Investment Analysis

Mini S4, 1999

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Welcome Back!

Course Objectives

Basic tools used by investment professionals:

1. term structure: definitions and interest rate risk management
2. optimal risky portfolios: mean–variance and 'factor' models
3. apply equilibrium models to strategies/portfolios
4. performance measurement

Evaluation

1. Homeworks — 20% 4-5, work in groups
2. Project — 20%, work in groups
3. Final Exam — 60%

Readings

- *Investments* by Bodie, Kane and Marcus
- course package

TA Session

Wednesdays
Time?

Topics

- Introduction
- Term Structure
- Bond Portfolio Management
- Options (?)
- Portfolio Mechanics
- Optimal Portfolios
- Equilibrium Models
- Performance Evaluation

Introduction

Objectives

- explain basics of investment process
- basic asset classes
- issues in index construction
- basic trading terminology
- explain how margin trading works

Major Ideas and Consequences

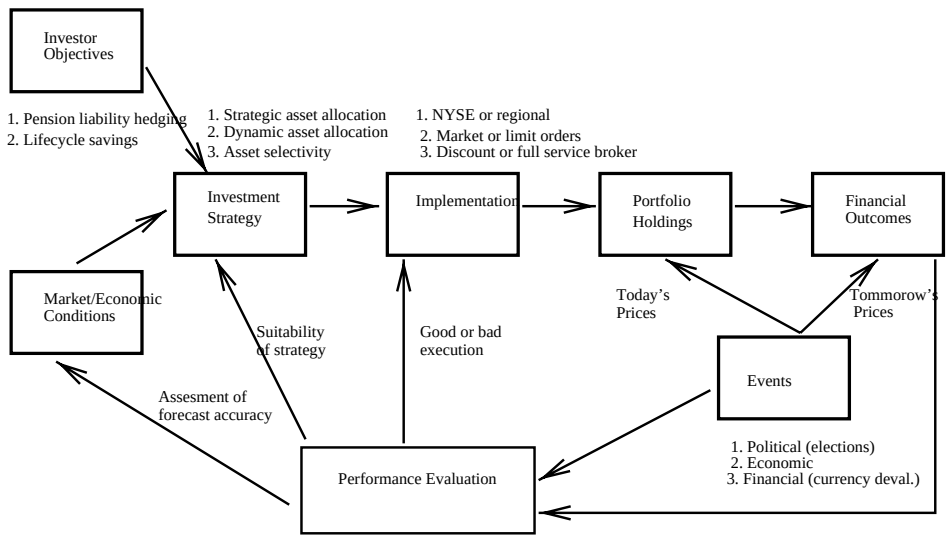
1. Efficient Markets Hypothesis
   - optimally structured portfolios not 'beat the market'
   - more complex stuff?
2. Diversification
   - top down vs bottom up
   - indexation
   - globalization

3. Equilibrium Models
   - risk/return trade–off
4. Statistics
   - Quantitative vs. fundamental and technical analysis
   - benchmarks
   - statistical return decompositions

5. Derivative Securities
   - financial engineering
   - customized securities/new markets
6. Technology
   - computers
   - speed

7. Institutionalization
   - sharing fixed costs
   - increased trading activity
8. Internationalization
   - F/X
   - Increased diversification
   - Information improves

Investment Process



Major Asset Classes

- Debt
  - Money market
  - Bonds
- Common Stock
- Preferred Stock
- Derivatives

Asset Indexes

- Uses
  - track average returns
  - comparing performance of managers
  - base of derivatives
- Factors in construction
  - representative?
  - broad or narrow?
  - how is it constructed?

Examples of Indexes—Domestic

- DJIA (30 Stocks)
- S &P 500 Composite
- NASDAQ Composite
- NYSE Composite
- Wilshire 5000

Construction of Indexes

- How are stocks weighted?
  - Price weighted (DJIA)
  - Market value weighted (S&P 500, NASDAQ)
  - Equally weighted (Value Line Index)
- How are returns averaged?
  - Arithmetic (DJIA, S&P)
  - Geometric

Averaging Method

- Component Returns:

$$A = 10\% \quad B = -5\% \quad C = 20\%$$

- Arithmetic Average

$$\frac{[0.1 + (-.05) + 0.2]}{3} = 8.33\%$$

- Geometric Average

$$[(1.1)(0.95)(1.2)]^{\frac{1}{3}} - 1 = 7.84\%$$

Derivatives

- Options
- Futures

Trading

- Organization of Markets:
  - organized exchanges
  - OTC
  - Third Market
  - 4th Market

Organized Exchanges

- auction markets
- dealers
- Securities: stocks, futures contracts, options, bonds (somewhat)
- Examples: AMEX, NYSE, CBOE

OTC Market

- dealer market w/out centralized order flow
- NASDAQ: largest
- Scandal?
- Stocks, bonds, and some derivatives

Trading Costs

- Commission: paid to broker
- spread: cost of trading with dealer
  - bid: dealer buys
  - ask: dealer sells

Order Types

- basic idea:
- Market:
- Limit
- Stop loss

Margin Trading

- Maximum margin
  - currently 50%
  - set by Fed
- Maintenance margin
  - minimum equity margin can be
- margin call:

Example–Initial Conditions

Yahoo	\$70
50%	Initial Margin
40%	Maintenance Margin
1000	Shares purchased
Initial Position	
Stock	\$70,000
Borrowed	\$35,000
Equity	\$35,000

Maintenance Margin

- Stock Price falls to $60 per share
- New position:
  - Stock $60,000
  - Borrowed $35,000
  - Equity $25,000
- Margin = 25,000/60,000 = 41.67%
- Margin call: margin must drop to 40%. How much should price drop?

Summary

- introduction to investment process
- basic security classes
- index formation
- brief trading discussion
- margins

Next Time

- introduction to bonds
- references: Cougars case, Term Structure by Kritzman (readings), Text: Ch. 15, pages: 436–444