Economics 471/571 Prof. Tim Bollerslev
Spring 2017

Financial Markets and Investments

Course Objectives and Outline

This course is concerned with the choice and evaluation of investment strategies and portfolio management. The goal of the course is to provide you with a deeper understanding and appreciation of the complex questions and tradeoffs facing any investor, along with the necessary theoretical background for critically evaluating alternative investment strategies and the modern literature on investments. That is, the course is designed to provide you with a conceptual framework for analyzing investment decisions; not a recipe for how to make a quick buck on Wall Street. The topics covered, time permitting, include:

I. Portfolio Theory and Asset Allocation

II. Portfolio Theory and Asset Allocation: Some Practical Considerations

III. Risk and Return in Equilibrium: The Capital Asset Pricing Model (CAPM)

IV. The CAPM: Empirical Evidence

V. Multi-Factor Models and the Arbitrage Pricing Theory (APT)

VI. Performance Evaluation

VII. Market Efficiency and Return Predictability

VIII. Options

Course Requirements

The treatment of uncertainty is essential to investment management. Consequently, the course will entail the use of a number of different statistical tools, ranging from the notion of probability distributions through linear regression analysis. The prerequisites for the course are Economics 205D (105D) or Economics 372 (172), and a statistics course, such as Statistics 103, 104, 113 or 114.

Course Evaluation

Your course grade will be based on two group homeworks, a midterm quiz, and a final exam. The group homeworks and the midterm quiz are optional. The final is required. The midterm quiz will be held in class on Wednesday, March 8. The final exam is scheduled for Monday, May 1, 9:00-11:00am (two hours). You must take the exams at the scheduled times. Topics not covered in class prior to the exams will not be on the exams. Late homeworks are not accepted under any circumstances.

Your course grade will be determined by the maximum total score obtained by weighting each of the group projects by 10%, the midterm quiz by 30%, with the remainder allocated to the score for the final exam:

	Date	Maximum Percent	Minimum Percent
Homework #1	TBA	10%	0%
Midterm Quiz	March 8	30%	0%
Homework #2	TBA	10%	0%
Final Exam	May 1	100%	50%

For example, if your score for the two group homeworks are 95 and 90, respectively, your score for the midterm is 80, and your score for the final is 75, your total score for the class would be $0.10 \cdot 95 + 0.10 \cdot 90 + 0.30 \cdot 80 + (1 - 0.10 - 0.10 - 0.30) \cdot 75 = 80$. Thus, if you do well on both of the homeworks and the midterm, the final will "only" account for 50% of your overall grade. In some cases, I may also add a few bonus points to the total score based on your class participation and contribution to the classroom atmosphere. Since everything, except for the final exam, is optional, the final will be comprehensive.

Office Hours

My office hours are Wednesdays from 1:30-3:00 pm. My office is Room 228E in the Social Science Building. If you are unable to see me during my office hours, or immediately after class, please email to set up an appointment. My email is: boller@duke.edu.

Teaching Assistant

The teaching assistant for the class is Bingzhi (Ben) Zhao (bingzhi.zhao@duke.edu). Ben will be holding weekly office hours on Mondays from 4-5pm in Room 325M in the Social Science Building (the "Bowling Alley" on the third floor) to help with questions about the lectures and homeworks.

Texts and Readings

The required text for the course is:

> Investments, Zvi Bodie, Alex Kane and Alan J. Marcus, 10th Edition, New York, NY: McGraw-Hill/Irwin, 2014.

The Bodie, Kane and Marcus (BKM) book provides a very comprehensive treatment of modern investment theory. We will not be able to cover the entire book in a single semester class. The book also comes with several online tools and Excel spreadsheets that will be useful for solving the homework problems.

The Bodie, Kane and Marcus textbook has a number of concept checks throughout, with solutions at the end of each chapter. It is a good idea to carefully study these. There are also some problems at the end of each chapter. I will be posting suggestive solutions to these problems on the class website. In addition, I will post a few problem sets of my own. All of these problems are entirely optional and will not be collected or graded. From past experience, however, there is usually a strong correlation between the time and effort spent on solving these problems and the final exam performance.

I also encourage you to keep abreast of daily events in financial markets by reading the Wall Street Journal or other financial news sources. If you come across something that is relevant for what we have been discussing in class, please bring it up.

The recent book:

> Efficiently Inefficient: How Smart Money Invests & Market Prices Are Determined, Lasse H. Pedersen, Princeton, NJ: Princeton University Press, 2015,

also provides an excellent practically oriented discussion of many of the concepts that we will be covering in class, and how they form the basis for many of the most successful hedge fund strategies.

Class Website

I will be posting all of my lecture notes and problems on the class website:

> www.econ.duke.edu/~boller/Econ.471-571.S17

I will also be posting some additional readings and background material. Some of these additional readings are fairly technical. I do not expect you to understand every detail of these.

Class Outline and Reading List

Most of my lectures will follow the BKM book fairly closely. However, for some of the topics, I will provide more in-depth discussions and a different point of view.

Lecture Series 0: Review Material

A) Institutional Background

BKM, Chapters 1-4.

B) Statistical Review

BKM, "Quantitative Review," Appendix A.

Mark Kritzman, "What Practitioners Need to Know about Uncertainty," Financial Analysts Journal, 1991, Vol.47, No.2, pp.17-21.

Mark Kritzman, "What Practitioners Need to Know about Regressions," Financial Analysts Journal, 1991, Vol.47, No.3, pp.12-15.

Lecture Series I: Portfolio Theory and Asset Allocation

BKM, Chapters 5, 6 and 7.

Lecture Series II: Portfolio Theory and Asset Allocation: Some Practical Considerations

BKM, Chapter 8

Lecture Series III: Risk and Return in Equilibrium: The Capital Asset Pricing Model (CAPM)

BKM, Chapter 9 and Section 27.3.

Lecture Series IV: CAPM: Empirical Evidence

BKM, Chapter 13.

Lecture Series V: Multi-Factor Models and the Arbitrage Pricing Theory (APT)

BKM, Chapter 10.

Lecture Series VI: Performance Evaluation

BKM, Chapter 24.

Lecture Series VII: Market Efficiency and Return Predictability

BKM, Chapters 11 and 12.

Lecture Series VIII: Options

BKM, Chapters 20 and 21.