MFE230K – Dynamic Asset Management
Hayne Leland

**Time, Site:**
T TH 2:00 – 4:00 pm

**Instructor:**
Hayne Leland, Arno Rayner Professor of Finance
F688, Faculty Wing
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**Leland Office Hrs:**
TH 10:30 – 12:00 am

**TA**
TBD

**Readings:**
Most readings available on Study.net (password required)
Course website on Catalyst; lectures will be posted there before class


*Readings with an asterisk (*) are optional*, but provide interesting background and formalisms for the results discussed in the lectures.

**Fun background reading:**
P. Bernstein, *Capital Ideas: The Improbable Origins of Modern Wall Street*

N. Taleb, *Fooled by Randomness: The Hidden Role of Chance in Life and in the Markets*

N. Taleb, *The Black Swan: The Impact of the Highly Improbable*

B. Schacter & R. Lindsey (eds.), *How I Became A Quant: Insights from 25 of Wall Street’s Elite*

**Grading:**
Three homework assignments: 50%
Group Projects: 50%

**Brief Description:**
The course examines principles of portfolio choice, recognizing that in the real world, trading is costly, information is imperfect, and there may be substantial risks of extreme events. We show how dynamic strategies, options, and other derivatives can be used to cater to different investor risk appetites, time horizon, and hedging needs. How best to use superior information, and how to implement dynamic strategies in a cost-efficient manner, are also considered. Required coursework includes homework assignments and a major project, with topic(s) to be assigned, that will be completed by groups of four or five students.
I. Introduction: Institutional Setting of Asset Management

A. Sources of Saving:

Individuals
Regular Accounts
Retirement Accounts and special tax treatments
    Regular IRA
    Roth IRA

Pension Funds
Defined Benefit vs. Defined Contribution (401(k)) Plans
Corporate vs. Individual Contributions
Tax Rules
ERISA and “Prudent Investor” Rule
PBGC

Insurance Companies
Foreign Sources
    National investment funds

B. Asset Management: Institutional Investors

1. Mutual Funds: Investment Companies

    Index Funds
    Actively Managed Funds
    Regulation: 1940 Act, enforced by SEC
    Performance Evaluation (Morningstar)

2. Exchange-Traded Funds (ETFs)

3. “Alternative” Investment Funds

    Hedge Funds
    Private Equity
    Real Estate
    Venture Capital
    Vulture Funds

4. Investment Advisors

    Banks, Insurance Companies, Brokerage Firms
    Consultants (e.g. Russell, Wilshire)

Background Sources

General/Banking/Insurance: http://www.financialservicefacts.org/
Mutual funds: http://www.ici.org/
Exchange Traded Funds: http://www.ici.org/aboutfunds/etf_faqs.htm
ERISA/PBGC: http://benefitslink.com/erisa/crossreference.html
2. **Portfolio Choice in Static Models: Mean-Variance Analysis**

*a. Portfolio Choice in a Mean-Variance World: A Review*

- Assets and asset returns
- Mean-Variance preferences
- Rationales
- Limitations

**Portfolio Optimization**

- Two fund separation
- The Sharpe ratio
- Certainty equivalence
- Portfolio constraints: short sales, etc.

**Asset-Liability Management**

- CAPM equilibrium
  - The role of the market portfolio
  - Risk measures and return

**Readings:**
- Class Notes; Campbell & Viceira, Ch. 1 and Ch. 2 thru Section 2.1.1
- S. Andrade handout on M-V frontier

*b. Active Asset Management*

- Sources of alpha
- Impounding “alpha” into portfolio choice
- Benchmarks and Tracking Error
- The “Information Ratio” and its uses
- “Portable alpha” and market-neutral strategies

**Tactical Asset Allocation**

**Readings:**
- Class Notes

*d. Performance Measurement and the CAPM*

- Alpha and the Sharpe Ratio
- Performance attribution: Market timing vs. security selection
- Style Analysis

**Readings:**
- Class Notes
2. Portfolio Choice: A General Approach

a. A General Description of Uncertainty

States of nature
State-contingent claims
Complete markets
The (no) Arbitrage Principle

Readings: Class Notes

b. Expected Utility Theory

Measures of Risk Aversion
Optimal Portfolio Selection

Readings: Class Notes
Campbell & Viceira, remainder of Ch. 2

c. The Representative Investor and Asset Pricing

The Representative Investor: conditions for existence
Complete Markets
Incomplete Markets
The Representative Investor and state prices:
Pricing Implications of optimally holding the market portfolio
Special Cases: HARA, CAPM
Formulas for state prices

Readings: Class Notes

d. Performance Measures: Beyond Mean-Variance

Theory
Hedge Fund Performance Measurement

Readings: Class Notes


3. **Dynamic Portfolio Choice In Discrete and Continuous Time**

   a. **Utility Maximization and Martingale Methods for Optimal Portfolio and Consumption Choice**

      Myopic vs. strategic behavior
      Hedging the opportunity set

      **Readings:** Class Notes

   b. **General Characteristics of Optimal Strategies**

      Self-financing
      Path Independence
      Improving on path-dependent strategies

      **Readings:** Class Notes based on

   c. **Alternatives to Expected Utility Theory**

      Choosing from payoff functions
      From payoffs to strategies—optimal portfolio choice
      From strategies to payoffs—the inverse function

      **Readings:** Class Notes
4. **Long Run Strategic Asset Allocation**

Campbell and Viceira, Chs. 3 – 6 (skim)

5. **Active Management: Value vs. Momentum Strategies**

Strategies providing convex vs. concave payoffs
Portfolio insurance and convexity of payoffs
Who Should Buy Portfolio Insurance? Who Should Sell?
Momentum vs. Value strategies
Some empirical evidence

**Readings:**
- Class Notes based on

6. **What Can Go Wrong**

Jump Moves; discontinuities
Simultaneous strategies

**Readings:**

**7. Optimal Portfolio Choice with Transactions Costs**

**Readings:**
- Class Notes based on
  Also,

**If time permits**