

# Finance 367: INVESTMENT MANAGEMENT

MCCOMBS SCHOOL OF BUSINESS, UT AUSTIN

Fall 2012

Unique 03470

TTh, 2:00pm – 3:30 pm

UTC 3.104

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Important: There will be optional review class on the following dates: **09/21/2012** 11:30 AM - 1:00 PM at GSB 3.138; **10/24/2012** 5:00 PM-6:30PM at GSB 3.138; **12/05/2012** 3:30 PM - 5:00 PM at GSB 3.106.

## Course Description and Goals

Finance 367 is an investment course which will provide a basis for making investment decisions. The course is intended for students who want to become investment professionals, knowledgeable individual investors, or both. The course will focus on the fundamental principles of risk and return, diversification, asset allocation, market efficiency, valuation of stocks, bonds and options. Students will understand market trading structures, equity and fixed income securities, investment strategies and evaluation methods. Investment and trading decision-making skills will be developed through classroom lectures, discussions, problem assignments, and online portfolio simulation exercises.

## Instructor

Professor Bing Han holds a Ph.D. in Mathematics from the University of Chicago and a Ph.D. in Finance from UCLA. His research focuses on asset pricing and behavioral finance. He has previously taught both undergraduate and graduate students at the University of Chicago, UCLA and Ohio State University. He has also worked for J.P. Morgan.

## Course Resources

Required textbook: Bodie, Kane, and Marcus, **Essentials of Investments**, 8<sup>th</sup> edition. McGraw Hill. A copy of the textbook is on two-hour reserve at the Business/PCL library. Optional: Solutions Manual for Use with Essentials of Investments, Bodie, Kane, Marcus.

Lecture notes, readings as well as solutions to selected problems will be available on the UT Blackboard system <https://courses.utexas.edu/webapps/login>  
You are required to check the blackboard site daily for course-updates.

Recommended: Wall Street Journal (<http://interactive.wsj.com>), Financial Times (<http://www.usa.ft.com>), <http://finance.yahoo.com/>, <http://cbs.marketwatch.com/> etc

### Prerequisites

Finance 367 is a Restricted Course for students who are currently enrolled in a major program in the College of Business Administration. Note that several prerequisites apply for this course and are published in the Course Schedule. Prior completion of Finance 357 or Finance 357 H, Statistics 371G or 371H are among these requirements.

### Exams and Grading

Grades will be based on the student's performance on three in-class tests, presentation, portfolio investment report (see page 3 for details) and class participation. Your overall score in the course will be determined mechanically as the weighted average of the six component scores.

Exam I:	Tuesday, September 25, 2012	20%
Exam II :	Thursday, October 25, 2012	25%
Exam III:	Thursday, December 6, 2012	25%
In-class Quiz		12%
Investment Report:		12%
Team Presentation:		6%

Your overall grade will be determined by where your overall score lies in the distribution of all students' overall scores. The cut-offs in the distribution will be such that roughly 30% of students receive "A"s, 45% receive "B"s, and 25% receive grades below a "B." The exact curve cut-offs will depend on the score distribution. Plus/minus grades will be assigned for the final grade (there is no A+ though).

There is no opportunity in this course to do "extra-credit" work. Your grade will be determined solely by the components listed above. If you are taking the course **pass/fail** you must complete all projects and take all exams in order to pass the course.

All exams are in-class, closed-book. They cover material from lectures, assigned readings and exercises. Exams will strive to test comprehension and not merely memorization skills.

You are responsible for showing up at the proper time and location for all the exams! If you develop a schedule conflict with any of tests, contact the instructor as soon as possible, and no later than 24 hours before the exam, to get pre-approval. If you fail to show up for an exam without instructor's pre-approval, then you must present a doctor's note stating that you were too sick to take the test. If you miss an exam without a valid reason, then you will receive a zero on the missed test.

### Team Presentation

Each team consists of 2 persons. **The presentation should be limited to 3 minutes per person, and 6 minutes per group.** Members of each group receive the same score on the presentation, except in rare circumstance (at instructor's discretion). **The groups are formed mechanically by students' last names.** A list of the presentation assignment will be posted on the Blackboard by Sept 9. The presentation topics and time are listed at the end of this syllabus.

### Stock-game and Individual Report

Each student will manage a simulated portfolio with initial cash balance \$5,000,000 over the semester. The simulation is professionally-managed by Stock-Trak© Portfolio Simulations based in Atlanta, GA ([www.stocktrak.com](http://www.stocktrak.com)). The investment period extends from August 24 to December 13, 2011. You can make up to 200 trades and invest in any NYSE, NASDAQ-AMEX stock, a series of government and corporate bonds, a selection of over 2000 mutual funds and certain stocks trading on stock exchanges around the world, including Bombay, Brazil, Hong Kong, London, Frankfurt, Mexico, and Tokyo. You can buy on margin, short sell, and even day trade. To manage your risk exposures, you can also invest in various options and futures contracts. Trades are submitted in real time via their web page.

Use the following link to register (registration fee is covered by the EDS Financial Trading Center & Department of Finance):

<http://www.stocktrak.com/public/members/registrationstudents.aspx?p=UT-Fin367-Fall12>

At the end of the semester, each student needs to write a report based on stocktrak portfolio and trading (see guideline and requirement at the end of the syllabus). **The report is due by 12 noon, Dec 10, 2012. Late reports will receive no credit.**

### Class Participation

I expect all students to attend and actively participate in. **At the end of each class, students who raise and/or answer questions should sign in with the instructor.** At the instructor's discretion, students who participate actively in class will get the higher grade if she/he is within one point of a cut-off point along the grade curve.

### Continuous Feedback

I encourage you to give me feedback about the course material, my teaching style and anything else that would help you learn the course material better. You should come and talk to me in person if you have any concerns and/or suggestions. However, if that makes you uncomfortable, you can send me an anonymous email from a class email account that I have created at [www.mail.google.com](http://www.mail.google.com). **Login: han367ut, Password: "feedback"**.

### Calculator

Recommended for this course is a financial calculator capable of calculating present values, solving for yields, and performing other basic time value calculations. Students bear the responsibility for learning to operate their calculators proficiently. Programmable calculators must be cleared before each test; and there is no sharing of calculators during the test. It should be emphasized that the calculator cannot replace an understanding of the problem solving process.

### Other Important Course Policies

1. The lectures will cover extra material (e.g., exercises, discussions) not contained in lecture notes. You are responsible for everything covered or assigned in class. If you miss a class, it is entirely your responsibility to determine what you have missed including any administrative announcements I may have made.
2. E-mail and the Internet access are not allowed during lectures. The use of laptop computers is permitted solely for the purposes of taking notes. Mobile phones, Blackberries, and other electronic devices have to be switched off during class at all times.
3. Examinations will not be returned. The students can review their exams only during the week directly following the examination. If you feel your posted examination grade is incorrect, you must notify me in writing during this same one-week period. After one week, the examination papers will be stored and the problem will not be researched.

### **Students with Disabilities**

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Division of Diversity and Community Engagement, Services for Students with Disabilities at 471-6259, <http://www.utexas.edu/diversity/ddce/ssd>.

### **Academic Dishonesty**

The McCombs School of Business has no tolerance for acts of scholastic dishonesty. The responsibilities of both students and faculty with regard to scholastic dishonesty are described in detail in the BBA Program's Statement on Scholastic Dishonesty at <http://www.mcombs.utexas.edu/BBA/Code-of-Ethics.aspx>.

By teaching this course, I have agreed to observe all faculty responsibilities described in that document. By enrolling in this class, you have agreed to observe all student responsibilities described in that document. If the application of the Statement on Scholastic Dishonesty to this class or its assignments is unclear in any way, it is your responsibility to ask me for clarification. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since dishonesty harms the individual, all students, the integrity of the University, and the value of our academic brand, policies on scholastic dishonesty will be strictly enforced. You should refer to the Student Judicial Services website at <http://deanofstudents.utexas.edu/sjs/> to access the official University policies and procedures on scholastic dishonesty as well as further elaboration on what constitutes scholastic dishonesty.

### **Religious Holidays**

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

## **Campus Safety**

Please note the following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety/> :

.. Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

.. Familiarize yourself with all exit doors of each classroom and building you may occupy.

Remember that the nearest exit door may not be the one you used when entering the building.

.. Students requiring assistance in evacuation should inform their instructor in writing during the first week of class.

.. In the event of an evacuation, follow the instruction of faculty or class instructors.

.. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

.. Behavior Concerns Advice Line (BCAL): 512-232-5050

.. Further information regarding emergency evacuation routes and emergency procedures can be found at: [www.utexas.edu/emergency](http://www.utexas.edu/emergency).

## **NOTE**

I reserve the right to make modification to this syllabus. The modifications (if any) will be announced in class. You are responsible for all announcements made in class.

## **Course Calendar**

### Module 1

- ✓ Chapter 1: Investment: Background and Issues
- ✓ Chapter 2: Asset Classes and Financial Instruments
- ✓ Chapter 3: Securities Trading
- ✓ Chapter 4: Mutual Funds and Hedge Funds

### Module 2

- ✓ Chapter 5: Risk and Return
- ✓ Chapter 6: Efficient Diversification
- ✓ Chapter 7: CAPM
- ✓ Chapter 8: Market Efficiency Hypothesis

### Module 3

- ✓ Chapter 9: Behavioral Finance
- ✓ Chapter 13: Equity Valuation
- ✓ Chapter 10: Bond Prices and Yields
- ✓ Chapter 11: Managing Portfolios of Bonds
- ✓ Chapter 15: Options Markets
- ✓ Chapter 16: Option Valuations

## **Course Readings** (corresponds to Bodie, Kane, and Marcus 8e)

Chapter 1: Sections 1.1, 1.2, 1.4, 1.5, 1.6, 1.7

Chapter 2:

- Section 2.1: focus on Treasury Bills, CD, Commercial Paper, Federal Funds
- Section 2.2: Treasury Notes and Bonds, Inflation-Protected bonds, Municipal Bonds, Corporate Bonds, Mortgage-Backed Securities
- Sections 2.3 and 2.4

Chapter 3:

- Section 3.2: read about different types of orders
- Section 3.3: focus on NYSE and NASDAQ only (p62-64)
- Section 3.5
- Sections 3.6 and 3.7: pay close attention to the examples in section 3.6 and 3.7, as well as the concept check questions

Chapter 4:

- Section 4.1: net asset value formula
- Section 4.2: focus on “Managed Investment Companies (p85), Real estate investment trusts and hedged funds (p87)
- Section 4.3
- Section 4.4: especially on “fees and mutual fund returns” (p92)
- Section 4.5 and 4.6
- Section 4.7: read carefully

Chapter 5

- Section 5.1: read only Holding period return, Arithmetic average and Geometric average (p110-111)
- Section 5.2: understand the definition of expected return, standard deviation, sharp ratio,
- Section 5.3: especially Figure 5.3 and 5.4, and Example 5.5 (p126)
- Section 5.4: equation 5.17 (p129), Figure 5.5
- Section 5.5: especially the Capital Allocation Line (p134-135), Figure 5.6, and Example 5.7

Chapter 6:

- Section 6.1: Fig 6.1 and 6.2
- Section 6.2: especially formulas (6.1), (6.2) and (6.3), rules (6.4), (6.5) and (6.6) on page 153; Example 6.2, Figure 6.3 and 6.4 on page 156
- Section 6.3: Fig 6.6 (page 159)
- Section 6.4
- Section 6.5: focus on systematic risk and firm-specific risk (equation 6.12 on page 168)
- Section 6.6

Chapter 7:

- Section 7.1, especially the security market line (Figure 7.2) and the notion of “alpha” (Example 7.4 on p196)
- Section 7.2: especially the CAPM equation (7.4), and understand how the CAPM index model is estimated using linear regression (Page 199-204)

- Section 7.3
- Section 7.4: read Page 211-214, know about the Fama-French three factor model (equation 7.7)

Chapter 8:

- Section 8.1, especially the three forms of efficient market hypothesis (p231-232)
- Section 8.2
- Section 8.3, focus on Page 238-243, examples of stock market “anomalies” (return reversal, momentum, small firm effect, book-to-market ratio effect, post earning announcement price drift etc) and how to interpret the evidence
- Section 8.4: focus on “mutual fund managers”(page 247-250)

Chapter 9:

- Section 9.1: focus on overconfidence, regret avoidance, prospect theory. Understand limits to arbitrage (p266—268). Read carefully “Evaluating the Behavioral Critique”
- Section 9.2: read for fun and try it in your Stocktrak portfolio exercise (there is a group presentation on technical analysis)

Chapter 10:

- Section 10.2: especially formulas (10.1), (10.2)
- Section 10.3: just read about Yield to Maturity (p298-300). Skip the other parts
- Section 10.4: skip “after tax return”
- Section 10.5: there is a group presentation on default risk
- Section 10.6: read everything carefully

Chapter 11:

- Section 11.1: read everything in this section carefully
- Section 11.2: focus on Example 11.2 (Page 342)

Chapter 13:

- Section 13.1
- Section 13.3: read everything in this section till Example 13.4 on Page 405
- Section 13.4: especially equation 13.8 (bottom of page 411)

Chapter 15:

- Section 15.1:
- Section 15.2: you can skip page 491-492.

Chapter 16:

- Section 16.1: everything
- Section 16.3: everything

Additional Readings will be posted on UT Blackboard system.

## Study Guide

1. You need to understand what you are studying, whether it be conceptual or analytical. Relying on your calculator as a means to simply plug in numbers for an answer will get you into trouble. When you study, ask yourself such question as:
  - i) What is the purpose of this concept or formula?
  - ii) Why is it important?
  - iii) How does the author demonstrate its importance?
  - iv) How does it “fit” with what you have studied so far? –either in this class or in an earlier class.
2. I suggest that you read each chapter once **before** it is discussed in class and then read it again **after** the topic is covered in class. Reading the material beforehand will greatly assist in having meaningful class discussions. If you are having trouble with a concept or problem, contact me or the TA as soon as possible.
3. **The problem sets associated with each chapter are not to be handed in**; however, it is important that you work and understand them. Working these problems is a necessary step in preparing for the exam. The examination problems will appear simpler for those who work the problem sets. Reviewing the examples in the book, the concept check questions (whose answers are provided at the end of the chapter) as well as the key terms at the end of the chapter will also be useful in mastering the material and preparing for the exams.
4. In order to successfully complete this course, the concepts must be studied **continuously** throughout the semester. For most students, the information cannot be mastered by waiting until exam time. Do not cram right before an exam which usually results in confusion, anxiety, and a lack of the big picture.

## More on Stocktrak Trading and Written Investment Report

There are **two parts** to your written report, one is quantitative and the other is qualitative. They correspond to two parts to your Stocktrak portfolio, one is passive and the other is “actively managed”. **Your portfolio and trading performance does not affect the grade of your investment report.**

- Part I:** Use half of your account balance (\$500,000) to construct an initial portfolio of stocks.
1. Your initial portfolio must contain 10 stocks. You can take short positions if you want.
  2. You decide which stocks to pick, but choose stocks from different industry (to be diversified). Choose some large companies (e.g., with over 10 billion dollars market cap) and some medium to small companies. You can choose stocks based on word-of-mouth (heard from family/friends), media mentioning, or by throwing a dart on wall street journal. Make sure the stocks you pick have at least two years of trading data through [finance.yahoo.com](http://finance.yahoo.com) or [google.com/finance](http://google.com/finance) (so you can not choose young stocks like Facebook).

3. You can equal-weight the stocks in the portfolio, or use whatever weights you see fit (e.g, give more weights to stocks with larger market cap, or give more weights you feel more confident about, or you view as more undervalued)
4. Leave this part of your stocktrak account untouched (i.e., buy and hold) till the end.

You should turn in a short paper (3-5 pages, double-spaced, single-sided, 12-point font) which report the weekly performance of your passive portfolio (constructed above) and evaluates statistically the relative and absolute performance using various tools and techniques learnt in the semester. See below for the suggested timeline and numbers to report.

### **Data Analysis Time-line (for Part I)**

September 10, 2012: finish construction of your buy-and-hold stock portfolio.

#### **Oct 2: Variance-Covariance Matrix**

Go to [finance.yahoo.com](http://finance.yahoo.com) and download a time-series of daily prices for each of your stocks that covers a period 08/29/2010 to 08/29/2012. From the prices calculate daily stock returns. For each stock compute mean, variance, standard deviation of the daily stock return over this two-year period. Then compute the covariance for each pair of stocks. You should get a 10 by 10 variance covariance matrix (report this).

#### **Oct 9: Efficient Portfolio Weights**

Using the quantities that you have already computed and assuming that you can invest or borrow at a risk free rate of 0.5 per cent per year, compute the weights of the optimal risky portfolio (report this).

#### **Nov 30: Individual and Portfolio Betas**

Using the returns that you have already collected, calculate alphas and betas for each stock in your portfolio by running a linear regression on the market portfolio (e.g, proxied by the SPY). Plot the average returns of the stocks from 08/29/2010 to 08/29/2012 against the betas. Do they line up?

Next collect the price data for your stocks from 08/29/2012 to 11/30/2012. Now plot the average returns of stocks over this recent period against the betas. Do those line up? Do they line up better? Did the betas you computed using the data from 08/29/2010 to 08/29/2012 predict the average returns over the period from 08/29/2012 to 11/30/2012?

What is the beta of your portfolio? Is that equal to the average stock's beta? What is the alpha and the Sharpe ratio of your passive portfolio?

### **Part II** of your stocktrak account and investment report:

Do whatever you want with the remaining \$500,000 cash in your stocktrak account. This part is aimed to get your some experience with active trading strategies (as opposed to buy-and-hold in the first part). You can trade not just stocks but also bonds, option, futures, currencies and commodities (e.g., through some ETFs). Remember you will be graded by the quality of the report, NOT your investment performance. So you can experiment different strategies and see which “works”.

The second part of the report should be about 2 to 3 pages long, discussing topics such as: are you subject to any behavioral biases we discussed in class? What is your view on the market efficiency debate, and how has your view affected your trading experience? If you used some technical analysis tools, do you work for you? Have you tried to time the market (why) and does it work? Which is more important for your investment performance, investing in the right asset class or picking the right individual security? How has political risk (e.g., presidential election) and central bank policy risk (e.g., more QE?) affected your investment decision?

## Presentation Topics

- Topic 1 (Sept. 6): Tell us about the Libor rate scandal and its impact (e.g., <http://www.spiegel.de/international/business/the-libor-scandal-could-cost-leading-global-banks-billions-a-847453.html>; [http://en.wikipedia.org/wiki/Libor\\_scandal](http://en.wikipedia.org/wiki/Libor_scandal))
- Topic 2: Tell us about the IPO process, and what is special about the Google and Facebook IPO. See page 58-61 (Sept. 11)
- Topic 3: Discuss ban on short sales by SEC during the 2008 financial crisis, and recent short sales ban in Europe. Is it good or bad? (Sept. 13)
- Topic 4 (Sept. 18): Compare ETS to open-end mutual funds. What are the pros and cons of inverse and leveraged ETFs? <http://www.learningmarkets.com/the-risks-of-inverse-etfs/>
- Topic 5 (Sept. 20): Tell us about real estate investment trusts and mutual fund late trading <http://www.investopedia.com/articles/mutualfund/07/late-trading.asp>
- Topic 6: Tell us about various estimates of the equity risk premium (see Page 141 “Triumph of the Optimists”) (Sept. 27)
- Topic 7: Are buy-and-hold dead? (Oct. 4)
- Topic 8: Are stock returns less risky in the long run? What do you think about time diversification? See page 175-177. (Oct. 9)
- Topic 9: Tell us about the stock market crash of 1987 and the 2008 financial market crisis (Oct. 11)
- Topic 10: Discuss preference for skewness in stock return and its relation to gambling in stocks. (Oct. 16)
- Topic 11: Tell us about the Fama-French three factor model. See page 212-214 (Oct. 18)
- Topic 12: Discuss high frequency trading and its impact (e.g., is it related to the flash crash in May 2010; does it increase stock volatility?) (Oct. 30)
- Topic 13: What do we know about investors’ trading behavior? What psychological biases do they have? (Nov.1)
- Topic 14: stock valuation based on P/E and other price/fundamental ratios: see chap 13.1 and 13.4 especially Page 422 (Nov. 6)
- Topic 15: Charting and technical analysis, see chapter 9.2 (Nov. 8)
- Topic 16: Bond credit ratings and yields: see chap 10.5 especially Page 317-318. Discuss the impact of rating downgrade on stock and bond. You can use the downgrade US sovereign rating by S&P in Aug 2011 as an example. (Nov. 13)
- Topic 17: Warren Buffet called derivatives “weapons of massive destruction”.

Why? What do you think? Do derivatives markets serve any useful function? See page 487 about “The Case for Derivatives” (Nov. 15)

- Topic 18: Discuss some interesting examples of options (e.g., economic derivatives on page 506, and employee stock options) (Nov. 27)
- Topic 19: Hedging, portfolio insurance and hedge ratio: see chap 16.4 and page 541 about “J.P.Morgan rolls dice on Microsoft options” (Nov. 29)