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Behavioral Finance Research Digest
for plan sponsors and their advisors

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SAVINGS WITH A THRILL!

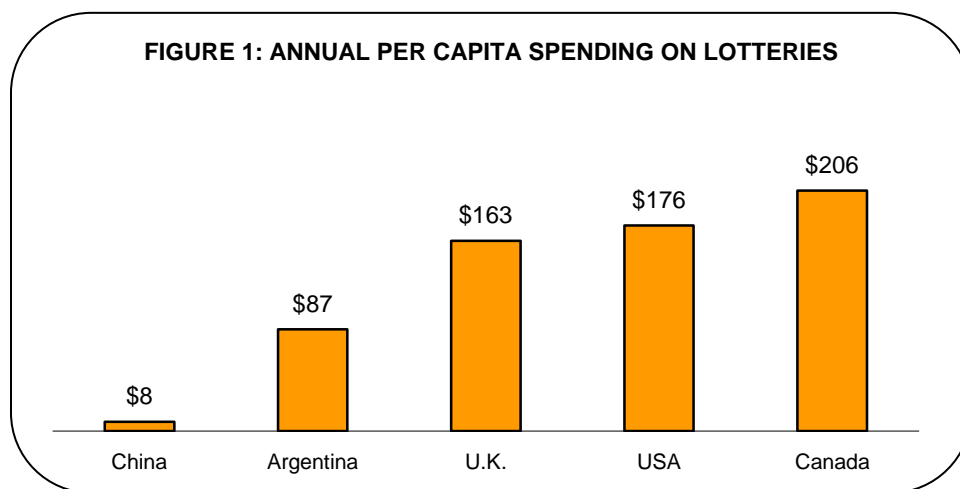
One of the key behavioral principles guiding investors is the balancing of fear and hope. When considering investments, individuals weigh their fears of losing money against their hopes to get rich (quickly).

Note that a psychologist's perspective on balancing fear and hope is quite different from an economist's perspective on weighing risk and return. To see the difference, consider lotteries.

From a risk and return perspective, lotteries are a poor investment, as their expected return is *negative* (that is, the average lottery buyer loses money). However, lotteries offer an extremely attractive balance of fear

and hope, as there is no risk of losing much money, but there is great hope of winning a large windfall.

Data on lottery spending confirms their attractiveness. As displayed in Figure 1, the average American spends \$176 per year on lotteries (New York Times, October 21, 2007). Thus, a family of five spends almost \$1,000 a year on lotteries. Interestingly, the chances of winning the California Super Lotto Jackpot are smaller than being struck by lightning, eaten by a shark or simply dying while taking a bath. Yet, lotteries are very popular not only in the U.S. but around the globe.



Incorporating hope into savings has a long history in the U.K. in the form of *lottery-linked bonds*, going back as early as 1694. Lottery-linked bonds distribute interest payments on the basis of a lottery system, with the top prize in the U.K. currently being £1,000,000. These bonds also eliminate fear as the principal amount is guaranteed.

In 1956, British Prime Minister Harold Macmillan, a brilliant behavioral economist, launched a variant of lottery-linked bonds called Premium Bonds. Prime Minister Macmillan referred to the bonds as “savings with a thrill,” and his behavioral insight on the role of hope, thrill, fun and excitement is as relevant today as it was more than fifty years ago (National Savings and Investments, 2006).

“[Premium Bonds] will appeal to those who are not attracted by the rewards of interest, but do respond to the incentives of fortune.”

Prime Minister Macmillan predicted that premium bonds “will appeal to those who are not attracted by the rewards of interest, but do respond to the incentives of fortune,” and he was absolutely correct. As of October 2006, there were £32 billion worth of outstanding Premium Bonds. In addition,

similar bonds are available in more than 20 countries.

In 2007, Indiana-based Centra Credit Union launched a similar product in the U.S., dubbed “Super Savings.” Prior to the launch, Centra Credit Union conducted a survey at its Clarksville, Indiana location, which happened to be inside a Wal-Mart store. The survey’s main question was:

Would you be interested in a savings account that rewarded chances to win prizes based on the amount of money you save? The account would also have no fees, no minimum balance, and still earn interest.

Five hundred and forty seven Wal-Mart visitors completed the survey, providing insights into the attractiveness of lottery-linked bonds across different demographic groups.

Tufano et al (2008) analyzed the survey responses, reporting that 58 percent are interested in lottery-linked bonds, 26 percent are not interested, and 16 percent are not sure. The results vary significantly across respondents with the following key findings:

1. 62 percent of below-average earners are interested in lottery-linked bonds versus 48 percent of above-average earners.

2. 65 percent of non-savers are interested in lottery-linked bonds versus 48 percent of regular savers.
3. 75 percent of heavy lottery spenders are interested in lottery-linked bonds versus 56 percent of non-lottery spenders.

Thus, lottery-linked bonds seem to attract lower-income individuals, non-savers and gamblers. Put differently, lottery-linked bonds have the potential to motivate those struggling the most to start saving.

Lottery-linked bonds often appeal to those struggling the most to start saving.

A couple of caveats are worth mentioning. First, survey results often exaggerate the real demand for products and services. While many investors find lottery-linked bonds appealing, intentions to save do not always translate into actions.

Second, more research is necessary to fully understand the long-term effects of lottery-

linked bonds on aggregate savings. For example, it is plausible that lottery-linked bonds will crowd out other forms of savings.

In summary, lottery-linked bonds highlight the importance of hope, thrill, fun and excitement in motivating people to save. Unfortunately, more often than not, retirement savers lack hope. In a recent survey conducted by me, Alessandro Previtore of UCLA and Sheena Iyengar of Columbia University, we asked people for the *best* scenario that could happen in retirement, and here is a rather typical response:

“This scenario made me pretty bored, because with current economic situations I won’t be able to retire until 3-4 days before I kick the bucket.”

Plan sponsors, advisors, consultants and researchers should explore how to add thrill to savings, as Prime Minister Macmillan noted more than 50 years ago. Communication materials and product design are good places to start, though I admit current savings plans have a long way to go before they could be considered “fun.”

CUSTOMIZED RETIREMENT DATE FUNDS: A BEHAVIORAL PERSPECTIVE

Retirement date funds are becoming a common investment vehicle for plan participants around the globe. Many plan sponsors are also using such funds as the default investment for participants who prefer to delegate the daunting task of selecting a portfolio. Retirement date funds with their built-in diversification are well-suited to serve as the default, given most individuals do a poor job investing on their own.

Plan sponsors, especially at larger companies, are not only embracing retirement date funds, but they often customize the funds to better serve the needs of plan participants. Does it make sense to customize retirement date funds?

To answer the above question, let's think about the capacity of individuals to take on risk as well as their risk preferences. The capacity to take on risk often refers to objective factors. For example, additional coverage through a defined benefit (DB) plan may affect the degree of risk a participant is willing to take with a retirement savings account.

Plan sponsors should consider both their participants' capacity to take on risk as well as their appetite for risk.

Consider two individuals, one working for an employer offering a very generous DB plan, and the other working for an employer not offering any DB plan. Arguably, the one covered by the DB plan is capable of taking on more risk with the retirement savings account. Following this logic, plan sponsors offering generous DB plans might construct more aggressive retirement date funds.

Consider DB plan coverage and job security when customizing retirement date funds.

Human capital is another factor affecting the capacity to take on risk. The more stable and secure one's job, the more risk that can be assumed in a retirement savings account. Hence, plan sponsors offering greater job

security can arguably increase the allocation to equities in their retirement date funds.

While the relationship between DB coverage, job security and the capacity to take on risk seems trivial and intuitive, it is still important to note that even the best DB plan and the most secure job involve some risks, and thus, it is inappropriate to view future DB payments or human capital as risk-free assets.

In the case of DB plans, mobility risk is significant, as departing employees often lose some of their benefits as compared to a lifelong employee of the company. Insightful research by Samwick and Skinner (2004) suggests that DB plans are often riskier than defined contribution plans due to this mobility risk. And, in the case of human capital, no job or individual is completely secure in any environment.

While the capacity to take on risk is an important factor to consider when tailoring retirement date funds, it is also important to consider the risk preferences and attitudes of the plan participants. By risk preferences, I refer to subjective differences across people in their appetite for risk.

From a behavioral perspective, plan sponsors might question whether risk preferences are well-defined and easy to

measure. Unfortunately, there is not a clear answer to this question.

On one hand, several research papers have documented that people are often confused about their appetite for risk. And, the degree of risk preferences is highly sensitive to the specific measurement technique used.

Measuring risk preferences is a difficult task, since the results are highly sensitive to the measurement technique.

In a 2002 study I conducted with Richard Thaler of the University of Chicago, we found that investors tend to pick the middle portfolio, regardless of its risk and return profile. For example, when considering equity allocations of zero, 40 percent and 70 percent, investors gravitate toward the 40 percent allocation. However, when offered equity allocations of 40 percent, 70 percent and 100 percent, investors suddenly prefer the 70 percent allocation to the 40 percent portfolio.

On the other hand, recent research by Claudia Sahm (2007) indicates that risk preferences do exhibit significant stability over time. So, risk preferences might be stable enough to be measured. This is especially true if plan sponsors attempt to measure the average appetite for risk across

all participants as opposed to estimating risk preferences of individual participants.

Risk preferences are fairly stable over time, suggesting that eliciting preferences might be possible, especially if one is interested in the preferences of all participants in the plan, rather than individual preferences.

To summarize, DB coverage, human capital and risk preferences all offer unique opportunities for plan sponsors to customize their retirement date funds to better serve their participants. As a rule of thumb, since customization does take time and effort, it makes more sense for large plans than for small plans. In addition, customization is more important when the capacity to take on risk or the risk preferences of the participants deviate significantly from the average population. Interested readers can also refer to a recent discussion paper by Luis Viceira (2007).

HYPER LOSS-AVERSION AND RETIREMENT INCOME SOLUTIONS

Investors tend to treat gains and losses asymmetrically – with losses looming larger than gains. In particular, the seminal research by Kahneman and Tversky (1979) on prospect theory suggests that people psychologically double losses. Put differently, the pain that is associated with a \$100 loss has twice the effect of the pleasure of winning \$100. This phenomenon has been dubbed loss-aversion.

While we know investors are *on average* loss-averse, we know very little about the variation in risk preferences across cohorts. Yet, understanding differences in risk preferences across the lifecycle is crucial for the design of retirement date funds as well as retirement income solutions.

A recent survey by AARP and ACLI (2007) in collaboration with Eric Johnson of Columbia University provides some preliminary answers. The sample consisted of 800 retirees with a median age of 68.

In the survey, the researchers elicited the maximum amount subjects were willing to risk to take a fifty-fifty shot at winning \$100.

Note that the average person psychologically doubles losses, so a person would be willing to risk \$50 to potentially earn \$100. What do you think? Would retirees be willing to risk \$50? Would they be willing to risk more than \$50? Or maybe a little less?

Interestingly, only 15 percent of subjects were willing to risk more than \$10 for a fifty-fifty chance of winning \$100; 33 percent were willing to risk exactly \$10, but not more; and 49 percent of respondents were not willing to risk even \$10! In other words, retirees have a far greater degree of loss aversion than younger people.

82 percent of retirees are not willing to risk more than \$10 to have a fifty-fifty shot at winning \$100.

Given the hyper loss-aversion exhibited by retirees, many plan sponsors and their advisors might be tempted to offer retirees financial products that minimize risks. They might consider offering, for example, protection against market declines as well as

guaranteed income for life. However, do hyper loss-averse individuals find such guarantees appealing?

Interestingly, the researchers found that the more sensitive the subjects were to losses, the less interested they were in protection against market declines. In particular, among those who were not willing to risk even \$10 to earn \$100, only 28 percent were interested in trading liquidity for protection. In contrast, 50 percent of those willing to risk \$10 or more were interested in protection against market declines.

The most loss-averse retirees are actually least interested in annuity products and protection against market declines.

Similar to the above results, the degree of loss aversion was negatively correlated with the desire to learn more about guaranteed income for life. Among the most loss-averse subjects, only 20 percent were interested in learning about annuity products and guaranteed income for life, compared to 37 percent of those exhibiting greater willingness to suffer losses.

To summarize, retirees exhibit hyper loss-aversion. Put differently, they are far more sensitive to losses than the general population. However, the greater sensitivity

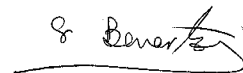
to losses does not translate into greater demand for protection and guarantees. The most loss-averse retirees are actually less interested in annuity products or protection against market declines.

Employee preferences are often hard to predict without a pilot test.

What can plan sponsors and their advisors do to better serve retirees and older employees approaching retirement? Admittedly, a lot more research is needed in this area. In the meantime, my best advice is to test retirement income solutions on a small population of employees approaching retirement prior to introducing them to the entire plan. As illustrated by Eric Johnson, AARP and ACLI, the preferences of people are often hard to predict.

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,



Shlomo Benartzi, Ph.D

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