Network for Studies on Pensions, Aging and Retirement

The Recovery Potential for Underfunded Pension Plans

"Less risk-averse investment strategies improve recovery in disadvantageous scenarios"

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Pension funds have the ambition to provide participants with an income stream after retirement that maintains their standard of living in real terms. Low interest rates since 2008 have made it harder for pension funds to meet this real ambition for their participants. Measured in real terms (i.e. including price indexation), Dutch pension funds are severely underfunded. In this paper we ask the question: which investment strategy can best be deployed to maximise the probability of reaching a "real ambition"?

Principal Findings

- Pension funds should use utility functions that measure the replacement ratio, i.e. the pension capital at retirement relative to a pre-defined benchmark in real terms. This benchmark can then be viewed as a defined ambition.
- A state-dependent utility function emphasises the investor's defined ambition level. The resulting investment strategies are more explicitly aimed at attaining the defined ambition during the life cycle of the participant.

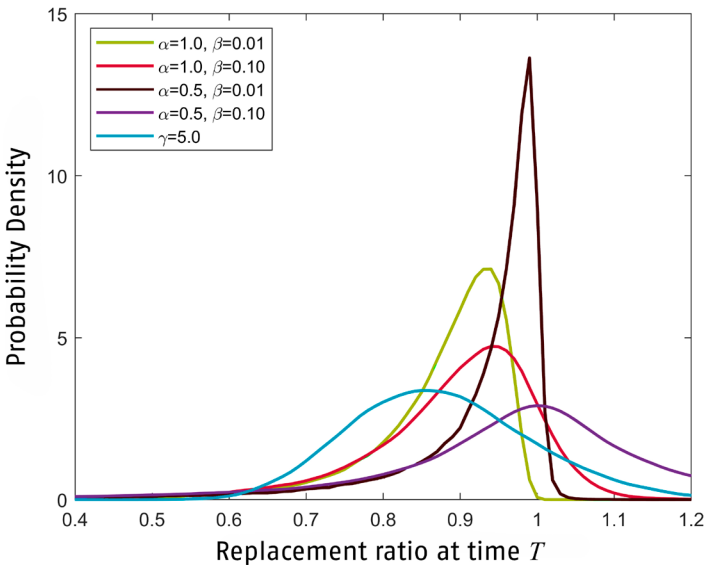

Figure: Probability distribution of replacement ratio under CRRA ("y = 5") versus state-dependent utilities

- Preferences that become less risk averse for replacement ratios below 100% can improve the average replacement ratio with only a slightly higher chance of worse replacement ratios, compared to the standard CRRA utility case.
- Downward jumps in asset prices improve investment outcomes regardless of the strategy chosen if the associated risk is compensated by a higher average rate of return on the assets.

Key Takeaway for the Industry

Optimisation based on preferences with a defined ambition can generate good investment strategies whenever the market value of the "ambition" is higher than the contributions.

Want to know more? Read the paper **'The Recovery Potential for Underfunded Pension Plans'**