Capital Markets and Investments - B7306-001-20142
Summer 2014
Warren 311

PROFESSOR MARK ZURACK

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REQUIRED COURSE MATERIAL

Investments
Zvi Bodie, Alex Kane, and Alan J. Marcus, ninth edition (BKM)
The Practical Guide to Wall Street: Equities and Derivatives
Matthew Tagliani, 2009

Selected Readings Bound as a Casebook (Assignments to be handed out)

REQUIRED PREREQUISITES AND CONNECTION TO THE CORE

CONNECTION WITH THE CORE

Capital Markets and Investments builds on knowledge from the Corporate Finance, Managerial Statistics, and Decision Models courses to understand asset valuation and investment decisions. Capital markets uses and builds upon the basic valuation tools developed in Corporate Finance such as arbitrage valuation, time value of money, understanding risk-return tradeoffs, the CAPM, and asset valuation. In analyzing various markets and assets, Capital Markets uses a large amount of material from Statistics, including the following: statistical modeling, random variables and distributions, parameter estimators, hypothesis testing, and regression. Optimization methods and stochastic modeling tools from Decision Models are also widely used, especially in portfolio construction and risk control. There are also some connections, though to a lesser degree, with Global Economic Environment especially in the Fixed Income Unit in discussing bond markets and the role of central banks and monetary policy.
 COURSE DESCRIPTION AND OBJECTIVES

This course has two purposes: (1) To introduce the principles of asset valuation from an applied perspective, and (2) To introduce different techniques to manage investment portfolios. It is designed to provide you sufficient background to understand current events in Global Markets, take more advanced Finance classes in the school, as well as give you a framework to manage your own assets.

The course breaks down into four areas:

- **Asset Allocation** - Reviews different quantitative techniques used to measure returns and risk. Compares long term behavior of different asset classes and how investors allocate their wealth across Asset Classes.

- **Equity Markets** - Covers theory on valuing individual stocks as well as constructing stock portfolios. We also touch on the different forms of both active and passive investing.

- **Fixed Income Markets** - Teaches basic bond valuation focusing on the term structure of interest rates as well as notion of forward rates as well as the evaluation of credit and call risk. Compares risk and return of different types of fixed income securities like Government Bonds and Bills, Corporate Bonds, and other Sovereign Securities.

- **Derivatives Markets** - The valuation and use of futures and options markets are introduced.

The materials will be delivered through a combination of lectures, guest speakers, case studies and readings.

ASSIGNMENTS

All assignments must be completed in writing and those done in groups should have each group member contributing to every group assignment. Some assignments will be Type A, some Type B. Collaboration across groups is not allowed.

METHOD OF EVALUATION

<table>
<thead>
<tr>
<th>Class Participation and Assignments</th>
<th>40%</th>
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</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td>Final Project</td>
<td>20%</td>
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An important component of Class Participation is attendance. I reserve the right to downgrade (including failing) any student who misses a significant number of classes, or does not complete all of the assignments. I will try to avoid cold calling, with the exception being case discussions. During class, please do not use laptops, tablet computers, and smartphones. Exceptions will be made with my prior approval.

The Final Project includes an oral presentation which is given to me. Attendance by all group members is mandatory. Note that I will find a time that works for you. We can meet any time after August 16th. However, part of the project requires knowledge of options pricing and strategy, a topic we will complete on August 16th.
Course Outline

1. The Tools of Investing/Asset Allocation (05/16, 8:30am - 11:30am)

   After a brief discussion on the structure of the course, the class begins by exploring the metrics used to evaluate public investments. We go over return measures like Arithmetic and Geometric averages, and risk measures like Variance, Standard Deviation and Correlation. We then define what an Asset Class is and the different Asset Classes used to construct an investment portfolio.

   The class then explores the process of determining what percent of an overall portfolio should be allocated to each asset class. This requires understanding not only the returns and risk of each asset class, but also how the correlation of different asset classes affects the overall risk of the portfolio.

   Readings:
   - Chapter 5, p. 127-136, and p. 139-142, BKM
   - Glossary, BKM
   - MSCI Developed, Emerging and Frontier Markets
   - Greece Ousted from Index of ‘Developed’ Countries
   - Issues in Strategic Asset Allocation
   - What Is a Hedge Fund, Anyway?
   - Hedge Funds 101

2. Asset Allocation – Guest Speaker (05/17, 11:30am – 12:30pm in 107 Warren basement; 12:45pm – 2:30pm in Warren 311)

   In addition to completing our discussion on Asset Allocation, Dan Egan from Betterment, an online Asset Management Company, will describe the genesis of Betterment, provide an overview of how its assets are managed and take questions.

   Guest Speaker: Dan Egan, Betterment

   Readings:
   - How to Get Investment Advice for Less Online

   Assignments:
   Assignment (1) – Asset Allocation Introduction (alone)

3. Case Study/Equity Valuation (05/31, 12:30pm – 3:30pm)

   By studying the issues faced by the Yale Endowment Fund in developing an asset allocation strategy this class attempts give you a real world perspective on how both institutions and individuals construct investment portfolios.

   The second half of the class focuses on ways to value individual equities. We start by describing basic measures like market vs. book and intrinsic value, then explore the use of dividend discount and price/earnings models.

   Readings:
   - Chapter 18, BKM
   - Negative Real Interest Rates
• Valuation Triangulation
• Yale University Investments Office: February 2011
• The Yale Endowment 2013
• Norway: The New Yale?

Assignments:
Assignment (2) - Questions on Yale Case (group)

4. Going from Stocks to Portfolios (06/13, 3:45pm - 6:45pm)

We start the class by exploring the process of constructing an investment portfolio. We reinforce the virtues of diversification and describe how portfolios are constructed. We explore the Capital Asset Pricing Model (CAPM), a theory which is the basis of modern investing. We then discuss how investment managers who do not believe the market is efficient use quantitative techniques to optimally trade off risk and return.

Readings:
• Chapter 9, BKM
• The Arithmetic of "All-In" Investment Expenses
• The Winners' Game
• If You Can't Beat 'Em
• GM Asset Management and Martingale’s Low Volatility Strategy
• Investor, Know Yourself
• Vanguard – Investor Questionnaire

Assignments:
Assignment (3) - Equity Valuation (alone)

5. Equity Indices and Exchange Traded Funds (06/14, 8:30am - 11:30am)

This class explores how to manage a passive portfolio focused on the use of Exchange Traded Funds.

Readings:
• Chapters 4 & 6 - Tagliani

NO CLASS (06/27, 3:45pm - 6:45pm)

6. Valuation from a Practitioner's Perspective/Equities Trading (07/11, 11:30am - 12:30pm in Uris 142; 12:45pm - 2:30 in Warren 311)

We start the class with Adam Parker of Morgan Stanley who leads a discussion on the use of Quantitative models in Equity Valuation.

The class then explores why trading is an important part of the investment process. We review who the main participants are in trading equities and what function they serve in the marketplace. We then cover how to trade stocks, focusing on the different types of orders that are placed and where those orders are executed.
We end by reviewing historical events like the "Flash Crash" of 2010 that have resulted in regulatory change to Equities Markets.

**Guest Speaker:** Adam Parker, Morgan Stanley

**Readings:**
- Chapter 3 – Tagliani
- Findings Regarding the Market Events of May 6, 2010

**Assignments:**
Assignment (4) – Portfolio Analysis/Flash Crash (group)

7. Introduction to Fixed Income/The Term Structure of Interest Rates (07/12, 3:45pm – 6:45pm)

The course leaves Equities and moves on to Fixed Income Markets. We review the different types of securities that exist in fixed income markets. Then we show why a bond's price must be the present value of its coupons and return of principal. We review the relationship of prices and yields and discuss reinvestment and early unwind risk.

Next I introduce the notion of the term structure of interest rates. That brings us to forward rates, their computation, interpretation (expectations hypothesis) and how they may be created by detailing a series of transactions which has the effect of locking in a specific forward rate. We use this knowledge to understand the expected future return of owning bonds.

**Readings:**
- Chapter 14, p. 439-459, and Chapter 15 – BKM
- Large Institutions Discuss New Marketplace for Bonds

8a. Guest Speaker on Corporate Bonds and Credit Risk (7/25, 11:30am – 12:30pm in Uris 142)

Henry Adkins from JP Morgan reviews how an investor evaluates credit risk and how that risk translates into a higher yield than what is paid on a comparable Treasury.

**Guest Speaker:** Henry Adkins, JP Morgan

**Readings:**
- Chapter 14, p. 461-468 – BKM

9. Duration and Convexity (7/26, 3:45pm – 6:45pm)

The class begins with a discussion on the use of duration as a measure of bond price sensitivity to interest rate changes. We examine how this measure can be used to assist in the risk management of a portfolio of bonds. We move onto convexity, which provides further insight into the risk management of bond portfolios.

**Readings:**
- Chapter 16 – BKM

10. Futures and Swap Markets (08/01, 8:30am – 11:30am)

The course moves on to Derivatives, starting with futures. My discussion on futures will focus on Stock Index Futures, with specific discussion focusing on how futures are traded and valued. We
then discuss how equity swaps are used to leverage long positions on individual stocks and establish short stock positions.

Readings:
- Chapter 8, p. 267-280 – Tagliani
- Mechanics of the Equity Lending Market

Assignments:
Assignment (5) – Bond Pricing (group)

Exams: Exam Handed Out

8b. Guest Speaker on International Fixed Income and Currencies (8/1, 11:30am – 12:30pm in 107 Warren basement)

Philip Guarco from JP Morgan reviews the currency risks inherent in all non-dollar investments, focusing on fixed income markets.

Guest Speaker: Philip Guarco, JP Morgan

11. Options Markets – Introduction and Valuation (08/15, 12:30pm – 3:30pm)

In this class I introduce options trading, basic strategies and valuation, the later topic can get fairly complex. Although options pricing cannot be explained without any formulas, I try to provide you intuition on what drives pricing leaving out the higher mathematics.

Readings:
- Chapter 9, p. 299-323; 337-341 – Tagliani
- The New CBOE Volatility Index – VIX

Exams: Exam Due (8/15)

12. Options Strategies/Fixed Income Securities with Embedded Options (08/16, 8:30am – 11:30am)

This class presents a broad overview of the Options strategies most frequently followed by investors. It then explores different types of Fixed Income Securities and Derivatives, specifically Structured Notes, Credit Default Swaps, Callable Bonds and Convertible Bonds.

Readings:
- Tutorial on Using Options in Active Strategies