st</sup> percentile of the distribution of outcomes), a bad outcome (10<sup>th</sup> percentile), the typical outcome (50<sup>th</sup> percentile) and a good outcome (90<sup>th</sup> percentile), so we can observe the range of possible outcomes.



No, I did not forget to label the two glide-paths. I deliberately did not tell you which portfolio follows the typical downward sloping glide-path and which sticks to a fixed allocation. Why? Because I want you to try and guess which is which. Want to give it a try?

If you feel this is an unfair quiz, I agree. The two portfolios result in virtually identical outcomes. But this is actually the main point of the exercise. The distribution of wealth provided by a typical glide-path is remarkably similar to that provided by simply sticking to the average allocation and never changing it.

Projected wealth from lifecycle funds versus constant allocation funds is virtually identical.

Still curious to know which portfolio is which? Portfolio I is based on the typical downward sloping glide-path and Portfolio II sticks to a fixed allocation.

While we are contemplating alternate glide-paths, I'd like to briefly comment on a recent provocative paper by Basu and Drew (2009) who explored upward sloping paths. These investment strategies increase the allocation to equities as investors get closer to retirement. The authors find that the

projected wealth from upward sloping strategies typically beats that of standard downward sloping lifecycle funds.

How could that be the case? If you assume a large equity premium (as Basu and Drew do), then would you want to earn that premium on your unnoticeable account balance in the first year of saving, or alternatively, would you want to earn it on your large accumulations later in life? You would obviously prefer to earn the highest returns when you have the largest balances. Hence, their argument for higher equity exposure later in life.

BUT, if we assume a sufficiently large equity premium, then a fixed allocation of 100 percent to equities will provide even higher retirement wealth than any glide-path. So, the point I am trying to make is that the Basu and Drew paper is not really about glide-paths, it is more about how large the equity premium is.

Where does this leave us? Should plan sponsors drop target date funds and offer fixed allocation strategies? If all we care about is the distribution of retirement wealth, then sophisticated glide-paths might not add much value.

We have to keep in mind, however, that the plan participants we serve are human. Participants do not think about Monte Carlo

simulations and the distribution of long-term outcomes. Instead, my earlier studies with Thaler (1995, 1999) suggest that participants tend to inevitably focus on shorter-term results. And, the work by Eric Johnson in collaboration with AARP and ACLI (2007) documents the dramatic pain that is associated with losses near retirement. For humans, typical downward sloping paths seem to make a lot of sense, as they want to minimize losses when they hurt the most.

To summarize, I feel that typical downward sloping glide-paths do cater to the behavioral tendencies of plan participants. More generally, we have to remember the behavioral characteristics of plan participants whether we design glide paths, select the menu of investment funds, engineer retirement income solutions, or simply provide communication about saving and investing for retirement.

## HOW MUCH IS ENOUGH?

*Executive Summary: How much money do retirees need to live comfortably? A common rule of thumb is 70 percent of pre-retirement income. However, research indicates that the vast majority of people feel the 70 percent rule reflects their bare necessities, not a comfortable and enjoyable retirement. In addition, half of the respondents prefer to spend more in retirement than prior to retirement, which calls for higher saving rates.*

Planning for retirement requires some notion of “how much is enough?” That is, what level of spending does a retiree need to feel content and satisfied? Also, what minimum level of spending does a retiree require before feeling deprived of basic needs?

A common practice is to assume that retirees can be comfortable spending a bit less than they did prior to retirement. One rule of thumb often used is the “70 percent rule.” Specifically, many financial planners assume that retirees are comfortable spending about 70 percent of what they used to spend while working. Note, however, that the 70 percent rule calls for people to reduce their spending by 30 percent as they retire. If you are like me, you probably feel that trimming your expenses by approximately a third is easier said than done.

In a recent study, Binswanger and Schunk (2008) question the 70 percent rule. Rather

than using generic questions about desirable spending levels pre- and post-retirement, the researchers tailored their survey instrument to the specific individual circumstances of each of the 787 subjects in their study. In particular, they first calculated the projected lifetime earnings of each individual. Next, they calculated a set of feasible tradeoffs between pre- and post-retirement spending.

To illustrate the methodology used by Binswanger and Schunk, consider Sarah, a 25-year-old with projected lifetime income of approximately \$3 million after taxes. Assuming Sarah will retire at 65 and live to be 85, she could spend \$50,000 a year through her working career and retirement (\$3 million divided by 60 years). According to this plan, Sarah will smooth her spending by consuming an equal amount each year.

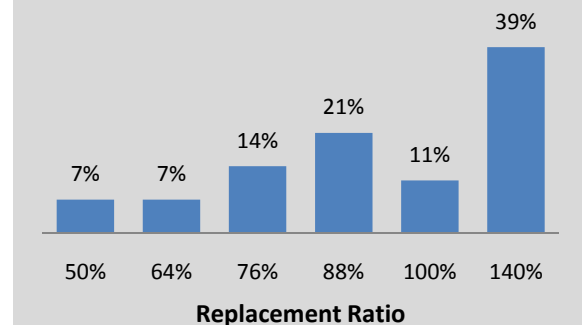
Of course, Sarah could select a different spending path. For example, if Sarah

prefers to use the 70 percent rule, then the math prescribes spending \$55,555 a year during Sarah's 40 years of working and then just \$38,888 a year during her 20 years of retirement. (I did assume an interest rate of zero to keep the example simple, but the researchers did factor in different interest rates in their study.)

As the above example illustrates, there is a tradeoff between spending more today and less tomorrow (or vice versa). To keep the survey short and concise, the authors asked subjects to consider six sets of tradeoffs. In particular, subjects were asked to choose one of the following six replacement ratios: 50 percent, 64 percent, 76 percent, 88 percent, 100 percent, and 140 percent. Replacement ratios below 100 percent suggest spending more before retirement and less after, whereas a replacement ratio of 140 percent prescribes the exact opposite, that is, spending more after retirement.

What do you think subjects chose? Did they opt for something like the 70 percent rule? Or, did they feel cutting expenses in retirement would be too tough?

**Figure 2: Desired Replacement Ratios**



The results are displayed in Figure 2. Only 14 percent of the subjects prefer replacement ratios lower than 70 percent, with the remaining 86 percent of subjects opting for replacement ratios above 70 percent. Note also that half the subjects feel they will need at least as much money in retirement as they do today (i.e., replacement ratios of 100 percent or higher). Thus, the 70 percent rule is not appealing to most people.

Half of those surveyed feel they will need at least as much money in retirement as they do today.

Given the above results, I decided to explore how recent retirees view their spending needs. The sample included 214 T. Rowe Price customers who have recently retired, most within the last two years. The

following question was posed to the survey participants via email:

*Which one of the statements below describes your monthly spending needs today relative to a few years ago, before you retired?*

**Table 1: Retiree Spending Needs**

I need less money today than I needed prior to retiring	48.1%
I need about the same amount of money today as I needed prior to retiring	41.6%
I need more money today than I needed prior to retiring	3.3%
I am not really sure	7.0%

*Source: T. Rowe Price*

The results are displayed in Table 1 and suggest that while 48.1 percent of recent retirees need less money than they needed prior to retiring about an equal number of retirees (41.6 percent) feel their spending needs have not gone down. Again, the 70 percent rule might underestimate the spending needs of many retirees.

About half of those recently retired feel they need as much money in retirement as they did before.

The study by Binswanger and Schunk described earlier also explored the minimum level of spending people feel they will need at retirement. In particular, subjects were asked “what is a minimal level of monthly spending that you never want to fall below during retirement, at all costs?” The median response corresponds to a replacement ratio of 73 percent. So, maybe the 70 percent rule should be interpreted as the bare minimum level of spending, not a desirable level.

In summary, understanding how much is enough is an essential component of planning for retirement. However, there seems to be a mismatch between the 70 percent rule and the stated preferences of individuals. The majority of people prefer spending less today and more in retirement.

There are, of course, behavioral biases that prevent people from following through on their preferences, resulting in saving rates that are far lower than optimal. Plan sponsors and their advisors should empower employees to follow up on their good intentions to save more for retirement. One option is to automatically increase employee saving rates over time.

# PERFORMANCE CHASING AND RISK-TAKING BEHAVIOR

*Executive Summary: While plan participants did not panic and sell their equity funds over the last few quarters, there is still some evidence of performance chasing. Individual investors tend to extrapolate from their own experiences, taking more risk after equity markets go up and avoiding risk after markets drop. Investors tend to chase both short-term and longer-term performance. As a result, individual investors might end up buying high and selling low, like many did at the height of the dotcom bubble.*

Risk-taking behavior tends to be very sensitive to recent performance. Consider, for example, the “house money effect.” In a seminal paper, Thaler and Johnson (1990) documented the tendency of people to take more risk after they have stumbled upon a windfall, what they refer to as the house money effect. Frequent visitors to Las Vegas have probably experienced the house money effect firsthand, where a recent gain caused them to place bigger bets than they normally would.

Consider also the “break even effect,” where recent losses can also promote risky behavior. People who have experienced losses often place larger bets to try and recoup their losses and break even. Thus, risk-taking behavior is often sensitive to recent events whether we are considering gains or losses.

What are the implications for stock market investing, especially given the recent financial turmoil? Are investors contemplating taking more risk to try and regain their losses? Or, are investors shying away from the stock market, afraid to lose what they have left? Alternatively, are they ignoring recent events and staying focused on their long-term goals?

In a recent study, Nasic and Weber (2009) asked British investors to allocate £100,000 between the stock market (the FTSE index) and a risk-free asset with a guaranteed interest rate of four percent. The surveys were administered in early September 2008 right before the collapse of Lehman Brothers, then again in December 2008 and March 2009 in the midst of the financial crisis.



The results confirm that recent events affect risk-taking behavior. The fraction allocated to the stock market decreased from 56.02 percent in September 2008 to 52.77 percent in December 2008 and 46.52 percent in March 2009. It is noteworthy that investors are not trying to quickly recoup their losses, but they are trying to avoid additional losses.

The appetite for equity investments decreased by about 10 percentage points from September 2008 to March 2009.

Another recent study by Malmendier and Nagel (2009) takes a longer perspective by looking at the lifetime experiences of investors and how that experience affects investor behavior. The researchers investigated data from 1964 through 2004 using the Survey of Consumer Finances, offering a very long (and rare) perspective on investor behavior.

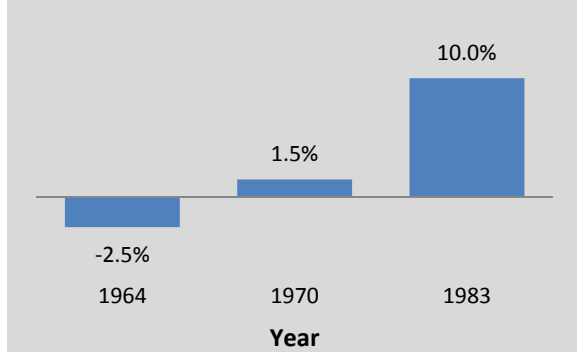
The authors first created two categories of people: “young” (40 years old or below) and “old” (older than 60). They then gauged the lifetime experience of the two groups of investors by calculating the average real return to the S&P 500 index over the prior 20 years for younger people and the prior 50 years for the older group. Next, they

measured the difference in lifetime return experiences between the younger and the older groups of investors.

To illustrate the gist of the study, consider three data points in time: 1964, 1970 and 1983. In 1964, the lifetime investing experience of older people has been much worse than that of younger people, since only the older group of investors experienced the great depression. The average return older people experienced was roughly three percentage points lower than that of younger people. By 1970, the gap in returns has almost closed, and by 1983 it flipped. In fact, older people experienced higher returns of about five percentage points by 1983, because they enjoyed the post-World War II bull market, whereas the younger group had been heavily affected by the recession of the 70s and early 80s.

Next, the authors explored how the difference in lifetime returns between old people and young people affects the decision to participate in the stock market. Results for the three illustrative data points (1964, 1970 and 1983) are displayed in Figure 3. In 1964, older people were less likely to participate in the stock market than younger people, by 1970 the gap has closed, and by 1983 older people were in fact more likely to participate in the stock market.

**Figure 3: Difference in Market Participation (Old - Young)**



The results of the study suggest a strong correlation between lifetime return experiences and subsequent investing behavior. In particular, investors tend to extrapolate from their own experiences, investing more in the market after it has gone up for few years (and even decades). Chasing performance, be it short-run or long-run performance, could unfortunately result in buying high and selling low.

It is also noteworthy that the relationship between age and stock ownership fluctuates over time and might not be as simple as we often think. In 1964, older people invested more conservatively than younger people, in 1970 the gap closed, and in 1983 older

people were taking on more risk than younger people.

To summarize, individual investors tend to chase performance, both short-term and longer-term performance. This behavioral pattern raises some concerns. Plan participants might end up buying high and selling low, very much like many unfortunate individuals who bought into the dotcom mania at the end of the 1990s. What can plan sponsors and their advisors learn from this research? At the risk of sounding like a broken record repeating the same song, I feel that defaulting participants into well-diversified funds encourages them to stick to their long-term goals rather than attempting to chase performance.

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](mailto:benartzi@ucla.edu).

Sincerely,

Shlomo Benartzi, Ph.D

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