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Benefit volatility-targeting strategies in lifetime pension pools

Lifetime pension pools—also known as group self-annuitization plans, pooled annuity funds, and retirement tontines in the literature—allow retirees to convert a lump sum into lifelong income, with payouts linked to investment performance and the collective mortality experience of the pool. Existing literature on these pools has predominantly examined basic investment strategies like constant allocations and investments solely in risk-free assets. Recent studies, however, proposed volatility targeting, aiming to enhance risk-adjusted returns and minimize downside risk. Yet they only considered investment risk in the volatility target, neglecting the impact of mortality risk on the strategy. This study thus aims to address this gap by investigating volatility-targeting strategies for both investment and mortality risks, offering a solution that keeps the risk associated with benefit variation as constant as possible through time. Specifically, we derive a new asset allocation strategy that targets both investment and mortality risks, and we provide insights about it. Practical investigations of the strategy demonstrate the effectiveness and robustness of the new dynamic volatility-targeting approach, ultimately leading to enhanced lifetime pension benefits.