PORTFOLIO MANAGEMENT

FINC-UB 44

Fall 2022 (DRAFT)

KMC 5-90, Tues/Thurs 2-3:15pm

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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, ESG, 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 and momentum that drive returns, in multiple markets/asset classes, e.g., US and international equities and bonds, and currencies. 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.

The course also covers the institutional landscape of the asset management business—the firms (e.g., Blackrock, Vanguard), the vehicles (e.g., mutual funds, ETFs, hedge funds), and the trends (e.g., active vs. passive, fee competition).

Pre-Requisites

Foundations of Finance (FINC-UB 2) 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

There is no required textbook for the course, but there are several books that cover some or most of the material and also provide additional information and practice problems. The primary such resource 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 in the bookstore as an e-textbook. Basic portfolio theory and some of the more advanced material is also covered in the textbook that is required for the Foundations of Finance course

> Zvi Bodie, Alex Kane and Alan J. Marcus, **Essentials of Investments**, McGraw-Hill Irwin, 10th edition, 2017.

Note that earlier and later editions of the same book provide essentially equivalent coverage of the material. 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 an excellent resource that covers a number of the topics that we will be discussing during the course.

There are 2 required cases that are available in the bookstore in the form of an electronic course pack:

> Innovating into Active ETFs: Factor Funds Capital Management LLC, 9-211-031, Harvard Business School Publishing
>
> ProShares Hedge Replication ETF, UV6939, Darden Business Publishing

There will also be lecture notes and supplementary materials (e.g., journal articles, newspaper articles, and sample Excel spreadsheets) for many classes. These will be available on NYU LMS (Brightspace), as will links to other relevant information.

Course Requirements

Assignments

The assignments for the course will consist of 4 problem sets, 2 cases, 2 quizzes and a final project. There will be NO final exam. Problem set questions and the associated Excel templates will be available on NYU LMS (Brightspace). Each student should submit an individual set of solutions electronically via NYU LMS (Brightspace). However, you are encouraged to discuss the problem sets with other students. Case questions and the associated Excel templates will also be available on NYU LMS (Brightspace), and the same rules apply. Both problem sets and cases will be graded on a check/no-check basis. If you make a reasonable effort to complete the assignment, you will receive full credit. However, there will be 10% extra credit awarded if the assignment is 100% correct.

The 2 quizzes will be in class on Excel. Thus, you will need to bring a laptop computer to class on those 2 days. If this is going to be an issue for you, please let me know as soon as possible. The quizzes will consist of multiple choice questions and numerical problems. There will be no make-up exams. If you know that you will be unavailable on the scheduled dates, let me know far enough ahead of time so that you can take the quiz beforehand.

The final project will be an effort to apply the concepts of the class to analyze an existing investment management product and to employ it in a portfolio context. Projects will be done in groups of up to 4 students. The project write-up will be due on the last day of classes. Further details will be provided later in the semester.

Other Requirements

In addition to the problem sets, students may wish to attempt to do end-of-chapter problems from the textbooks. Answers to these problems will not be collected, and the solutions will be available on NYU LMS (Brightspace). These problems may be a good way to check your command of the material.

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 record every class session. The recordings will be posted on NYU LMS (Brightspace). However, keep in mind that viewing the recordings may not be 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, including those of the assigned cases. 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*, or the *Economist*. I will attempt to alert you to particularly interesting news items via an announcement on NYU LMS (Brightspace). Thus, you should make an effort to check the course page regularly.

Policies and Procedures

The problem sets should be submitted before the beginning of the class session in which they are due. The associated Excel files should be submitted via NYU LMS (Brightspace). 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. 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.

Inclusion

This course strives to support and cultivate diversity of thought, perspectives, and experiences. The intent is to present materials and activities that will challenge your current perspectives with a goal of understanding how others might see situations differently. By participating in this course, it is the expectation that everyone commits to making this an inclusive learning environment for all.

Academic Integrity

Our undergraduate Academics Pillar states that ***we take pride in our well-rounded education and approach our academics with honesty and integrity***. Indeed, integrity is critical to all that we do here at NYU Stern. As members of our community, all students agree to abide by the NYU Academic Integrity Policies as well as the NYU Stern Student Code of Conduct, which includes a commitment to:

- Exercise integrity in all aspects of one's academic work including, but not limited to, the preparation and completion of exams, papers and all other course requirements by not engaging in any method or means that provides an unfair advantage.
- Clearly acknowledge the work and efforts of others when submitting written work as one's own. Ideas, data, direct quotations (which should be designated with quotation marks), paraphrasing, creative expression, or any other incorporation of the work of others should be fully referenced.
- Refrain from behaving in ways that knowingly support, assist, or in any way attempt to enable another person to engage in any violation of the Code of Conduct. Our support also includes reporting any observed violations of this Code of Conduct or other School and University policies that are deemed to adversely affect the NYU Stern community.

The Stern Code of Conduct and Judiciary Process applies to all students enrolled in Stern courses.

General Conduct and Behavior

Students are also expected to maintain and abide by the highest standards of professional conduct and behavior. Please familiarize yourself with Stern's Policy in Regard to In-Class Behavior & Expectations and the NYU Student Conduct Policy.

Student Accessibility
If you will require academic accommodation of any kind during this course, please notify me at the beginning of the course (or as soon as your need arises) and provide a letter from the Moses Center for Student Accessibility (212 998-4980, mosescsa@nyu.edu) verifying your registration and outlining the accommodations they recommend. For more information, visit the CSA website.

Student Wellness
Our aim is for students to be as successful academically as they can, and to help them overcome any impediments to that. Bookmark the NYU Stern Well-Being Resource Hub for existing services at NYU and Stern covering a wide variety of topics including financial well-being, relationship well-being, mental well-being, and more. Any student who may be struggling and believes this may affect their performance in this course is urged to contact the Moses Center for Student Accessibility (see also the Student Accessibility section of this syllabus above) to discuss academic accommodations. If mental health assistance is needed, call the NYU's 24/7 Wellness Exchange hotline 212 443-9999. Furthermore, please approach me if you feel comfortable doing so. This will enable me to provide relevant resources or referrals. There are also drop in hours and appointments. Find out more at http://www.nyu.edu/students/health-and-wellness/counseling-services.html

Name Pronunciation and Pronouns
NYU Stern students now have the ability to include their pronouns and name pronunciation in Albert. I encourage you to share your name pronunciation and preferred pronouns this way. Please utilize this link for additional information: Pronouns & Name Pronunciation

Religious Observances and Other Absences
NYU's Calendar Policy on Religious Holidays states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Please notify me in advance of religious holidays or observances that might coincide with exams, assignments, or class times to schedule mutually acceptable alternatives. Students may also contact religiousaccommodations@nyu.edu for assistance.

More generally, NYU Stern is committed to ensuring an equitable educational experience for all students regardless of identity or circumstances and strives to recognize the obligations its students have outside of Stern. Please review all class dates at the start of the semester and review all course requirements to identify any foreseeable conflicts with exams, course assignments, projects, or other items required for participation. If you are aware of a potential conflict, please contact me as soon as possible to discuss any potential conflicts to determine how they can be accommodated.

Laptops, Cell Phones & Other Electronic Devices
The use of electronic devices (e.g., tablets or laptops), for the purpose of note-taking only, is permitted. However, students should make every effort to avoid distracting their classmates or disrupting the class, including arriving early and choosing a seat that is less distracting for peers.

Grading Policy

The final grade will be calculated as follows:

Class participation	5%
Problem sets	20%
Cases	10%
Quizzes	50%
Final project	15%

At NYU Stern, we strive to create courses that challenge students intellectually and that meet the Stern standards of academic excellence. To ensure fairness and clarity of grading, the Stern faculty have agreed that for elective courses the individual instructor or department is responsible for determining reasonable grading guidelines. The Finance Department has elected to use the following grading guidelines for this course and all other elective courses: Instructors should award grades of "A" or "A-" to approximately 35% of students in elective courses with enrollments of more than 25 students.

Course Outline

The problem sets and cases are listed in the session when they are due (see the last page for dates). Readings should be done prior to the class session in which the material is discussed. Any changes to this schedule will be announced in class and on NYU LMS (Brightspace). EGBG refers to Elton, Gruber, Brown & Goetzmann, **Modern Portfolio Theory and Investment Analysis**; BKM refers to Bodie, Kane and Marcus, **Essentials of Investments**; and Ang refers to Ang, **Asset Management**.

Session	Date	Topics	Assignments
1	Thurs, Sept. 1	*Introduction*	
2	Tues, Sept. 6	*Portfolio Theory I* Statistics review Two risky assets Efficient portfolios	EGBG: Chap. 4 BKM: Chap. 5, 6.1-6.2
3	Thurs, Sept. 8	*Portfolio Theory II* Adding a risk-free asset Min. variance and max. Sharpe ratio portfolios	EGBG: Chap. 5 BKM: Chap. 6.3 Ang: Chap. 3
4	Tues, Sept. 13	*Portfolio Theory III* Multiple risky assets Constructing the frontier	EGBG: Chap. 6 BKM: Chap. 6.4-6.6
5	Thurs, Sept. 15	*Portfolio Theory IV* Constrained optimization	Problem Set #1
6	Tues, Sept. 20	*The Asset Management Landscape I* Mutual fund and ETFs	EGBG: Chaps. 2 & 25 BKM: Chap. 4 Ang: Chaps. 15 & 16
7	Thurs, Sept. 22	*The Asset Management Landscape II* Fees, performance, flows Hedge funds	BKM: Chap. 20.1-20.2, 20.6 Ang: Chaps. 17 & 18 Problem Set #2
8	Tues, Sept. 27	*Factor Theory I* Diversification and the CAPM Alpha	EGBG: Chap. 13 BKM: Chap. 7.1-7.3 Ang: Chap. 6
9	Thurs, Sept. 29	*Factor Theory II* Multi-factor models	EGBG: Chaps. 7 & 16 BKM: Chap. 7.4-7.5 Problem Set #3
10	Tues, Oct. 4	*Review & Synthesis*	Study
11	Thurs, Oct. 6	*Quiz #1*	Study
	Tues, Oct. 11	***NO CLASS***	
12	Thurs, Oct. 13	*U.S. Equity Factors I* Active management Value-growth	EGBG: Chap. 8

Session	Date	Topics	Assignments
13	Tues, Oct. 18	*U.S. Equity Factors II* Black-Litterman Size	EGBG: Chap. 16 Ang: Chap. 7
14	Thurs, Oct. 20	*U.S. Equity Factors III* Momentum Volatility Other factors	EGBG: Chap. 10
15	Tues, Oct. 25	*U.S. Equity Factors IV* Smart beta and fundamental indexing Levered and inverse products	
16	Thurs, Oct. 27	*U.S. Equity Factors V* ESG investing	
17	Tues, Nov. 1	*Case: Innovating into Active ETFs*	Case questions
18	Thurs, Nov. 3	*International Equities I* International diversification International factor models	EGBG: Chap. 12 BKM: Chap. 19
19	Tues, Nov. 8	*International Equities II* Currency effects Currency as an asset class	
20	Thurs, Nov. 10	*Performance Evaluation* Sharpe ratios and alphas Return attribution Market timing	EGBG: Chap. 26 BKM: Chap. 18 Problem Set #4
21	Tues, Nov. 15	*Review & Synthesis*	Study
22	Thurs, Nov. 17	*Quiz #2*	Study
23	Tues, Nov. 22	*Fixed Income I* The yield curve Treasury return factors	EGBG: Chap. 21 BKM: Chaps. 10 & 11 Ang: Chap. 9
	Thurs, Nov. 24	***NO CLASS***	
24	Tues, Nov. 29	*Fixed Income II* High yield bonds Bonds and stocks International sovereign debt	EGBG: Chap. 22
25	Thurs, Dec. 1	*Alternative Assets I* Liquid alternatives Hedge fund replication	EGBG: Chap. 24 BKM: Chap. 20.3-20.5 Ang: Chaps. 17 & 18
26	Tues, Dec. 6	*Alternative Assets II* Cryptocurrencies	

Session	Date	Topics	Assignments
27	Thurs, Dec. 8	*Case: ProShares Hedge Fund Replication ETF*	Ang: Chap. 11 Case questions
28	Tues, Dec. 13	*Alternative Assets III* Variance risk premiums Options and performance evaluation Complete CFEs	Final Project

Assignment Due Dates

Assignments (problem sets, cases, quizzes) are due on the following dates. Problem sets and cases are due before the end of the corresponding class session. 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). There will be no make-up exams. Any changes to this schedule will be announced in class and on NYU LMS (Brightspace).

Assignment	Due Date
Problem Set #1	Thurs, Sept. 15
Problem Set #2	Thurs, Sept. 22
Problem Set #3	Thurs, Sept. 29
Quiz #1	Thurs, Oct. 6
Case: Innovating into Active ETFs	Tues, Nov. 1
Problem Set #4	Thurs, Nov. 10
Quiz #2	Thurs, Nov. 17
Case: ProShares Hedge Fund Replication ETF	Thurs, Dec. 8
Final project	Wed, Dec. 14