

FINA 868 Empirical Methods in Finance

Instructor: Shu Yan

Class Meetings: Tue. and Thur. 2:00 - 3:15

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Course Description

This is the fourth course of the doctoral sequence in financial economics. It is primarily intended for second-year PhD students in Finance. The objective of the course is to expose students to the statistical/econometric methodologies as well as important economic issues in finance. The prerequisites are doctoral-level classes in finance theory and in econometrics, plus proficiency with computers. Students who do not have these prerequisites can enroll in the class if they are willing to do the extra work that will bring them up to date.

For each class meeting, we will discuss one or two articles. They are very important papers that are crucial to the topic of that class. You are supposed to study each of them for at least half an hour to one hour before coming to class. Active students participation is expected. In addition to my lectures, students are required to present some of papers from the reading list in class. There are a series of assignments that involve deriving test statistics related to ones studied in class, pulling data from databases such as CRSP and COMPUSTAT, and conducting statistical analysis for the dataset. To complete these assignments, you should be able to write/execute programs using statistical packages, such as SAS, STATA, SPLUS, GAUSS, or MATLAB, and to process data from CRSP and COMPUSTAT.

Grade: class participation (including paper presentations), 50%; homework projects 50%.

Books

Textbook:

(CLM) *The Econometrics of Financial Markets*, by John Campbell, Andrew Lo, and Craig MacKinlay.

Recommended books:

(JC) *Asset Pricing*, by John Cochrane.

(KS) *Empirical Dynamic Asset Pricing*, by Kenneth Singleton.

(WG) *Econometric Analysis*, by William Greene.

(HL) *Foundations for Financial Economics*, by Chi-fu Huang and Robert Litzenberger.

(ING) *Theory of Financial Decision Making*, by Jonathan Ingersoll.

Course Outline and Readings

Part A: Statistical Properties and Predictability of Stock Returns

Lecture 1 - Efficient Market Hypothesis

- CLM Chapter 1
- Fama, E., 1991, Efficient capital markets: II, *Journal of Finance*, 46, 1575-1618.
- Fama, E., 1970, Efficient capital markets: A review of theory and empirical work, *Journal of Finance*, 25, 383-417.

Lecture 2 - Random Walk Hypothesis

- CLM Chapter 2
- Lo, A., and C. MacKinlay, 1988, Stock market prices do not follow random walks: Evidence from a simple specification test, *Review of Financial Studies*, 1, 41-66.

Lecture 3 - GARCH Models

- Bollerslev, T., R. Chou, and K. Kroner, 1992, ARCH modeling in finance: A review of the theory and empirical evidence, *Journal of Econometrics*, 52, 5-59.
- Hentschel, L., 1995, All in the family: Nesting symmetric and asymmetric GARCH models, *Journal of Financial Economics*, 39, 71-104.

Lecture 4 - Microstructure Effects (I)

- CLM Chapter 3
- Lo, A., and C. MacKinlay, 1990, An econometric analysis of nonsynchronous trading, *Journal of Econometrics*, 45, 181-212.
- Roll, R., 1980, A simple implicit measure of the effective bid-ask spread in an efficient market, *Journal of Finance*, 39, 1127-1140.

Lecture 5 - Microstructure Effects (II)

- Lo, A., and C. MacKinlay, 1990, When are contrarian profits due to stock market overreaction? *Review of Financial Studies*, 3, 175-205.
- Scholes, M., and J. Williams, 1977, Estimating betas from nonsynchronous data, *Journal of Financial Economics*, 5, 309-327.

- Dimson, E., 1979, Risk measurement when shares are subject to infrequent trading, *Journal of Financial Economics*, 7, 197-226.

Lecture 6 - Predictability (I)

- Fama, E., and K. French, 1988, Dividend yields and expected stock returns, *Journal of Financial Economics*, 22, 3-27.
- Campbell, J., and R. Shiller, 1988, Stock prices, earnings, and expected dividends, *Journal of Finance*, 43, 661-676.
- Lettau, M., and S. Ludvigson, 2001, Consumption, aggregate wealth, and expected stock returns, *Journal of Finance*, 56, 815-849.

Lecture 7 - Predictability (II)

- Hodrick, R., 1992, Dividend yields and expected stock returns: Alternative procedures for inference and measurement, *Review of Financial Studies*, 5, 257-286.
- Torous, W., R. Valkanov, and S. Yan, 2004, On predicting stock returns with nearly integrated variables, 77, 937-966.

Lecture 8 - Event Studies

- CLM Chapter 4
- Brown, S., and J. Warner, 1980, Measuring security price performance, *Journal of Financial Economics*, 8, 205-258.
- Brown, S., and J. Warner, 1985, Using daily stock returns The case of event studies, *Journal of Financial Economics*, 14, 3-31.
- Fama, E., L. Fisher, M. Jensen, and R. Roll, 1969, The adjustment of stock prices to new information, *International Economic Review*, 10, 1-21.

Lecture 9 - Trading Strategies (I)

- Jegadeesh, N., and S. Titman 1993, Returns to buying winners and selling losers: Implications for stock market efficiency, *Journal of Finance*, 48, 65-91.
- Chan, K.C., N. Jegadeesh, and J. Lakonishok, 1996, Momentum strategies, *Journal of Finance*, 51, 1681-1713.

Lecture 10 - Trading Strategies (II)

- Lo, A., H. Mamaysky, and J. Wang, 2000, Foundations of technical analysis: Computational algorithms, statistical inference, and empirical implementation, *Journal of Finance*, 55, 1705-1765.

- Sullivan, R., A. Timmermann, and H. White, 1999, Data-snooping, technical trading rule performance, and the bootstrap, *Journal of Finance*, 54, 1647-1682.

Lecture 11 - Market Frictions (I)

- Korajczyk, R., and R. Sadka, 2004, Are momentum profits robust to trading costs?, *Journal of Finance*, 59, 1039-1082.
- Lesmond, D., M. Schill, and C. Zhou, 2004, The illusory nature of momentum profits, *Journal of Financial Economics*, 71, 349-380.

Lecture 12 - Market Frictions (II)

- Jones, C., and O. Lamont, 2002, Short-sale constraints and stock returns, *Journal of Financial Economics*, 66, 207-239.
- Mitchell, M., T. Pulvino, and R. Stafford, 2002, Limited arbitrage in equity markets, *Journal of Finance*, 57, 551-584.
- Shleifer, A., and R. Vishny, 1997, The limits of arbitrage, *Journal of Finance*, 52, 35-55.

Part B: Asset Pricing Models

Lecture 13 - CAPM (I)

- CLM Chapter 5
- Fama, E., and J. MacBeth, 1973, Risk, return, and equilibrium: Empirical tests, *Journal of Political Economy*, 71, 607-636.
- Gibbons, M., S. Ross, and J. Shanken, 1989, A test of the efficiency of a given portfolio, *Econometrica*, 57, 1121-1152.
- Roll, R., 1977, A critique of the asset pricing theory's tests: Part I, *Journal of Financial Economics*, 4, 129-176.

Lecture 14 - CAPM (II)

- Fama, E., and K. French, 1992, The cross-section of expected stock returns, *Journal of Finance*, 47, 427-465.
- Fama, E., and K. French, 1996, Multifactor explanations of asset pricing anomalies, *Journal of Finance*, 51, 55-84.
- Berk, J., 1995, A critique of size related anomalies, *Review of Financial Studies*, 8, 275-286.

- Daniel, K., and S. Titman, 1997, Evidence on the characteristics of cross sectional variation in stock returns, *Journal of Finance*, 1-34.

Lecture 15 - APT

- CLM Chapter 6
- Chen, N., R. Roll, and S. Ross, 1986, Economic forces and the stock market, *Journal of Business*, 59, 383-403.
- Connor, G., and R. Korajczyk, 1988, Risk and return in an equilibrium APT: Application of a new test methodology, *Journal of Financial Economics*, 21, 255-289.

Lecture 16 - Conditional CAPM

- Ferson, W., and C. Harvey, 1991, The variation in economic risk premiums, *Journal of Political Economy*, 99, 385-415.
- Jagannathan, R., and Z. Wang, 1996, The conditional-CAPM and the cross-section of expected returns, *Journal of Finance*, 51, 3-53.
- Lewellen, J., and S. Nagel, 2005, The conditional CAPM does not explain asset pricing anomalies, *Journal of Financial Economics*, forthcoming.

Lecture 17 - Dynamic Asset Pricing Models (I)

- CLM Chapter 7 and Chapter 8
- JC Chapter 10 and Chapter 11
- Campbell, J., 2000, Asset pricing at the millennium, *Journal of Finance*, 55, 1515-1567.

Lecture 18 - Dynamic Asset Pricing Models (II)

- Ahn, D., J. Conrad, and R. Dittmar, 2003, Risk adjustment and trading strategies, *Review of Financial Studies*, 16, 459-485.
- Kan, R., and G. Zhou, 1999, A critique of the stochastic discount factor methodology, *Journal of Finance*, 54, 1121-1248.
- Hansen, L., and R. Jagannathan, 1997, Assessing specification errors in stochastic discount factor models, *Journal of Finance*, 52, 557-590.

Lecture 19 - Dynamic Asset Pricing Models (III)

- Mehra, R., and E. Prescott, 2003, The equity premium in retrospect, Handbook of the Economics of Finance.
- Campbell and Cochrane, 1999, By force of habit: A consumption-based explanation of aggregate stock market behavior, *Journal of Political Economy*, 107, 205-251.

Part C: Special Topics

Lecture 20 - Continuous-Time Models

- George, J., and S. Yan, 2005, Affine-quadratic term structure models – Toward the understanding of jumps in interest rate, Working paper.

Lecture 21 - Mutual Funds

- Carhart, M., 1997, On persistence in mutual fund performance, *Journal of Finance*, 52, 57-82.
- Daniel, K., M. Grinblatt, S. Titman, and R. Wermers, 1997, Measuring mutual fund performance with characteristic based benchmarks, *Journal of Finance*, 52, 1035-1058.