

University of Chicago
Booth School of Business

Bus 35120: Portfolio Management

Prof. Lubos Pastor

Spring 2017

Classes	Fri 8:30-11:30am, Harper C03 (Sec.01) Fri 1:30-4:30pm, Harper C03 (Sec.02) Fri 6:00-9:00pm, Gleacher 206 (Sec.81)
Office hours	By appointment
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Course Description

This course presents advanced material related to financial markets, focusing on topics most relevant to portfolio managers. Building on the material covered in Business 35000 (Investments), the course is particularly well suited for students considering careers in the asset management industry. Topics include active versus passive management, mutual funds, pension funds, hedge funds, index funds, ETFs, modern techniques for optimal portfolio selection, liquidity and transaction costs, predictability of asset returns, and investment strategies designed to exploit apparent violations of market efficiency. A substantial part of the course is spent discussing case studies, academic research, and current events.

Prerequisites

The only strict prerequisite is Business 35000. In addition, it is strongly recommended that students have taken either 41000 or 41100, with a preference for 41100 (but either is fine). Students are expected to be comfortable with basic applications of statistics and multiple regression analysis. In every aspect of the course, students must adhere to the Booth Honor Code and the Booth Standards of Scholarship. For example, any plagiarism or using any class material from previous years would violate the Honor Code.

Teaching Assistant & Review Sessions

The teaching assistant for this course is Chuck Boyer, an advanced Ph.D. student in Finance. Chuck will hold weekly review sessions on Wednesdays, first at 4:45-6:00pm at

Harper C03 and then at 7:00-8:15pm at Gleacher 208. We will record Chuck's review sessions and post the video links on Canvas. In his sessions, Chuck will go over some class material as well as answer your questions. The review sessions are the best place to ask Chuck questions; he will have only limited time to answer questions by email (cboyer@chicagobooth.edu). The review sessions will begin in Week 1 (before our first class!). In Week 1, Chuck will go over the basics of the MATLAB software that I recommend for the assignments. Unless you are a MATLAB expert, I recommend that you attend one of the Week-1 review sessions.

Course Web Page

I have set up the course Web page on Canvas: <https://canvas.uchicago.edu/>.

Grading

Your course grade will reflect your performance on the assignments, the final exam, and class participation, with the weights determined as follows:

Final exam	50%
Assignments	40%
Class participation	10%

As discussed below, there are 10 assignments in this course. All assignments will be graded. At the end, I will drop your weakest assignment and compute your assignments score based on your 9 best assignments. Assignment 10 cannot be dropped.

The exam will be closed-book, but you may bring one 8.5" by 11" sheet of paper with anything written on both sides. Calculators are permitted, smartphones are not.

For both the exam and the weekly assignments, only regrade requests pointing to obvious grading errors (such as adding up scores incorrectly) will be considered.

Assignments

There are 10 weekly assignments. The first assignment is due in Week 1 when we meet for the first time. Most assignments include three parts:

- A. One or two case studies, which are to be discussed in the following class
- B. Data analysis, which applies the material discussed in the previous class
- C. Exam-like questions that involve concepts or calculations

For data analysis, you can use any software you like, but I strongly recommend MATLAB. I will provide you with many MATLAB hints to help you along the way. MATLAB is used

in several other advanced finance courses at Booth, and it has been installed on many PCs in both Harper and Gleacher. No prior knowledge of MATLAB is expected of you.

You can work on the assignments in groups of at most four (4) people. Each group should submit only one assignment, clearly listing the names of all group members on the cover page. All group members will earn the same grade on the assignment.

Each assignment must be turned in electronically via Canvas. (Only the first-class assignment can be turned in as a hardcopy, though Canvas is preferred.) Some instructions:

1. You must upload your solutions on Canvas no later than **8:15am** on the day the assignment is due. No late assignments will be accepted.
2. Use a commonly used format such as Adobe Acrobat (pdf—preferred) or Word.
3. No need to upload your MATLAB code (but do explain how you obtained your results).
4. Only one person per group should upload the group's solutions. The file name should be *lastname1–lastname2–lastname3–lastname4.pdf* (or .doc), using the last names of the four students in the group. List all the names also on the cover page.

Readings

All class materials, including case studies and recent research papers, will be posted on the course website. In addition, I am going to distribute my class notes every week.

There is no required textbook. If you are looking for optional books, I recommend two: “Asset Management,” by Andrew Ang, Oxford University Press, 2014, and “Efficiently Inefficient,” by Lasse Pedersen, Princeton University Press, 2015.

Course Outline

Week 1 (March 31, 2017)

- PROPERTIES OF RETURNS

- Distribution of returns
- Multiperiod returns
- Shortfall probability
- Simulations

Week 2 (April 7, 2017)

- RETURN PREDICTABILITY

- *CASE*: The Risk of Stocks in the Long Run: The Barnstable College Endowment
- *CASE*: The Vanguard Group, Inc. in 2006 and Target Retirement Funds
- The cost of insuring against a shortfall
- Forecasting market returns
- Market timing

Week 3 (April 14, 2017)

- PORTFOLIO OPTIMIZATION

- *CASE*: Harvard Management Company and Inflation-Protected Bonds
- Portfolio mathematics
- Mean-variance analysis
- Portfolio constraints
- Bayesian techniques

Week 4 (April 21, 2017)

- MARKET ANOMALIES

- *CASE*: The Dimensional Fund Advisors
- *CASE*: Grantham, Mayo, Van Otterloo & Co.
- The value effect
- The size effect
- The momentum effect

Week 5 (April 28, 2017)

- **LIQUIDITY**

- *CASE*: Yale University Investments Office: February 2011
- *CASE*: Fixed Income Arbitrage in a Financial Crisis: U.S. Treasuries in 2008
- Transaction costs
- The effect of liquidity on asset prices
- Liquidity risk

Week 6 (May 5, 2017)

- **MONEY MANAGEMENT INDUSTRY; PASSIVE INVESTING**

- *CASE*: S&P Indices and the Indexing Business in 2012
- Institutional investors
- Active vs. passive management
- Indexing
- ETFs

Week 7 (May 12, 2017)

- **ACTIVE MUTUAL FUNDS**

- Evaluating fund performance
- The performance-flow relation
- Performance persistence
- Market timing
- Window dressing

Week 8 (May 19, 2017)

- **PENSION FUNDS**

- *CASE*: Pension Policy at the Boots Company PLC
- The pension fund system
- Defined-contribution plans
- Defined-benefit plans

Week 9 (May 26, 2017)

- HEDGE FUNDS
 - *CASE*: The hedge fund industry
 - *CASE*: AQR's DELTA strategy
 - Hedge fund compensation
 - Funds of funds
 - Hedge fund performance

Week 10 (June 2, 2017)

- HEDGE FUND INVESTMENT STRATEGIES
 - *CASE*: Long-Term Capital Management
 - *CASE*: The Quant Meltdown in August 2007
 - Strategies and their risks

Week 11 (June 9, 2016): FINAL EXAM

NOTE on **attendance**: I teach three sections of this class. You are expected to attend the section you are registered for. It is OK to attend a different section occasionally if necessary without notifying me, but not on a regular basis. You must take the exam in the section you are registered for unless you obtain my prior approval by email. I grant such approvals only if you have a very good reason. Back-to-back exams are not a good reason.

NOTE on **early internship start dates**: If your out-of-town summer internship is scheduled to start before our final exam, I am open to the possibility of having you take the exam remotely under appropriate supervision. Please coordinate with the MBA program office.