UNIVERSITY OF CHICAGO
BOOTH SCHOOL OF BUSINESS

Business 35150
Advanced Investments .

Winter 2023

Wednesday 8:30 AM - 11:30 AM, Harper C05 (Section 01)
Wednesday 6:00 PM - 9:00 PM, Gleacher 204 (Section 81)

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Course Description

This course covers advanced topics in investments from a macro asset allocation perspective. We take the perspective of a long-term investor seeking to dynamically allocate investments across broad asset classes such as global equities, corporate and sovereign bonds, and private equity. Building an asset allocation strategy requires an understanding of the dynamics of risk and return in these asset classes. We will use empirical techniques, including return forecasting regressions, shrinkage estimation, and out-of-sample evaluation methods to shed light on these empirical dynamics. Furthermore, we will see how data from investor surveys and on investor flows can be used to assess the state of investor sentiment. To use the empirical evidence in asset allocation decisions, we will extend the mean-variance portfolio choice framework that you encountered in your introductory investments class to analyze multi-period portfolio policies over long horizons. We will also evaluate practical rule-of-thumb approaches such as risk parity and naive diversification strategies. We will explore in detail the use of leverage, volatility derivatives, and tail-risk hedging; macro risk factors linked to interest rates and monetary policy; inflation risk and inflation-protected bonds; bubbly assets (meme stocks, crypto currencies, gold). We will discuss the special challenges that investors face in integrating private equity investments, and other similarly illiquid assets, in an asset allocation framework.

Prerequisites

Business 35000 and 41000 (or 41100) are strict prerequisites for this course. Students must be comfortable with statistics, regression analysis, basic microeconomics (expected utility and risk aversion), basic matrix algebra, and fundamental concepts of investments such as mean-variance analysis in portfolio choice, CAPM, bond valuation, option payoffs, and Black-Scholes.

Problem Sets

There will be four problem sets. You may form groups of up to four students to work on the problem sets. Each group should only submit one problem set solution, with all group members listed on the document.

Software

The problem sets will ask you to do substantial data analysis. I recommend using MATLAB for these problem sets. But are already familiar with statistical analysis in other programming languages (R, python, ...) you are welcome to use these. Our support will focus on MATLAB, but we should be able to help with R and python, too. In any case, if you are familiar with these other languages, it should be fairly easy to adapt from MATLAB code. You do not need prior knowledge of MATLAB for this course. MATLAB will not be needed for the final exam.
MATLAB licenses are available at no cost to all of our students for academic use. Go to
`https://www.mathworks.com/academia/tah-portal/university-of-chicago-719588.html`.
Log in with your Cnet ID and password. In case you encounter difficulties with installation, please contact the Booth helpdesk.

Course materials

There is no required textbook. After every session, I will post detailed lecture notes and slides on Canvas. Readings and supplementary materials will be made available on Canvas as well.

Grades

Your course grade will be based on weekly (online) quizzes, the problem sets, the final exam, and class participation with the following weights:

- Quizzes: 20%
- Problem sets: 30%
- Final exam: 40%
- Class participation: 10%

Office hours

By appointment. Please send me an email to arrange a meeting.

Honor code

Students in this course, as with all Chicago Booth courses, are required to adhere to the standards of conduct in the Chicago Booth Honor Code and the Chicago Booth Standards of Scholarship. The Chicago Booth Honor Code requires students to sign the following Chicago Booth Honor Code pledge, "I pledge my honor that I have not violated the Honor Code during this examination" on the midterm and final exams. **I consider your printed name on an assignment or exam submission a signature of the honor code.** As a result, you do not have to physically sign the assignment.

Accommodations

The University of Chicago is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or think you may have a disability) and, as a result, need a reasonable accommodation to participate in class, complete course requirements, or benefit from the University's programs or services, please contact Student Disability Services as soon as possible. To receive a reasonable accommodation, you must be appropriately registered with Student Disability Services. Please contact the office at 773-702-6000/TTY 773-795-1186 or disabilities@uchicago.edu, or visit the website at `disabilities.uchicago.edu`. If you have an approved accommodation from Student Disability Services

that you plan to use, please contact Academic Services as soon as possible via Accommodations@chicagobooth.edu. Academic Services will provide support and coordinate the details of your accommodations on your behalf.

Outline of Sessions

Below is a preliminary outline of the sessions and topics. We may change this as we go along, depending on our progress.

Session 1: Risk, Return, and portfolio choice: Basic issues

Topics: Return distributions; risk measures; estimation of return moments; optimal portfolio choice with one risky asset

Session 2: Asset allocation

Topics: Portfolio choice with multiple risky assets; estimation of risk and return; shrinkage estimation; rule of thumb approaches (risk parity, 1/N, ...)

Session 3: Empirical dynamics of risk and return

Topics: Stock market valuation models; investor sentiment; return prediction; out-of-sample evaluation of market-timing strategies

Session 4: Investor sentiment and bubbly assets

Topics: Dynamics of expectations of professional forecasters, analysts, individuals, asset managers; fund flows as sentiment indicator; meme stocks and crypto currencies

Session 5: Portfolio choice for long-term investors

Topics: Risk and return in the long-run; growth-optimal portfolio; rebalancing approaches; market-timing approaches

Session 6: Leverage, optionality, and tail risk

Topics: Risk-return properties of leveraged strategies; option-like payoffs from dynamic rebalancing; tail risk hedging; volatility derivatives

Session 7: Bonds, interest rates, monetary policy

Topics: Bond yield factors; expectations hypothesis; short-term interest rate dynamics and monetary policy; bond risk premia; time-varying stock-bond correlation and asset allocation

Session 8: Inflation risk

Topics: Nominal and real assets; inflation risk hedging; inflation-protected bonds; inflation and exchange rates; inflation expectations; fiscal crises, inflation and sovereign default

Session 9: Private equity

Topics: Performance evaluation in PE; risk and return of PE; PE in asset allocation; liquidity risk