FIN 924 Macro Finance: Theory and Empirical Analysis

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Objective

This course provides a theoretical framework to analyze macro-finance market behavior. To highlight the features of each market, the entire financial system is structured into four markets: money, bond, stock, and foreign exchange. The domestic markets are linked through Fisher equation, term structure of interest rates, and CAPM. International markets are linked through various international parity conditions. Economic fundamentals provide the rationale for detrmination of asset prices (returns). Recent studies in behavrioual models also shed some lights on the pricing process. In addition to theoretical expositons, some empirical issues and evidence will be discussed.

Grading

- One Final Comprehensive Exam (including reading assignments and lectures) - 40%.
- One term paper – 50%. (The paper is restricted to macrofinance area. It should be submitted in written form in a professional style. You are required to present the paper in the last session of the class. You also serve as a discussant to discuss your classmate's paper. Some original and preliminary empirical results are expected).
- Presentation and critics in class – 10%

Text Books

Cuthbertson, Keith and Dirk Nitzche (CN). *Quantitative Financial Economics*. New York: John Wiley, 2005.

Useful Books

Alexander. Carol. *Market Models: A Guide to Financial Data Analysis*. New York: John Wiley, 2003.

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

Campbell, John Y., Andrew W. Lo, and A. Craig Mackinlay, *The Econometrics of financial Markets*. Princeton, NJ: Princeton University Press, 1997.

Fama, Eugene F. *Foundation of Finance*, NY: Basic Books, 1976.

McCallum, Bennett T. *Monetary Economics: Theory and Policy*, New York: Macmillian Publishing, 1989.

Sargent, T. J. *Dynamic Macroeconomic Theory*. Cambridge, MA: Harvard U. Press, 1987

Shiller, Robert, J. *Market Volatility*. Cambridge, MA: The MIT Press, 1989.

Campbell, J.Y. articles in Web site: http://ideas.repec.org/e/pca54.html

Fama, E. articles in Web site: http://www.lib.uchicago.edu/e/busecon/busfac/Fama.html

Macro Finance: Theory and Empirical Analysis - Course Outline and Readings

1. Financial Markets

A. Basic Concepts in Finance

Cuthbertson & Nitzche. pp. 1-13.

Campbell, J. Y., A. Lo, A.C. MacKinlay, "Prices, Returns, and Compounding," Ch.1,9-24.

Cochrane, J. "Consumption-Based Model," Ch. 1.

Ibbotson, R.G. and R. Sinquefield, R. "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns (1926-1974)," *Journal of Business*, January 1976.

Ibbotson, R.G. and R. Sinquefield, R. "Stocks, Bonds, Bills, and Inflation: Simulations of the Future (1976-2000)," *Journal of Business*, July 1976.

John Y. Campbell & Luis Viceira, 2005. "The Term Structure of the Risk-Return Tradeoff," NBER Working Papers 11119, National Bureau of Economic Research, Inc.

* Blanchard, O.J. and S. Fischer, "Money in the Utility Function," in *Lectures on Macroeconomics*, The MIT Press.1989, 188-1193.

* Sidrauski, M. "Inflation and Economic Growth," *Journal of Political Economy*, 75, 1967, 798-810.

B. Money and Financial Assets

McCallum, B.T. "Demand for Money" in *Monetary Economics*, Chs. 3, 4

Tobin, J. "Money and Finance in the Macroeconomic Process," Nobel Lectures, *Journal of Money, Credit and Banking*, (1982), 171-204.

* Fama, E.F. and Farber, A. "Money, Bonds, and Foreign Exchange", *American Economic Review,* 69, (1979), 638-649.

Ritter, Jay R. and Richard S. Warr, The decline of inflation and the Bull market of 1982-1999, *Journal* of *Financial and Quantitative Analysis*, 37, 2002, 29-34.
http://bear.cba.ufl.edu/ritter/publ_papers/The_Decline_of_Inflation.pdf

C. Money Announcements and Asset Prices

Cornell, B.. "The Money Supply Announcements Puzzle, Review and Interpretation." *American Economic Review*, 73, (1983), 644-657.

Wagster, J. "The Information Content of Discount Rate Announcements Revisited." *Journal of Money, Credit and Banking*, 25, (1993), 132-137.

Bernanke, B.S. and K. N. Kuttner, "What Explains the Stock Marekt's Reaction to Federal Reserve Policy?" *Journal of Finance*, 60, (2005), 1221-1257.

2. **Bond Markets and Interest Rate**

   A. **Basic Concepts and Valuation of Bonds**

   http://www.investopedia.com/university/advancedbond/advancedbond7.asp

   (The above website contains information comparable to our lecture)

   Cuthbertson, "Bond Prices and the Term Structure of Interest Rates," Ch. 9.

   B. **Term Structure of Interest Rates**

   Sargent, T. "Asset Prices and Consumption," *Dynamic Macroeconomic Theory*, Ch.3, 92-106.

   Cuthbertson & Nitzche, "Theories of theTerm Structure," Ch. 20.

   C. **Information Content of Yield Curve**

   Harvey, C.R. "Forecasts of Economic Growth from the Bond and Stock Markets," *Financial Analysts Journal,* Sept. (1989) 38-45.

   Hu, Z. "The Yield Curve and Real Activity," IMF Staff Papers, 40, (1993), 781-806.

   Fama, E. F. "Short-Term Interest Rates as Predictors of Inflation," Ch. 6 in *Foundation of Finance*, (1976).

   Shiller, R. J. and J.J. Siegel. "The Gibson Paradox and Historical Movements in Real Interest Rates," *Journal of Political Economy*, 85, (1977), 891-907.

   Harvey, C.R. "The Real term Structure and Consumption Growth," *Journal of Financial Economics*, 22, (1988), 305-335.

   D. **Empirical Evidence of Interest Rates**

   Cuthbertson & Nitzche, "Empirical Evidence on Term Structure Structure," Ch. 20.

   Mankiw, N. G., and J. A. Miron. "The Changing Behavior of the Term Structure of Interest Rates," *Quarterly Journal of Economics*, 101, (1986), 211-228.

   Chiang, T.C., "Time Series Dynamics of Short-Term Interest Rates - Evidence from Euro-Currency Markets," *Journal of International Financial Markets, Institutions & Money*, 7, October 1997, 201-220.

   Chan, K.C., Karolyi, G.A., Longstaff, F.A., and Sanders, A.B. "An Empirical Investigation of Alternative Models of the Short-term Interest Rate," *Journal of Finance*, 47, (1992). 1209-1227.
   http://www.cob.ohio-state.edu/fin/faculty/karolyi/papers/CKLS.pdf

   Bliss, R.R. and Smith, D.C., "The Elasticity of Interest Rate Volatility: Chan, Karolhi, Longstaff, and Sanders Revisited," Federal Reserve Bank of Atlanta, Working Paper 97-13a., (1998).

3. **Stock Markets**

   A. **Valuation**

Cuthbertson & Nitzche, "Mean-Variance Model," Ch. 5, pp.115-139. Ch. 10. 245-254. Ch. 11, pp255-267.

Campbell, Lo, and MacKinlay, "Prices, Returns, and Compounding," Ch. 1, 1997.

Cochrane, J. "Consumption-Based Model," Chs. 1 & 2, Asset Pricing, 2001.

Shiller, R. J. "Theories of aggregate Stcok Price Movemeents,"*Journal of Portfolio Management*, (Winter 1984), 28-37.

http://www.econ.yale.edu/~shiller/data/chapt26.xls (Shiller's long run data)

Ohlson, James A and Beate E. Juettner-Nauroth, "Expected EPS and EPS Growth as Determinants of Value."*Review of Accounting Studies* 10, (2005), 349-365.

Thomas, J.K. 2005, Price equals forward earnings scaled by the risk-free rate: the implications of this remarkable empirical regularity, Yale working paper. http://w4.stern.nyu.edu/emplibrary/P8_Price_equals_forward_earnings_scaled_by_the_risk_free_rate.pdf

Acharya, V., and L.H. *Pedersen,* "Asset Pricing with Liquidity Risk," *Journal of Financial Economics*, 77, (2005) 375-410.

B. Consumption-CAPM

Cuthbertson & Nitzche, Ch. 13.

C. The Efficient Markets Hypothesis

Fama, E. "Efficient Capital Markets" Ch. 5 in *Foundation of Finance*, 1976.

Cuthbertson & Nitzche, Ch. 3,

Brown, Stephen J., William N. Goetzmann and Alok Kumar, "The Dow Theory: William Peter Hamilton's track Record Reconsidered," *Journal of Finance*, 53(4), (1998),1311-1333.

D. Predictability in Stock Returns and Anomalies

Cuthbertson & Nitzche, Ch.. 4.

* Chiang, Forcasting by ARIMA(FIN642Lecture5&6). PSW: FIN642W

Campbell, Lo, and MacKinlay, "Predictability of Asset Returns," Ch. 2, 27-49, 55-80.

Campbell, Lo, and MacKinlay, "Present-Value Relations, Ch. 7. *The Econometrics of Financial Markets*, 1997.

Cuthbertson & Nitzche, pp. 433-447.

Fama, E. and K. French. "Multifactor Explanations of Asset Pricing Anomalies. *Journal of Finance*, 51(1), (1996), 55-84.

Jegadeesh, Narasimhan and Sheridan Titman, 2001, "Profitability of momentum strategies: An evaluation of alternative explanations," *Journal of Finance*, 56 (2): 699-720.

Ding, Z., C.W.J. Granger, and R. Engle. "A Long Memory Property of Stock Market Returns and A New Model." Journal of Empirical Finance 1, (1993), 83-106.

E. Empirical Analysis

Schwert, G. W. "Why Does Stock Market Volatility Change over Time?" *Journal of Finance*, 44, (1989), 1115-1153.

Glosten, L., R. Jagannathan, and D. Runkle "On the Relation between the Expected Value and the Volatility of the Nominal Excess Return on Stocks," *Journal of Finance*, 48, (1993) 1779-1801.

Campbell, J.Y. and Y. Hamao. "Predictable Stock Returns in the United States and Japan: A Study of Long-Term Capital Market Integration," *Journal of Finance*, 47, (1992), 43-69.

Antoniou, A., G. Koutmos, A. Percli. "Index Futures and Positive Feedback Trading: Evidence from major stock exchanges." *Journal of Empirical Finance*, 12, (2005), 219-238.

Campbell, J.Y. and Robert Shiller. "Valuation Ratios and the Long-Run Stock Market Outlook: An Update," NBER Working Paper No. 8221, April 2001, forthcoming in *Advances in Behavioral Finance, Volume II*, Nicholas Barberis and Richard Thaler eds., Princeton University Press. http://kuznets.fas.harvard.edu/~campbell/papers/vrupdate.pdf

4. Foreign Exchange Markets

A. Foreign Exchange Markets and International Parity Conditions

Cuthbertson & Nitzche, Chs. 24-25.

Chiang, T.C. and J. Trinidad. "Risk and International Parity Conditions: A Synthesis from Consumption-Based Models," *International Economic Journal*, 11, (1997), 73-101.

Chiang, T.C. "International Parity Conditions and Market Risk," *Encyclopedia of Finance*, A. Lee and C.F. Lee, eds., Kluwer Academic Publishers, 2005.

Chiang, T. C. "Foreign Exchange Markets: Efficiency, Expectations, and Risk." *International Financial Markets*. West Publishing, 1991. Ch. 5, 79-99.

B. International Capital Markets

Dumas, B and B. Solik. "The World Price of Foreign Exchange Risk," *Journal of Finance*, 50, (1995), 445-479.

Ostdiek, B. "The World ex ante Risk Premium: An Empirical Investigation," *Journal of International Money and Finance*, 17, (1998), 967-999.

5. Risk Premium and Volatility

A. Financial Market Volatiltiy

Cuthbertson & Nitzche, "Volatility and Market" Ch. 29.

* Cochrane, J. "Volatility Tests and Efficient Markets: A Review Essay," *Journal of Monerary Economics*, 27, (1991), 463-485.

Campbell, John Y., Lettau, Martin, Malkiel, Burton G. & Xu, Yexiao "Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk." *The Journal of Finance* **56** (1), (2001), 1-43.

Goyal, Amit and Pedro Santa-Clara, "Ideosyncratic Risk Matters," *Journal of Finance*, 58(3): (2001), 975-1007.

B. Equity Premium Puzzles

Cuthbertson & Nitzche, Ch. 14, 323-332.

* Mehra, R. and Edward Prescott, "The Equity Premikum Puzzle," *Journal of Monerary Economics* 15, (1985), 145-161.

* Cochrane, J.H., "Equity Premium Puzzle and Consumption-Based Models," Ch. 21 in *Asset Pricing*.

* Campbell, "Intertemporal Equilibrium Models," Ch. 8 in *The Econometrics of Financial Markets*, 1997.

Mehra, R. and Edward Prescott, "The Equity Premikum Puzzle," *Journal of Monerary Economics* 15, "The Equity Premium in Retrospect."

http://www.econ.unsb.edu/~Mehra/papers/epp_retrospect.pdf.

* Siegel, J. J. and R. H. Thaler. "Anomalies: The Equity Premium Puzzle." *Journal of Economic Perspectives*, Winter, 1997, 11(1), pp. 191-200.

Fama, Eugene and Kenneth French, 2000, "The Equity Premium, "*Journal of Finance.* 57 (2), (April 2002).

C. Condtional Variance Models and Risk Premium

Stock Market

Cuthbertson, K. "Risk Premia: The Stock Markets," Ch. 17;"Risk Premia and the Bond Market," Ch. 19.

French, K. R., Schwert, G.W., and R.F. Stambaugh, "Expected Stock Returns and Volatility," *Journal of Financial Economics*, 19, (1987), 3-29.

Foreign Exchange and Internatioanl Markets

Cuthbertson & Nitzche, Ch. 26

Domovitz, I. and C. S. Hakkio, "Conditional Variance and the Risk Premium in the Foreign Exchange Market, *Journal of International Economics*, 19, (1985), 47-66.

Longin, F. and B. Solnik, "Is the Correlation in Internaitonal equity Returns Constant: 1960-1990?" *Journal of International Money and Finance*, 14, (1995), 3-26.

Chiang, T.C. "International Asset Pricing and Equity Market Risks," *Journal of International Money and Finance*, 10, (1991), 349-364.

* Macklem, R.T. "Foreign Exchange Rates and Risk Premiums in Artificial Economies," *Journal of International Money and Finance*, 10, (1991), 365-391.

Mark, N.C. "On Time Varying Risk Premia in the Foreign Exchange Market – An Econometric Analysis," *Journal of Monerary Economics*, 16, (1985), 3-18.

* Bekaert, G. "The Time Variation of Expected Returns and Volatility in Foreign-Exchange Markets," *Journal of Business & Economic Statistics*, 13, (1995), 397-408.

Bond Markets

Engle, R. F., D. M. Lilien, and R.P. Robins, "Estimating Time-Varying Risk Premia in the Term Structure: the ARCH-M Model, *Econometrica*, 55, (1987), 391-407.

Lauterbach, B. "Consumption Volatility, Production Volatility, Spot-Rate Volatility, and The Returns on Treasury Bills and Bonds," *Journal of Financial Economics*, 24 (1989), 155-179.

D. Comovements

Pindyck, R.S. and J.J. Rotemberg, "The Comovement of Stock Prices," *Quarterly Journal of Economics,* 108 (1993), 1073-1104.

Forbes, K., and Roberto Rigobon. "No Contagion, Only Interdependence: Measuring Stock Market Comovements. " *Journal of Finance* 57 (5), (2002), 2223-2261.

Chiang, T. C., B. Jeon, and H. Li, "Dynamic Correlation Analysis of Financial Contagion: Evidence from Asian Markets." *Journal of International Money and Finance*. (2007, forthcoming). In Chiang's website.

6. Behavioral Models

Cuthbertson & Nitzche, Ch. 19.

Hirshleifer, D. and S.H. Teoh."Herd Behavior and Cascading in Capital Markets: A Review and Synthesis." *European Financial Management* 9 (1), (2003), 25-66.

Avery, Christopher, and Peter Zemsky, "Multidimensional Uncertainty and Herd Behavior in Financial Markets." *American Economic Review* 88(4), (1998), 724-48,

Forbes, K., and Roberto Rigobon. "No Contagion, Only Interdependence: Measuring Stock Market Comovements. " *Journal of Finance* 57 (5), (2002), 2223-2261.

Chiang, T. C., B. Jeon, and H. Li, "Dynamic Correlation Analysis of Financial Contagion: Evidence from Asian Markets." *Journal of International Money and Finance*. (2007, forthcoming). In Chiang's website.

7. High Frequency Data in Financial Markets

Easley, David, Soeren Hvidkjaer, and Maureen O'Hara, "Is Information Risk a Determinant of Asset Returns?" *Journal of Finance*, 57(5), (2000), 2185-2221.

Andersen, T.G. and T. Bollerslev. "Intraday Periodicity and Volatility Persistence in Financial Markets. *Journal of Empirical Finance* 4, (1997), 115-158.

Goodhart, C.A.E. and M.O'Hera. "High Frequency Data in Financial Markets: Issues and Applications. " *Journal of Empirical Finance* 4, (1997), 73-114.

Wood, R.A., T.H., McInish, and J.K. Ord "An Investigation of Transaction Data on NYSE stocks. " *Journal of Finance* 40, (1985), 723-741.

Chiang, T. C., H.-C. Yu, and M.-C. Wu. "An Empirical Analysis of High Frequency Stock Returns: Evidence from Dow-Jones and NASDAQ Indices. (2005). Drexel Working paper.

* Zhou, B. "High-frequency Data and Volatility in Foreign-exchange Rates." *Journal of Business & Economic Statistics* 14, (1996), 45-52.

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* denotes optional reading.