Longevity and other types of risk – an integrated approach to measuring risk of household financial plan

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Abstract

In personal finance, models of financial plan optimization usually take into account at least two types of risk, namely – longevity and market risk. This does not, however, mean that risk is explicitly measured in the models. Moreover, there are no risk measures that integrate different types of risk households are exposed to. Whereas it is possible to do without such measure when constructing a financial plan, the need for one arises when attempting to compare different plans in respect of risk. Besides, once an integrated measure was developed, it might prove useful also when doing the first, that is – constructing the plan. It might be even one of main plan characteristic and, maybe, also an element of the optimization criteria.

Household financial plan performance depends on a number of risk factors of different nature (e.g., longevity risk, market risk, risk of insurance-type events, etc.), therefore risk measures suited to household financial plans should integrate different types of risk. At the same time, it would not be recommended to directly implement integrated risk measure concepts suited to enterprises or financial institutions. A measurement of risk for household financial plans should rather concentrate on threats to life standard preservation and to accomplishment of life objectives. The measure of risk should also look at the whole life cycle of the household. This is because timing of the aforementioned threats is also very important. In this article there are discussed some original propositions of cumulated-surplus-based measures of risk that are aimed at fulfilling these requirements. Their mechanism, performance and some applications are shown by numerical examples.

Key words

HOUSEHOLD FINANCIAL PLANNING, LONGEVITY, INTEGRATED MEASURE OF RISK

References

[1] Bodie, Z., Detemple, J. B., Otruba, S., Walter, S. (2004). Optimal Consumption-Portfolio Choices and Retirement Planning. *Journal of Economic Dynamics and Control*, 28(6), 1115–1148

[2] Bodie, Z. (2002). Life-cycle Finance in Theory and in Practice. Boston University School of Management. Working Paper No. 2002-02

[3] Yao, R., Zhang, H. H. (2004). Optimal Consumption and Portfolio Choices with Risky Housing and Borrowing Constraints. *Review of Financial Studie*s, 18(1), 197–239

[4] Campbell, J. Y., Cocco, J. F. (2003). Household Risk Management and Optimal Mortgage Choice. *Quarterly Journal of Economics*, 118, 1449–1494