



# A Multi Period Equilibrium Pricing Model

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In this paper, we propose an equilibrium pricing model in a dynamic multi-period stochastic framework with uncertain income streams. In an incomplete market, there exist two traded risky assets (e.g. stock/commodity and weather derivative) and a non-traded underlying (e.g. temperature). The risk preferences are of exponential (CARA) type with a stochastic coefficient of risk aversion. Both time consistent and time inconsistent trading strategies are considered. We obtain the equilibrium prices of a contingent claim written on the risky asset and non-traded underlying. By running numerical experiments we examine how the equilibrium prices vary in response to changes in model parameters.

Subjects: **Optimization and Control (math.OC)**; Trading and Market Microstructure (q-fin.TR)

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