Course Objective: This course covers empirical aspects of finance theory and some recent developments on asset management, derivative pricing and financial regulation. We cover some of the applied issues in finance and econometrics. We begin with conventional finance theory and their implications. Then we discuss some recent alternative approaches namely behavioral finance. We cover return predictability and market efficiency theories, volatility and risk measurement/ risk forecasting, option pricing and derivative trading and credit risk and banking. Some references will be given and discussed about the Turkish financial data. We will conduct various financial applications on GAUSS, MATLAB, Excel.

NEW: THIS YEAR WE WILL USE LIVE BLOOMBERG and Reuters (Eikon) EXAMPLES TO UNDERSTAND CERTAIN ASPECTS OF FINANCIAL MARKETS. Students are expected to retrieve some financial data and analyze them. Lecturing: there will be 3 hours lecturing (and some lab sessions).

We may also have some guest lecturers who are experts on option trading and fund management.

Main textbook:

I will have my lecture notes on each of these topics. However, there some very good textbooks that may cover various aspects of our topics. I will also distribute my own slides on each topics.


John Wiley,

For risk forecasting:


J.C. Hull, Options Futures and other derivatives, 2015,

Supplementary books:

R. Engle (1994), Selected Readings on ARCH, Oxford University Press.

Lecturing: There will be 3 hours of lectures for each topic. Students are expected to complete empirical term papers and theoretical surveys on two topics.

Assessment: Students will be asked to complete one term paper (and present it in the last 2 weeks of the term) and one final exam.

Grading:

25%: empirical questions assignments:

30 % points term project.

45 % final

Topics to be covered

1. Market efficiency and asset return predictability

   - Return Predictability:
   - Event Studies
   - Behavioral finance.

CLoM Chapter 1, 2,

2. Nonlinearity and Time Varying Volatility Models
Engle R. (1994), *Selected Papers on ARCH*, Chapters 1,2,3,4. OUP.

High Frequency Models


Turkish Market Application

More advanced Option Pricing Methods via Neural Networks


3. **Principles of Option Pricing**
Main text will be John Hull,

Trading with options
Pricing Options
\[\text{Ito Calculus and continuous time models}\]
\[\text{Derivation of Black and Scholes Model,}\]

Pricing Options via Monte Carlo and Tree Methods,
Introduction to Exotic Options,
Implied Volatility Modeling,
Volatility Surface and volatility term structure (Lecture notes)

4. **Risk management and credit crisis**

- Market Risk:
  Extreme Value Theory. And VaR Models


Source: Tsay R chapter on Extreme Value Theory.
5. Interest Rate Modeling: Static and Dynamic Yield Curve Building (if time allows)


Diebold and Li (2006), Forecasting the term structure of government bond yields, Journal of Econometrics 130, 337-364


**TERM PROJECT TOPICS (NEW)** *(make a group project up to two. Presentation is needed for grading)*

Length of the term papers

Term papers should be around 20 pages long (Double space with font size of 12). You may have a look at some academic journal examples to see the expected format. You will begin with a literature review, your own hypothesis and a careful empirical application. If you apply the same methodology with a new data set your contribution will be satisfactory. Your paper writing style should also follow a professional journal article. The references you used and your abstract and conclusion should follow the style of some academic papers we will be studying in our course.

Assessment

Major marks will be given for papers proving clear understanding of topic selected. References used in the paper should be clearly stated. You may review other people’s work but use your own sentences. COPY AND PASTE TYPE WORK WILL CAUSE MANY PROBLEMS. PLAGARISM IS STRICTLY FORBIDDEN. PLEASE DO CITE OTHER PEOPLE’S WORK AND GIVE REFERENCES. USE YOUR OWN WORDS. Failing to do so will even create disciplinary actions.

1. Forecasting volatility: is historical volatility better than the implied volatility.
2. What is the informative value of cross currency swaps?
3. Reading the macroeconomics from the shape of yield curve
5. Is high frequency trading useful or detrimental for the global financial system?
6. Is risk reversal a good predictor for financial crashes?
7. The use of volatility trading in asset management industry
8. Modeling crude oil behavior: can we use jump diffusion model in mimicking the commodity time series behavior.
9. Technical analysis tools and algorithmic trading: do they really work?
10. What is the relationship between credit risk and economic growth?
11. Ant topic that is related to financial econometrics topics that we studied.