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Behavioral Finance and the Decision Making Process of Defined Benefit Plan Sponsors

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“We have met the enemy and he is us.”

- Pogo¹

“The first principle is that you must not fool yourself and you are the easiest person to fool.”

- Richard Feynman²

INTRODUCTION

Behavioral Finance³ proposes that psychological and social factors influence financial and economic decisions, causing people to make decisions other than those predicted by conventional economics⁴ and which may not be optimal for them. This article strives to help defined benefit (DB) plan actuaries understand how concepts from behavioral finance may provide insight into the actions of the sponsors of defined benefit plans. We specifically explore how behavioral finance concepts may affect sponsors’ decisions regarding their plan’s preferred funding level and risk profile. Our hope is that actuaries can assist their clients in becoming aware of how these concepts may be affecting the quality of the sponsors’ decision-making process.⁵

As of October 2015, the estimated funded status of the average DB plan on an accounting basis is close to 84 percent.⁶ DB plan underfunding is recognized both theoretically (by academics and advisors)⁷, and practically (by analysts and rating agencies)⁸ as a form of debt that—just like other forms of debt—can have adverse implications for the sponsor’s Beta and cost of capital.⁹

Dramatic increases in the PBGC variable premium assessed on underfunding provide an additional incentive to improve funding. Flat-rate premiums increased from \$35 per participant in 2012 to \$69 in 2017, an increase of almost 100 percent, in addition to large increases in variable rate premiums (3.3 percent charge on pension underfunding). This may encourage sponsors to settle liabilities, either through payment of lump sums or purchase of annuities for portions of the plan’s liabilities. This approach may be particularly attractive to sponsors of well-funded plans, who view themselves as paying for insurance they will never need.

The cost of borrowing in order to increase (decrease) pension funding (debt) is near all-time lows for some companies.¹⁰ Corporate cash remains at high levels and might be used to improve funding, but seldom is. Why?

A frequently heard argument against taking action to more fully fund plans now is that interest rates used to fair value defined benefit plans are near historical lows, and that the value of liabilities are therefore near historical highs. While this is true, low interest rates also mean that the cost of refinancing pension debt is at historical lows. Numerous articles also discuss the advantages of funding and then “de-risking” the plan.¹¹ However, despite a few recent multibillion-dollar moves by some large companies, relatively few other companies have taken these steps. Why?

We think the answers to these example questions may be better understood by referring to concepts set forth in the behavioral finance literature. Behavioral finance tries to explain why people, with the best intentions, make decisions that appear irrational when viewed through the lens of traditional economics—and why, in some cases, those decisions may nonetheless be best for them and others.

Our purpose here is not to argue that sponsors should reduce plan risk, which is a decision highly dependent on facts and circumstances.¹² Instead, our purpose is to provide a “checklist” of a few of the most widely recognized behavioral finance concepts, and how they might inadvertently influence decisions. Our hope is that this will allow actuaries to help their clients make decisions that are truly in the best interests of all “stakeholders,” including the plan participants. The factors discussed below are not a comprehensive list of behavioral finance issues, but appear frequently and have potential applicability to the issue we are addressing.

HERD BEHAVIOR

Most animals—including humans—tend to do what those around them are doing. This is logical if you are a gazelle on the Serengeti. It is not as logical for plan fiduciaries and sponsors, who are expected to bring expert knowledge and a familiarity with their unique situation to the table, and to operate in the best interests of plan participants and other stakeholders. Yet it is commonly accepted that being wrong and alone—like the self-actualizing gazelle when the cheetah arrives—is bad news for fiduciaries or sponsors.¹³ It takes a courageous plan sponsor—and board—to contribute to a poorly funded plan and take a risk reducing (LDI) investment posture given today’s low level of interest rates. One may appear rash if interest rates rise significantly soon after the actions are taken—another human bias, related to herding, called “regret risk” (one can reduce their regret if they follow the herd!). Recognizing, let alone overcoming, this inclination to go along with the herd is surprisingly difficult.

Actuaries should caution fiduciaries/sponsors not to get caught up in the hot-trends of the day without first studying the issues carefully and determining the suitability of any concept or strategy for the specific client.

MENTAL ACCOUNTING

This concept refers to the segregation of person's (or a corporation's) assets into categories that may have different investment goals or constraints. A fund to finance the purchase of a house may be invested differently than a fund designed to finance retirement.

In the corporate context, some sponsors seem to have different risk tolerance levels for corporate assets and liabilities than for pension assets and liabilities. Chief financial officers who could not sleep knowing that the fire insurance on their home office had lapsed often take on the large and unquantified risks.¹⁴

This tendency to treat pension debt as distinct from general corporate debt was historically aided by very forgiving accounting treatments¹⁵ and persistent bull markets. There's even a less offensive term for pension underfunding—"soft debt" (we doubt anyone using this term has dealt with the PBGC when they wanted to collect that debt).

Viewing pension underfunding as simply another form of debt—and one with a variable principal, variable interest rate and a rather short repayment term—involves a shift in thinking.

At the same time, many sponsors may have been lulled into a false sense of security precisely because interest rates are so low—the idea that "things can only get better from here." This actually relates to another type of bias referred to as "wishful thinking bias" which is the tendency for people to prefer a future outcome even in the face of evidence that may contradict that preference.

To guard against mental accounting, actuaries should consider providing sponsors an analysis of the effect on funding of a 5th percentile one year decline in the stock market and interest rates, for example. This would allow plan sponsors to better understand the risk they may be taking in their pension program and to potentially take action to manage the risk.

LOSS AVERSION

One of the basic ideas of Behavioral Finance is contained in "Prospect Theory: An Analysis of Decision under Risk"¹⁶ written by Daniel Kahneman and Amos Tversky in 1979. Among other things, this theory holds that gains and losses are valued differently, with the loss of \$100 outweighing a gain of \$100.¹⁷ Neurological studies on the effects of identical gains and losses on metrics such as skin conductance, heart rate and pupil dilation are higher for losses, supporting this contention.¹⁸

We would expect, therefore, that loss aversion would argue for risk reduction. However, offsetting loss aversion is the tendency to seek risks when the alternative is realizing a loss. The classic example to illustrate these principles asks investors to choose between two bets: A) losing \$1,000 with a probability of .5 or B) losing \$500 for sure. People overwhelmingly choose option A even though the expected value of the two bets is exactly the same.

Given the alternative—accepting the loss by contributing money to get the pension plan back to fully funded status—sponsors may keep their risky portfolios in place, hoping that favorable markets will make them whole again.

Instead, plan sponsors should look at losses as sunk costs—money gone forever that should not affect current decisions. They could therefore regret having incurred the costs, or the loss in funded status, while recognizing the need to cease pursuing the strategy that has failed to perform as expected.

However, the tendency to loss aversion is quite strong. It's known in game theory as "The Concorde Fallacy," which refers to the continued development and production of the supersonic transport after it was certain that there was not an economic case for doing so.

ANCHORING

When dealing with variables, we tend to use benchmark values (known in behavioral finance as "anchors") that are familiar to us—even if they are irrelevant to the decision at hand. For example, a plan sponsor's anchor for bond rates may have been set decades ago when interest rates were much higher, or it may be the plan's Expected Return on Assets (EROA), a best estimate of the long term expected return anticipated given the plan's asset allocation. Actuaries can discuss the limitations of using the EROA as a benchmark, and the evolution of interest rates over the past several years, to try to overcome this issue and enable sponsors to view their positions with as much objectivity as possible.

A similar anchor seems to exist with respect to the estimates of sponsors and advisors of the cost of terminating a plan. Many think that cost is in the range of 125 percent or more of the accounting liability, which was in the ballpark a decade or more ago. Now that lump sum payments are essentially equivalent to the accounting liability (post the phase-in of the Pension Protection Act's higher discount rates), and with the cost of annuities for retirees now in the range of 110 percent–115 percent of accounting liability based on recent activity, using an obsolete anchor will lead to poor decisions. Sponsors that would be happy to terminate at 105–110 percent of the accounting liability (depending on the mix of annuities and lump sums) may not know that this is attainable and may even continue a risky in-

vestment posture in an attempt to reach an unnecessarily high funded level.

Actuaries can work with insurers to get a quick—yet relatively accurate—assessment of the total cost of termination based on information already presented in the funding and accounting actuarial valuations.

Actuaries can also help plan sponsors set the appropriate “anchor” in terms of what to measure a termination strategy (or any strategy for that matter) against. While viewing the absolute cost of a termination strategy is obviously useful, the strategy should also be compared on a relative basis to the alternative of continuing to retain the plan. Having the right anchor when evaluating alternatives can lead to better informed decisions.

CONFIRMATION BIAS

We seem to look for information that supports, rather than contradicts, our opinion. It may be particularly easy to fall victim to this with investments; for every pundit who opines that interest rates will rise and the S&P 500 will trade at 2250—and buys and sells based on that opinion—there is generally an equally cogent pundit on the other side of their trade.

To help clients overcome this bias, actuaries should encourage feedback from those taking an opposing view to senior management’s. An experienced actuary or investment consultant should be able to accurately present the positives and negatives for both sides of the argument. Actuaries in particular have the ability to quantify the extent of the gains (or losses) that occur if the hoped for outcome does (or does not) occur.

DEFAULT “ELECTIONS”

The default option—what Professor Robert Shiller¹⁹ of Yale has succinctly defined as “...what happens when people do nothing...” is tremendously important in any decision. The concept is also closely related to the issue of “framing”—how information is presented and “framed” can have a significant impact on ultimate decisions.

The decision of whether to be an organ donor is frequently part of the process of renewing a driver’s license or voter registration. If organ donation is the “default” option, over 90 percent are donors; if not, less than 15 percent are donors. This often happens because, 1) doing nothing is easier than doing something; 2) approvals are required to do something different; 3) the perception that the default option was arrived at prudently; and 4) the assumption that no changes have occurred that might cause one to rethink the default.

We see default “elections” show up a lot with respect to pension investments. Most DB sponsors seem to view the most important variable in managing a plan’s risk as the plan’s existing asset allocation (e.g. 60 percent equities, 40 percent intermediate



bonds) rather than funded status (in which case it’s not asset allocation so much that matters but asset allocation *relative* to liability behavior). If so, a simple liability driven investment strategy (e.g., 100 percent long bonds) or settling retiree benefits with an insurer is a huge change from that asset-only position, and similar to the organ donor example, requires action which is not always easy for a plan sponsor to do relative to the default which is already established.

However, advisors can help sponsors understand that this is not an either (60/40) or (liability driven investing or settlement) situation, and that they can adopt transition strategies that gradually move to the desired asset allocation over time or as funded status changes. One method, sometimes called a “glide path” model, ties changes in a plan’s asset allocation to increases in its funded status. As funding improves, the steps included in this model may be:

- Lengthen the duration of the existing fixed income portfolio
- Double the size of the fixed income commitment
- Move entirely to a duration matched portfolio
- Offer lump sums to terminated vested
- Settle retirees by purchasing annuities
- Terminate the plan, buying annuities for remaining retirees and offering lump sums or annuities to non-retired lives.

If these steps occur at agreed upon funding statuses—e.g., at 10 percent increments starting at 75 percent funding—and particularly if they are written into the Plan’s Investment Policy—they, in a sense, become the default allocations.²⁰ Actuaries and investment advisors can work with plan sponsors to effectuate such changes.

CONCLUSION

Our purpose here is simply to encourage actuaries to think accurately and objectively about the situation they are in and the solutions available. One approach to re-thinking a plan's situation may be to use the following process, adapted from Cognitive Behavior Therapy²¹

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|---|---|
| 1) Identify troubling situations | The plan's funded status is a large problem, given the size of the plan relative to the company's market cap |
| 2) Identify your beliefs about these situations | But everyone is in the same situation, we just have to wait until the markets rebound...as we have been doing for years |
| 3) Identify inaccurate thinking and | Besides, interest rates are too low to fund the plan and move to a more immunized asset allocation, let alone terminate the plan |
| 4) Challenge the inaccurate thinking | But borrowing rates are low, too, and we have a lot of "excess" cash, and it can't hurt to have our actuary perform some analysis so we can better understand the situation |

We think this is a good "to do" list for plan sponsors, fiduciaries and their advisors. We hope that our review of some of the barriers to accurate thinking assists their actuaries in helping them address the troubling conditions they face.

Clearly, we have only scratched the surface in discussing Behavioral Finance and introducing some of the bias the literature covers. Actuaries wishing to discuss these issues with their clients will want a more robust knowledge of the issues involved. The SOA website contains a wealth of information. A good starting point may be the Pension Finance Resource page <http://www.soa.org/professional-interests/pension/research-thinking-ahead/pen-finance-resources.aspx>. Another resource is the Committee on Post-Retirement Needs and Risks page <http://www.soa.org/research/research-projects/pension/research-post-retirement-needs-and-risks.aspx>. There are also many great books on the subject of Behavioral Finance. One of our favorites is by James Montier called *Behavioral Finance: Insights into Irrational Minds and Markets*. ■



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ENDNOTES

- 1 Comic strip by cartoonist Walk Kelly
- 2 Richard Feynman and Ralph Leighton. *Surely You're Joking, Mr. Feynman!* New York: W.W. Norton & Company, 1985.
- 3 Daniel Kahneman (who won the Nobel Prize in 2002 for his work combining psychology and economics) and Amos Tversky (who died before the Nobel Prize was awarded) are generally considered the fathers of behavioral finance. Richard Thaler also played an important role in the development of the theory.
- 4 By conventional economics here we are referring to theories that like Capital Asset Pricing Model and the Efficient Markets Hypothesis that assume economic agents are rational and make decision to maximize expected utility.
- 5 Actuaries are also subject to the same biases as those of the plan sponsors/fiduciaries they are working with. These biases may be reflected in the underlying models actuaries use and manifest themselves in other areas as well
- 6 <http://www.plansponsor.com/Pension-Funded-Status-Sees-October-Gain/>
- 7 Li Jin, Robert Merton and Zvi Bodie, "Do a Firm's Equity Returns Reflect the Risk of its Pension Plan?" *Journal of Financial Economics*, 81 (2006): 1-26.
- 8 Deutsche Bank Markets Research. "S&P 500 Pensions: End of cycles?" *US Equity Insights*. July 31, 2013.
- 9 "Pensions in Practice: When Is It Optimal to De-Risk a Pension Plan?" Morgan Stanley, May 2013.
- 10 As of August 1, 2014 Moody's Aaa corporate bond yield was 4.08 percent compared to a historical average back to 1919 of 5.84 percent; <https://www.quandl.com/MOODY/AAAYLD-Aaa-Corporate-Bond-Yield>. Interest rates similar to these are also used to approximate the fair value of pension liabilities.
- 11 Fischer Black first laid out this argument in "The Tax Consequences of Long-Run Pension Policy," *Financial Analysts Journal*, July-August, 1980.
- 12 See for example, "A Framework for Pension Risk Management," *Risk Management*, March 2014, 6-8. <http://www.soa.org/library/newsletters/risk-management-newsletter/2014/march/jrm-2014-iss29-cantor.aspx>. We argue pension sponsors should manage risk (after properly defining the term) not necessarily mitigate risk.
- 13 John Maynard Keynes has a famous quote which is applicable here "Wordly wisdom teaches us it is better for reputation to fail conventionally than to succeed unconventionally"; *The General Theory of Employment, Interest and Money*, 1936.
- 14 This introduces a whole other set of issues related to principal-agent conflicts which is outside the scope of this article but is a very important topic in the proper management of companies and pension programs.
- 15 Under US GAAP the use of expected rate of return on plan assets in the calculation of pension expense is often cited as encouraging plan sponsors to allocate to riskier assets than they may otherwise do. The allowance of smoothing techniques also may encourage plan sponsors to engage in riskier behavior than they might otherwise be expected to do.
- 16 This paper is widely regarded as a landmark paper for behavioral finance. http://www.princeton.edu/~kahneman/docs/Publications/prospect_theory.pdf.
- 17 In conventional economics, a \$100 gain or loss are valued identically when making risk based decisions.
- 18 Hochman G., Yechiam E. (2011). "Loss aversion in the eye and in the heart: The autonomic nervous system's responses to losses," *Journal of Behavioral Decision Making*, 24 (2) (2011): 140-156. doi:10.1002/bdm.692.
- 19 Shiller won the Nobel Prize in 2014 in large part for his work in behavioral finance.
- 20 Back though to the "herding" concepts, these glidepath strategies have become all the rage in the past few years. We caution actuaries and plan sponsors to not adopt a glidepath simply because it's "trendy" but rather to analyze the issue critically and decide if it's suitable for the actual situation. We also have seen clients, where even with a glidepath in place, the decision rules are ignored based on how the markets might currently be performing.
- 21 <http://www.mayoclinic.org/tests-procedures/cognitive-behavioral-therapy/basics/what-you-can-expect/PRC-20013594>