

Illusion of Precision in target-date funds

Target date glidepaths

- ❖ Target date glidepaths are created using optimization methods
- ❖ Optimizations use an objective function and need input data
- ❖ The optimization inputs themselves are statistical estimates rather than precise measures. For example: Expected returns, Risk and volatility estimates, Assumed future income growth, Assumed savings rates, Mortality rates, Required income in retirement

The use of statistical estimates

All the inputs are subject to measurement error. A point estimate must be entered, but there are many equivalent point estimates. This means that any optimization output produces a “cloud” or a “fuzzy frontier” not a single line.

Three logical consequences

- ❖ For investors who use the default option, the prudential principle calls for the application of experience and judgment in choosing a glidepath that is biased towards the lower edge of the optimal glidepath cloud in terms of risk level
- ❖ Investors would benefit from target date providers using a public benchmark that also is at the lower edge of the glidepath cloud, as it offers plan sponsors and investors clear insight into the performance and risk exposures of the target date fund.
 - Using a target date fund based on a glidepath at the lower edge of the cloud allows participants to make an informed choice to default into the prudentially proper lower edge of the cloud, or
 - to make a potentially utility-enhancing decision to add risk, or
 - take away risk by adding cash or selecting a lower risk fund
- But the starting point for any decision should be the theoretically sound low-risk default choice.
- ❖ Making target date glidepaths reliably successful in practice requires full knowledge of the limits of capital market theory, in both theory and practice.

Exhibit 1

Efficient Frontier of Major Asset Classes Portrayed as a Cloud

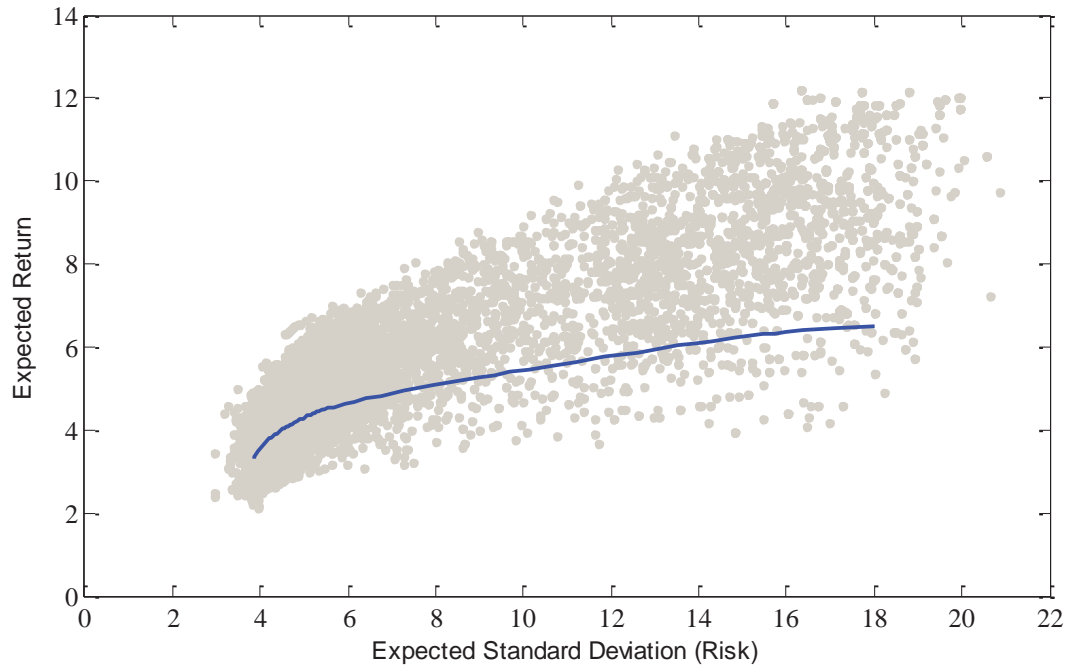
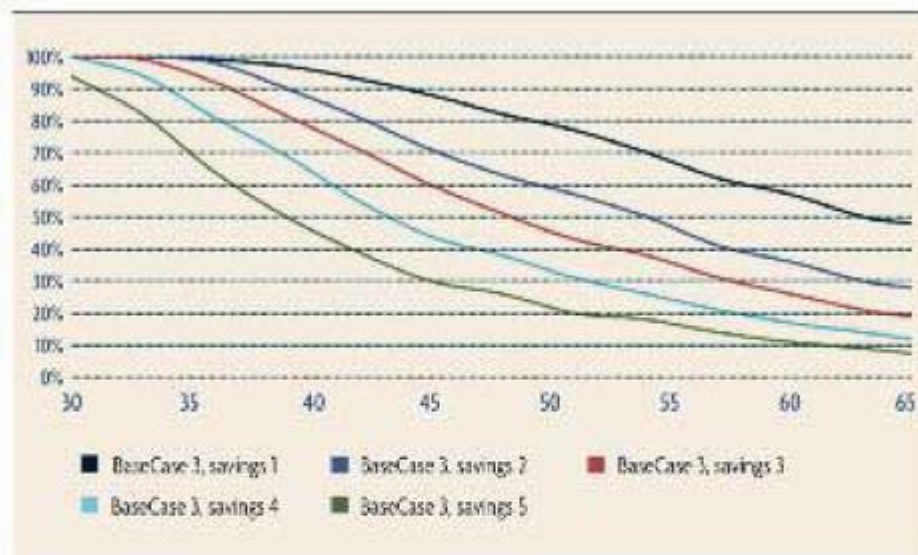


FIGURE 2: OPTIMAL ASSET MIXES BY PARTICIPANT AGE, WITH VARIATION IN SAVINGS RATE

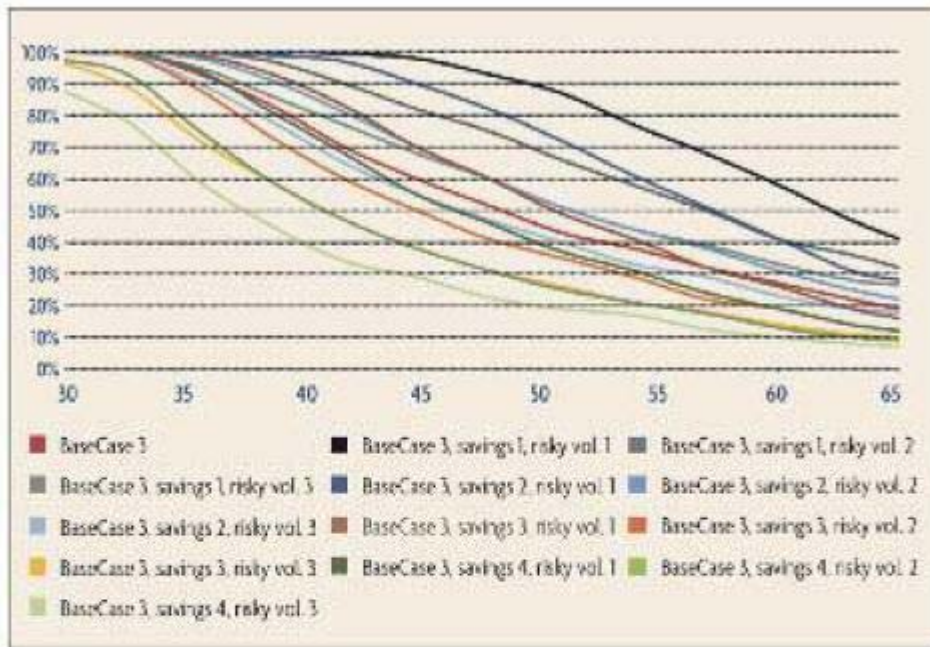


	Case 1	Case 2	Case 3	Case 4	Case 5
Multiple of Base Case Savings Rate	0.50	0.80	1.00	1.30	1.50

Source: Allianz Global Investors Solutions, risklab GmbH. Appendix B provides technical information on the analysis.

Note: Optimal glidepaths for different investor savings rates during accumulation. The five cases respectively correspond to 50%, 80%, 100%, 130% and 150% of the base case savings rate. The base case savings rate is as specified in Hewitt [2006].⁸ The highest savings rate results in the most conservative glidepath with less than 10% in equities at retirement.

FIGURE 3: OPTIMAL ASSET MIXES BY PARTICIPANT AGE, WITH JOINT VARIATION OF SAVINGS RATE AND RISKY ASSET VOLATILITY



	Case 1	Case 2	Case 3	Case 4
Multiple of Base Case Savings Rate	0.50	0.80	1.00	1.30
Risk Asset Volatility	10%	15%	20%	

Source: Allianz Global Investors Solutions, risklab GmbH. Appendix B provides technical information on the analysis.

Note: Optimal glidepaths for different combinations of the levels of risky asset volatility and investor savings rates during accumulation. The most conservative glidepath, at the bottom of the cloud, is optimal when the investor saves the most and is subject to the highest level of equity volatility.