FINA 4330: Trading Strategies and Financial Models

Course Syllabus

Fall 2014

Instructor

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Meeting Time and Location

Tuesdays and Thursdays, from 3:30 to 4:45, Sanford 212

Course Description

This is a course in stock trading. It introduces students to stock market anomalies and ways to predict their strength, to profit from them, and to measure the risks of performing such trading strategies. We consider the most well-known empirical deviations from the CAPM and the most popular ways to fix the CAPM to understand the nature of the deviations.

Pre-Requisites

FINA 3000, FINA 4310, MSIT 3000 (one of the pre-requisites may be waived at the discretion of the instructor).

The course assumes that the students are familiar with the concepts of time value of money and discounting, understand the CAPM and factor models, can work with probability distributions and their moments, including covariances, and can understand the output of regression analysis and basic hypothesis testing.

Course Objectives

This course teaches methods of stock trading. Specifically, the course involves learning about the most well-known deviations from the CAPM (anomalies) and how to identify new ones; learn how to form optimal trading strategies that maximize the profit from the anomalies; learn how to measure risks of these strategies and how to evaluate their performance.

Tentative Course Outline

Textbook (required): Alexander Barinov, Trading Strategies and Financial Models (henceforth abbreviated as AB).

Manuscript is available at Bel-Jean Copy Print Center, 163 East Broad Street.

Recommended readings: The articles listed on the syllabus are recommended and are likely to be helpful, but reading them is not required.

The pace of the course is somewhat flexible and could speed up or slow down depending on student interest and comprehension.

August 19 Short Sales, Zero-Investment Portfolios. Shorting as an Insurance.

Reading: AB, Section 3.1; D'Avolio, JFE 2002 (see course website)

August 21 Shorting Costs, Uncertainty, and Future Returns. Alpha: Definition and Estimation.

Reading: AB, Section 3.2

August 25. StockTrak trading starts

August 26 Predictability of Risk

Reading: AB, Chapter 4

Project 1 – "Short-Sale Constraints" – is assigned

August 28 Alpha and Changing Risk: Conditional CAPM

Reading: Reading: AB, Chapter 5

September 2 ICAPM: Alpha and Factor Models

Reading: AB, Chapter 6

September 4 Project 1 is due

EMH and Trading Costs

Reading: AB, Chapters 1 and 2

Project 2 – "Risks and Trading Costs" – is assigned

September 9 Anomalies: Definition and Potential Explanations

Reading: AB, Chapter 7

September 11 HBS Case: Royal Dutch/Shell

Reading: See the coursepack at https://cb.hbsp.harvard.edu/cbmp/access/20300833

September 16 Project 2 is due

Value Effect: Risk-Based Explanations

Reading: AB, Sections 8.1, 8.2

September 18 Value Effect: Mispricing Explanations.

Momentum and Related Anomalies.

Reading: AB, Sections 8.3, 8.4, 9.1

Project 3 – "Value Effect" – is assigned

September 23 Momentum: Competing Explanations

Reading: AB, Sections 9.2–9.4

September 25 Project 3 is due

HBS Case: AQR's Momentum Funds

Reading: See the coursepack at https://cb.hbsp.harvard.edu/cbmp/access/20300833

Project 4 – "Price Momentum" – is assigned

September 30 New Issues Puzzle: Related Anomalies, Competing Explanations

Reading: AB, Sections 10.1–10.3

October 2 Project 4 is due New Issues Puzzle: Measurement Issues

Uncertainty and Future Returns. Risk-Based Explanations

Reading: AB, Sections 10.4, 11.1, 11.2

Project 5 – "New Issues Puzzle" – is assigned

October 7 HBS Case: Strategic Capital Management, LLC

Reading: See the coursepack at https://cb.hbsp.harvard.edu/cbmp/access/20300833

October 9 Project 5 is due Uncertainty Effects: Risk-Based and Mispricing Explanations

Reading: AB, Sections 11.3, 11.4

Project 6 – "Uncertainty Effects" – is assigned

October 14 Review and Catch-Up

October 14, 6:30 pm to 8:00 pm – MIDTERM – Sanford 112

October 16 NO CLASS, No Office Hours

October 21 **Project 6 is due**

Distress Risk Puzzle: Risk-Based Explanations

Reading: AB, Sections 13.1, 13.2

October 23 HBS Case: Martingale Asset Management, LP

See the coursepack at https://cb.hbsp.harvard.edu/cbmp/access/27949179

Project 7 – "Distress Risk Puzzle" – is assigned

October 28 Distress Risk Puzzle: Mispricing Explanations

Reading: AB, Sections 13.3, 13.4

October 30 January Effect and Size Effect. Monday Effect: Stocks and Options

Reading: AB, Chapter 12

November 4 **Project 7 is due**

Accrual Anomaly

Reading: AB, Chapter 14

Project 8 – "Accrual Anomaly" – is assigned

November 6 Performance Evaluation.

Reading: AB, Chapter 15

November 11 **Project 8 is due**

Performance Evaluation

Reading: AB, Chapters 16 and 17

November 13 Trading on the Margin: the Downfall of Levered ETFs

Liquidity and Liquidity Risk.

Reading: AB, Chapters 18 and 19

Final Stocktrak project assigned.

November 14. StockTrak trading ends

November 18 StockTrak Wrap-Up

Liquidity and Liquidity Risk.

Reading: AB, Chapter 21

Reading: Amihud, Mendelson, and Pedersen, 2005, pp. 269–290 (see course website)

November 20 NO CLASS, No Office Hours

December 2 Intro to Behavioral Finance.

Reading: AB, Chapter 21

Reading: Barberis and Thaler, pp. 1053–1063 (see course website)

HBS Case: LTCM (A), LTCM (C)

Reading: See the coursepack at https://cb.hbsp.harvard.edu/cbmp/access/27949179

December 4 Final part of Stocktrak project due.

Cognitive Biases and Momentum. Prospect Theory

Reading: AB, Chapter 22

Reading: Barberis and Thaler, pp. 1063–1080, 1090–1093 (see course website)

Final exam: Thursday, December 11, 3:30–5:00 pm, Sanford 212

Changes to the Syllabus

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

University Honor Code and Academic Honesty Policy

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Special note on group assignments: It is expected that all students in the group work together and contribute equally to each group assignment. Each group should produce *only one* joint written output, irrespective of the number of students in the group. Communication between the groups about the assignment is a violation of the Honesty Policy. Communication to anyone outside of the group about the assignment is a violation of the Honesty Policy.

Required Course Material

Textbook: Alexander Barinov, Trading Strategies and Financial Models. Manuscript is available at Bel-Jean Copy Print Center, 163 East Broad Street.

HBS Case Package: Purchase the cases from HBS at

https://cb.hbsp.harvard.edu/cbmp/access/27949179

Stocktrak: www.stocktrak.com. Register your group at

http://www.stocktrak.com/public/members/registrationstudents.aspx?p=UGA-FINA4330-Fall2014

Grading

The course grade will be based on:

- The midterm – 25% of the course grade
- The optional final – 20% of the course grade
- Eight anomalies projects – 5% of the course grade each, 35% total, the worst of the eight grades is excluded
- The final Stocktrak project – 15% of the course grade
- Class attendance – 5% of the course grade
- Five HBS cases plus StockTrak discussion – up to 6% of the course grade in bonus points

The grade is on the curve (i.e., it is possible to get 60% for the exams and still get an A, if others do even worse).

For each assignment or exam, you will get two grades: the raw grade (written on the text of the assignment or the exam by the grader) and the curved letter grade (reported to you by me via eLC). The curved letter grade will be preliminary and will not impact the letter grade for the whole course. At the end of the semester a separate, though similar, curve will be created based on the weighted average of the raw grades in order to produce the letter grade for the course.

I expect that 40% of the class will get A or A− and about 15% will get B− and below.

StockTrak Project

This is a hands-on course that lets you try exploiting the anomalies we discuss in class. Every time we discuss an anomaly, you will be required to form an arbitrage strategy that would exploit it using the StockTrak simulation trading platform. For each arbitrage strategy you form you will have to write a detailed report indicating how you picked stocks and what steps you took to maximize the profit of your strategy. In the end of the trading period, you will be required to do a thorough performance evaluation for all your strategies and the overall portfolio.

Group Assignments

- The group assignments (the Stocktrak projects) are to be completed in groups of up to four people
- You can complete all projects or some of them individually
- Any communication about the project to anyone who is not a member of the group is a violation of the Honesty Policy
- All members of the group are expected to contribute equally to each part of the group assignment
- You are free to change your group for all projects, but let me know first
- If you split from your group in the middle of working on a project, it is your responsibility to clear all issues on the work done together with your old group. I will assume that you were a member of your new group during the whole period you worked on a project
- Most important rule: **When in doubt, ask!**

HBS Cases

We will discuss five cases during the course. The cases should be purchased (in electronic form) at https://cb.hbsp.harvard.edu/cbmp/access/27949179. The questions about the cases that will be discussed in class will be posted on eLC about a week before the discussion date.

Active participants of the in-class discussion will receive bonus points of up to 1% of the course grade. The case grades will be reported on eLC in the following form:

- 5 points (0.25% of the course grade) - for marginal contribution
- 10 points (0.5% of the course grade) - for good contribution
- 15 points (0.75% of the course grade) - for excellent contribution
- 20 points (1% of the course grade) - for outstanding contribution

Normally, about a third to a half of the class receive bonuses after a case discussion.

Remember that quality, and not quantity, counts.

You will not be cold-called and made to participate in the discussion. I strongly advise that you attend the classes during which the cases are discussed even if you are unprepared/unwilling to participate.

If you have to miss the class during which a case discussion is scheduled, or if you are not comfortable enough speaking during the discussion, you may turn in written answers to the questions about the case. You do not have to do it, but if you do, I will assign bonus points based on the written output too.

Late Homework Policy

Projects turned in one business day later lose 10%. Projects turned in a weekend later lose 20%. Projects turned in more than three calendar days later receive no points. Please refer to the text of the projects for the specific dates.

Electronic Submissions

All written assignments should be submitted in printed form. Please reserve e-mail submissions for emergencies and special circumstances.

Whether you submit something by e-mail or not, please make sure that your write-up speaks for itself. I will not be able to go through your Excel documents to fill in the missing estimation results or to see how you got the answer you got. For partial credit, make sure that you tell me what you are doing. If your results look weird, but you are sure you are doing everything right and this is what the data are, mention that the results are weird and try to explain why.

If you have to submit your work via e-mail, please make sure it is easily printable (e.g., if you wrote your answers on an Excel spreadsheet, hit print preview and make sure the lines do not continue on the next page, printing would not mean printing out 10 pages of data inputs, etc.)

Optional Final

At the end of the course, I will post preliminary grades on eLC. If you like the grade, you do not have to show up for the final and you do not have to tell me anything. The preliminary grade will become your course grade on the day of the final.

If you want to improve on the preliminary grade, you have to inform me within three days from the day I post the preliminary grades on eLC about your intent to take the final. I will also post on eLC a document that will help you to gauge your chances of improving the course grade on the final.

Software

Microsoft Excel will be used extensively throughout the course (student version of Excel is fine). I expect everyone to be proficient with it or learn from the other members of their group. We will use two Excel Add-ins: Solver and Analysis ToolPak (called StatPlus on Macs). Here is how to get them:

PC Users:

- Click the Office button in the top left corner.
- Go to Excel Options at the bottom, Excel options window will open
- Select Add-ins on the left
- Go to the very bottom and click Go for Manage Excel add-ins
- Check the boxes for Analysis ToolPak and Solver Add-in the window that opens
- Click Yes when it asks if you want to install one and the other
- It will take a while
- When you are done, you will see them on Data tab at the very right

Mac Users:

- Excel for Mac does not include the add-ins in the standard package. You need to download them and install
- For Solver, go to http://www.solver.com/mac/ and follow the installation and usage instructions on the Web page
- For Analysis ToolPak (called StatPlus on Macs), go to

  http://www.analystsoft.com/en/products/statplusmacle/

  and follow the installation and usage instructions on the Web page
- Excel help also provides instructions on how to start Analysis ToolPak (renamed StatPlus for Macs) once you have installed it.

Attendance Policy

Attendance will be controlled by non–graded quizzes and questionnaires performed during 12 random classes. If you have to miss a class due to a medical condition, a job interview, etc., please notify me *before* class. The first two registered absences (without prior notification) are not punished. Each one starting with the third one will cost you 0.5% of the course grade.

"Formula Sheets" for the Exams

You are allowed to bring a finance/scientific calculator and a "Formula Sheet" into the midterm and the final. The "formula sheet" can be at most a double-sided letter-sized sheet ("letter-sized" is the paper you put into a printer). The contents of the "formula sheet" is completely up to you. It may be handwritten, printed or copied, it may be formulas, slides, questions from the sample exams, etc.

Withdrawal Policy

You can withdraw with a W grade no later than August 31, providing that you attend classes and trade on Stocktrak. After that date, your grade will depend on the projects you have completed or should have completed. No projects completed means WF. If your project score falls in the lowest 10% in class, it is also WF.

Policy for make-up of examinations

There will be **no make-up tests for any reason**. The weight from the missed midterm will be transferred to the final exam if the absence is due to a serious illness, a family emergency, or some university–sponsored events. If you expect to miss the midterm for an approved reason, you must provide me with a formal written note or e-mail regarding the situation **before** the exam – plus a note from a physician or other relevant person within one week following the missed exam.