

Topics in Portfolio Choice Theory

Research Proposal for 2008–2009 Academic Year

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Methodology

The goal of this project is to contribute to the portfolio choice theory.

When working on this project, students are expected to pick one or more aspect of the real financial markets and find the optimal portfolio of an investor who maximizes her expected utility taking this aspect into consideration. To focus on the main economic question, the baseline model should abstract from other (than the one being investigated) realistic features. However, a number of “natural” extensions of the models should be considered or, at least, informally discussed to see how the results may change if we are to introduce these features. The next step is a detailed comparative statics analysis of how the optimal portfolio is affected as we change the model’s parameters.

After solving the model, students should discuss the economic importance of the obtained results by answering the following questions. What is the magnitude of the difference between the obtained optimal portfolio and the benchmark portfolio? What is the utility cost for an investor who may (partially) overlook the analyzed feature? Can the obtained results shed some light on the empirical findings regarding observed investors’ portfolios? What are the general equilibrium implications?

While not a requirement, students are encouraged to employ the continuous-time techniques in their research. Such techniques are used extensively in modern finance, and so it is important to know them for anyone who plans to be a researcher in Finance area or work as a quantitative analyst. Interested students can start by reading a (rather advanced) book by Duffie (2001), and should not feel discouraged if they find it difficult.

The range of topics that students can pursue is rather wide, as long as the topic fits within the above-described general research agenda. Below are just two possible directions of research.

Topic 1: Portfolio Choice with Relative Performance Considerations

Within this topic, students can investigate how the fact that investors are concerned about other investors’ portfolios affect their own portfolio choice. Two papers to give an idea of this type of

research are (simple to read) Makarov (2006) and (rather technical) Basak et al. (2007).

There is a number of reasons why investors may (often *optimally*) care about the performance of other investors. Portfolio managers are often evaluated against other managers or against an exogenously given benchmark. Given that the managers' compensation depends on the relative performance, they will optimally take into account the portfolio strategies of other managers. On top of that, new money flows mainly to the managers with high relative performance, creating an additional incentive to choose a portfolio in such a way as to maximize the relative performance. Alternatively, relative performance concerns may arise not due to the considerations for financial wealth, but due to psychological traits such as *envy*.

Topic 2: Wealth Heterogeneity and Portfolio Choice

Within this topic, students can investigate how the fact that investors have different wealth affects the predictions of the models that ignore this aspect. An example of the paper following this approach is Makarov and Schornick (2006) who demonstrate that accounting for wealth heterogeneity can help explaining salient features of households' stockholding, while the base model that ignores wealth effect cannot.

Majority of the existing models in finance ignore the role of wealth heterogeneity, even though it is present in most (if not all) countries with market economy. Some models do this explicitly by staying within a "representative-agent framework". In other words, they assume that all agents in the economy can be aggregated into one representative agent, which clearly makes it impossible to investigate issues related to agents' heterogeneity. Other models are not able to address the wealth heterogeneity due to a specific (and unrealistic!) assumption about the utility function. Specifically, it is easy to show that if investors have CARA utility of the form $-\exp(-\alpha C)$, where α is *absolute risk aversion* and C is *consumption*, then they invest the same dollar amount into risky securities *regardless* of their level of wealth. A prominent strand of research that uses such utility specification is the literature on asset pricing under asymmetric information (see Brunnermeier (2001) for a survey).

Potential Topics for Master Theses

The titles below are (intentionally) rather broad and are used to suggest the general directions of research. Specific titles are to be determined later once each student will figure out his/her specific research question that will be addressed in the master thesis.

1. Delegated Portfolio Management and Optimal Asset Allocation
2. Partial Rationality and Portfolio Choice
3. Strategic Interaction of Fund Managers
4. Wealth Heterogeneity and Asset Prices

References

1. Basak, S., A. Pavlova, and A. Shapiro, 2007, "Optimal Asset Allocation and Risk Shifting in Money Management," forthcoming in Review of Financial Studies.
2. Brunnermeier, 2001, "Asset Pricing under Asymmetric Information - Bubbles, Crashes, Technical Analysis and Herding," Oxford University Press
3. Duffie, D., 2001, "Dynamic Asset Pricing Theory," Princeton University Press
4. Makarov, D., 2006, "Difference in Interim Performance and Risk Taking," working paper, New Economic School
5. Makarov, D. and A. Schornick, 2006, "Wealth Effect with CARA Utility: Portfolio Choice in the Presence of Costly Information," working paper, New Economic School