Network for Studies on Pensions, Aging and Retirement

Investment policy in the case of uncertainty about risk aversion and budget

"Robustly optimising an individual's pension even when many factors are unknown"

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In the new Dutch pension agreement, pension funds will switch from collective to individual pensions. Participants will have a personal pension capital that will be invested according to their age and risk aversion to reach a target pension. Information needed to determine the optimal investment policy in such a scenario is often missing in practice. Therefore this study seeks a robust investment strategy that allows for uncertainty about the specificity of the utility function, risk aversion and the participant's budget (how high are rights already accrued and rights to be built up).

Principal Findings

- If the utility function or risk aversion is uncertain, the risk aversion used in the model should be set slightly higher than the aversion measured to avoid loss of wealth.
- If the participants' state pension forms a considerable part of the pension income, the room to take risk with the remaining capital is higher.
- Pension providers often lack insight into participant's previously accrued rights and future income, and this budget uncertainty hampers optimal investment decisions.

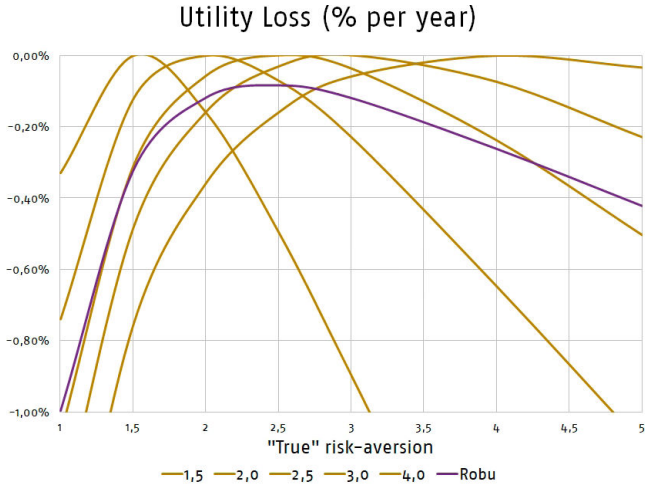

Figure: The brown lines show the utility losses due to the use of an investment strategy based on a wrong value of the risk-aversion. The purple line shows the effect of using a robust investment strategy. Although the robust strategy is never perfectly optimal, it is less sensitive to a misspecification of the risk-aversion. Hence, the robust investment strategy is a better alternative when the true value of the participant's risk-aversion is uncertain.

Key Takeaways for the Industry

- Pension providers should agree on an optimisation standard to ensure that optimising their part of the participant's budget does not lead to an overall sub-optimal result for the participant.
- The standard should be based on a pension capital that assumes pension accrual throughout a participant's working life to minimise budget uncertainty and optimise risk.

Want to know more? Read the paper
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