Capital Markets – B7306-007-20141
Spring 2015
Tuesdays, 6:00pm – 9:00pm
Warren 311

PROFESSOR MARK ZURACK
Office Location: 211 Uris Hall
Office Phone: 212-854-6100
Fax: 212-932-8614
E-mail: mz2015@columbia.edu
Office Hours: (Email Julie Adams at ja2403@columbia.edu to schedule an appointment)

TEACHING ASSISTANT: Linda Chew: lchew15@gsb.columbia.edu

REQUIRED COURSE MATERIAL
Investments
Zvi Bodie, Alex Kane, and Alan J. Marcus, tenth 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

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 Markets 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.

- **Derivative 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. A group should consist of no more than 4 students. Some assignments will be Type A, some Type B.

For Type A assignments, each student must participate in a group discussion regarding the assignment before submission and review and if needed edit the final submission. **Collaboration across groups is not allowed.**

For Type B Assignments, each student should attempt to answer the questions on their own before collaborating with other students.

METHOD OF EVALUATION

<table>
<thead>
<tr>
<th>Class Participation and Assignments</th>
<th>40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td>Final Project</td>
<td>20%</td>
</tr>
</tbody>
</table>

An important component of Class Participation is attendance which will be tracked. 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.
Course Outline

1. The Tools of Investing/Asset Allocation (01/06)

   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. 127-137, BKM
   - Glossary, BKM
   - MSCI Developed, Emerging and Frontier Markets
   - Issues in Strategic Asset Allocation
   - Hedge Funds 101

2. Asset Allocation – Guest Speaker (01/20)

   After completing our discussion on Asset Allocation, a guest speaker will provide an overview of how its company's assets are managed and take questions.

   Guest Speaker: TBD

   Readings:
   - How to Get Investment Advice for Less Online

   Assignments:
   Assignment (1) - Asset Allocation Introduction (Type B)

3. Case Study/Equity Valuation (02/03)

   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 continues our discussion 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. Then I will introduce portfolio construction.

   Readings:
   - Yale University Investments Office: February 2011
   - The Yale Endowment 2012
   - Norway: The New Yale?
   - Chapter 18, p. 591-623, BKM
   - Valuation Triangulation

   Assignments:
Assignment (2) - Questions on Yale Case (Type A)

4. Going from Stocks to Portfolios (02/10)

During the first half of the class, Narv Narvekar will discuss how the Columbia University Endowment is managed.

The second half of the class continues our discussion on portfolio construction. 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.

Guest Speaker: Narv Narvekar, Columbia University Endowment CIO

Readings:
- Chapter 9, BKM
- The Arithmetic of “All-In” Investment Expenses
- If You Can’t Beat ‘Em
- Why Did Wall Street Crash and Warren Buffet Prosper?
- GM Asset Management and Martingale’s Low Volatility Strategy
- Investor, Know Yourself

Assignments:
Assignment (3) - Equity Valuation (Type B)/Martingale Case (Type A)

5. Valuation from a Practitioner's Perspective/ Introduction to Fixed Income (02/17)

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

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.

Guest Speaker: Adam Parker, Morgan Stanley

Readings:
- Chapter 14, p. 445-467 – BKM

Assignments:
Assignment (4) - Portfolio Analysis (Type A)

6. The Term Structure of Interest Rates/Duration and Convexity (02/24)

This class begins by introducing 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.
The class continues 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 15; Chapter 16, p. 515-528 - BKM

7. Guest Speakers on Corporate Bonds and Credit Risk/International Fixed Income and Currencies (03/03; 6:00 - 9:30)

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

His colleague, Henry Adkins from J.P. Morgan then 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 Speakers: Philip Guarco and Henry Adkins, J.P. Morgan

Readings:
- Chapter 14, p. 468-475 - BKM

Assignments:
Assignment (5) - Bond Pricing (Type A)

Exams: Exam handed out

8. Futures and Swap Markets (03/24)

The course moves on to Derivatives, starting with Exchange Traded Funds and 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 7, p. 217-226, p. 233-240 - Tagliani
- Chapter 8, p. 267-280 - Tagliani
- Mechanics of the Equity Lending Market

Exams: Exam due

9. Options Markets - Introduction and Valuation (04/07)

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:
- Chapters 4 & 6; Chapter 9, p. 299-323; 337-341 - Tagliani
10. Options Strategies/Fixed Income Securities with Embedded Options (04/14)

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

Assignments:
Assignment (6) – Futures, Swaps and Options Valuation (Type A/Type B)

11. The Future of Capital Markets/Equities Trading and the Flash Crash (04/21)

A guest speaker will provide their perspective on possible changes in Capital Markets, emanating from regulations and technology.

We then explore 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: TBD

Readings:
- Chapter 3 - Tagliani
- Findings Regarding the Market Events of May 6, 2010
- Enhancing Our Equity Market Structure

12. Final Project (04/28)

Each group will need to schedule 20 minutes with me to present their final project.