

Quantitative Investment Management

[FINC-570]

Spring 2007

Instructor: Professor Ludwig Chincarini, Ph.D., CFA

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Office Hours: 2nd Floor of Library. 5-6:30 P.M. Monday.

Class Hours & Location: Monday 7:00-9:30 P.M. CBN 202

Final Exam: Friday, February 23 6:30 – 9:30 PM, CBN 202

Prerequisites: FINC 555, FINC 557 and FINC 565.

Credits: 1.5

Course Description: The course is intended to provide an understanding of the quantitative investment process. The course will be based in large part on a book entitled *Quantitative Equity Portfolio Management. An Active Approach to Portfolio Construction and Management*. Students are strongly encouraged to share opinions and comments from their own experiences. Typos, comments, and mistakes noticed in the book by students will result in **bonus points**. The course will focus on **equities, including an understanding of the fundamentals of stocks, building models of stock selection, understanding efficient markets and its limitations, understanding portfolio construction, understanding performance measurement, and optimization.** The course will build on equity portfolio management concepts that will aid students in the follow-up course, Special Topics in Investments. There will be no focus on the basics of Fixed Income and Derivatives, since there are already other modules on these topics (FINC 556, FINC 559, & FINC 560).

However, we shall investigate portfolio management applications of derivatives with respect to equity portfolios. The course will be a blend of theoretical concepts and real-world applications. In order to make sense of the theoretical discussions, I shall attempt to distribute data to students via Blackboard so that we may use laptops in class and at home to understand the concepts.

Course Objective: To be familiar with investment analysis for ease of understanding concepts produced in the financial press, for a background that would allow a basic intuitive and mathematical understanding of their behavior for work in the financial markets, and to understand how to manage equity portfolios, especially with regards to the ever growing trend of QEPM (quantitative equity portfolio management).

Required Text:

Chincarini, Ludwig B. and Daehwan Kim. *Quantitative Equity Portfolio Management*, New York, McGraw-Hill.

Note: Can be obtained from bookstore or ordered via www.amazon.com or www.barnesandnoble.com.

Reader (Soft Copy): A compilation of articles relevant to the course will be provided on Blackboard in electronic form.

Handouts: Depending on current news topics, handouts relevant to the material will be distributed to students throughout the semester. It will be the students' responsibility to obtain any missed handouts due to absence at a particular class.

Other Reading:

1. The Wall St. Journal
2. Barrons

Note: A sign-up sheet will be passed around with a student discount.

Other Non-Required Books:

1. Bodie, Zvi, Alex Kane and Alan J. Marcus, *Investments*, Fifth edition, (New York: McGraw-Hill), 2002. [*General Text with some unique aspects on investment management.*]
2. Malkiel, Burton. *A Random Walk Down Wall Street*. [*A classic book and an easy read.*]
3. Bernstein, Peter. *Capital Ideas*. [*A book that explains the history of modern portfolio theory, including all of the major players from Markowitz to Fischer Black. A fun read.*]
4. Lewis, Anthony. *Liar's Poker*. [*A fantastic book that discusses, among other things, the great Salomon arbitrage traders of Meriwether & Co., including their love for the game of Liar's Poker.*]
5. Bruck, Connie. *Predator's Ball*. [*A fun book describing the history of Michael Milken and how the junk bond market was created. A fun read in a major movement in Wall St. history.*]
6. Reilly, Frank K. and Keith C. Brown, *Investment Analysis and Portfolio Management, Seventh Edition*, (Fort Worth: The Dryden Press), 2003.

Industry Licenses:

Some of you may wish to enroll in the CFA program (www.aimr.org) or in the MTA program (www.mta.org). The first program is the Certified Financial Analyst pedigree, while the second is a Chartered Market Technician's pedigree. These are credentials that are

increasingly being attained by people in the financial industry. Some of the material in this course will be on the CFA exam.

Course Requirements and Grading:

Class Participation:	10%
Final Exam:	60%
Portfolio Project:	30%
Assignments:	0% (** borderline **)

Further Notes:

- **Class participation** consists of attendance, making comments, answering questions, and or posing questions during class. I may randomly call on people. Please come to class on time for consideration of your professor and fellow students.
- The **Final Exam** will cover all material covered during the module.
- **Portfolio Projects** will consist of group projects (2-3 per group) in which students prepare a document related to constructing and managing “real” portfolios and analyzing individual companies, like a Wall St. Analyst. These studies should use concepts learned in the class to manage the portfolios. The project will be split up into several parts. The due dates for each part have not been set, but as soon as they are, students shall be given the dates.
- **Assignments** will be given so that students can practice answering questions over the material studied, but *will not be graded*. I will keep track of people who do homework in order to determine borderline grades. Students are encouraged to pay attention to **financial news** as some questions may be linked to current financial market events.

A Note on Academic Honesty: Cheating is against the honor code of Georgetown University. Thus, projects, exams, quizzes, and homework should be done with complete integrity. If a case of cheating is detected, I am required by the university to report it to the honor council. Any act of plagiarism is a serious break of academic standards and a deliberate case can lead to suspension or expulsion. Any quotation from another source, whether written or spoken, must be bound by quotation marks and footnoted. Paraphrases must be footnoted as well. Generally, cite the use of words or work by others.

Students agree that by taking this course, papers may be submitted to Turnitin.com for the detection of plagiarism.

Organization and Course Outline¹

Module 3: Quantitative Equity Portfolio Management

Session 1: January 10, 2006²

1. **Intro to course**
2. **Overview of the Course [both Module 3 & 4]**
3. **QEPM & Efficient Markets and Anomalies**

Reading: Chapter 1 & 2, QEPM

Statman, Meir. "Behavioral Finance: Past Battles & Future Engagements." Electronic Reader.

Chapter 2. "Disentangling Equity Return Regularities." Electronic Reader.

Chapter 4. "Calendar Anomalies." Electronic Reader.

Sessions 2: January 22, 2006

4. **Efficient Markets, Anomalies, and MPT**

Reading: Chapter 2, QEPM and Appendix A on CD

Barberis, Nicholas. "Investors Seek Lessons in Thinking." Electronic Reader.

Gomes, Francisco. "In Search of Money for Nothing." Electronic Reader.

Lo, Andy. "The Adaptive Markets Hypothesis." Electronic Reader.

¹ This may change as we progress through the semester, but in that case, a new outline will be handed out.

² In all cases, dates are the most probable, but again this could change as the semester evolves.

Lamont, Owen. "The Curious Case of Palm & 3COM." Electronic Reader.

Lo, Andy et al. "Fear and Greed in Financial Markets: A Clinical Study of Day Traders." Electronic Reader.

Handout: Portfolio Project #1, Portfolios Due on February 23, 2007.

Entire Project Due: February 23, 2007.

5. **Types of QEPM Models**

Reading: Chapter 3, QEPM.

Chapter 5. "Factor-Based Approach to Equity Portfolio Management." Electronic Reader (optional)

Chapter 7. "Quantitative Tools for Equity Style Management." Electronic Reader (optional)

6. **Factors and Factor Choice (a.k.a. the Secret Sauce)**

Reading: Chapter 4, QEPM.

7. **Stock Screening and Ranking**

Reading: Chapter 5, QEPM.

Chapter 11, "Stock Screening." The Power of Portfolio. Electronic Reader.

"Mining Fools Gold". Electronic Reader.

Chapter 15, "Revision of the Equity Portfolio." The Power of Portfolio. Electronic Reader. (optional)

Chapter 1, "The Underlying Secret of Portfolio Performance." Invest Like the Best. Electronic Reader. (optional)

Chapter 9, "Factor Profiles of the Rich & Famous Invest Like the Best. Electronic Reader. (optional)

Sessions 3: January 26, 2007**8. Portfolio Theory**

Reading: QEPM. Appendix A on CD.

Markowitz, Harry. "Portfolio Selection." Electronic Reader. (*Original Article*)
Chapter 7, RB.

9. The CAPM

Reading: QEPM. Appendix A on CD.

Chincarini, Ludwig (& Foliofn Research). "Part 1: Diversification," *Handbook of Folio Investing*.
Electronic Reader.
Foliofn Research, "Beta Folios." Electronic Reader.
Chapter 8, RB.

10. APT

Reading: QEPM. Appendix A on CD.

Ross, Stephen. "The Arbitrage Theory of Capital Asset Pricing" Electronic Reader. (*Original Article*)
Cochrane, John. "New Facts in Finance." Electronic Reader.
Chapter 9, RB.

Note: Since most people will have had elements of portfolio theory, we will do a blitz-crash review of 8,9, and 10 without going into much detail.

11. The Fundamental Factor Model of QEPM

Reading: Chapter 6, QEPM.

12. The Economic Factor Model of QEPM

Reading: Chapter 7, QEPM.

Session 4: January 29, 2007

- 13. Portfolio Construction: Security Weighting & Risk Models**
Reading: Chapter 9, QEPM.
- 14. Transaction Costs and Portfolio Management**
Reading: Chapter 10, QEPM.
- 15. Taxes and Portfolio Management**
Reading: Chapter 11, QEPM.

Session 5: February 5, 2007

- 16. Alpha-Mojo: Leverage**
Reading: Chapter 12, QEPM.
- 17. Alpha-Mojo: Market Neutral**
Reading: Chapter 13, QEPM.

Session 6: February 12, 2007

- 18. Performance Measurement & Attribution**
Reading: Chapter 15, QEPM.
- 19. Portfolio Management Styles**
Reading: "Style Analysis". QEPM, Appendix to Performance Chapter.
Chapter 2. "Understanding the Differences & Similarities of Equity Style Indexes." Electronic Reader.

20. Professional Asset Management

Reading: Lawson, Brad. "Evaluating Quantitative Managers" Electronic Reader.

Chapter 3. "The Active versus Passive Debate: Perspective of an Active Quant." Electronic Reader.

Session 7: February 23, 2007

21. Final Exam

6:30 – 9:30 PM, CBN 202

SPRING BREAK!