Department of Finance

Hong Kong University of Science and Technology

Empirical Methods in Finance

FINA 790C — Fall 2004

Kevin Q. Wang

Office: Room 2381 — Phone: 2358-7661
E-mail: kqwang@ust.hk
Office Hours: Tuesdays and Thursdays 1:30 p.m. - 3:00 p.m.
(or by appointment)

Course Description

- This course provides an introduction to empirical methods that have played an important role in recent research in finance. We will go over many topics in asset pricing and corporate finance, including stock market predictability, asset pricing with conditioning information, momentum, liquidity risk, long-run abnormal performance, diversification discount, and performance evaluation. In each topic, we discuss a set of empirical studies and highlight the methodological issues that are associated with the studies.
- The goal is not to provide a complete survey of the entire literature. Instead, I focus on the more recent research, to help one quickly see what researchers care about in recent years.

Grading

- The course grade will be based on class participation, homework assignment(s), and a term project. The relative weights are as follows:

Participation	40%
Homework	20%
Project	40%

Class Participation

- Everyone should be prepared to participate actively in class discussion.
- Readings are one of the most important components of the course. I will assign a few papers for each class. Everyone is expected to read the articles before class and come prepared to discuss the methodology and the main findings of each paper.
- From time to time, we will also discuss some selected papers in a conference style. That is, some student presents a paper, another serves as the discussant, and the others ask questions in the end.
- In short, everyone should **read the papers, show up, and participate.**

Homework

- There will be one or two homework assignments. The assignments are like short projects, which will require you to apply techniques discussed in class to actual data. You will normally have two weeks to complete each assignment.
- Please do not hand in unedited computer outputs. Instead, present carefully-edited results to allow me to identify your analysis and conclusions quickly.

Project

- There will be a term project, which requires that you write a research paper. You may replicate the results of an exisiting paper. In this case, you should extend the existing paper slightly to make some interesting points. (Otherwise, you should choose a different paper!) Of course, you may explore a new idea. I would greatly appreciate your efforts in search for new ideas.
- Do not write a very long paper. I expect a maximum of 10 pages plus some tables or figures.
- Be brief and to the point, especially in your literature review (which should be short). Make your main points very clear in the introduction and/or conclusion parts of your paper.

Textbook

There is no required textbook. There is no need to purchase any book. Having said that, I would like to recommend the following two books if you consider to buy a couple books.

Campbell, John, Andrew W. Lo, and A. Craig MacKinlay, 1997, *The Econometrics of Financial Markets*, Princeton University Press.

Cochrane, John H., 2001, *Asset Pricing*, Princeton University Press.

Reading List
(Tentative; will be updated as we proceed)

1. Asset Pricing I: Recent focuses and empirical methods

1.1. Predictability

- Lo, Andrew W., and A. Craig MacKinlay, 1988, Stock market prices do not follow random walks: Evidence from a simple specification test, *Review of Financial Studies* 1, 41-66.
- Fama, Eugene and Kenneth French, 1989, Business conditions and expected returns on stocks and bonds, *Journal of Financial Economics* 25, 23-49.
- Stambaugh, Robert F., 1999, Predictive regressions, *Journal of Financial Economics* 54, 315-421.
- Lewellen, Jonathan, 2002, Predicting returns with financial ratios, *Journal of Financial Economics*, forthcoming.
- Ferson, Wayne E., Sergei Sarkissian, and Timothy T. Simin, 2003, Spurious regressions in financial economics? *Journal of Finance* 58, 1393-1413.
- Valkanov, Rossen, 2003, Long-horizon regressions: Theoretical results and applications, *Journal of Financial Economics* 68, 201-232.

1.2. Conditional Asset Pricing

- Harvey, Campbell R., 1989, Time-varying conditional covariances in tests of asset pricing models, *Journal of Financial Economics* 24, 289-317.
- Cochrane, John H., 1996, A cross-sectional test of an investment-based asset pricing model, *Journal of Political Economy* 104, 572-621.
- Jagannathan, Ravi, and Zhenyu Wang, 1996, The conditional CAPM and the cross-section of expected returns, *Journal of Finance* 51, 3-53.
- Ferson, Wayne E., and Campbell R. Harvey, 1999, Conditioning variables and the cross-section of stock returns, *Journal of Finance* 54, 1325-1360.
- Ghysels, Eric, 1998, On stable factor structures in the pricing of risk: Do time varying betas help or hurt? *Journal of Finance* 53, 549-574.
- Wang, Kevin Q., 2003, Asset pricing with conditioning information: A new test, *Journal of Finance* 58, 161-196.

- Wang, Kevin Q., 2004, Conditioning information, out-of-sample validation, and the cross-section of stock returns, Working paper.
- Lewellen, Jonathan, and Stefan Nagel, 2004, The conditional CAPM does not explain asset pricing anomalies, Working paper.

1.3. Consumption-based Asset Pricing

- Fama, Eugene and Kenneth French, 2002, The equity premium, *Journal of Finance* 57, 637-659.
- Kocherlakota, K. R., 1996, The equity premium: It's still a puzzle, *Journal of Economic Literature* 34, 42-71.
- Campbell, John, 2000, Asset pricing at the millennium, *Journal of Finance* 55, 1515-1657.
- Campbell, John, and John Cochrane, 1999, By force of habit: a consumption-based explanation of aggregate stock market behavior, *Journal of Political Economy* 107, 205-251.
- Campbell, John, and John Cochrane, 2000, Explaining the poor performance of consumption-based asset pricing models, *Journal of Finance* 55, 2863-2878.
- Lettau, Martin, and Sydney Ludvigson, 2001, Resurrecting the (C)CAPM: A cross-sectional test when risk premia are time varying, *Journal of Political Economy* 109, 1238-1287.
- Jacobs, Kris, and Kevin Q. Wang, 2004, Idiosyncratic consumption risk and the cross-section of asset returns, *Journal of Finance*, forthcoming.

1.4. HJ Methods

- Hansen, Lars. P and Ravi Jagannathan, 1991, Implications of security market data for models of dynamic economies, *Journal of Political Economy* 99, 225-262.
- Hansen, Lars. P and Ravi Jagannathan, 1997, Assessing specification errors in stochastic discount factor models, *Journal of Finance* 52, 557-590.
- Campbell, Lo and MacKinlay, 1997, Chapter 8.
- Ferson, W. E., and A. F. Siegel, 2001, The efficient use of conditioning information in portfolios, *Journal of Finance* 56, 967-982.
- Ferson, W. E., and A. F. Siegel, 2003, Stochastic discount factor bounds with conditioning information, *Review of Financial Studies* 16, 567-595.
- Kan, R., and G. Zhou, 2004, A new variance bound on the stochastic discount factor, *Journal of Business*, forthcoming.
- Chretien, Stephane, 2003, Bounds on the autocorrelation of admissible stochastic discount factors, Working paper.

2. Asset Pricing II: Some other popular topics

2.1. Evaluation of Funds and Trading Strategies

- Chen, Z., and P. Knez, 1996, Portfolio performance measurement: theory and applications, *Review of Financial Studies* 9, 511-556.
- Farnsworth, Heber, Wayne Ferson, David Jackson, and Steven Todd, 2002, Performance evaluation with stochastic discount factors, *Journal of Business* 75, 473-504.
- Ferson, W. E., and R. Schadt, 1996, Measuring fund strategy and performance in changing economic conditions, *Journal of Finance* 51, 425-461.
- Carhart, Mark, 1997, On persistence in mutual fund performance, *Journal of Finance* 52, 57-82.
- Kothari, S.P., and Jerold Warner, 2001, Evaluating mutual fund performance, *Journal of Finance* 56, 1985-2010.
- Cohen, Randolph, Joshua Coval, and Lubos Pastor, 2003, Judging fund managers by the company they keep, *Journal of Finance*, forthcoming.
- Ferson, W. E., and K. Khang, 2002, Conditional performance measurement using portfolio weights: evidence for pension funds, *Journal of Financial Economics* 65, 249-282.
- Sullivan, Ryan, Allan Timmermann, and Halbert White, 1999, Data-snooping, technical trading rule performance, and the bootstrap, *Journal of Finance* 54, 1647-1691.
- Wang, Kevin Q., 2004, Multifactor evaluation of style rotation, *Journal of Financial and Quantitative Analysis*, forthcoming.
- Jiang, George, Tong Yao, and Tong Yu, 2004, Do mutual funds time the market? Evidence from portfolio holdings, Working paper.

2.2. Momentum

- Jegadeesh, Narasimhan, and Sheridan Titman, 1993, Returns to buying winners and selling losers: Implications for stock market efficiency, *Journal of Finance* 48, 65-91.
- Fama, Eugene F., and Kenneth R. French, 1996, Multifactor explanations of asset pricing anomalies, *Journal of Finance* 51, 55-84.
- Conrad, Jennifer, and Gautam Kaul, 1998, An anatomy of trading strategies, *Review of Financial Studies* 11, 489-519.
- Grundy, Bruce D., and J. Spencer Martin, 2001, Understanding the nature of the risks and source of the rewards to momentum investing, *Review of Financial Studies* 14, 29-78.

- Jegadeesh, Narasimhan, and Sheridan Titman, 2001, Profitability of momentum strategies: An evaluation of alternative explanations, *Journal of Finance* 56, 699-720.
- Chordia, Tarun, and Lakshmanan Shivakumar, 2002, Momentum, business cycle, and time-varying expected returns, *Journal of Finance* 57, 985-1019.
- Griffin, John, Susan Ji, and Spencer Martin, 2003, Momentum investing and business cycle risk: evidence from pole to pole, *Journal of Finance* 58, 2515-2547.
- Moskowitz, Tobias J., and Mark Grinblatt, 1999, Do industries explain momentum? *Journal of Finance* 54, 1249-1290.
- Lewellen, Jonathan, 2002, Momentum and autocorrelation in stock returns, *Review of Financial Studies* 15, 533-563.
- Kang, Qiang, and Canlin Li, 2004, Understanding the sources of momentum profits: stock-specific component versus common-factor component, Working paper.

2.3. Trading Costs and Liquidity

- Lesmond, David A., Michael J. Schill, and Chunsheng Zhou, 2004, The illusory nature of momentum profits, *Journal of Financial Economics* 71, 349-380.
- Korajczyk, Robert A., and Ronnie Sadka, 2004, Are momentum profits robust to trading costs? *Journal of Finance* 59, 1039-1082.
- Amihud, Yakov, 2002, Illiquidity and stock returns: cross-section and time-series effects, *Journal of Financial Markets* 5, 31-56.
- Chordia, Tarun, Richard Roll, and Avanidhar Subrahmanyam, 2000, Commonality in liquidity, *Journal of Financial Economics* 56, 3-28.
- Chordia, Tarun, Richard Roll, and Avanidhar Subrahmanyam, 2001, Market liquidity and trading activity, *Journal of Finance* 56, 501-530.
- Chordia, Tarun, Avanidhar Subrahmanyam, and V. Ravi Anshuman, 2001, Trading liquidity and expected stock returns, *Journal of Financial Economics* 59, 3-32.
- Pastor, Lubos, and Robert F. Stambaugh, 2003, Liquidity risk and expected stock returns, *Journal of Political Economy* 111, 642-685.
- Acharya, Viral V., and Lasse Heje Pedersen, 2003, Asset pricing with liquidity risk, *Journal of Financial Economics*, forthcoming.
- Sadka, Ronnie, 2004, Informational versus non-informational aspects of liquidity risk: The pricing of momentum stocks, Working paper.

3. Empirical Methods in Corporate Finance

3.1. Event Studies: Short-run abnormal returns

- MacKinlay, A. Craig, 1997, Event studies in economics and finance, *Journal of Economics Literature* 35, 13-39.
- Campbell, Lo and MacKinlay, 1997, Chapter 4.
- Brown, Stephen and Jerold Warner, 1980, Measuring security price performance, *Journal of Financial Economics* 8, 205-258.
- Brown, Stephen and Jerold Warner, 1985, Using daily stock returns: The case of event studies, *Journal of Financial Economics* 14, 3-31.
- Ball, C., and W. Torous, 1988, Investigating security price performance in the presence of event date uncertainty, *Journal of Financial Economics* 22, 123-154.
- Boehmer, E., J. Musumeci, and A. Poulsen, 1991, Event study methodology under conditions of event-induced variance, *Journal of Financial Economics* 30, 253-272.
- Eckbo, B. Espen, Vojislav Maksimovic, and Joseph Williams, 1990, Consistent estimation of cross-sectional models in event studies, *Review of Financial Studies* 3, 343-365.
- Prabhala, N. R., 1997, Conditional methods in event studies and an equilibrium justification for standard event study procedures, *Review of Financial Studies* 10, 1-38.

3.2. Long-Run Abnormal Performance

- Fama, Eugene, 1998, Market efficiency, long-term returns, and behavioral finance, *Journal of Financial Economics* 49, 283-306.
- Kothari, S.P. and Jerold Warner, 1997, Measuring long-run security price performance, *Journal of Financial Economics* 43, 301-340.
- Barder, Brad and John Lyon, 1997, Detecting long-run abnormal stock returns: The empirical power and specification of test statistics, *Journal of Financial Economics* 43, 341-372.
- Lyon, John, Brad Barder and Chih Tsai, 1999, Improved methods for tests of long-run abnormal stock returns, *Journal of Finance* 54, 165-201.
- Loughran, Tim, and Jay R. Ritter, 2000, Uniformly least powerful tests of market efficiency, *Journal of Financial Economics* 55, 361-389.
- Mitchell, Mark L., and Erik Stafford, 2000, Managerial decisions and long-term stock price performance, *Journal of Business* 73, 287-329.
- Ritter, Jay R., 2003, Investment banking and securities issuance, Chapter 5 in *Handbook of the Economics and Finance.*

3.3. Internal Capital Markets: The measurement error issue

- Whited, Toni, 2001, Is it inefficient investment that causes the diversification discount? *Journal of Finance* 56, 1667-1691.
- Erickson, Timothy, and Toni Whited, 2000, Measurement error and the relationship between investment and q, *Journal of Political Economy* 108, 1027-1057.
- Erickson, Timothy, and Toni Whited, 2002, Two-step GMM estimation of the errors-in-variables model using high-order moments, *Econometric Theory* 18, 776-799.
- Colak, Gonul, and Toni Whited, 2003, Spin-off, divestitures, and conglomerate investment, Working paper.

Background:

- Lang, Larry H.P., and Rene M. Stulz, 1994, Tobin's q, corporate diversification, and firm performance, *Journal of Political Economy* 102, 1248-1280.
- Shin, Hyun-han, and Rene M. Stulz, 1998, Are internal capital markets efficient? *Quarterly Journal of Economics* 113, 531-552.
- Lamont, Owen, 1997, Cash flow and investment: Evidence from internal capital markets, *Journal of Finance* 52, 83-109.
- Maksimovic, V. and G. Phillips, 2002, Do conglomerate firms allocate resources inefficiently across industries? Theory and evidence, *Journal of Finance* 57, 721-767.
- Schfstein, David, and Jeremy Stein, 2000, The dark side of internal capital markets: Divisional rent-seeking and inefficient investment, *Journal of Finance* 55, 2537-2564.
- Rajan, R., H. Servaes, and L. Zingales, 2000, The cost of diversity: The diversification discount and inefficient investment, *Journal of Finance* 55, 35-80.
- Stein, Jeremy, 1997, Internal capital markets and the competition for corporate resources, *Journal of Finance* 52, 111-133.

4. Asset Pricing III: Some debates

4.1. CAPM vs. Fama-French three factor model

- Fama, Eugene F., and Kenneth R. French, 1992, The cross-section of expected stock returns, *Journal of Finance* 47, 427-465.
- Fama, Eugene F., and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3-56.

- Kothari, S.P., Jay Shanken, and Richard Sloan, 1995, Another look at the cross-section of expected stock returns, *Journal of Finance* 50, 185-224.
- MacKinlay, A. Craig, 1995, Multifactor models do not explain deviations from the CAPM, *Journal of Financial Economics* 38, 3-28.
- Kandel, Shmuel, and Robert F. Stambaugh, 1995, Portfolio inefficiency and the cross-section of expected returns, *Journal of Finance* 50, 157-184.
- Fama, Eugene F., and Kenneth R. French, 1996, The CAPM is wanted, dead or alive, *Journal of Finance* 51, 1947-1958.
- Kan, Raymond, and Chu Zhang, 1999, Two-pass tests of asset pricing models with useless factors, *Journal of Finance* 54, 203-235.
- Liew, Jimmy, and Maria Vassalou, 2000, Can book-to-market, size and momentum be risk factors that predict economic growth? *Journal of Financial Economics* 57, 221-245.

4.2. Factors vs. Characteristics

- Berk, Jonathan B., 1995, A critique of size-related anomalies, *Review of Financial Studies* 8, 275-286.
- Daniel, Kent, and Sheridan Titman, 1997, Evidence on the characteristics of cross-sectional variation in stock returns, *Journal of Finance* 52, 1-33.
- Davis, James L., Eugene E. Fama, and Kenneth R. French, 2000, Characteristics, covariances, and average returns: 1929-1997, *Journal of Finance* 55, 389-406.
- Zhang, Chu, 2003, Factor-mimicking portfolios from return-predictive firm-specific variables, Working paper.

4.3. Betas vs. SDFs

- Kan, Raymond, and Guofu Zhou, 1999, A critique of the stochastic discount factor methodology, *Journal of Finance* 54, 1021-1048.
- Jagannathan, Ravi, and Zhenyu Wang, 2002, Empirical evaluation of asset pricing models: A comparison of SDF and beta methods, *Journal of Finance* 57, 2337-2367.
- Cochrane, John H., 2001, A rehabilitation of stochastic discount factor methodology, Working paper.
- Kan, Raymond, and Guofu Zhou, 2001, Empirical asset pricing: The beta method versus the stochastic discount factor method, Working paper.

5. Other Topics (if we have time)

Papers will be included if we have time for these topics.

5.1. ARCH/GARCH Methods

5.2. Bayesian Methods

5.3. Continuous-time Methods