**Capital Markets & Investments – B7306-001-20162**

**Summer 2016**

**Fridays and Saturdays**

**Warren 310\***

**PROFESSOR MARK ZURACK**

**Office Location:** 211 Uris Hall

**Office Phone:** 212-854-6100

**Fax:** 212-932-8614

**E-mail:** [mz2015@columbia.edu](mailto:mz2015@columbia.edu)

**Office Hours:** (Email Julie Adams at [ja2403@columbia.edu](mailto:ja2403@columbia.edu) to schedule an appointment)

**TEACHING ASSISTANTS:** 001: Anish Borkar: ABorkar17@gsb.columbia.edu

002: Aref Bolandnazar: [MBolandnazar20@gsb.columbia.edu](mailto:MBolandnazar20@gsb.columbia.edu)

**\***On Friday, May 13 both sections meet in **Warren 207**. On Friday June 17, Class Section 001 only meets in **Warren 207**.

**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 are on electronic reserve in the Watson Library and accessible through the Library Reserves tab in Canvas.

**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 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.

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. Readings are held on electronic reserve in the Watson Library through Canvas.

**ASSIGNMENTS**

**All assignments must be completed in writing and most should be done in groups with each group member contributing to every group assignment.** 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 in your section or another section is not allowed.**

For Type B assignments, each student should attempt to answer the questions on their own before collaborating with other students. Each student should hand in their own submission for Type B assignments.

**METHOD OF EVALUATION**

|  |  |
| --- | --- |
| Class Participation and Assignments | 40% |
| Take-home Exam | 35% |
| Final Project | 25% |

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.

Notice that there is a Final Project in the Method of Evaluation. The Final Project is an oral presentation in response to a case study I will hand out toward the end of the semester. Each group will meet with me for 20 minutes at a mutually convenient time to present your project. Attendance is mandatory.

**GUEST SPEAKER SERIES**

In order to give you access to industry leaders in Capital Markets, there will be 4 guest speakers during the course.

Below are the speakers that have agreed to participate and the dates they are coming to speak:

* May 20th – Dan Egan, Betterment
* July 8th – Phil Guarco, JP Morgan
* August 5th – Henry Adkins, JP Morgan
* August 19th – Adam Parker, Morgan Stanley

The Dan Egan presentation will take place in Warren L-107 (basement). I hope that room will be available for all of our speakers. Presentations run from 11:30-12:30 and lunch will be served near the presentation room.

Although it is not “required” that you attend the speaker series, all of my Capital Markets courses incorporate outside speakers and students usually find what they have to say very beneficial.

**PRE-RECORDED CLASSES**

As part of a course I recently taught, I pre-recorded four classes that are part of Capital Markets.

All of the material covered in these classes will be discussed LIVE in class. However, feel free to use the following pre-recorded classes as review material if needed.

**Pre-recorded Class 1:** The Tools of Investing

This 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.

**Pre-recorded Class 2:** Portfolio Construction, Beta, Systematic and Non-Systematic Risk

In this class, we review the calculations used in the Portfolio section of Equities.

**Pre-recorded Class 3:** Introduction to Fixed Income Markets and Bond Pricing

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.

**Pre-recorded Class 4:** Options Introduction

In this class I describe the workings of the options market and introduce strategies and valuation.

**COURSE OUTLINE**

1. The Tools of Investing/Asset Allocation (Friday, 05/13, 8:30am – **Class meets in Warren 207)**

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, pp. 127-137, BKM
* Glossary, BKM
* Issues in Strategic Asset Allocation (Litterman, Robert B.), pp. 104-109
* Hedge Funds 101 (Schwager, Jack D.), Chapter 11, pp. 195-210 (click on “Click here for full text” on the Reserves page)

2. Asset Allocation/Equity Valuation (Saturday, 05/14, 8:30am)

After completing Asset Allocation we move onto 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, pp. 591-623, BKM

Assignments:

Assignment (1) – Asset Allocation Introduction (Type B)

3. Case Study/Going from Stocks to Portfolios (Saturday, 05/21, 8:30am)

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.

Next we explore the process of constructing an investment portfolio. We start by reinforcing the virtues of diversification then describe how portfolios are constructed. We review 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:

* [Yale University Investments Office: February 2011](https://cb.hbsp.harvard.edu/cbmp/pl/49580899/49580901/35b4acf2f1869d72e9cc4c3aeb4995ed) (<https://cb.hbsp.harvard.edu/cbmp/pl/49580899/49580901/35b4acf2f1869d72e9cc4c3aeb4995ed>
* The Yale Endowment 2014 (Yale University)
* Norway: The New Yale? (Zweig, Jason)
* Chapter 9, BKM
* The Arithmetic of “All-In” Investment Expenses (Bogle, John C.)
* If You Can’t Beat ‘Em (Silver, Nate) Chapter 11, pp. 329-369
* Why Did Wall Street Crash and Warren Buffet Prosper? (Cain, Susan) Chapter 7, pp. 155-177
* Investor, Know Yourself (Statman, Meir)

Assignments:

Assignment (2) – Questions on Yale Case (Type A)

4. Going from Stocks to Portfolios (continued)/Equity Indices and Exchange Traded Funds (Friday, 06/17, 8:30am)

After completing our discussion on portfolio construction, we explore how to manage a passive portfolio focused on using Exchange Traded Funds.

Readings:

* Chapters 4 & 6 – Tagliani

Assignments:

Assignment (3) – Equity Valuation (Type B)

5. Introduction to Fixed Income Markets/The Term Structure of Interest Rates (Friday, 07/08, 3:45pm)

After reviewing Assignment 4, 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.

We next introduce the notion of yield curves and the term structure of interest rates. That brings us to forward rates, their computation, interpretation, 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, pp. 445-467; Chapter 15 – BKM
* [GM Asset Management and Martingale’s Low Volatility Strategy](http://www8.gsb.columbia.edu/caseworks/ProfessorMarkZurack/b570) (<http://www8.gsb.columbia.edu/caseworks/ProfessorMarkZurack/b570>)

Assignments:

Assignment (4) – Portfolio Analysis, Martingale Case (Type A)

6. Duration and Convexity/Stock Index Futures (Friday, 07/22, 12:30pm)

This class starts 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.

The course then 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.

Readings:

* Chapter 14, pp. 468-475; Chapter 16, pp. 515-528 – BKM
* Chapter 7, pp. 217-226, pp. 233-240 – Tagliani

Assignments:

Assignment (5) – Bond Pricing (Type B)

**Exams: Exam handed out**

7. Equity Swaps/Introduction to Options (Friday, 08/05, 8:30am)

We start the class by introducing Swaps and describing how Equity Swaps are used to leverage long positions on individual stocks and establish short stock positions.

The class moves on to Options, starting with basic strategies and introducing valuation.

Readings:

* Chapter 8, pp. 267-280 – Tagliani
* Mechanics of the Equity Lending Market (Cohen, Jeff), Chapter 2, pp. 9-16

**Exams: Exam due**

8. Options Valuation (Saturday, 08/06, 3:45pm)

Although options valuation can be complex, I try to provide you intuition on what drives pricing leaving out the higher mathematics.

Readings:

* Chapter 9, pp. 299-323; 337-341 – Tagliani

9. Options Strategies/Fixed Income Securities with Embedded Options (Friday, 08/19, 3:45pm)

This class starts by presenting a broad overview of the Options strategies most frequently followed by investors.

We then explore 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 (Tsu, Maria E.)

Assignments:

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

10. Trading/Flash Crash/Dodd Frank (Friday, 08/26, 12:30pm)

The course ends with trading followed by a broad discussion on the future of Capital Markets. We start with a review of who the main participants are in trading equities and bonds and what function they serve. We then cover how to trade, focusing on the different types of orders that are placed and where those orders are executed.

I then review historical events like the "Flash Crash" and “Dodd-Frank Act” of 2010 that have resulted in regulatory change to Equities and Fixed Income Markets.

Readings:

* Chapter 3 – Tagliani
* Findings Regarding the Market Events of May 6, 2010 (CFTC & SEC), Executive Summary only, pp. 1-8 (<http://www.cftc.gov/idc/groups/public/@otherif/documents/ifdocs/staff-findings050610.pdf>)
* Enhancing Our Equity Market Structure (White, Mary Jo)