

**Stephen M. Ross School of Business
UNIVERSITY OF MICHIGAN**

**Empirical Methodology in Finance
FIN 875, Winter A 2007**

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Meeting time/place: 7–10pm, W2719
Office hours: Open door policy

Objectives

This course introduces doctoral students in finance and related fields to current asset pricing research, applied theoretical and empirical, in connection with corporate finance, macroeconomics, and capital markets research in accounting. By the end of the course, students are expected to:

- have a comprehensive conceptual framework of asset pricing, be familiar with the classic papers, recent contributions to frontier topics, and most important, relevant economic questions;
- be able to analyze and evaluate new research efficiently; and
- have acquired the skills to conduct and communicate original asset pricing research.

Prerequisites

To register for or audit FIN 875 you must have completed a first-year graduate course in finance theory, microeconomic and macroeconomic theory, and econometrics.

Communications

Email is my primary mode of communication. I will use email to send assignments and administrative notices to all registered students. The course website in CTools holds all lecture notes and assignments (that we will have covered to date) as well as some readings.

Grading

The following components make up your course grade, if you are a registered student, or maintain your auditing privilege, if you are an auditing student:

Pre-Class Preparation

To make this class work, everyone has to work through every assigned reading before class. If you do not want to work hard, I do not want you in this class.

Registered students: The first time that I discover you did not work through an assigned paper before class, I will issue you a warning. The second time, and every time thereafter, that I discover you did not work through an assigned paper before class, I will deduct 1/3rd of a grad from your final grade.

Auditing students: The first two times that I discovered you did not work through an assigned paper before class, I will issue you a warning. The third time that I find out you did not work through an assigned paper before class, I will withdraw your auditing privilege. Note that you can lose your auditing privilege by coming unprepared to just one class!

Assignments (60%)

At least every other week I will assign fairly lengthy homework. These exercises are to be completed **individually**, though you are encouraged to discuss with each other, and be handed in at or before the beginning of class on the day they are due. You are expected to start working on the assignment as soon as possible, since some of them could take days to complete. Under no circumstance will I accept late homework.

The assignments are designed to help you understand the material, digest the assigned papers that I do not cover in class, and familiarize yourself with capital markets research. Many problems will require the use of computers. You must know or quickly learn a statistical programming language. I recommend that you use MATLAB, GAUSS, or STATA to handle the data manipulation, and use SAS to obtain raw data from WRDS. Of course, you may be a die-hard programmer and would like to use C++, Fortran, or the more user friendly Fortran 90.

Auditing students are exempt from the assignments.

Referee Reports and Class Participation (20%)

Every week that you are not working on an assignment, you will have to write a referee report on a paper I will distribute in class. Each referee report should be no longer than five pages, one-half spaced, and a conference discussion should be no longer than 15 slides, which can be completed within 15–20 minutes in a formal presentation. Depending on the ultimate size of the class, I can assign different papers to different students and require that students present a discussion of the paper like those you see in conferences.

The referee reports and conference discussions extend your knowledge of the literature and give you an idea of the substantive and methodological questions which current research focuses on. Perhaps more importantly, they teach you to form an opinion about whether a piece of research is outstanding or only mediocre. You will not be graded on whether your opinion agrees with mine, but rather on how you come to your conclusions and how well you back them up. It is very possible that I will change my mind after reading your report and/or listening to your discussion. Auditing students are required to hand in respectable referee reports and to present conference discussions, just like registered students. If you do not, I will immediately withdraw your auditing privilege.

I expect that you become an active participant in the class. You are expected to ask questions, raise issues, contribute your knowledge, and challenge the opinions of others, including mine. The class will be a lot more enjoyable for everyone if you do. I will make a note of who contributed after every class. Auditing students are required to participate, just like registered students. If you

manage to establish a reputation for being quiet (it is **not** a good trait for the job market) I will withdraw your auditing privilege.

Research Proposal (20%)

You will have to submit an original research proposal (applied theoretical and/or empirical) by the end of the quarter. I realize that this is not your thesis, so I do not expect that you to come up with an economic explanation on an asset pricing anomaly or attack an uncharted research question — although if you do, I will be extremely proud of you. However, you are expected to write a paper that:

uses a methodology/model introduced in this course, or more advanced, to answer an economic question of interest to you, or

improve on someone's answer to an economic question by refining a methodology/model of interest to you.

This proposal should be no longer than 20 pages, one-half spaced, not including tables and figures. I am more interested in seeing your mind at work, than I am in reading a well-polished literature review. Generally, I think the more clever your idea is, the shorter the paper can be. In preparing your research proposal, you should choose a topic and bring yourself to the frontier of the existing literature. You should search the recent finance journals for related published papers and the SSRN or other sources for current working papers.

Textbooks and References

The required textbooks include:

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

Singleton, Kenneth, 2006, *Empirical Dynamic Asset Pricing*, Princeton University Press.

In addition, you might find the following books useful for references:

Surveys of Financial Economics

Constantinides, George M., Milton Harris, and Rene M. Stulz, 2003, *Handbook of the Economics of Finance*, North-Holland.

Applied Econometrics

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

Gourieroux, Christian, and Joann Jasiak, 2001, *Financial Econometrics: Problems, Models, and Methods*, Princeton University Press.

Greene, William, 2000, *Econometric Analysis*, 4th Edition, Prentice Hall.

Hamilton James, 1994, *Time Series Analysis*, Princeton University Press.

LeSage, James P., 2001, Applied Econometrics in MATLAB, Available from <http://www.spatial-econometrics.com/>.

Wooldridge, Jeffrey M., 2002, *Econometric Analysis of Cross Section and Panel Data*, The MIT Press.

Ogaki, Masao, Kyungho Jang, and Hyoung-Seok Lim, *Structural Macroeconometrics*, available at: <http://www.kjang.com/inha/book/>.

Behavioral Finance

Shefrin, Hersh, 1999, *Beyond Fear and Greed*, Harvard Business School Press.

Shleifer, Andrei, 2000, *Inefficient Markets: An Introduction to Behavioral Finance*, Oxford University Press.

Thaler, Richard, 1993, *Advances in Behavioral Finance*, Russell Sage Foundation.

Thaler, Richard, 2006, *Advances in Behavioral Finance II*, Russell Sage Foundation.

Applied Equilibrium Analysis of Dynamic Economies

Adda, Jérôme, and Russell Cooper, 2003, *Dynamic Economics: Quantitative Methods and Applications*, The MIT Press.

Cooley, Thomas F., 1995, *Frontiers of Business Cycle Research*, Princeton University Press.

Judd, Kenneth, 1998, *Numerical Methods in Economics*, The MIT Press.

Ljungqvist, Lars, and Thomas J. Sargent, 2004, *Recursive Macroeconomic Theory*, the second edition, The MIT Press.

Marimon, Ramon, and Andrew Scott, 1999, *Computational Methods for the Study of Dynamic Economies*, Oxford University Press.

Turnovsky, Stephen J., 2000, *Methods of macroeconomic dynamics*, The MIT Press.

Communication

Booth, Wayne C., Gregory G. Colomb, and Joseph M. Williams, 2003, *The craft of research*, The University of Chicago Press.

Cialdini, Robert B., 1998, *Influence: The psychology of persuasion*, Perennial Currents.

Fisher, Roger, William L. Ury, and Bruce Patton, 1991, *Getting to yes: Negotiating agreement without giving in*, 2nd edition, Penguin.

Hogan, Kevin, 1996, *The psychology of persuasion: How to persuade others to your way of thinking*, Pelican Publishing Company.

Huff, Anne Sigismund, 1999, *Writing for scholarly publication*, SAGE Publications.

Thyer, Bruce A., 1994, *Successful publishing in scholarly journals*, SAGE publications, Inc.

Toogood, Granville N., 1996, *The articulate executive: Learn to look, act, and sound like a leader*, McGraw-Hill, Inc.

Williams, Joseph M., 1995, *Style: Towards clarity and grace*, The University of Chicago Press.

Williams, Joseph W. and Gregory G. Colomb, 2003, *The craft of argument*, Addison Wesley Longman, Inc.

Tentative Course Outline

The following is a tentative list of the topics to be discussed in class:

- Times series predictability
- Cross-sectional predictability
- SDF: methodology and implementation
- Consumption-based asset pricing
- Investment-based asset pricing
- Stock returns and corporate policies

Tentative Reading List

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1 Capital Markets: The Big Picture

Barberis, Nicholas, and Richard Thaler, 2002, A Survey of Behavioral Finance, In *Handbook of the Economics of Finance*.

Cochrane, John H., 2001, Asset Pricing, Chapters 20 and 21

Cochrane, John H., 2005, Financial markets and the real economy, forthcoming, *The International Library of Critical Writings in Financial Economics*, edited by Richard Roll, Edward Elgar.

- Fama, Eugene F., 1998, Market Efficiency, Long-Term Returns, and Behavioral Finance, *Journal of Financial Economics*, 49, 283–306.
- Fama, Eugene, 1976, Foundations of Finance, Chapter 5
- Schwert, G. William, 2003, Anomalies and Market Efficiency, in *Handbook of the Economics of Finance*, Edited by George Constantinides, Milton Harris, and Rene Stulz, North-Holland.
- Shleifer, Andrei, 2000, Are Financial Markets Efficient? In *Inefficient Markets: An Introduction to Behavioral Finance*, Chapter 1.
- Zwiebel, Jeffrey, 2002, Review of Shleifer’s Inefficient Markets, *Journal of Economic Literature*, XL, 1215–1220.
- Campbell, John Y., 2000, Asset Pricing at the Millennium, *Journal of Finance*, LV (4), 1515–1567.
- Daniel, Kent, David Hirshleifer, and Siew Hong Teoh, 2002, Investor Psychology in Capital Markets: Evidence and Policy Implications, *Journal of Monetary Economics*, 49, 139–209.
- Fama, Eugene F., 1991, Efficient Capital Markets: II, *Journal of Finance*, XLVI (5), 1575–1617.
- Hirshleifer, David, 2001, Investor Psychology and Asset Pricing, *Journal of Finance*, LVI (4), 1533–1597.
- Kothari, S.P., 2001, Capital Markets Research in Accounting, *Journal of Accounting and Economics*, 31, 105–231.

2 Empirical Finance

2.1 Time-Series Predictability

Required

- Baker, Malcolm, and Jeffrey Wurgler, 2000, The Equity Share in New Issues and Aggregate Stock Returns, *Journal of Finance*, 55, 2219–2257.
- Campbell, Lo, and MacKinlay, 1997, Chapter 7.
- Fama, Eugene F., and Kenneth R. French, 1989, Business Conditions and Expected Returns on Stocks and Bonds, *Journal of Financial Economics*, 25, 23–49.
- Hodrick, Robert J., 1992, Dividend Yields and Expected Stock Returns: Alternative Procedures for Inference and Measurement, *Review of Financial Studies*, 5, 357–386.
- Lamont, Owen, 1998, Earnings and Expected Returns, *Journal of Finance*, 53, 1563–1587.
- Lewellen, Jonathan W., 2002, Predicting Returns with Financial Ratios, forthcoming, *Journal of Financial Economics*.
- Stambaugh, Robert F., 1999, Predictive Regressions, *Journal of Financial Economics*, 54, 375–421.

Recommended

- Campbell, John Y., 1987, Stock Returns and the Term Structure, *Journal of Financial Economics*, 18, 373–399.

- Campbell, John Y., 1991, A Variance Decomposition for Stock Returns, *The Economic Journal*, 101, 157–179.
- Campbell, Lo, and MacKinlay, 1997, Chapter 2.
- Campbell, John Y., and Robert J. Shiller, 1988, The Dividend-Price Ratio and Expectations of Future Dividends and Discount Factors, *Review of Financial Studies*, 1, 195–227.
- Fama, Eugene F., and Kenneth R. French, 1988a, Dividend Yields and Expected Stock Returns, *Journal of Financial Economics*, 22, 3–25.
- Fama, Eugene F., and Kenneth R. French, 1988b, Permanent and Temporary Components of Stock Returns, *Journal of Political Economy*, 96, 246–273.
- Ferson, Wayne E., Sergei Sarkissian, and Timothy T. Simin, 2002, Spurious Regressions in Financial Economics? *Journal of Finance*, Forthcoming.
- Keim, Donald B., and Robert F. Stambaugh, 1986, Predicting Returns in the Stock and Bond Markets, *Journal of Financial Economics*, 17, 357–390.
- Kothari, S. P. and Jay Shanken, 1997, Book-to-Market, Dividend Yield, and Expected Market Returns: A Time-Series Analysis, *Journal of Financial Economics*, 44, 169–203.
- Lettau, Martin, and Sydney Ludvigson, 2001, Consumption, Aggregate Wealth, and Expected Stock Returns, *Journal of Finance*, 56, 815–849.
- Lo, Andrew W., and A. Craig MacKinlay, 1990, Data-Snooping Biases in Tests of Financial Asset Pricing Models, *Review of Financial Studies*, 3, 431–468.
- Pontiff, Jeffrey and Lawrence Schall, 1999, Book to Market as a Predictor of Market Returns, *Journal of Financial Economics*, 49, 141–160.

2.2 Cross-Sectional Predictability: Beta Methods

Required

- Campbell, Lo, and MacKinlay, 1997, Chapter 5.
- Chen, Nai-Fu, Richard Roll, and Stephen Ross, 1986, Economic Forces and the Stock Market, *Journal of Business*, 59, 3, 383–403.
- 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 Bonds and Stocks, *Journal of Financial Economics*, 33, 3–56.
- Fama, Eugene F., and Kenneth R. French, 1995, Size and Book-to-Market Factors in Earnings and Returns, *Journal of Finance*, 50, 131–155.
- Fama, Eugene F., and Kenneth R. French, 1996, Multifactor Explanations of Asset Pricing Anomalies, *Journal of Finance*, 51, 55–84.
- 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.

Recommended

- Asness, Clifford S., Jacques A. Friedman, Robert J. Krail, and John M. Liew, 2000, Style Timing: Value versus Growth, *Journal of Portfolio Management*, Spring, 50–60.
- Ball, Ray, S.P. Kothari, and Jay Shanken, 1995, Problems in Measuring Portfolio Performance: An Application to Contrarian Investment Strategies, *Journal of Financial Economics*, 79–107.
- Berk, Jonathan, 1995, A Critique of Size-Related Anomalies, *Review of Financial Studies*, 8, 275–286.
- Berk, Jonnathan, 2000, Sorting out Sorts, *Journal of Finance*, 55 (1), 407–427.
- Brennan, Michael, Tarun Chordia, and Avanidhar Subrahmanyam, 1998, Alternative Factor Specifications, Security Characteristics, and the Cross-Section of Expected Stock Returns, *Journal of Financial Economics*, 49, 345–373.
- Brennan, Michael, Yihong Xia, and Ashley Wang, 2002, Intertemporal Capital Asset Pricing and the Fama-French Three-Factor Model, Working Paper, UCLA.
- Campbell, John Y., 1996, Understanding Risk and Return, *Journal of Political Economy*, 104, 298–345.
- Cohen, Randolph B., Christopher Polk, and Tuomo Vuolteenaho, 2002, The Value Spread, Forthcoming, *Journal of Finance*.
- Daniel, Kent, and Sheritan Titman, 1997, Evidence on the Characteristics of Cross Sectional Variation in Stock Returns, *Journal of Finance*, 52, 1–33.
- Davis, James L., Eugene F. Fama, and Kenneth R. French, 2000, Characteristics, Covariances, and Average Returns: 1929–1997, *Journal of Finance* 55 (1), 389–406.
- Fama, Eugene F., and Kenneth R. French, 1999, Value Versus Growth: The International Evidence, *Journal of Finance*, 53 (6), 1975–1999.
- Gibbons, Michael R., Stephen A. Ross, and Jay Shanken, 1989, A Test of the Efficiency of a Given Portfolio, *Econometrica*, 57, 1121–1152.
- Kothari, S.P., Jay Shanken, and Richard Sloan, 1995, Another Look at the Cross-Section of Expected Returns, *Journal of Finance*, 50, 185–224.
- Lakonishok, Josef, Andrei Shleifer, and Robert W. Vishny, 1994, Contrarian Investment, Extrapolation, and Risk, *Journal of Finance*, XLIX (5), 1541–1578.
- La Porta, Rafael, Josef Lakonishok, Andrei Shleifer, and Robert Vishny, 1997, Good News for Value Stocks: Further Evidence on Market Efficiency, *Journal of Finance*, 52 (2), 859–874.
- MacKinlay, A. Craig, 1995, Multifactor Models Do Not Explain Deviations From The CAPM, *Journal of Financial Economics*, 38, 3–28.
- Shanken, Jay, 1992, On the Estimation of Beta-Pricing Models, *Review of Financial Studies*, 5 (1).
- Vassalou, Maria, 2002, News Related to Future GDP Growth As a Risk Factor in Equity Returns, *Journal of Financial Economics*, Forthcoming.
- Vuolteenaho, Tuomo, 2001, What Drives Firm-Level Stock Returns? *Journal of Finance*, 57 (1), 233–264.

2.3 Cross-Sectional Predictability: SDF Methods

Required

Cochrane, John, 2001, Asset Pricing, Chapters 10–16.

Ferson, Wayne E., and Campbell R. Harvey, 1999, Conditioning Variables And Cross-Section of Stock Returns, *Journal of Finance*, 54, 1325–1360.

Jagannathan, Ravi, and Zhenyu Wang, 1996, The Conditional CAPM and the Cross-Section of Expected Returns, *Journal of Finance*, 51, 3–54.

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 (6), 1238–1287.

Recommended

Ball Ray, and S. P. Kothari, 1989, Nonstationary Expected Returns: Implications for Tests of Market Efficiency and Serial Correlation in Returns, *Journal of Financial Economics*, 25, 51–74.

Chan, K. C., and Nai-Fu Chen, 1988, An Unconditional Asset-Pricing Test and the Role of Firm Size as an Instrumental Variable for Risk, *Journal of Finance*, 43, 2, 309–325.

Chan, Louis K. C., and Nai-fu Chen, 1991, Structural and Return Characteristics of Small and Large Firms, *Journal of Finance*, 46, 1467–1484.

Ferson, Wayne E., 2002, Tests of Multifactor Pricing Models, Volatility Bounds, and Portfolio Performance, forthcoming, in *Handbook of the Economics of Finance*, Edited by George Constantinides, Milton Harris, and Rene Stulz, North-Holland.

Ferson Wayne, and Campbell R. Harvey, 1991, The Variation of Economic Risk Premiums, *Journal of Political Economy*, 99, 285–315.

Jagannathan, Ravi, and Zhenyu Wang, 2001, Empirical Evaluation of Asset Pricing Models: A Comparison of the SDF and Beta Methods, *Journal of Finance*, Forthcoming.

Lewellen, Jonathan, 1999, The Time-Series Relations Among Expected Return, Risk, and Book-to-Market, *Journal of Financial Economics*, 54, 5–43.

Lewellen, Jonathan, and Stefan Nagel, 2004, Conditional CAPM Does Not Explain Asset Pricing Anomalies, Working Paper, MIT.

Petkova, Ralitsa, and Lu Zhang, 2005, Is Value Riskier Than Growth? forthcoming, *Journal of Financial Economics*.

Shanken, Jay, 1990, Intertemporal Asset Pricing: An Empirical Investigation, *Journal of Econometrics*, 45, 99–120.

2.4 Momentum Profits

- Asness, Clifford, 1997, The Interaction of Value and Momentum Strategies, *Financial Analyst's Journal*, March/April, 29–36.
- Chan, Louis K.C., Narasimhan Jegadeesh, and Josef Lakonishok, 1996, Momentum Strategies, *Journal of Finance*, 51 (5), 1681–1713.
- Chen, Joseph, and Harrison Hong, 2002, Discussion of “Momentum and Autocorrelation in Stock Returns,” *Review of Financial Studies*, 15 (2), 565–573.
- Chordia, Tarun, and Lakshmanan Shivakumar, 2002, Momentum, Business Cycle, and Time-Varying Expected Returns, *Journal of Finance*, Forthcoming.
- De Bondt, Werner, and Richard Thaler, 1985, Does the Stock Market Overreact? *Journal of Finance*, 40, 793–808.
- Grundy, Bruce D., and J. Spencer Martin, 2001, Understanding the Nature of the Risks and the Source of the Rewards to Momentum Investing, *Review of Financial Studies*, 14 (1), 29–78.
- Jegadeesh, Narasimhan, and Sheridan Titman, 1993, Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency, *Journal of Finance*, 48 (1), 65–91.
- Jegadeesh, Narasimhan, and Sheridan Titman, 2001, Profitability of Momentum Strategies: An Evaluation of Alternative Explanations, *Journal of Finance*, 56 (2), 699–720.
- Lewellen, Jonathan, 2002, Momentum and Autocorrelation in Stock Returns, *Review of Financial Studies*, 15 (2), 533–563.
- Chordia, Tarun, and Lakshmanan Shivakumar, 2002, Earnings and Price Momentum, Working Paper, Goizueta Business School, Emory University.
- Conrad, Jennifer, and Gautam Kaul, 1998, An Anatomy of Trading Strategies, *Review of Financial Studies*, 11 (3), 489–519.
- Jegadeesh, Narasimhan, and Sheridan Titman, 2002, Cross-Sectional and Time-Series Determinants of Momentum Returns, *Review of Financial Studies*, 15 (1), 143–157.
- Liu, Laura X.L., Jerold B. Warner, and Lu Zhang, 2004, Economic Fundamentals, Risk, and Momentum Profits, Working Paper, University of Rochester.
- Lo, Andrew W., and A. Craig MacKinlay, 1990, When Are Contrarian Profits Due to Stock Market Overreaction, *Review of Financial Studies*, 3 (2), 175–205.
- Moskowitz, Tobias J., and Mark Grinblatt, 1999, Do Industries Explain Momentum? *Journal of Finance*, LIV (4), 1249–1290.
- Rouwenhorst, Geert K., 1998, International Momentum Strategies, *Journal of Finance*, 53, 267–284.

2.5 Stock Returns, Corporate Policies, and Events

2.5.1 Event-Study Methodology

- Barber, Brad M., and John D. Lyon, 1997, Detecting Long-Run Abnormal Stock Returns: The Empirical Power and Specification of Test Statistics, *Journal of Financial Economics*, 43, 341–372.
- Brown, Stephen J., and Jerold B. Warner, 1980, Measuring Security Price Performance, *Journal of Financial Economics*, 8, 205–258.
- Campbell, Lo, and MacKinlay, 1997, Chapter 4.
- Eckbo, B. Espen, Vojislav Maksimovic, and Joseph Williams, 1990, Consistent Estimation of Cross-Sectional Models in Event Studies, *Review of Financial Studies*, 3 (3), 343–365.
- Kothari, S.P., and Jerold B. Warner, 1997, Measuring Long-Horizon Security Price Performance, *Journal of Financial Economics*, 43, 301–339.
- Kothari, S.P. and Jerold B. Warner, 2004, The Econometrics of Event Studies, forthcoming, *Handbook of Empirical Corporate Finance*.
- Lyon, John D., Brad M. Barber, and Chih-Ling Tsai (1999), Improved Methods for Tests of Long-Run Abnormal Stock Returns, *Journal of Finance*, LIV (1), 165–201.
- Mitchell, M. and E. Stafford, 1997, Managerial Decisions and Long-term Stock Price Performance, *Journal of Business*.
- Prabhala, N.R., 1997, Conditional Methods in Event Studies and an Equilibrium Justification for Standard Event-Study Procedures, *Review of Financial Studies*, 10 (1), 1–38.

2.5.2 Earnings Announcement

- Bernard, Victor L., 1993, Stock Price Reactions to Earnings Announcements: A Summary of Recent Anomalous Evidence and Possible Explanations, in *Advances in Behavioral Finance*, edited by Richard H. Thaler, Russell Sage Foundation, New York.
- Bernard, Victor L., and Jacob K. Thomas, 1989, Post-Earnings-Announcement Drift: Delayed Price Response or Risk Premium? *Journal of Accounting Research*, 27 Supplement, 1–36.

2.5.3 Corporate Investment Policies

- Whited, Toni M., 1992, Debt, liquidity constraints, and corporate investment: Evidence from panel data, *Journal of Finance* 47, 1425–1460.
- Stein, Jeremy, 1996, Rational Capital Budgeting in an Irrational World, *Journal of Business*, 69, 429–55.
- Stein, Jeremy C., 2003, Agency, Information, and Corporate Investment, in *Handbook of the Economics of Finance*, Edited by George Constantinides, Milton Harris, and Rene Stulz, North-Holland.

2.5.4 Corporate Financing Policies

Baker, Malcolm, and Jeffrey Wurgler, 2002a, Market Timing and Capital Structure, *Journal of Finance*, 57, 1–32.

Loughran T., and Jay Ritter, 1995, The New Issues Puzzle, *Journal of Finance* 50, 23–51.

Ritter, Jay R., 2003, Investment Banking and Security Issuance, *Handbook of the Economics of Finance*.

2.5.5 Corporate Payout Policies

Baker, Malcolm, and Jeffrey Wurgler, 2002b, A Catering Theory of Dividends, Working Paper, Harvard University.

Benartzi, S., R. Michaely, and R. Thaler, 1997, Do Dividend Changes Signal the Future or the Past, *Journal of Finance* 52, 1007–1034.

Ikenberry, David, Josef Lakonishok, and Theo Vermaelen, 1995, Market Underreaction to Open Market Share Repurchases, *Journal of Financial Economics*, 39 (2–3), 181–208.

Michaely, R., R. Thaler, and K. Womack, 1995, Price Reaction to Dividend Initiations and Omissions, *Journal of Finance* 50, 573–608.

2.5.6 Corporate Restructuring

Agrawal, A., Jaffe, Mandelker, G., 1992, The Post-Merger Performance of Acquiring Firms: A Reexamination of An Anomaly, *Journal of Finance* 47, 1605–1621.

Asquith, P., 1983, Merger Bids, Uncertainty, and Stockholder Returns, *Journal of Financial Economics* 11, 51–83.

Loughran T., and A. Vijh, 1997, Do Long-Term Shareholders Benefit from Corporate Acquisitions? *Journal of Finance* 52, 1765–1790.

Roll, R., 1986, The Hubris Hypothesis of Corporate Takeovers, *Journal of Business* 59, 197–216.

2.5.7 Accruals, Earnings Management

Sloan, Richard G., 1996, Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings? *The Accounting Review* 71 (3), 289–315.

3 Applied Theoretical Analysis in Capital Markets

3.1 Consumption-Based Asset Pricing

Bansal, Ravi, and Amir Yaron, 2002, Risk for the Long Run: A Potential Resolution of Asset Pricing Puzzles, forthcoming, *Journal of Finance*.

Campbell, John Y., 2003, Consumption-Based Asset Pricing, *Handbook of the Economics of Finance*, Edited by George Constantinides, Milton Harris, and Rene Stulz, North-Holland.

Campbell, John Y., and John H. Cochrane, 1999, By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior, *Journal of Political Economy*, 107, 205–251.

- Campbell, John Y., and John H. Cochrane, 2000, Explaining the Poor Performance of Consumption-based Asset Pricing Models, *Journal of Finance*, LV (6), 2863–2878.
- Hansen, Lars Peter, and Kenneth J. Singleton, 1982, Generalized Instrumental Variables Estimation of Nonlinear Rational Expectations Models, *Econometrica*, 50, 1269–1288.
- Hansen, Lars Peter, and James H. Heckman, 1996, The Empirical Foundations of Calibration, *Journal of Economic Perspective*, 10 (1), 87–104.
- Mehra, R., and Edward Prescott, 1985, The Equity Premium: A Puzzle, *Journal of Monetary Economics*, 15, 145–161.
- Breeden, Douglas, Michael Gibbons, and Robert Litzenberger, 1989, Empirical Tests of the Consumption Oriented CAPM, *Journal of Finance*, 44, 231–262.
- Campbell, Lo, and MacKinlay, 1997, Chapter 8.
- Chan, Lewis, and Leonid Kogan, 2001, Catching Up with the Joneses: Heterogeneous Preferences and the Dynamics of Asset Prices, *Journal of Political Economy*, Forthcoming.
- Cochrane, John H., and Lars P. Hansen, 1992, Asset Pricing Explorations for Macroeconomics, *NBER Macroeconomic Annual*, 115–165.
- Ferson, Wayne E., and George M. Constantinides, 1991, Habit Persistence and Durability in Aggregate Consumption: Empirical Tests, *Journal of Financial Economics*, 29, 199–240.
- Guvenen, Fatih, 2002, A Parsimonious Macroeconomic Model for Asset Pricing: Habit Formation or Cross-sectional Heterogeneity? Working Paper, University of Rochester.
- Hansen, Lars Peter, and Kenneth J. Singleton, 1983, Stochastic Consumption, Risk Aversion, and the Temporal Behavior of Asset Returns, *Journal of Political Economy*, 91 (2), 249–265.
- Hansen, Lars Peter, and Ravi Jagannathan, 1991, Restrictions on Intertemporal Marginal Rates of Substitution Implied by Asset Returns, *Journal of Political Economy*, 99, 225–262.
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