Introduction

Mark Hendricks

Autumn 2024

FINM 36700: Portfolio Management

Outline

THE UNIVERSITY OF CHICAGO

Why this class?

- Foundations of quant finance
- Cutting-edge tools
- Focus on application

THE UNIVERSITY OF CHICAGO

Objectives

- Attribution
- Risk scenarios
- Replication and Decomposition
- No-arbitrage Pricing
- Forecasting
- Portfolio optimization

THE UNIVERSITY OF CHICAGO

Tools

Tools include

- Parametric and non-parametric methods
- Simulation
- Dimension reduction
- Machine Learning

THE UNIVERSITY OF CHICAGO

Quant Finance

- Know the market
- Model it mathematically
- Estimate it statistically
- Implement it computationally
- Communicate your results

THE UNIVERSITY OF CHICAGO

Career areas

- Investment allocation
- Risk management
- Trading
- Computational finance

THE UNIVERSITY OF CHICAGO

Who am I?

10+ years of teaching experience.

- Taught at the
  - Master of Financial Math
  - Master of Applied Data Science
  - Booth School of Business
  - Economics Department
- Associate Senior Instructional Professor in the Department of Mathematics.

10+ years of industry experience

- quant research and implementation for hedge funds
- consulting for various financial and non-financial firms
- advising and training for trading firms

THE UNIVERSITY OF CHICAGO

Portfolio Management Procedure

1. Define the security universe
2. Model security risk and performance
3. Forecast returns
4. Define the portfolio's objective
5. Define portfolio's constraints
6. Simulate the candidate portfolios
7. Optimize among the portfolios
8. Assess the constructed portfolio's performance

THE UNIVERSITY OF CHICAGO