

# UNIVERSITY OF ROCHESTER

William E. Simon Graduate School of Business Administration

## **FIN 411**

Investments

Spring 1997

S107 MW 14:30-15:50

## **Professor G. William Schwert**

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This course is an introduction to securities markets and the pricing of capital assets. Topics covered include efficient markets theory, models for portfolio selection, and asset pricing theory. Emphasis will be on the empirical evidence available on these topics. The **required** text for the course is:

Zvi Bodie, Alex Kane, and Alan J. Marcus, *Investments* (3<sup>rd</sup> ed.), Irwin, 1996 (hereafter "*BKM*").

The following book is currently back ordered. If it comes in to the bookstore, you should buy it:

*The New Corporate Finance: Where Theory Meets Practice*, McGraw-Hill, edited by Don Chew, (hereafter "*Chew*"),

Cliff Smith and other instructors usually use *Chew* in FIN 413. In addition, I have provided references to appropriate sections of the book *Principles of Corporate Finance*, (5<sup>th</sup> ed.), by R. Brealey and S. Myers that was used in the Capital Budgeting course (FIN 402).

## **THE COURSE**

The reading assignments will be announced in class and will more or less follow the sequence given below. The readings marked with an asterisk "\*" are required. Since you are already familiar with the Brealey & Myers book, you might want to read the appropriate material in those books. In most cases, it should not be necessary for you to read more than one discussion of a particular topic. You will be provided with copies of required readings not contained in the textbooks. Most of my lectures will use Freelance™ slide shows and you will receive copies of the slides for each lecture.

### **Expectations of Student Performance**

My expectations are that students will come to class prepared by having read the necessary material. The lectures will not rehash the readings. Rather, we will discuss different perspectives on the arguments presented in the readings. Active, high quality class participation will enhance the grades of students who are near margins in the final grade distribution.

I will hand out notes to accompany many of the lectures. I will also hand out sets of stories reproduced from the popular business press (e.g., the *Wall Street Journal*). Class attendance is very important to successful completion of this course. If you know that you will be unable to attend more than a couple of the classes, you should probably not register for this course (see the description of the grading policies below). If you know that you have to be late for class, or leave early, please show courtesy to me and the rest of the class by entering and leaving the room as discretely as possible. If you miss a class, or are late in arriving, it is your responsibility to obtain copies of any handouts that were distributed in class [*do not rummage around on the teaching desk looking for handouts if you arrive late!*] I suggest that you form study teams and help each other out -- get extra copies of handouts for missing team-mates. I will not provide a long-term inventory of class hand-outs for people who miss class, but most of the handouts will be available on the class web page (see below).

### **Grading**

There will be a short 10 point quiz at the beginning of class about once a week (which should provide incentive to arrive at class on time). The first quiz will be in the week of April 7 and the last quiz will be on June 4 (the last day of class). They will include one to three questions that are related to the most recent lectures, and/or the reading that was required for that day, and/or current events that relate to the material that is being discussed in class. Some weeks I may substitute a take-home assignment that will be due the next week. Every student will be able to “throw away” their two worst quiz grades, so the maximum score available from quizzes is **60 points**.

There will be four case problems that will be done in groups of between 3 and 5 people. The case problems will involve an analysis of: (1) security return data, including an assessment of risk and return, and a very simple event study; (2) bond yields, forward rates, and returns; (3) options and futures prices; and (4) the performance of managed mutual funds. The total group score for the cases equals the average case score times the number of students in the group. On the last day of class (June 4), each group will turn in their grade-allocation sheet containing:

- (a) the percentage (summing to 100%) of the total group score that each member by name is to receive towards his/her final grade, and
- (b) the signature of each group member.

If one group member's signature is missing, the grade allocation sheet is valid and binding on all members. If two or more signatures are missing, the allocation sheet is invalid and the group's score will be allocated equally among the members. I will not arbitrate disputes among group members. Each case will be worth 10 points, so the maximum average score available from cases is **40 points**.

Ph.D. students *must* write a paper (worth 40 points) and will not participate in the case problems.

### **Course Information on the Wide World Web (WWW)**

Most of the materials for this course will be posted on the home page for this course [<http://www.ssb.rochester.edu/fac/schwert/f411.htm>]. For example, I plan to post copies of the slides used in the classroom presentations as Adobe Acrobat files (so they can be viewed and printed from a microcomputer attached to the WWW). In addition, I have collected lists of sites that students can use to collect information on security prices (if you want to do an event study), on financial news, on securities filings with the S.E.C., and so forth. I want to encourage all students to use this resource throughout the course.

### **Topics and Readings**

Additional journal articles, *which are not required*, are included for students who want more information on particular topics. These are not on reserve in the library, although copies of the *Journal of Financial Economics* and the *Journal of Finance* are available in the Management Library.

#### **I. INTRODUCTION: THE STATISTICAL PROPERTIES OF STOCK RETURNS**

- \*1. *BKM*, Chapters 2-4, and 26.
- \*2. Siegel, Jeremy J., "The Equity Premium: Stock and Bond Returns Since 1802," *Financial Analysts Journal*, 48 (January-February 1992) 28-38.
- \*3. Schwert, G. W., "Stock Market Volatility," *Financial Analysts Journal*, 46 (May-June 1990) 23-34.

## I. INTRODUCTION: THE STATISTICAL PROPERTIES OF STOCK RETURNS

- \*4. Kritzman, Mark, "What Practitioners Need to Know . . . About Lognormality," *Financial Analysts Journal*, 48 (July-August 1992) 10-12.
- 5. French, Kenneth R. and Richard Roll, "Stock Return Variances: The Arrival of Information and the Reaction of Traders," *Journal of Financial Economics*, 17 (September 1986) 5-26.
- 6. French, Kenneth R., G. William Schwert and Robert F. Stambaugh, "Expected Stock Returns and Volatility," *Journal of Financial Economics*, 19 (September 1987) 3-29.
- 7. Keim, Donald B. and Robert F. Stambaugh, "Predicting Returns in Stock and Bond Markets," *Journal of Financial Economics*, (December 1986) 357-390.
- 8. Fama, Eugene F. and Kenneth R. French, "Permanent and Transitory Components of Stock Prices," *Journal of Political Economy*, 96 (April 1988) 246-273.
- 9. Fama, Eugene F. and Kenneth R. French, "Dividend Yields and Expected Stock Returns," *Journal of Financial Economics*, 22 (October 1988) 3-25.
- 10. Fama, Eugene F. and Kenneth R. French, "Business Conditions and Expected Returns on Stocks and Bonds," *Journal of Financial Economics*, 25 (November 1989) 23-49.

## II. EFFICIENT CAPITAL MARKETS

- \*1. *BKM*, Chapter 12.
- \*2. *Brealey & Myers*, Chapter 13.
- \*3. Mikkelson W., and M. M. Partch, "Stock Price Effects and Costs of Secondary Distributions," *Journal of Financial Economics*, 14 (June 1985) 165-194.
- 4. Brown, Keith, W. V. Harlow, and Seha M. Tiniç, "How Rational Investors Deal With Uncertainty," (in *Chew*, 21-51).
- 5. Fama, Eugene F., "Efficient Capital Markets II," *Journal of Finance*, 46 (December 1991) 1575-1617.
- 6. Roberts. H., "Stock Market 'Patterns' and Financial Analysis: Methodological Suggestions," *Journal of Finance*, (March 1959) 1-10.
- 7. Jensen, M., and Bennington, G., "Random Walks and Technical Theories: Some Evidence," *Journal of Finance*, (May 1970) 469-482.
- 8. Fama, E.F., and M. Blume, "Filter Rules and Stock Market Trading," *Journal of Business*, (January 1966) 226-241.

## II. EFFICIENT CAPITAL MARKETS

9. Fama, E.F., L. Fisher, M. Jensen and R. Roll, "The Adjustment of Stock Prices to New Information," *International Economic Review*, (February 1969) 1-21.
10. Grinblatt, M., R. Masulis, and S. Titman, "The Valuation Effects of Stock Splits and Stock Dividends," *Journal of Financial Economics*, (December 1984) 461-490.
11. Ohlson, J., and S. Penman, "Volatility Increases Subsequent to Stock Splits," *Journal of Financial Economics*, (June 1985) 251-266.
12. Ball, R., and P. Brown, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research*, (Autumn 1968) 159-178.
13. Patell, J., and M. Wolfson, "The Intraday Speed of Adjustment of Stock Prices to Earnings and Dividend Announcements," *Journal of Financial Economics*, (June 1984) 223-252.
14. Watts, R., "Does it Pay to Manipulate EPS?" *Chase Financial Quarterly*, (Spring 1982) 8-26.
15. Brown, S., and J. Warner, "Measuring Security Price Performance," *Journal of Financial Economics* (September 1980) 205-258.
16. Brown, S., and J. Warner, "Using Daily Stock Returns: The Case of Event Studies," *Journal of Financial Economics*, (March 1985) 3-31.
17. Jensen, M., "Some Anomalous Evidence Regarding Market Efficiency," *Journal of Financial Economics*, (June 1978) 95-101.
18. Schwert, G. W., "Size and Stock Returns, and Other Empirical Regularities," *Journal of Financial Economics*, (June 1983) 3-12.
19. Lloyd-Davies, P., and M. Canes, "Stock Prices and the Publication of Second-Hand Information," *Journal of Business*, (January 1978) 43-56.
20. Seyhun, H. Nejat, "Insiders' Profits, Cost of Trading and Market Efficiency," *Journal of Financial Economics*, (June 1986) 189-212.
21. Ball, R., "Anomalies in Relationships Between Securities' Yields and Yield-Surrogates," *Journal of Financial Economics*, (June 1978) 103-126.
22. Thompson, R., "The Information Content of Discounts and Premiums on Closed-End Fund Shares," *Journal of Financial Economics*, (June 1978) 151-186.
23. French, K., "Stock Returns and the Weekend Effect," *Journal of Financial Economics*, (March 1980) 55-70.
24. Ariel, Robert A., "A Monthly Effect in Stock Returns," *Journal of Financial Economics*, (March 1987) 161-174.

### III. BOND MARKETS & INTEREST RATES

- \*1. *BKM*, Chapters 13-15.
- \*2. *Brealey & Myers*, Chapter 23.
- 3. Fama, E.F., and G.W. Schwert, "Asset Returns and Inflation," *Journal of Financial Economics*, (November 1977) 115-146.
- 4. Fama, E.F., "Short-term Interest Rates As Predictors of Inflation," *American Economic Review*, (June 1975) 269-282.
- 5. Nelson, C.R., and G.W. Schwert, "On Testing the Hypothesis that the Real Rate of Interest is Constant," *American Economic Review*, (June 1977) 478-486.
- 6. Huberman, G., and G.W. Schwert, "Information Aggregation, Inflation, and the Pricing of Indexed Bonds," *Journal of Political Economy*, (February 1985) 92-114.

### IV. THE PRICING OF OPTIONS

- \*1. *BKM*, Chapters 19-20.
- \*2. *Brealey & Myers*, Chapters 20-21.
- \*3. Brenner, Menachem and Marti G. Subrahmanyam, "A Simple Approach to Option Valuation and Hedging in the Black-Scholes Model," *Financial Analysts Journal*, 50 (March-April 1994) 25-28.
- \*4. Black, Fischer, "How to Use the Holes in Black-Scholes," (in *Chew*, 419-425).
- \*5. Kritzman, Mark, "What Practitioners Need to Know . . . About Option Replication," *Financial Analysts Journal*, 48 (January-February 1992) 21-23.
- 6. Whaley, R., "Valuation of American Call Options on Dividend-Paying Stocks: Empirical Tests," *Journal of Financial Economics*, (March 1982) 29-59.
- 7. Smith, C., "Option Pricing: A Review," *Journal of Financial Economics*, (January 1976) 3-51.
- 8. Cox, J., S. Ross and M. Rubinstein, "Option Pricing: A Simplified Approach," *Journal of Financial Economics*, (September 1979) 229-263.
- 9. Black, F., and M. Scholes, "The Valuation of Option Contracts and a Test of Market Efficiency," *Journal of Finance*, (May 1973) 399-417.
- 10. Black, F., and M. Scholes, "The Pricing of Options and Corporate Liabilities," *Journal of Political Economy*, (May/June 1973) 637-654.

#### IV. THE PRICING OF OPTIONS

11. Phillips, S., and C. Smith, "Trading Costs for Listed Options: The Implications for Market Efficiency," *Journal of Financial Economics*, (June 1980) 179-201.
12. Roll, R., "An Analytic Valuation Formula for Unprotected American Call Options on Stocks with Known Dividends," *Journal of Financial Economics*, (November 1977) 251-258.
13. Geske, R., "A Note on an Analytical Valuation Formula for Unprotected American Call Options on Stocks with Known Dividends," *Journal of Financial Economics*, (December 1979) 375-380.
14. Whaley, R., "On Valuation of American Call Options on Stocks with Known Dividends," *Journal of Financial Economics*, (June 1981) 207-211.
15. Geske, R., "The Valuation of Compound Options," *Journal of Financial Economics*, (March 1979) 63-81.
16. Galai, D., and R. Masulis, "The Option Pricing Models and the Risk Factor of Stocks," *Journal of Financial Economics*, (January 1976) 53-82.
17. Merton, R., "The Impact on Option Pricing of Specification Error in the Underlying Stock Price Returns," *Journal of Finance*, (May 1976) 333-350.
18. Merton, R., "Option Pricing When Underlying Stock Returns are Discontinuous," *Journal of Financial Economics*, (January 1976) 125-144.
19. Cox, J., and S. Ross, "The Valuation of Options for Alternative Stochastic Process," *Journal of Financial Economics*, (January 1976) 145-166.
20. Beckers, Stan, "The Constant Elasticity of Variance Model and Its Implications for Option Pricing," *Journal of Finance*, (June 1980) 661-673.
21. MacBeth, J., and L. Merville, "An Empirical Examination of the Black-Scholes Call Option Pricing Model," *Journal of Finance*, (December 1979) 1173-1186.
22. Hill, Joanne M. and Frank J. Jones, "Equity Trading, Program Trading, Portfolio Insurance, Computer Trading and All That," *Financial Analysts Journal*, (July 1988) 29-38.
23. Clarke, Roger G. and Robert D. Arnott, "The Cost of Portfolio Insurance: Tradeoffs and Choices," *Financial Analysts Journal*, (July 1987) 35-47.

#### V. THE PRICING OF FUTURES

- \*1. *BKM*, Chapters 21-22.
- \*2. *Brealey & Myers*, Chapter 25.

## V. THE PRICING OF FUTURES

- \*3. French, Kenneth R., "Pricing Financial Futures Contracts: An Introduction," (in *Chew*, 411-418).
4. Cornell, B., and K. French, "Taxes and the Pricing of Stock Index Futures," *Journal of Finance*, (June 1983) 675-694.
5. Rendleman, R., and C. Carabini, "The Efficiency of the Treasury Bill Futures Market," *Journal of Finance*, (September 1979) 895-914.
6. Cox, J., J. Ingersoll and S. A. Ross, "The Relation Between Forward and Futures Prices," *Journal of Financial Economics*, (December 1981) 321-346.
7. Jarrow, R., and G. Oldfield, "Forward Contracts and Futures Contracts," *Journal of Financial Economics*, (December 1981) 373-382.
8. French, K., "A Comparison of Futures and Forward Prices," *Journal of Financial Economics*, (November 1983) 311-342.
9. Cornell, B., and M. Reinganum, "Forward and Future Prices: Evidence From the Foreign Exchange Markets," *Journal of Finance*, (December 1981) 1035-1046.
10. Gay, Gerald D. and Steven Manaster, "Implicit Delivery Options and Optimal Delivery Strategies for Financial Futures Contracts," *Journal of Financial Economics*, (May 1986) 41-72.
11. Brennan, Michael, "A Theory of Price Limits in Futures Markets," *Journal of Financial Economics*, (June 1986) 213-233.

## VI. PORTFOLIO SELECTION - DIVERSIFICATION AND EFFICIENT PORTFOLIOS

- \*1. *BKM*, Chapters 5-7.
- \*2. Bloomfield, T., R. Leftwich, and J. Long, "Portfolio Strategies and Performance," *Journal of Financial Economics*, 5 (November 1977) 201-218.
3. *Brealey and Myers*, Chapter 7.
4. Markowitz, H., "Portfolio Selection," *Journal of Finance*, (March 1952) 77-91.
5. Sharpe, W., "A Simplified Model for Portfolio Analysis," *Management Science*, (January 1963) 277-293.

## VII. THE CAPITAL ASSET PRICING MODEL: THEORY, TESTS AND EXTENSIONS

- \*1. *BKM*, Chapters 8 and 9 and Chapter 11.
- \*2. Amihud, Y. And H. Mendelson, "Liquidity and Cost of Capital Implications for Corporate Management," (in *Chew*, 117-125).
- \*3. Fama, Eugene F., Kenneth R. French, David G. Booth, and Rex Sinquefeld, "Differences in Risks and Returns of NYSE and NASD Stocks," *Financial Analysts Journal*, 49 (January-February 1993) 37-41.
4. *Brealey and Myers*, Chapters 8-9.
5. Sharpe, W., "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk," *Journal of Finance*, (September 1964) 425-442.
6. Black, F., "Capital Market Equilibrium with Restricted Borrowing," *Journal of Business*, (July 1972) 444-454.
7. Jensen, M., "Capital Markets: Theory and Evidence," *Bell Journal of Economics and Management Science*, (Autumn 1972) 357-398.
8. Black, F., M. Jensen and M. Scholes, "The Capital Asset Pricing Model: Some Empirical Tests," in M. Jensen ed., *Studies in the Theory of Capital Markets*, Praeger, 1972.
9. Miller, M., and M. Scholes, "Rates of Return in Relation to Risk: A Re-examination of Some Recent Findings," in M. Jensen ed., *Studies in the Theory of Capital Markets*, Praeger, 1972.
10. Roll, R., "A Critique of the Asset Pricing Theory's Tests," *Journal of Financial Economics*, (March 1977)129-176.
11. Gibbons, M., "Multivariate Tests of Financial Models: A New Approach," *Journal of Financial Economics*, (March 1982) 3-28.
12. Shanken, Jay, "Multivariate Tests of the Zero-Beta CAPM," *Journal of Financial Economics*, (September 1985) 327-348.
13. Brenner, M., "A Note on Risk, Return, and Equilibrium: Empirical Tests," *Journal of Political Economy*, (April 1976) 407-409.
14. Fama, E. F., "A Note on the Market Model and the Two-Parameter Model," *Journal of Finance*, (December 1973) 1181-1185.
15. Amihud, Yakov and Haim Mendelson, "Asset Pricing and the Bid-Ask Spread," *Journal of Financial Economics*, (December 1986) 223-249.
16. Brennan, M., "Capital Market Equilibrium with Divergent Borrowing and Lending," *Journal of Financial and Quantitative Analysis*, (December 1971) 1197-1205.

## VII. THE CAPITAL ASSET PRICING MODEL: THEORY, TESTS AND EXTENSIONS

17. Mayers, D., "Non-Marketable Assets and Capital Market Equilibrium Under Uncertainty," *Journal of Business*, (August 1973) 258-267.
18. Fama, E. F., "Multiperiod Consumption-Investment Decisions," *American Economic Review*, (March 1970) 163-174.
19. Merton, R., "An Intertemporal Capital Asset Pricing Model," *Econometrica*, (September 1973) 867-887.
20. Long, J., "Stock Prices, Inflation, and the Term Structure of Interest Rates," *Journal of Financial Economics*, (July 1974) 131-170.
21. Ross, S., "The Arbitrage Theory of Capital Asset Pricing," *Journal of Economic Theory*, (December 1976) 343-362.
22. Breeden, D., "An Intertemporal Asset Pricing Model with Stochastic Consumption and Investment Opportunities," *Journal of Financial Economics*, (September 1979) 265-296.
23. Constantinides, G., "Admissible Uncertainty in the Intertemporal Asset Pricing Model," *Journal of Financial Economics*, (March 1980) 71-86.
24. Fama, E. F., and G. W. Schwert, "Human Capital and Capital Market Equilibrium," *Journal of Financial Economics*, (January 1977) 95-125.
25. Fama, E. F., and J. MacBeth, "Long-term Growth in a Short-term Market," *Journal of Finance*, (June 1974) 857-885.
26. Fama, E.F. and J. MacBeth, "Tests of the Multiperiod Two Parameter Model," *Journal of Financial Economics*, (May 1974) 43-66.
27. Stambaugh, R., "On the Exclusion of Assets, from Tests of the Two-Parameter Model: A Sensitivity Analysis," *Journal of Financial Economics*, (November 1982) 237-268.
28. Banz, R., "The Relationship Between Return and Market Value of Common Stocks," *Journal of Financial Economics*, (January 1981) 3-18.
29. Reinganum, M., "Misspecification of Capital Asset Pricing: Empirical Anomalies Based on Earnings' Yields and Market Values," *Journal of Financial Economics*, (January 1981) 19-46.
30. Roll, R., and S. Ross, "An Empirical Investigation of the Arbitrage Pricing Theory," *Journal of Finance*, (December 1980) 1073-1103.
31. Keim, Donald B., "Dividend Yields and Stock Returns: Implications of Abnormal January Returns," *Journal of Financial Economics*, (September 1985) 473-490.

## VII. THE CAPITAL ASSET PRICING MODEL: THEORY, TESTS AND EXTENSIONS

32. Breeden, Douglas T., Michael R. Gibbons, and Robert H. Litzenberger, "Empirical Tests of the Consumption-Oriented CAPM," *Journal of Finance*, 44 (June 1989) 231-262.
33. Constantinides, G., "Optimal Stock Trading with Personal Taxes: Implication for Prices and the Abnormal January Returns," *Journal of Financial Economics*, (March 1984) 65-90.
34. Miller, M., and M. Scholes, "Dividends and Taxes," *Journal of Financial Economics*, (December 1978) 333-364.
35. Constantinides, G., "Capital Market Equilibrium with Personal Tax," *Econometrica*, (May 1983) 611-636.
36. Constantinides, G., and J. Ingersoll, "Optimal Bond Trading with Personal Taxes," *Journal of Financial Economics*, (September 1984) 299-336.

## VIII. PORTFOLIO EVALUATION AND MANAGEMENT

- \*1. *BKM*, Chapter 24.
- \*2. Black, Fischer, "The Investment Policy Spectrum: Individuals, Endowment Funds, and Pensions," *Financial Analysts Journal*, 32 (January 1976) 23-31.
- \*3. Ippolito, Richard A., "On Studies of Mutual Fund Performance, 1962-91," *Financial Analysts Journal*, 49 (January-February 1993) 42-50.
4. Black, F., "Implications of the Random Walk Hypothesis for Portfolio Management," *Financial Analysts Journal*, (March/April 1971) 16-22.
5. Jensen, M., "The Performance of Mutual Funds in the Period 1945-64," *Journal of Finance*, (May 1968) 389-416.
6. Fama, E. F., "Components of Investment Performance," *Journal of Finance*, (June 1972) 551-567.
7. Treynor, J., and F. Black, "How to Use Security Analysis to Improve Portfolio Selection," *Journal of Business*, (January 1973) 66-86.