

FALL 2008
FINA 521: INVESTMENT ANALYSIS

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Meeting Time: Thursday Evening:
Thursday (Oct 30- Dec 11) 7:00 – 10:20 pm
HK Club Building

Saturday Afternoon:
Saturday (Nov 1 – Dec 13) 2:30 – 5:50pm
Venue: Room 4620

Common Exam: Dec 20: 2:30 – 5:30pm
Venue: To be announced

Course webpage: LMES (<http://celt.ust.hk/lmes/>)

1. COURSE DESCRIPTION

In the midst of the financial turmoil with the stock markets falling substantially in the last few months, it is important for everyone to understand the risk in investment management. Also, it is essential for investors to take a longer perspective of the investment strategies.

The first objective attempts to help students understand the key concepts in investment management. Through an in-depth study of portfolio theory and asset-pricing models, students acquire the analytical skills necessary to appraise and control the risk of an investment portfolio. The second objective is to familiarize students with the investment management process, including the differentiation between passive and active management, the evaluation of investment performance, and the asset allocation considerations. A major take-away from the course is that students will integrate the concepts and knowledge they learned from the course, do some market research, and apply them in designing an optimized asset allocation portfolio.

On the other hand, this course will not cover the institutional features of financial markets, and students are expected to read the textbook for relevant information if they don't have the background. This course also will not teach students to perform company valuation, macroeconomic forecasts, and other analysis of key economic or financial indicators, which should be the topics in some finance courses such as FINA 522 (Equity Investment Management) and FINA 537 (Equity Valuation).

I would like to emphasize that some of the concepts and issues are more widely used in the institutional management industry, rather than at the individual investor level. While some of the concepts are theoretical, I will try to make them practical by providing you with real world examples and illustrate with real market data.

There is no prerequisite for the course. However, students will be exposed to some financial modeling, and those with a more quantitative background are better prepared. Also, some of the materials are borrowed from statistics, regression, and optimization, and students with knowledge in these areas will have an advantage. Finally, the homework and the project require students to use Excel spreadsheet, and therefore students should make themselves be familiar with the spreadsheet.

2. READING MATERIALS

(a) Textbook/Reference book: Reilly and K. Brown, *Investment Analysis and Portfolio Management*, Eighth Edition, South-Western Publishing, 2006.

This textbook is widely regarded as a standard reference by practitioners in the investments industry. It offers good coverage of most topics without requiring a strong mathematical background. Many of the end-of-chapter problems are from CFA exams given in prior years.

(b) Lecture notes are posted as PDF files on the course web site in advance. These should be downloaded prior to class.

(c) Selected articles posted on the web. This syllabus contains a list of articles, although some more might be added. These articles are strictly optional, although some of them will be discussed in the lecture. Even though they are not required, I strongly recommend that you read them.

3. WORKLOAD

(a) *Homework*

- There are three problem sets, which are done on an individual basis. All answers have to be typed. Each student has to turn in a copy of the write-ups at the beginning of the class of the due date. Late submission will receive a heavy penalty.

(b) *Asset Allocation Project*

- An asset allocation project will be conducted on a group basis. Details are discussed in the later part of the syllabus.

(c) Attendance Requirement and Class Participation

- I will distribute the attendance sign-up form during the class. You should attend at least 70% of the classes (cannot miss more than 2 classes). To minimize the disruption to other students, you are expected to come on time (no more than 15 minutes late). Furthermore, you are expected to participate and contribute to discussion in the class. Class attendance and participation will also affect your grade marginally.
- You are expected to attend the session that you register for. Given the classroom space constraint, I strongly discourage students from attending other session that they are not registered for.

(d) Group Work

- The asset allocation project is to be done in groups with three to five members. All team members within a group will receive the same grade for the project. How you run your group is not my concern. It is up to you to decide the composition of the group and to make sure that each group member does his or her fair share of the work. I will not get involved in intra-group disputes.

4. Final Grade

The final grade will be computed based on the following scores:

Homework (10 points @)	30 points
Exam	45 points
Asset Allocation Project	20 points
Class attendance/participation	<u>5 points</u>
Total	<u>100 points</u>

CLASS SCHEDULES

Date	Topics	Readings	Due Date
Week 1	Investment Setting: Financial Assets and Market Players	Reilly & Brown (Ch 3-4)	
Week 2	Return, Risk Measurement, and Portfolio Diversification	Reilly & Brown (Ch. 1, Ch. 7)	
Week 3	Portfolio Optimization, Efficient Frontier, and Capital Asset Pricing Model (CAPM)	Reilly & Brown (Ch. 8) "Portfolio optimization in practice" "The benchmark error problem with global capital market"	1st homework Due
Week 4	Multiple Factor Model, and Style Investing	Reilly & Brown (Ch. 9) "A practitioner guide to arbitrage pricing theory" "Multiple-Factor Models for Portfolio Risk"	
Week 5	Stock Market Index, Passive Investing, Market Risk Premium	Reilly & Brown (Ch. 5) "Equity Risk Premium Forum"	2nd homework Due
Week 6	Performance Evaluation and Attribution	Reilly & Brown (Ch. 25) "Mutual fund age and Morningstar ratings," "Determinants of portfolio performance II: An update,"	
Week 7	Investment Process, Asset Allocation Strategy	Reilly & Brown (Ch. 2) "Personal investing: Advice, theory, and evidence." "College and University Endowment Funds: Why not 100% equities?" "Report on Target-date Life-cycle Funds and their Suitability for the MPF System"	3rd homework Due Presentation by Selected Groups
Dec 20	EXAM		
Dec 28	<i>Due Date for Report of Asset Allocation Project</i>		

ASSET ALLOCATION PROJECT CONSTRUCTING OPTIMIZED PORTFOLIOS

Introduction

The objective of this project is to give you an opportunity in constructing an optimized portfolio, based on the mean-variance optimization technique.

Imagine that you are a financial consultant, and would like to recommend the asset allocation for your client. You could suggest the investment universe for the client, and the following are examples :

Global Equity - predominantly invested into global equity markets
Asia ex-Japan Equity - predominantly invested into Asian equity markets (except Japan)
European Equity - predominantly invested into European equity markets
Emerging Equity - predominantly invested into emerging equity markets
Global Balanced - predominantly invested into global equity and bond markets
Asia Balanced - predominantly invested Asian equity and bond markets
Global Growth - predominantly invested into international growth stocks
Global Value - predominately invested into international value stocks

Please note that the above are examples, and it is totally up to you to decide on the investment universe. Besides equities and bonds, you can also consider some other assets, such as commodities, REITs, etc.

Technique

To perform the mean-variance optimization technique, you need to estimate:
(i) the expected returns of the different asset classes/investment sectors/countries
(ii) correlation matrices

The expected returns are the most tricky ones to obtain. An easy method is based on historical return estimates. But since history might not repeat in future, this method is subject to criticism. There are some other methods, some might be objective (e.g. based on P/E ratios, earnings growth forecast), while some might be subjective (e.g. based on interest rate outlook, macroeconomic fundamentals, subjective opinion), and it is up to you to decide which method(s) to rely on. Anyhow, there is no clear rule for estimating expected returns. You are free to consider whatever method(s) if long as you think appropriate. More importantly, what I am looking for is the justification for your method(s), so that you demonstrate an understanding of the merits and limitation of your methods.

The correlation matrices could also be based on historical estimates. However, you are also allowed to use some other additional information.

In terms of data source, the university library has access to Reuters, which contain a lot of financial and economic data. However, you are welcome to use any other datasets. Please make sure you quote the data source in your report.

Requirement

Based on the investment universe you suggest, you need to come up with 3 portfolios:

- (i) an optimized portfolio for a conservative investor
- (ii) an optimized portfolio for a moderate investor
- (iii) an optimized portfolio for an aggressive investor

Each team is required to submit one report. The length of the report should not be more than 12 pages long. The report should focus on description of investment objectives, investment universe, the methodologies and the reasoning behind the composition of optimized portfolios. There is no need to present detailed calculation.

We will spend about one hour in reviewing the project in the seventh week. To increase student participation, I will invite 3 groups to give a 10-minute presentation of their work in progress. These groups will be randomly picked two weeks in advance so that they could prepare for the presentation.

The report is due by December 28 midnight. Please email a softcopy to Zhibo Yuan (Email: fnyzb@ust.hk).

The report will be assessed based on the amount of research (25%), soundness of methodology (25%), clarity of the arguments (25%), and style of presentation (25%).

Reference

To assist you in the project, an industry report on asset allocation report is posted on the course web. However, please note that this is for your reference. You do not have to follow the approach in the report, but should make your own logic in constructing the optimized portfolios.