

# Syllabus for Empirical Asset Pricing I, PhD Course USI, Lugano, Spring 2021

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## Course Objectives

This course focuses on selected topics of empirical asset pricing. It is intended for Ph.D. students. We start by reviewing the main facts about stock and bond returns. We then focus on cross-sectional asset pricing tests and review the standard methodologies proposed in the literature. Considerable effort also placed in the implementation and coding of the procedures. Depending on the procedure, the coding, will be done in R, STATA or MATLAB. We consider tests of the CAPM and multi-factor models, including time-series regressions, cross-sectional regressions and GMM. Part of class time is also dedicated to the construction of factors and portfolios for testing. In the second part of the course, we analyze how asset pricing models have been used in the mutual funds, hedge funds, and individual investors literature. Since the focus of the class is on implementation, the treatment of the econometric tools will be informal.

The students are expected to read ahead of time the relevant reading material. For most classes, I will assign some reading material to be read and presented by one or more students. The final grade will be based on the in-class presentations and a research proposal to be handed in 3 weeks after the end of the course.

## Readings

We will read published articles, working papers, and textbook chapters. We will implement some of the procedures to get some hands-on experience. The textbooks are:

- John H. Cochrane, Asset Pricing, Princeton University Press, Princeton 2001. In the reading list I will refer to this book as Cochrane.
- John Y. Campbell, Andrew W. Lo, and A. Craig MacKinlay, The Econometrics of Financial Markets, Princeton University Press, Princeton, 1997. I will refer to this book as CLM

## Course Outline

**NOTE.** This is a tentative schedule. If the pace is too fast, I am very happy to slow it down. If it is too slow, we can find ways to speed it up!

### Day 1. 3 hours

- **Asset Pricing Facts (1 hour)**
  - Relevant Readings:
    - Cochrane Chapter 20, Pages 435-454
- **Introduction to Market Efficiency (0.5 hours)**
  - Relevant Readings:
    - CLM Chapter 1
- **Student presentation of the paper (0.5 hours):**
  - “Efficient capital markets: II”, by Gene Fama, *Journal of Finance* 46, 1575-1617. I want all 3 students to present. Decide among yourselves who should present what part of the paper. Roughly, one should present Section III, one Section IV, and one Section V and VI. 10 minutes per person should keep us on track.
- **Paper related to Market Efficiency (1 hour).** No need to read it ahead of time:
  - "The Freedom of Information Act and the Race Towards Information Acquisition," by Antonio Gargano, Alberto Rossi, and Russ Wermers, *Review of Financial Studies*, 2017, 30 (6), 2179-2228

### Day 2. 4 hours

- **Basic Concepts and tests based on Time-Series regressions. (2 hours)**
  - Relevant Readings:
    - Cochrane Chapter 12: Pages 229-235
    - "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," by Gurdip Bakshi and Xiaohui Gao, and Alberto Rossi, *Management Science*, forthcoming.

I will use data from this paper to show you the implementation of the time-series tests – Section 5.2 of the paper.

- **Tests based on Cross-Sectional regressions. (2 hours)**

o Relevant Readings:

- Cochrane Chapter 12: Pages 235-247
- "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," by Gurdip Bakshi and Xiaohui Gao, and Alberto Rossi, Management Science, forthcoming. I will use data from this paper to show you the implementation of the cross-sectional tests. – Section 5.1 of the paper.

**Day 3. 4 hours**

- **GMM Asset Pricing Tests (2.5 hours)**

o Relevant Readings:

- “GMM and MINZ Program Libraries for Matlab” by Michael Cliff, for a quick summary of GMM and specifics on the implementation.
- "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," by Gurdip Bakshi and Xiaohui Gao, and Alberto Rossi, Management Science, forthcoming. I will use data from this paper to show you the implementation of the GMM tests. – Section 5.1 of the paper.

- **Student presentations of the two chapters (1 hours):**

- o Cochrane Chapter 15
- o Cochrane Chapter 16
- o Split the 2 chapters among the three of you and present for 15 minutes each.

- Difference in results across the various methods for the paper "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," by Gurdip Bakshi and Xiaohui Gao, and Alberto Rossi (0.5 hours)

#### **Day 4. 3 hours**

- **Constructing factors and test portfolios in Fama-French (1 hour)**
  - Relevant Reading: Fama and French "Multifactor Explanations of Asset Pricing Anomalies," 1996, *Journal of Finance*. (Skip pages 68-75)
- **Construction of factors and test portfolios for the commodity paper (1 hour):**
  - Code to construct the portfolios. "Understanding the Sources of Risk Underlying the Cross-Section of Commodity Returns," by Gurdip Bakshi and Xiaohui Gao, and Alberto Rossi, *Management Science*, forthcoming.
- **Economic interpretation of the factors (1 hour):**
  - Fama and French (1996) and Bakshi, Gao, Rossi (forthcoming) as examples.

#### **Day 5. 3 hours**

- **Applications of factor models to mutual funds**
  - **Mutual Fund performance evaluation (1.5 hour)**
    - Students presentations of the following papers:
      - Carhart, M. M. (1997), On Persistence in Mutual Fund Performance. *The Journal of Finance*, 52: 57-82.
      - Daniel, Kent, et al. "Measuring Mutual Fund Performance with Characteristic-Based Benchmarks." *The Journal of Finance*, vol. 52, no. 3, 1997, pp. 1035–1058
      - Berk, Jonathan B., and Richard C. Green. "Mutual Fund Flows and Performance in Rational Markets." *Journal of Political Economy*, vol. 112, no. 6, 2004, pp. 1269–1295

- Each student should pick a paper to present. Each student should present for 20 minutes.
  - I will present the paper: Fama, Eugene F. and French, Kenneth R., (2010), Luck versus Skill in the Cross-Section of Mutual Fund Returns, Journal of Finance, 65, issue 5, p. 1915-1947
- **Mixing network analysis and performance evaluation (0.5 hours)**
    - Relevant Reading (no need to read it ahead of time):
    - "Network Centrality and Delegated Investment Performance," Alberto Rossi, David Blake, Allan Timmermann, Ian Tonks and Russ Wermers, Journal of Financial Economics, 2018, 128, 183-206
  - **Individual Investors performance evaluation (1 hour)**
    - Relevant Reading (no need to read it ahead of time):
    - "Does it Pay to Pay Attention?" Antonio Gargano, Alberto Rossi, Review of Financial Studies, Forthcoming

#### **Day 6. 4 hours**

- **Discussing some recent relevant empirical asset pricing papers. I will lead the discussion by presenting some of the main facts and highlighting some of the potential issues:**
  - Asness C, Moskowitz T, Pedersen L (2013) Value and momentum everywhere. Journal of Finance 68(3):929–985
  - Ralph S.J. Koijen, Tobias J. Moskowitz, Lasse Heje Pedersen, Evert B. Vrugt, Carry, Journal of Financial Economics, Volume 127, Issue 2, 2018, Pages 197-225
  - Fan Yang, Investment shocks and the commodity basis spread, Journal of Financial Economics, Volume 110, Issue 1, 2013, Pages 164-184

- Szymanowska M, de Roon F, Nijman T, Goorbergh RVD (2014)  
An anatomy of commodity futures risk premia. Journal of Finance 69(1): 453–482

### **Day 7. 3 hours**

#### **- Students Presentations**

- Present a paper you are working on or would like to work on. Empirical asset pricing would be better, but we can accommodate other fields. The more we move away from asset pricing, the less I will be able to give you useful comments ☺
- Given that we have three students, we will have one hour per student. It would be enough for you to prepare a 30 minutes presentation that could be in part a literature review and in part a proposal of what you would like to research. You will be interrupted during the presentation by me and your class mates. The idea is to help you sharpen your thinking.