

Prospect Theory and the Demand for Cliquet-Style Guarantees

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Cumulative Prospect Theory (CPT), introduced by Tversky and Kahneman (1992), has become one of the most prominent behavioral theories in finance, especially as a behavioral counterpart to Expected Utility Theory (EUT). This is due to the fact that CPT can explain behavior that cannot be explained by EUT, but is still frequently observed in real life. While complex financial products are well studied under EUT, an analysis of such products under CPT has only recently been in the focus of academic literature. In both, EUT and CPT, the preferences of the investor depend only on the distribution of one terminal value. In reality, however, investors tend to re-evaluate a financial product regularly, e.g. annually when they receive financial statements. Information about a good performance in the past year therefore might increase the investor's reference point against which losses are evaluated. Benartzi and Thaler (1995) propose the theory of myopic loss aversion and argue that investors tend to evaluate their investment decision on short evaluation periods and therefore prefer to invest only small fractions of their wealth in risky assets. Moreover, we suppose that specific investment features (like annual guarantees or lock-in features) increase investor's tendency to take into account the subjective utility of the interim changes when making investment decisions.

Based on these insights, we propose a model, which is based on CPT, but assumes investors with such a behavior. We denote this model "*Multi Cumulative Prospect Theory*" (MCPT).

As an application we have analyzed three guaranteed products, which are very common in many markets (roll-up, ratch-up and cliquet) and a contract without guarantee (constant mix). Applying our new model to these contracts is especially motivated by the annual lock-in features of the ratch-up and cliquet guarantee. Moreover, EUT and CPT are not able to explain the popularity of these more complex guaranteed products. When applying our new MCPT model, we have found that the more complex guaranteed contracts, in particular the cliquet contract, outperform the other contracts (roll up and constant mix) in all considered cases. Hence, our model is able to explain the demand for these contracts.

Additionally, we have analyzed the contracts under a combined model, which considers both, the terminal value of the investment, and the annual value changes. Our results show that also in this combined model investors may have a preference for the more complex guaranteed products. This means that demand for more complex guarantees can be created even if value fluctuations only partly influence the investor's subjective utility.

The analyses of the application provide a first indication that the MCPT model has some descriptive power in particular for long-term investments.

Keywords: Behavioral Insurance, Prospect Theory, Myopic Loss Aversion, Guaranteed Products, Retirement Saving

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