Hong Kong University of Science & Technology

FINA 521: Investment Analysis

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COURSE DESCRIPTION

This course provides you with an introduction to the most fundamental aspects of investments. You will learn how to trade on financial exchanges, how to allocate money across several different types of securities/assets (how to *invest* rather than speculate), how to determine the *fair* price of a financial security, and how to determine whether a portfolio manager is doing a good job. You will also learn how to price, trade, and utilize derivative securities (futures and options).

During the course we will come across some of the most important and influential concepts of finance theory: the Markowitz Portfolio Selection Model, the Capital Asset Pricing Model (CAPM), the concept of arbitrage, and the Black & Scholes option pricing formula. These concepts are so important that Nobel prices have been awarded for their discovery! To read more about these concepts see the web page of the Nobel Foundation: http://www.nobel.se/economics/index.html.

PREREQUISITES

Some of the material we will cover is quite technical. It is therefore advisable for you to review basic mathematical and statistical concepts such as: net present value, interest calculations, probability theory, and regression analysis at the beginning of the course. The textbook contains a Quantitative Review that I suggest you read as soon as possible – even if you *believe* you master that material.

It is also very important that you familiarize yourself with the spreadsheet program Microsoft EXCEL. We will be using this program extensively throughout the semester. In the past, many students have wasted a lot of time simply because they did not know how to use EXCEL effectively. If you have never used EXCEL, I strongly recommend that you go through the self-guided EXCEL

tutorial from the textbook: Excel Applications for Investments by Troy A. Adair, Jr., McGraw Hill Irwin International. One copy of the text is on reserve at the library.

TEACHING MATERIALS

1. Required Material

Z. Bodie, A. Kane and A.J. Marcus (BKM), Investments (7th edition), Mc-Graw Hill Irwin International Edition, 2008, ISBN 007-125916-3.

The official web site for this textbook contains additional background materials, recent investment news, and on-line practice quizzes: http://www.mhhe.com/bkm

McGraw-Hill also offers two additional websites you might find useful:

Investments Online (extra problems): http://www.mhhe.com/business/finance/invonline/

Finance Around the World: http://www.mhhe.com/business/finance/financemap/main.html

2. Supplementary Texts on Hong Kong Financial Markets (optional)

The textbook is unapologetically US-centric. To make up for this deficiency, I suggest you consult one or several of the following texts to acquaint yourself with Hong Kong financial markets. Given our time constraints, and the importance I place on mastering principles over memorizing details, *generally speaking*, I will not hold you accountable for the intricate details of one market or another.

- L.C.K. Low, 2000, Financial Markets in Hong Kong, Springer. ISBN 981-4021-73-3.
- Richard Yau, 2004, Securities Investment Practice in Hong Kong, The Hong Kong Institute of Bankers (HKIB). ISBN 962-7322-37-7.
- L.S.F. Young and R.C.P. Chiang (eds.), 1997, The Hong Kong Securities Industry, The Stock Exchange of Hong Kong Ltd. ISBN 962-7946-028.
- Simon S.M. Ho, Robert Haney Scott, Kie Ann Wong (eds), 2004, The Hong Kong Financial System: A New Age, Oxford University Press.

Copies of each of these books are on reserve at the library. The first text (Low) offers an overview of the institutional and regulatory environment. The second text (Yau) is intended for HKIB certificate candidates and details primitive and derivative securities markets in Hong Kong. The third text (Yound and Chiang, YC) offers an in-depth look at HK equity and debt markets. The last text (Ho *et al*.) provides an up-dated reference on the same topics.

Although I will make an earnest attempt to map some of the US securities and market features described in the textbook to their HK equivalents, the onus really is on you to make this translation. There are two benefits for doing so: 1) It puts you in control of your own learning process, and 2) It teaches you about the world's most influential financial markets. This knowledge will prove invaluable, particularly if you wish to spend part of your career in the US or Europe.

A fundamental message of this course is that securities are priced not in isolation but rather relative to other securities in the investment universe: Securities prices are relative, not absolute. As globalization removes barriers to the flow of goods, services, and, in particular, financial capital, it

motivates all of us to think globally, not just locally. Specifically, this means that HK securities are priced not only in relation to other HK securities but also relative to securities across the world. Thus, you cannot escape having to learn about other markets, even if you never plan to leave HK!

Another reason you should learn about US markets in particular is that the Hong Kong dollar (HK$) is fixed (or "pegged") to the US dollar (USD). A fundamental law of international finance tell us that this means both countries should have the same interest rates. In fixing the exchange rate of the HK$ to the USD, Hong Kong is essentially adopting the monetary policy of the United States. Whether contemporary US monetary policy suits the HK economy is unknown. However, this exchange rate policy does force Hong Kong to align its economic, fiscal, and other policies with those of the US. In short, the study of HK securities and financial markets cannot dissociate itself from those of the US.

You may wish to refer to the following internet links to learn more about HK's financial institutions:

The HK Monetary Authority (Exchange Fund and Bank Regulation): http://www.info.gov.hk/hkma

The HK Exchange (Primitive and Derivative securities markets): http://www.hkex.com.hk

Honk Kong and Shanghai Banking Corporation (Multinational HK bank): http://www.hsbc.com.hk

and its HK associate, Hang Seng Bank (62% owned by HSBC): http://www.hangseng.com

The Bank of China (large Chinese bank in HK): http://www.bochk.com

3. Suggested Reading

A measure of a financial market's development is how well news is reflected in its securities prices. Market players who ignore the news inevitably fail. Consequently, I would encourage you to get in the habit of keeping up with current events and world affairs by reading a good daily financial newspaper (Financial Times, Wall Street Journal, South China Morning Post) and a business periodical (The Economist, Business Week, Fortune, Forbes, Far Eastern Economic Review).

4. Additional References

Z. Bodie, A. Kane and A.J. Marcus, Essentials of Investments (6th edition), McGraw Hill Irwin International Edition, 2007, ISBN 007-304153-x. Abridged version of the main textbook.

John C. Cochrane, Asset Pricing, Princeton University Press, 2001. Advanced graduate textbook.

John C. Hull, Options, Futures, and Other Derivatives (5th edition), Prentice Hall, 2002. The leading modern textbook on derivatives.

5. Survey Articles

John Y. Campbell, "Asset Pricing at the Millennium", *Journal of Finance*, August 2000.
A non-technical survey for the profession.

John C. Cochrane, "New Facts in Finance", *Economic Perspectives*, Federal Reserve Bank of Chicago, 1999. (See also Part IV of Cochrane's book, above.)

TEACHING PHILOSOPHY AND PEDAGOGICAL APPROACH

While your goal may simply be to "pass the course", my goal is to help you do so by thoroughly understanding the material. To achieve these common goals, we should strive for you to understand

the material at the conceptual, analytical, applied, and general levels. A *conceptual* understanding means you see how a particular topic fits into the big picture of the course and how the main ideas of a topic fit together. An *analytical* understanding means you master the precise workings and nuances of a topic. An *applied* understanding means you can translate the analytics into step-by-step solutions to formulaic problems. A *general* understanding means you master the material well enough to solve non-formulaic problems (you can handle variations on the problems you have seen before), propose different analytical approaches (you can solve problems in more than one way), and offer new conceptual representations (you can draw parallels between topics that are not obviously related). While the analytical and applied levels may be all you have time for (or care about), achieving the conceptual and general levels of understanding will ensure that you not only pass the course but help you frame what you learn in this course within the broader context of your degree and education.

Our class time must be spent wisely. There is little value in my belaboring descriptive passages from the textbook: these are best left to your own scrutiny and study. What I will spend time on in class – and stress in exams – is the material I consider to be the more technically difficult. I will try to clarify the textbook's treatment and often provide a slightly different personal take on the same topic. However, I will stick quite closely to the textbook both in terms of content and presentation. I therefore urge you to do the assigned readings and problems as diligently as possible.

GRADING

Your grade will be based on homework assignments and the final exam. The relative weightings are as follows:

Homework	45% (3 @ 15% each)
Final exam	55%

The letter grade you earn depends on your performance relative to other students taking the course. The final distribution of letter grades will be set in accordance with departmental and school policy.

HOMEWORK ASSIGNMENTS

There will be three homework assignments, which are to be done on a team basis. Each team should consist of no more than 4 people. If you can't form a group, Mr. Wang will assign you to a group. Your team should stay together until the end of the term. Each team needs to submit only one write-up of each homework assignment, and all team members will receive the same grade for their work. It is therefore important that all team members contribute equally to the homework assignments. If you feel that some team members do not contribute their fair share to the assignments, you should talk to Mr. Wang or me. We will treat any complaints confidentially.

Please inform Mr. Wang of your team members by February 22.

Each homework assignment **must** contain a **cover page** that lists the group number, the names and student id numbers of the members of the group that contributed to the assignment. Only those students whose names appear on the cover page will receive credit for their homework assignment.

All homework assignments should be written in an easily readable fashion. Therefore, I encourage you to type the essay parts of each homework assignment. For equations, graphs, figures, etc. you should use a pen instead of a pencil. If your handwriting is difficult to decipher you may lose 5% to 10% of the maximum homework grade, depending on the severity of the problem.

The homework assignments might contain some problems from the end-of-chapter problems of the textbook. Since the solutions are available online, these problems will not be graded. These problems are meant only as an exercise and to give you some guidance on what type of questions to expect on exams. Of course, it is counterproductive to read the answers before you attempt to solve the problems yourself.

Homework assignments will be handed out and made available on the course website once I have prepared them. You will have roughly two weeks to complete the assignment. Completed assignments must be turned in to Mr. Wang **by 1:00 pm** on the due dates to receive full credit. Any late assignment will earn zero credit – no exceptions. Homework solutions will be available after the due date.

EXAMS

There will be a comprehensive final exam, which will normally consist of short-answer and multiple-choice questions. Details will be provided as they become available. I will offer guidance on the content and format of the exam about one week before the exam.

There will be no make-up exams offered.

*Cheating will **not** be tolerated*. Any student caught cheating will receive zero credit and may face further disciplinary action.

Please refer to http://www.ust.hk/vpaao/integrity/ for HKUST rules regarding academic integrity.

CLASS PARTICIPATION

Active class participation is important for your learning experience and highly encouraged. It helps you to think *actively* rather than *passively*. As you move from the academic arena to the professional world you will need to shift your mindset from one of passive participation to active intervention. Start that shift now! Active participation also keeps you involved and motivated rather than removed and disinterested. Your class participation also helps me gauge whether you understand the material.

CLASS CONDUCT

To foster the best learning environment and help develop your professional skills, I ask that we all abide by the following rules of conduct:

1) We will start and end class on time. Late arrivals and early departures are rude and not admissible.

2) Have your class materials (paper, pens, etc.) ready for the start of class. Close and pack them **after** I have dismissed class. Clicking binder rings and ruffling paper is rude and will not speed me along.

3) Talk in class only as called on in the course of participation activities. No chatter.

4) Mobile phones, PDAs, laptops, etc. must be kept off and stowed away. You *may* use your laptop in class if I am also using a computer for demonstrations. You may not "type" class notes. This is a needless distraction to you and others. Should you happen to forget to turn off your mobile phone before class, you must do so discretely as soon as possible or when it rings *without* taking the call.

STUDENT TEACHER INTERACTION

Office consultation

I hope you will drop by my office from time to time so we can chat. Otherwise, office consultations are meant to help you with material you find unclear once you have made every effort to understand it. These efforts include: preparing for class (do assigned readings and problems *before* class), attending class (no private make-up classes), participating in class (ask questions as they arise), consulting your peers (form study groups), re-reading the relevant sections, letting the matter sit for a few hours, then approaching the problem/question from another angle. For best results, *have specific questions ready* if and when you do decide to consult me. I will not respond favorably to vague pleas for help, requests to solve problems from scratch, review entire book chapters or pour over class notes. Aside from posted office hours, I will meet with you at any other mutually convenient time. I will hold extra office hours before the final exam. Mr. Wang and I may also field common questions on the course website.

TENTATIVE COURSE OUTLINE

Date	Topics	Suggested reading	Discussion & exercises
Feb. 15	• Course outline • Financial assets and capital markets • Return and risk	• BKM chapters 1-3 and 5	• Problem set 1 handed out
Feb. 22	• Portfolio mathematics and capital allocation • Optimal risky portfolios	• BKM chapters 6-7	
Feb. 29	• CAPM • Testing CAPM • Passive portfolio management and internal diversification	• BKM chapters 9, 13, and 25	• Problem set 1 due • Problem set 2 handed out
Mar. 7	• Index models • APT and multifactor asset pricing models	• BKM chapters 8 and 10	
Mar. 14	• Portfolio performance evaluation • Efficient market hypothesis	• BKM chapters 11, 13, and 24	• Problem set 2 due • Problem set 3 handed out
Mar. 28	• Equity Valuations • Active portfolio management	• BKM chapters 18 and 27	
Apr. 4	• Catch-up and review	• Additional readings	• Problem set 3 due
Apr. 11	• Final exam		

SELECTED PAPER REFERENCES

- Campbell, John Y. (2000), "Asset Pricing at the Millennium," *Journal of Finance*, 55(4), 1515. A non-technical survey for the profession.
- Jensen, Michael C., Black, Fischer and Scholes, Myron S. (1972), "The Capital Asset Pricing Model: Some Empirical Tests," Michael C. Jensen, STUDIES IN THE THEORY OF CAPITAL MARKETS, Praeger Publishers Inc., 1972. Available at SSRN: http://ssrn.com/abstract=908569
- Fama, Eugene F. and MacBeth, James D. (1973), "Risk Return, and Equilibrium: Empirical Tests," *Journal of Political Economy*, 81(3), 607.
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- Chen, Nai-Fu, Roll, Richard and Ross, Stephen A. (1986), "Economic Forces and the Stock Market," *Journal of Business*, 59(3), 383.
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- Asness, Clifford, Krail, Robert and Liew, John (2001), "Do Hedge Funds Hedge?" AQR Capital Management, LLC, working paper. Available on the web, use http://scholar.google.com/
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