

THE ACTUARIAL SOLUTION MATRIX

A Vital Step to Improve 401(k) Participant Outcomes

Outside research has shown only about 25% of 401(k) plan participants are on track for a successful retirement¹. Unified Trust, using detailed actuarial analysis, has found similar results. Only 38.5% of participants in plans, either new plans coming to Unified Trust or existing plans adopting the UnifiedPlan, were on track for a fully funded benefit before the UnifiedPlan.

Participants in the UnifiedPlan also experienced better portfolio outcomes, typically with less portfolio risk and better risk tolerance matching.

Objective outcome data show retirement success is greatly improved with the UnifiedPlan². The percentage of participants on track to retire successfully with a forecast fully funded benefit increased from 38.5% before the UnifiedPlan, to 66.5% after UnifiedPlan implementation. Participants in the UnifiedPlan also experienced better portfolio outcomes, typically with less portfolio risk and better risk tolerance matching. A remarkable 75% of eligible employees elected to fully participate in the UnifiedPlan, a managed account acceptance rate that is over three times higher than industry averages³.

The explanation for the UnifiedPlan success can be attributed to a number of factors⁴. This paper will focus on one of the more important factors, the Actuarial Solution Matrix, or “ASM”. The ASM can consistently make a huge improvement in the participant’s funded ratio.

The 401(k) industry almost exclusively focuses on the asset side of the equation rather than the whole equation. The focus is on higher investment performance, “better” managers, “better” mutual funds, greater diversification, lower fees, etc. None of these actions have any impact on the other side of the equation, liability—which is the cost of retirement that the participant’s 401(k) plan must bear. In order to become fully funded, the asset should equal the liability, giving an asset/liability funded ratio of 1.00 or higher. The key to success is to raise the asset and lower the liability. This is most effectively accomplished with the ASM.

The ASM has a set of 12 possible asset/liability answers. They are arranged by risk and time. Year 0 is the plan participant’s Social Security Normal Retirement Age (“SSNRA”). There are four possible time points: years 0,

¹ Steyer, Robert, “75% Won’t Have Enough for Retirement, Survey Says” Pensions and Investments, Sept 22, 2010

² Kasten, G. “The UnifiedPlan® Dramatically Increases Retirement Success”, June 2012, © Unified Trust Company, NA

³ Kasten, G. & Poole, E. “Improved Outcomes for UnifiedPlan Participants,” Internal Research 2018 © Unified Trust Company

⁴ Kasten, G. “Why the UnifiedPlan® Is So Effective in Improving Outcomes”, December 2011, © Unified Trust Company, NA

Figure 1: Asset Liability Actuarial Solution Matrix

Increasing Risk
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Actuarial Solution Matrix

PORTFOLIO	SSNRA	SSNRA +1	SSNRA +2	SSNRA +3
Aggressive Glidepath	0A	1A	2A	3A
Moderate Glidepath	0M	1M	2M	3M
Conservative Glidepath	0C	1C	2C	3C

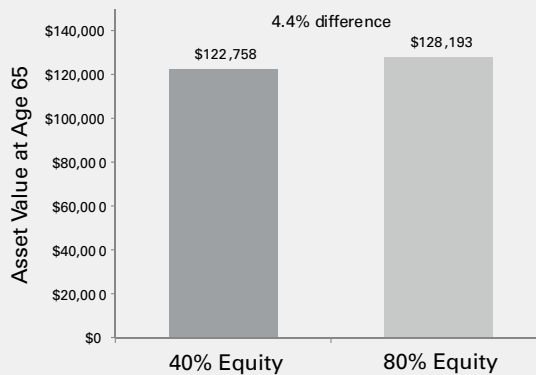
Increasing Time
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1, 2 and 3. For each year there are three possible portfolio glidepaths: Conservative, Moderate and Aggressive. This matrix gives 12 combinations ranging from 0C (Year 0 Conservative glidepath) to A3 (Year 3 Aggressive glidepath). The asset liability ratio is calculated for each of the 12 possible choices.

It may be surprising to many advisors, plan sponsors and plan participants, but the ASM is far more effective in improving the funded ratio than merely changing a portfolio to a more aggressive allocation. Especially for a pre-retiree, the move to a more aggressive portfolio makes only a tiny difference, and is vastly overshadowed by an actuarial solution that raises the asset and lowers the liability. The actuarial solution matrix is far more effective. In fact, recent studies show the impact of asset allocation for most participants is minimal⁵.

To illustrate the minimal impact of an aggressive portfolio assume a 62 year old employee saving 10%, earning \$50,000 per year, with a \$100,000 account balance decides to invest twice as aggressively as before. They double their equity allocation from 40% to 80%. Their expected return will increase from 5.6% for the 40/60 mix to 7.2% for the 80/20 mix if nominally (pre-inflation) stocks are forecast to earn 8% and bonds 4%. From age 62 to 65 the difference in asset values is only that 4.4% larger than before. In a bad year like 2008 the 80/20 investor could lose more than -31% of their asset value if things don't work out as expected and instead of higher gains the portfolio loses a large amount of money.

Figure 2: Little Forecast Asset Gain from Aggressive Portfolio for Pre-Retiree



The asset liability actuarial solution can make a much greater difference in the participant's funded ratio. In fact, the difference is usually 10-25 times greater than the portfolio change impact⁶. In Figure 3 the participant's funded ratio while staying in the moderate glidepath jumps from 0.542 to 1.081, a 99.2% increase! This dwarfs the 4.4% increase from a risky portfolio change shown in Figure 1. The probability of retirement success across the moderate glidepath jumps from 0.5% to 81.8%. As will be discussed later this large impact of the ASM is typical, not unusual.

⁵ Munnell, Alicia, Sergeyevna Orlova, Natalia, and Webb, Anthony, "How Important Is Asset Allocation to Financial Security in Retirement?", Center for Retirement Research at Boston College, April, 2012

Figure 3: ASM Produces Large Improvement in Asset/ Liability Funded Ratio

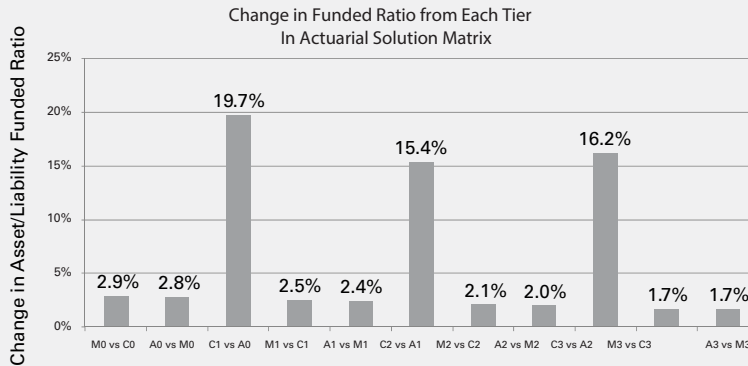
Asset/ Liability Funded Ratios				
PORTFOLIO	SSNRA	SSNRA +1	SSNRA +2	SSNRA +3
Aggressive Glidepath	0.547	0.670	0.845	1.107
Moderate Glidepath	0.542	0.661	0.830	1.081
Conservative Glidepath	0.538	0.654	0.816	1.059

Retirement Success Probability Ratios				
PORTFOLIO	SSNRA	SSNRA +1	SSNRA +2	SSNRA +3
Aggressive Glidepath	1.4%	12.9%	47.4%	81.9%
Moderate Glidepath	0.5%	7.3%	37.3%	81.8%
Conservative Glidepath	0.2%	4.4%	33.9%	80.8%

To further examine the impact of the ASM, we collected asset/liability data from 200 consecutive participants enrolling in the UnifiedPlan. Each participant had the full ASM calculated for all 12 possible answers ranging from 0C to A3. The ages ranged from 24 to 67 and compensation ranged from \$15,000 to \$450,000.

The average impact across the 12 asset/liability data points in the ASM is shown in Figure 4 below.

Figure 4: Improvement in Asset/ Liability Funded Ratio Mostly Come From Time



Each one unit change in risk (C to M, or M to A) produced a real (inflation adjusted) change in the asset/liability funded ratio of 1.7% to 2.9%. In marked contrast, each one unit change in year (0 to 1, 1 to 2, or 2 to 3) produced a real (inflation adjusted) change in the asset/liability funded ratio of 15.4% to 19.7%. Moving across the full spectrum from 0C to A3 produced an average total change in the asset/liability funded ratio of 102.2%.

In summary, the ASM asset liability solution can make a much greater difference in the participant’s funded ratio. In many cases the ASM impact is usually 10-25 times greater than the portfolio change impact. The outcome of 401(k) plans must be improved. The most effective solutions must include the ASM as an integral part of the fiduciary process to both improve 401(k) participant outcomes and also to greatly improve the cost/benefit metrics of the plan.