

Behavioral Modeling in Optimal Investment-Consumption Decisions for Long-term Financial Planning

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Abstract

In this paper we develop a modeling framework that incorporates several behavioral aspects of preferences for an individual planner's consumption, saving and investment decisions for long-term financial planning. The observed behavioral characteristics in decision-making, such as, hyperbolic time preference, loss aversion, dynamically-shifting reference point, asymmetric perception of uncertainty, framing effect, limited memory, and over-optimism, are discussed. These behavioral features are incorporated in an optimization framework for the creation of more robust decision-aid systems for long-term financial planning. We demonstrate some computational results for the tradeoff between immediate consumption and long-term savings, where tree-structured models are used for the stochastic evolution of investment returns.

Keywords: Behavioral preferences, decision trees, financial planning, consumption-saving tradeoff