Quoniam

ABSTRACT – DISSERTATION

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ESSAYS ON ASSET ALLOCATION WITH DERIVATIVES AND MODEL ESTIMATION

This thesis is concerned with the analysis of asset allocation strategies when derivatives are available as additional asset class besides equities and cash. Using optimal investment strategies with derivatives, which have been derived for continuous-time models, this thesis analyzes the utility of investors, who naively discretize these optimal continuous-time strategies.

We find that in models with stochastic volatility, investors have to rebalance their portfolio at least daily to benefit from holding derivatives. Furthermore, we search for optimal investment strategies with derivatives under the assumption that investors can rebalance their portfolio exactly once a month and find that they can realize more than 50 % of the potential derivative-induced utility gain.

We also analyze whether investors can benefit from holding popular investment certificates. Calibrating a model to the German market, we find that investors can realize at most a utility gain equivalent to an extra risk-free return of 0.35 % annually. Simple discount certificates perform best, while more complicated contracts like bonus certificates or turbos perform very badly. In the last paper, Markov-Chain Monte-Carlo estimations of stochastic volatility models are carried out under the physical measure for seven of the world's most prominent stock market indices and under the physical and the risk-neutral measure for the DAX. Hereby, we are the first to estimate volatility risk premia for the DAX.