

Lectures on Portfolio Choice and Asset Pricing

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I will give an overview of portfolio choice and asset pricing in continuous time. After a review of classical models, I will focus on markets where either investment opportunities are stochastic or frictions are present. We will see how frictions are often equivalent to stochastic investment opportunities, and how long-run objectives lead to solutions that are approximately optimal even for finite horizons.

1. Classical Theory.

The discussion starts with a review of the Merton consumption-investment problem with constant investment opportunities, and with its asset-pricing counterpart, the Lucas model.

2. Long-run, state variables, and stochastic investment opportunities.

The discussion starts with the general model of a market with several state variables, the objectives of equivalent safe rate and equivalent annuity, their corresponding HJB equations, and finite-horizon bounds. Applications to models of return predictability and stochastic volatility conclude. [4].

3. Transaction Costs.

A market with transaction costs and constant investment opportunities is equivalent to another market, found explicitly, in which investment opportunities are stochastic, but transaction costs absent. [1].

4. Price Impact.

If trading speed affects execution prices, portfolio weights are no longer controls, but state variables. The optimal trading speed follows an autonomous diffusion process, interpreted as trading volume. Short and levered positions are endogenously banned by this friction. [5]

5. High-water marks and hedge-fund fees.

In a model of hedge fund compensation, the state variable is the ratio between the fund's assets and its historical maximum. The long-run solution leads to a simple optimal portfolio, which shows the interplay between fees and risk aversion. [3, 2]

6. Path-dependent Preferences and Shortfall Aversion.

A model in which the marginal utility from increases in consumption above its historical maximum is lower than the marginal utility of marginal decreases in consumption (shortfall aversion) can explain high asset prices and low interest rates, as well as smooth consumption with volatile wealth. [6]

References

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