



PORTFOLIO MANAGEMENT

FINC-GB.3332.01

Fall 2015

TR 9:00-10:20am

PRELIMINARY and INCOMPLETE

Instructor: Prof. Robert Whitelaw
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Course Description

Portfolio management: *The art and science of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance.* (Investopedia)

There has been a proliferation of new products and strategies in the asset management space in recent years, e.g., smart beta, alternative beta, fundamental indexing, low volatility, and leveraged and inverse ETFs. This course applies portfolio theory to understand and evaluate these products and strategies in the context of the empirical evidence about return patterns across assets (i.e., the factors such as value/growth, momentum, and carry that drive returns) in multiple markets/asset classes (e.g., US and international equities and bonds, currencies, and commodities). Key questions include:

- What factors drive asset returns? Is it risk or mispricing?
- Can this structure of returns be used to construct better portfolios and products?
- How should the performance of existing products be evaluated given the empirical evidence?

The basic theoretical framework is standard portfolio theory, as developed in Foundations of Finance, and its extensions, and the course will rely heavily on Excel modeling using real world data.

Pre-Requisites

Foundations of Finance (COR1-GB.2311) is the pre-requisite for this course. Students are expected to understand statistics, basic portfolio theory, including the idea of mean-variance optimization, and the CAPM.

Required and Recommended Materials

The textbook for the course is

Edwin J. Elton, Martin J. Gruber, Stephen J. Brown, William N. Goetzmann, **Modern Portfolio Theory and Investment Analysis**, Wiley, 9th Edition, 2014.

which will be made available as an e-textbook. There will also be lecture notes, handouts (e.g., journal and news articles), and supplementary materials (e.g., sample Excel spreadsheets) for many classes. Lecture notes and handouts will be distributed at the beginning of class, and they will also be available on NYU Classes before the relevant class session. Extra copies of these materials will **not** be available in my office. If you miss or lose the handouts, you should print them out from NYU Classes. The supplementary materials will also be available on NYU Classes, as will links to other relevant information.

You might also want to take a look at

Andrew Ang, **Asset Management: A Systematic Approach to Factor Investing**, Oxford University Press, 2014.

This book is not required, but it is an excellent resource that covers a number of the topics that we will be discussing during the course.

Finally, you need a calculator for this class. It is a distinct advantage to have a financial calculator, but not an absolute requirement.

Course Requirements

Assignments:

The assignments for the course will consist of a combination of problem sets, in-class quizzes/exams and a project. Problem set questions will be handed out in class (and will be available on NYU Classes). Each student should hand in an individual set of solutions with his/her name and section prominently displayed on the top. However, you may discuss the problem sets with other students as long as you acknowledge any help you receive on the front page of your solutions. Quizzes/exams will draw heavily from the problem sets.

Quizzes/exams will consist of multiple choice and fill-in-the-blank questions and short problems like those on the problem sets, in the textbook, and in the lecture notes. They will be closed book exams; however, you may bring in a limited number of pages of notes. In addition, I will provide a formula sheet with all the relevant formulas. There will be no make-up quizzes/exams. If you know that you

will be unable to make it to class on the scheduled date, let me know far enough ahead of time so that you can take the test beforehand.

The project will be a semester-long effort to apply the concepts of the class to analyzing an existing investment management product and designing a new product in the same “space”. Projects will be done in groups. Depending on class size, groups may have an opportunity to present their projects at the end of the semester.

Other requirements:

In addition to the problem sets, students should attempt to do end-of-chapter problems from the textbook. Suggested problems will be listed in the lecture notes. Answers to these problems will not be collected, and the solutions will be available on NYU Classes. These problems are an excellent way to check your mastery of the material. Looking at the solution before attempting to do the problem is NOT a good way to approach these problems.

Class attendance is an important part of the learning experience. I do not take formal attendance; however, keep in mind that class participation does account for 5% of the final grade. If you are not in class, you cannot participate in the discussion. If you will miss class, please inform me beforehand via email. For those of you who may miss class, I will attempt to tape every class session. The URL for the streaming video will be posted on NYU Classes as soon as it becomes available. However, keep in mind that viewing the video is not a good substitute for attending class.

Finally, participation is an essential part of learning in this course. Students are expected to participate in all facets of classroom learning. In particular, you are expected to contribute, in a constructive manner, to classroom discussions. These contributions will determine your class participation grade. The assigned reading should be done before the corresponding class session, and you are also expected to keep up with current business news by reading a publication such as the *Wall Street Journal*, the *Financial Times*, and/or the *Economist*. I will attempt to alert you to particularly interesting news items via an announcement on NYU Classes. Thus, you should make an effort to check the course page regularly.

Policies and Procedures

The problem sets should be handed in before the end of the class session in which they are due. They can be given to me in class or emailed. Regardless of the method of delivery, the same deadline applies. The deadline refers to the time at which I receive the assignment, not the time at which you send it. Assignments that are late but within 24 hours of the deadline, will receive ½ credit. After 24 hours, no assignments will be accepted (unless due to documented serious illness or family emergency); it is unfair to the other students in the class.

I will make every effort to start and end class on time. If you arrive late, please enter quietly without disturbing the rest of the class. While in class, please be courteous to your fellow classmates and me. During lectures and discussions only one person should speak at a time. I encourage you to ask questions of your fellow students and me. I consider a good question as valuable as a good answer.

In lectures, it is difficult to ask good questions unless you already have some familiarity with the material. Therefore, you should do the required reading before the relevant class session. Laptops, cell phones, Smartphones and other electronic devices are a disturbance to both students and professors. All electronic devices must be turned off prior to the start of each class meeting.

I am available during the office hours listed at the beginning of the syllabus. If I have to cancel office hours, I will try to make an announcement both in class and on NYU Classes. If you cannot make it at these times, you can make an appointment to see me at another time. I am usually in the office every day. You can also take a chance and just drop by my office. However, even if I am in my office, I may have to turn you away if I am busy.

Academic Integrity

Students are expected to adhere to the NYU Stern Code of Conduct. A student's responsibilities include, but are not limited to, the following:

- A duty to acknowledge the work and efforts of others when submitting work as one's own. Ideas, data, direct quotations, paraphrasing, creative expression, or any other incorporation of the work of others must be clearly referenced.
- A duty to exercise the utmost integrity when preparing for and completing examinations, including an obligation to report any observed violations.

Students with Disabilities

If you have a qualified disability and will require academic accommodation of any kind during this course, you must notify me at the beginning of the course and provide a letter from the Moses Center for Students with Disabilities (CSD, 998-4980, www.nyu.edu/csd) verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation.

Grading Policy

The final grade will be calculated as follows:

Class participation	%
Problem sets	%
Quizzes/exams	%
Project	%

At NYU Stern, we strive to create courses that challenge students intellectually and that meet the Stern standards of academic excellence. The Finance Department has elected to adopt a set of grading guidelines that can be found at

<http://www.stern.nyu.edu/experience-stern/about/departments-centers-initiatives/academic-departments/finance/academic-programs/mba-overview/grading-standards>

Specifically, for this course and all other elective courses, these guidelines indicate that instructors should award grades of "A" or "A-" to approximately 35% of students.

Course Outline

This is a tentative and preliminary list of the topics that will be covered in the class.

1. Portfolio theory—review and extensions
 - a. Mean-variance optimization
 - b. Expected returns and variances of multi-asset portfolios
 - c. Solving for the efficient frontier
 - d. Estimating inputs
2. The asset management landscape
 - a. Mutual funds (open-end and closed-end)
 - b. ETFs
 - c. Hedge funds
3. Performance evaluation
 - a. Sharpe, Treynor, Sortino
 - b. Alpha
 - c. Max drawdowns, tail risk, skewness, stress tests
4. U.S. equities
 - a. Traditional factors—size, value, momentum, liquidity
 - b. New factors—volatility (systematic and idiosyncratic), skewness
 - c. Fundamental indexing and smart beta
5. International equities
 - a. International diversification—developed, emerging and frontier markets
 - b. International factor structure
 - c. Currency risk
6. Fixed income
 - a. The factor structure of risk-free bonds—level, slope, and curvature
 - b. Credit risk
 - c. Market segmentation
 - d. International
7. Other asset classes
 - a. Currencies as an asset class
 - b. Commodities, real estate, etc.
 - c. Alternative beta and hedge fund replication