Professor Allan Timmermann
University of California at San Diego

Fall 2000
Department of Economics 0508

Economics 214A.

Financial Decisions

This course covers basic concepts and tools in modern asset pricing and portfolio management. Emphasis will be put on the testable implications of the theories introduced in the course. The course covers a broad range of topics and students are strongly advised to consult additional texts for background reading. An introduction to empirical tests of asset pricing models is provided in

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

Additional recommended texts include

General asset pricing:
Michael U. Dothan (1990) Prices in Financial Markets. Oxford University Press.
Chi-fu Huang and Robert H. Litzenberger (1988) Foundations for Financial Economics. Prentice Hall.
Jonathan E. Ingersoll, Jr. (1987) Theory of Financial Decision Making. Rowman & Littlefield.
Stanley R. Pliska (1998) Introduction to Mathematical Finance. Discrete Time Models. Blackwell Publishers.

Continuous time models and derivatives pricing:
Thomas Bjork (1998) Arbitrage Theory in Continuous Time. Oxford University Press.
Robert C. Merton (1990) Continuous-Time Finance. Blackwell.
Salih N. Neftci (1996) An Introduction to the Mathematics of Financial Derivatives. Academic Press.
David C. Shimko (1992) Finance in Continuous Time: A Primer. Kolb.
Paul Wilmott (1998) Derivatives. Wiley.

Course Outline

Stars indicate essential readings.

I. Introduction to Fundamental Concepts in Finance.

Lecture 1: The Canonical Two Date Arrow-Debreu State Preference Model. Pareto Efficiency, Completeness of Markets

*Arrow, Kenneth, 1964, "The Role of Securities in the Optimal Allocation of Risk Bearing". Review of Economic Studies 31, pp. 91-96.

Debreu, Gerard, 1959, "Theory of Value" (New York: John Wiley and Sons), Chapter 7.

*Dothan, Michael U., 1990, "Prices in Financial Markets", Chapter 1. Oxford University Press.

Hart, Oliver, 1975, "Some Negative Results on the Existence of Comparative Statics Results in Portfolio Theory", Review of Economic Studies 42, pp. 615-21.

Hart, Oliver, 1975, "On the Optimality of Equilibrium when the Market Structure is Incomplete". Journal of Economic Theory, 11, 418-443.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics (Amsterdam: Elsevier Science Publishers) Chapter 5.

Lectures 2 and 3: Arbitrage Strategies, Martingale Measures, State Prices and Risk Neutral Pricing

*Dothan, Michael U., 1990, "Prices in Financial Markets", Chapter 2. Oxford University Press.

*Harrison, J. Michael, and Kreps, David M., 1979, "Martingales and Arbitrage in Multiperiod Securities Markets". Journal of Economic Theory, 20, 381-408. Read only pages 381-394.

Lecture 4: Concepts of Risk, Risk Aversion and Downside Risk

*Duffie, Darrell, and Jun Pan, 1997, "An Overview of Value at Risk". Journal of Derivatives, 7-49.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics. Chapter 1.

Machina, Mark J., 1987, "Choice Under Uncertainty: Problems Solved and Unsolved". Journal of Economic Perspectives, 1, 121-154.

*Rothschild, Michael, and Joseph Stiglitz, 1970, "Increasing Risk I: A Definition", Journal of Economic Theory, 2, pp. 225-243.

Rothschild, Michael, and Joseph Stiglitz, 1971, "Increasing Risk II: Its Economic Consequences", Journal of Economic Theory, 3, pp. 66-84.

Lecture 5: Developments in Financial Risk Management and Decision Making

Diebold, Francis X., Todd A. Gunther, and Anthony S. Tay (1998) "Evaluating Density Forecasts with Applications to Financial Risk Management". International Economic Review 39, 863-883.

Embrechts, Paul, Alexander McNeil and Daniel Straumann (1999) "Correlation and Dependence in Risk Management: Properties and Pitfalls". Unpublished Manuscript.

Journal of Forecasting, Special Issue on Density Forecasting in Economics and Finance. (July 2000).

Pesaran, M. Hashem and Spyros Skouras (2000) "Decision-based Methods for Forecast Evaluation". University of Cambridge manuscript.

II. Static Asset Pricing Relations

Lecture 6: Mathematics of the Portfolio Frontier, Two Fund Separation

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 5, pages 181-188.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics, chapters 3-4.

*Roll, Richard W., 1977, "A Critique of the Asset Pricing Theory's Tests - Part I: On Past and Potential Testability of the Theory", Journal of Financial Economics, 4, pp. 129-176. Appendix only.

Lecture 7: CAPM

Black, Fischer, 1972, "Capital Market Equilibrium with Restricted Borrowing", Journal of Business, 45, pp 444 - 454.

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 5, pages 188-218.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics, chapter 4.

*Roll, Richard W., 1977, "A Critique of the Asset Pricing Theory's Tests - Part I: On Past and Potential Testability of the Theory", Journal of Financial Economics, 4, pp. 129-176.

Roll, Richard, and Ross, Stephen A., 1994, "On the Cross-sectional Relation between Expected Returns and Betas". Journal of Finance, 49, 101-122.

Lecture 8: Factor Pricing Models

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 6, pp. 219-222.

Connor, Gregory, and Korajczyk, Robert A., 1995, "The Arbitrage Pricing Theory and Multifactor Models of Asset Returns". Pages 87-144 in Finance Handbook, edited by Robert Jarrow, Vojislav Maksimovic, and William Ziemba.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics, chapter 4.

*Huberman, G., 1983, "A Simplified Approach to Arbitrage Pricing Theory". Journal of Economic Theory, 28, 1983-1991.

Ross, Stephen A., 1976, "The Arbitrage Theory of Capital Asset Pricing", Journal of Economic Theory 13, pp. 341-360.

*Ross, Stephen A., 1977, "Risk, Return, and Arbitrage", in I. Friend and J.L. Bicksler (ed.), Risk and Return in Finance (Cambridge, Mass.: Ballinger).

Lectures 9-10: Empirical Evidence on the CAPM and the APT

Black, Fischer, Michal C. Jensen, and Myron Scholes, 1972, "The Capital Asset Pricing Model: Some Empirical Tests" in M.C. Jensen, (ed.), Studies in the Theory of Capital Markets (New York: Praeger).

Bollerslev, Tim, Engle, Robert F., and Wooldridge, Jeffrey M., 1988, "A Capital Asset Pricing Model with Time Varying Covariances". Journal of Political Economy, 96, 116-131.

Breeden, D.T., Gibbons, M.R. and Litzenberger, R.H., 1989, "Empirical Tests of the Consumption-Oriented CAPM", Journal of Finance, pp 231-62.

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 6, pp. 222-251.

*Chen, N-F, Richard W. Roll and Stephen A. Ross, 1986, "Economic Forces and the Stock Market", Journal of Business 59, pp 383-403.

Cochrane, John H, 1996, "A Cross-Sectional Test of an Investment-Based Asset Pricing Model". Journal of Political Economy, 104, 572-621.

Fama, Eugene F., 1991, "Efficient Capital Markets: II". Journal of Finance, 46, 1575-1617.

*Fama, Eugene F. and French, Kenneth R., 1992, "The Cross-Section of Expected Stock Returns", Journal of Finance 47, pp. 427-466.

*Fama, Eugene F. and James D. MacBeth, 1973, "Risk, Return, and Equilibrium: Empirical Tests". Journal of Political Economy 81, pp. 607-636.

Ghysels, Eric (1997) "On Stable Factor Structures in the Pricing of Risk: Do Time Varying Betas Help or Hurt?" Journal of Finance.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics, chapter 10.

Lehmann, Bruce N, "Empirical Testing of Asset Pricing Models" in J. Eatwell, M.Milgate and P. Newman (eds), New Palgrave Dictionary of Money and Finance (Oxford: Oxford University Press).

Miles, David, and Timmermann, Allan, 1996, "Variation in Expected Stock Returns: Evidence on the Pricing of Equities from a Cross-Section of UK Companies". Economica, 63, 369-382.

Schwert, G. William, 1983, "Size and Stock Returns and Other Empirical Regularities", Journal of Financial Economics 12, pp. 3-12.

Shanken, Jay, 1987, "Multivariate Proxies and Pricing Relations: Living with the Roll Critique", Journal of Financial Economics 18 (March), pp. 91-110.

Lectures 11 and 12: Inter-temporal Asset Pricing: Testable Implications

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, "The Econometrics of Financial Markets", chapter 1, pages 3-25, chapter 2, pages 27-82.

Cechetti, S.G., Lam, P-S, and Nelson, M,1990, "Mean Reversion in Equilibrium Asset Prices". American Economic Review 80, 398-418.

*Fama, Eugene F., 1991, "Efficient Capital Markets: II". Journal of Finance, 46, 1575-1617.

Fama, E.F. and French, K.R., 1988, "Permanent and Temporary Components of Stock Prices", Journal of Political Economy 96, 246-73.

Hamilton, Jim, 1994, Time Series Analysis. Chapters 3, 4, 15, and 17.

Kim, M., Charles Nelson and Richard Starz, 1991, "Mean Reversion in Stock Prices: Evidence and Implications". Review of Economic Studies 58, 515-528.

Lehmann, Bruce N., 1990, "Fads, Martingales, and Market Efficiency", Quarterly Journal of Economics 105 (February), 1-28.

Lo, Andrew W., 1990, "Long Term Memory in Stock Market Prices", Econometrica 59, 1279-1314.

Lo, Andrew W. and A. Craig MacKinlay, 1988, "Stock Prices Do Not Follow Random Walks: Evidence from a Simple Specification Test", Review of Financial Studies 1, 41-66.

McQueen, Grant, and Steven Thorley, 1991, "Are Stock Returns Predictable? A Test Using Markov Chains". Journal of Finance 46, 239-263.

Pesaran, M. Hashem, and Timmermann, Allan, 1992, "A Simple Nonparametric Test of Predictive Performance". Journal of Business and Economic Statistics, 10, 461-65.

*Poterba, James, and Larry Summers, 1988, "Mean Reversion in Stock Returns: Evidence and Implications". Journal of Financial Economics 22, 27-60.

Lectures 13 and 14: Portfolio Performance Measurement

Admati, Anit R., and Ross, Stephen A., 1985, "Measuring Investment Performance in a Rational Expectations Equilibrium Model". Journal of Business, 58, 1-26.

Blake, David, Lunde Asger, and Timmermann, Allan, 1999, "The Hazards of Mutual Fund Underperformance: A Cox Regression Analysis". Journal of Empirical Finance.

Blake, David, Lehmann, Bruce, and Timmermann, Allan, 1999, "Performance Measurement Using Multi-Asset-Class Portfolio Data". Journal of Business, Forthcoming.

Brown, Stpehen J., Goetzmann, William, 1995, "Performance Persistence". Journal of Finance, 50, 679-698.

Brown, Stephen J., Goetzmann, William, Ibbotson, Roger G., and Ross, Stephen A. , 1992, "Survivorship Bias in Performance Studies". Review of Financial Studies, 5, 553-580.

Elton, E.J., Gruber, M.J., Das, S., and Hlavka, M., 1993, "Efficiency with Costly Information: A Reinterpretation of Evidence from Managed Portfolios". Review of Financial Studies, 6, 1-22.

Fama, Eugene F., 1991, "Efficient Capital Markets: II". Journal of Finance, 46, 1575-1617.

Ferson, Wayne E., and Schadt, Rudi W., 1996, "Measuring Fund Strategy and Performance in Changing Economic Conditions". Journal of Finance, 51, 425-462.

Gibbons, Michael R., Stephen A. Ross, and Jay Shanken, 1989, "A Test of the Efficiency of a Given Portfolio". Econometrica 57 (September), pp. 1121-1152.

*Gruber, Martin J., 1996, "Presidential Address: Another Puzzle: The Growth in Actively Managed Mutual Funds". Journal of Finance, 51, 783-810.

Hendricks, D., Patel, J., and Zeckhauser, R., 1993, "Hot Hands in Mutual Funds: Short-run Persistence of Relative Performance, 1974-88". Journal of Finance, 48, 93-130.

*Henriksson, Roy D., and Merton, Robert C., 1981, "On Market Timing and Investment Performance. II. Statistical Procedures for Evaluating Forecasting Skills". Journal of Business, 54, 513-533.

*Lehmann, Bruce N., and Modest, David M., 1987, "Mutual Fund Performance Evaluation: A Comparison of Benchmarks and Benchmark Comparisons". Journal of Finance, 42, 233-65.

Malkiel, Burton G., 1995, "Returns from Investing in Equity Mutual Funds 1971 to 1991". Journal of Finance, 50, 549-572.

Pesaran, M. Hashem, and Timmermann, Allan, 1992, "A Simple Nonparametric Test of Predictive Performance". Journal of Business and Economic Statistics, 10, 461-65.

III. Options, Futures and Forwards

Lecture 15: Option Contracts, Payoffs and Investment Strategies. Pricing Bounds

Breeden, Douglas T., and Robert H. Litzenberger, 1978, "Prices of State Contingent Claims Implicit in Option Prices". Journal of Business 51, pp. 621-651.

Detemple, Jerome, and Selden, Larry A., 1991, "A General Equilibrium Analysis of Option and Stock Market Interactions". International Economic Review, 32, 279-303.

*Huang, Chi-fu, and Robert H. Litzenberger, 1988, Foundations for Financial Economics, Chapter 6.

*Ross, Stephen A., 1976, "Options and Efficiency", Quarterly Journal of Economics 90, pp. 75-89.

Lecture 16: The Binomial Lattice Model

*Cox, John C, Ross, Stephen A., and Rubinstein, Mark, 1979, "Option Pricing: A Simplified Approach". Journal of Financial Economics 7, 229-263.

Ho, Teng-Suan, Stapleton, Richard C., and Subrahmanyam, Marti G., 1995, "Multivariate Binomial Approximations for Asset Prices with Nonstationary Variance and Covariance Characteristics". Review of Financial Studies, 8, 1125-1152.

Nelson, Daniel B., and Krishna Ramaswamy (1990) "Simple Binomial Processes as Diffusion Approximations in Financial Models". Review of Financial Studies, 3, 393-430.

*Rubinstein, Mark, 1994. "Presidential Address: Implied Binomial Trees". Journal of Finance, 49, 771-818.

*Stapleton, R.C., and Subrahmanyam, M.G., 1984, "The Valuation of Options when Asset Returns are Generated by a Binomial Process". Journal of Finance, 39, 1525-1539.

Wilmott, Paul, Howison, Sam, and Dewynne, Jeff, 1995, "The Mathematics of Financial Derivatives". Cambridge University Press. Ch 10.

IV. Continuous Time Finance

Lectures 17 and 18: Introduction to Continuous Time Diffusion and Jump Processes

Duffee, Darrell, and Chi-Fu Huang, 1985, "Implementing Arrow-Debreu Equilibria by Continuous Trading of Few Long-Lived Securities". Econometrica 53, 97-116.

*Shimko, David C., 1992, "Finance in Continuous Time. A Primer". Kolb Publishing Company.

Wilmott, Paul, Howison, Sam, and Dewynne, Jeff , 1995, "The Mathematics of Financial Derivatives". Cambridge University Press. Ch 4.

Lecture 19: The Black-Scholes Option Pricing Model

*Black. Fischer and Scholes, Myron, 1973, "The Pricing of Options and Corporate Liabilities". Journal of Political Economy, , 637-654.

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 9, pp. 339-355.

Wilmott, Paul, Howison, Sam, and Dewynne, Jeff, 1995, "The Mathematics of Financial Derivatives". Cambridge University Press. Chs 3, 4. 5.

Lecture 20: Extensions of the BS Option Pricing Model

Boyle, Phelim P., 1977, "Options: A Monte Carlo Approach". Journal of Financial Economics 4, 323-338.

*Campbell, John, Andrew Lo and Craig MacKinlay, 1997, The Econometrics of Financial Markets, chapter 9, pp. 355-391.

Hull, John, and White, Alan, 1990, "Valuing Derivative Securities Using the Explicit Finite Difference Method". Journal of Financial and Quantitative Analysis, 25, 87-100.

Hull, John, and White, Alan, 1987, "The Pricing of Options on Assets with Stochastic Volatilities". Journal of Finance, 42, 281-300.

Lo, Andrew W., and Wang, Jiang, 1995, "Implementing option Pricing Models when Asset Returns are Predictable". Journal of Finance 50, 87-130.

*Longstaff, Francis A., 1995, "Option Pricing and the Martingale Restriction". Review of Financial Studies, 8, 1091-1124.

Wilmott, Paul, Howison, Sam, and Dewynne, Jeff, 1995, "The Mathematics of Financial Derivatives". Chs 6-9.