ECO467: Institutional Finance
Financial Crises, Risk Management and Liquidity

Time and Location:
Monday 1:30 am – 4:20 pm, BCF 103

Course Description:
Financial institutions play an increasingly dominant role in modern finance. This course studies financial institutions and focuses on the stability of the financial system. It covers important theoretical concepts and recent developments in financial intermediation, asset pricing under asymmetric information, behavioral finance and market microstructure. Topics include market efficiency, asset price bubbles, herding, liquidity crises, risk management, market design and financial regulation. The course also studies different trading strategies - that are primarily employed by hedge funds and proprietary trading desks.

A software that simulates the environment that professionals face on a trading desk will give students a more realistic and memorable learning experience and will illustrate certain theoretical concepts more vividly. The financial markets simulator “upTick” was developed by Professors Joshua Coval and Eric Stafford at Harvard University. Details about the financial markets simulator can be found at http://www.uptick-learning.com. Please download the software and install it at your laptop (please refer to the document posted on Blackboard for installing). In order to participate in the trading simulation who have to connect your (Windows) laptop to the Ethernet in BCF 103. You will also receive an Ethernet cable which enables to connect your laptop in the classroom for free. (Please do not lose it.) Before each simulation, students should run practice simulation at home and build “calculators” which help them to improve their trading performance.

Student participation in trading simulations and class in general is an important component of the course.

Prerequisites:
Eco 300 Microeconomic Theory (ideally Eco 310)
**Requirements/grading:**

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<thead>
<tr>
<th>Requirement</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Class participation/presentations</td>
<td>20%</td>
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<td>Midterm examination:</td>
<td>40%</td>
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<td>Final examination:</td>
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Although the exams are closed book, you may bring into the exam one 8 ½ x 11 sheet of paper. You can write on both sides and as small as you wish, but I recommend using this only as a psychological support to have a formula available “just in case.” The exams won’t be “fill in the blanks” exercises, nor will they rely on intensive formula-based computations. Preparing lots of pre-fabricated solutions from previous exams or assignments will only be distracting during the exam.

You will be allowed to use a silent battery operated calculator during the exams. Laptops, while useful for assignments, are not needed (nor allowed) in my exams.

Since the preceptor will grade all assignments and exams, all appeals of grades should first be addressed to the preceptor within a week. Verbal appeals of grades will not be accepted. We will be glad to regrade any assignment or exam. However, you must provide a statement in writing as to where and why there is a problem. Importantly, the entire exam or assignment will be regraded. As a result, the regarded score may increase, remain the same, or decrease. Exams or assignments written with pencil cannot be regraded.

**Course material:**
Additional course material (if necessary) will be made available on the course website <http://www.princeton.edu/~markus/teaching/Eco467/Teaching_Eco467.htm> after classes. All students who are registered for this class will also have access to Princeton’s blackboard webpage. Please make use of the **bulletin board** feature of Princeton’s blackboard course website to initiate discussions and answer your fellow students’ questions. Please use the bulletin board responsibly and keep in mind that the accuracy of the answers is not guaranteed.

**Preceptor:**
For additional questions about the course material, please contact:

Dong Beom Choi  
Office: Dial Lodge 303  
e-mail: dchoi@princeton.edu  
Office hours: Fr 2:00-3:00
Structure of the Course:

1) **Static (Riskfree) Arbitrage**
   a. No Arbitrage & Law of One Price
   b. Basics of Bond Pricing

2) **Informational Market Efficiency**
   a. Predictability
   b. Event Study Methodology (optional)
   c. Rational Expectations Equilibria

3) **Market Making**
   a. Limit versus Market Orders
   b. Insider Trading Models

4) **Portfolio Analysis, Black-Litterman Model and CAPM** (optional)

5) **Performance Evaluation – Hedge Funds**
   a. Sharpe Ratio, Alpha versus Beta, (Option-like Payoff)
   b. Survivorship, Backfilling and other Biases

6) **Theories of Banks – Maturity Mismatch**

7) **Risky Arbitrage, Risk Management, Liquidity**
   a. Fundamental Risk – Merger Arbitrage Strategies
   b. Noise Trader Risk, Synchronization Risk – Convergence Trades and Relative Value Strategies
   c. Funding Liquidity Risk - Leverage and Margin Setting
   d. Basics of Risk management (VaR & Stress Tests)

8) **Bubbles, Crashes and Herding**

9) **Dynamic Arbitrage Strategies to Replicate Non-linear payoffs** (optional)
   a. Basics of Option Pricing
   b. Convertible Bond Arbitrage Strategy

10) **Fixed Income: Money Market, Credit Market**
    a. CDOs – Tranching
    b. Credit Default Swaps

11) **Deciphering the Credit and Liquidity Crunch 2007-09**

12) **New Financial Architecture**
    a. Regulatory Reform (ex-ante vs. ex-post/ lean vs. clean)
    b. New Monetary Framework

**Suggested Readings:**

Students should focus on the readings denoted with stars. It often suffices to read the introduction of the article and skip the mathematical derivation of the results.

1. **Static (Riskfree) Arbitrage**


*UpTick Simulation*: Law of One Price

2. **Informational Market Efficiency**


**UPTICK SIMULATION:** Market efficiency.

### 3. Market Making


**UPTICK SIMULATION:** Price Formation

### 4. Portfolio Analysis, Black-Litterman Model and CAPM (optional)

*Bodie, Zvi and Alex Kane and Alan J. Markus, *Investments*, McGraw-Hill/Irwin; 6 edition (Chapters 5, 6, 7).*


**UPTICK SIMULATION:** Asset Allocation (optional).
5. Performance Evaluation – Hedge Funds


6. Theories of Banks – Maturity Mismatch


7. Risky Arbitrage and Liquidity

**Risky Arbitrage**


**Merger Arbitrage**


**UPTICK SIMULATION:** Merger Arbitrage.

**Liquidity**


**LTCM Crisis**


Roger Lowenstein, When Genius Failed: The Rise and Fall of Long-Term Capital Management, Random House, 2000

8. Bubbles, Crashes and Herding

**Bubbles**


**Herding Models**


**Experiment on Herding**

9. **Dynamic Arbitrage Strategies to Replicate Non-linear payoffs** (optional)

**Delta-Hedging**


**Financial Markets Simulator:** Convertible Bonds Arbitrage.

**1987 Crash**


10. Fixed Income. Money Market and Credit Market and Central Banks


11. Credit and Liquidity Crunch 2007-09

*Before the crisis:*


*Understanding crisis:*


Jon Danielsson and Gylfi Zoega (2009), The Collapse of a Country
http://risk.lse.ac.uk/rr/files/e.pdf

http://www.nber.org/papers/w14739

http://www.kc.frb.org/home/subwebnav.cfm?level=3&theID=10976&SubWeb=10660


*Tobias Adrian and Markus K. Brunnermeier, CoVaR, www.princeton.edu/~markus


Amendment to the Capital Accord to Incorporate Market Risk, (Basel II Accord)
www.bis.org

*George Cooper, The Origin of Financial Crises: Central Banks, Credit Bubbles, and the Efficient Market Fallacy