



**Course:** Empirical Finance  
**Faculty:** Abhay Abhyankar, University of Exeter, UK  
**Term:** Spring  
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**Office Hours:** Upon request

### Course Overview and Objectives

This course provides an introduction to selected topics and methods in empirical finance focusing on empirical issues in asset pricing. We begin with a review of asset pricing theory leading to the stochastic discount factor and expected return-beta representations. We then review selected econometric techniques used in empirical tests of asset pricing models. Next we turn to the consumption-based CAPM and its variants as well as prominent multifactor models proposed in the literature. We then provide a brief introduction to the idea of informationally efficient markets and the “stylized facts” about asset returns that theory seeks to explain. Next, we introduce the event study methodology – a test semi-strong form efficiency that has applications in finance and economics. Finally, we study selected aspects from the literature on stock anomalies and return predictability (time permitting) – which relate to tests of weak-form efficiency. The course concludes with presentations by students of recent research on topics covered in the course. An overview of the framework that ties together the topics in this course is Campbell (2014).

#### 1. Introduction: Markets, Trading and Data

Structure of Financial Markets, Trading and Data.

#### 2. Asset Pricing: Stochastic Discount Factors, Expected Return Beta Representation, C-CAPM, the Equity Premium Puzzle & Empirical Factor Models.

The Basic Pricing Equation; the SDF & Expected Return-Beta Representation; C-CAPM and Equity Premium Puzzle; Alternate Consumption-based models; Empirical Multifactor Models.

Cochrane, J, 2005, Asset Pricing, Princeton University Press (Revised Edition) Ch. 1 & 2 excluding Asset Pricing in Continuous-Time i.e. 1.8, 1.8.1, 1.8.2.  
Ch. 4: 4.1, 4.2, 4.3, 4.4. Ch. 5: 5.1, 5.2, 5.2.1, 5.2.2, Ch. 6, 8, 9.

#### 3. Econometric Tests of Asset Pricing Models: Time Series & Cross-Sectional Regressions

Time series and Cross-Sectional Tests, Fama MacBeth Regressions and if time permits GMM estimation of AP Models

Cochrane, J, 2005, Asset Pricing, Princeton University Press (Revised Edition) Ch. 10, 11, 12, 13.  
Campbell, J, A. Lo, and A. Craig Mackinlay (1997), Econometrics of Financial Markets, Princeton University Press, Chapters 5 and 6.

#### **4. Introduction: Efficient Markets Hypothesis and Anomalies.**

The Efficient Markets paradigm, joint hypothesis tests, anomalies and recent developments.

Campbell, John Y, 2014, Empirical Asset Pricing: Eugene Fama, Lars Peter Hansen, and Robert Shiller, Scandinavian Journal of Economics. 2014.

#### **5. Introduction: Efficient Markets Hypothesis and Event Studies.**

MacKinlay, A. Craig, Event Studies in Economics and Finance, Journal of Economic Literature, March 1997, 35 (1), 13-39.

Lucca, D. and E. Moench (2015), The Pre-FOMC Announcement Drift, Federal Reserve Bank of New York Staff Reports No. 512, July 2013, Journal of Finance, Vol. 70(1), pp. 329-371.

#### **6. Present Value Models and Return Predictability (time permitting).**

Campbell, J, A. Lo, and A. Craig Mackinlay (1997), Econometrics of Financial Markets, Princeton University Press, Chapter 7 on PV Models

Campbell, J. Y., and T. Vuolteenaho, 2004, Bad beta, good beta, American Economic Review 94, 1249–1275.

Review of selected developments using recent work on return predictability – also a test for market efficiency.

#### **Assessment**

This will be based on an Individual Take Home assignment - full details will be provided at the start of the course.

#### **General References**

Course materials will include lecture notes/slides, review papers and selected recent papers in empirical asset pricing.

#### Textbooks

The course will rely on Cochrane (2005) and articles. Campbell, Lo and MacKinlay (1997) has nice material on empirical tests of asset pricing models and the Campbell-Shiller decomposition etc. Pennachi is a nice modern survey of the theoretical foundations of asset pricing. There are excellent Notes available on Prof. John Cochrane's website. For those with an interest in asset pricing – there is no better place than the Coursera course on Asset Pricing– free on the web- by Prof John Cochrane.

Cochrane, J., 2005, Asset Pricing, Princeton University Press, Pennachi, G, 2007, Theory of Asset Pricing, Pearson Publishing. Campbell, Lo and Mackinlay, 1997, Econometric of Financial Markets.

#### Survey Papers

These are several excellent surveys of the work on empirical asset pricing and predictability. Copies for individual use are available in some cases on the author's websites.

Cochrane, J, 2017, Macro-Finance, Review of Finance, 945–985. (relevant for the Take Home exercise)  
Ludvigson, S, 2013, Advances in Consumption-Based Asset Pricing: Empirical Tests, (Forthcoming in Volume 2 of the Handbook of the Economics of Finance). (CBAPET).

Rapach, D. and G. Zhou, 2013, Forecasting Stock Returns, Handbook of Economic Forecasting, Volume 2A, Graham Elliott and Allan Timmermann (Eds.), Amsterdam: Elsevier (September 2013), pp. 328–383. (Matlab Code and Data available at author's websites)

Note: This is not an econometrics course and so some familiarity with the basic ideas of OLS/GLS regressions, ML, Large Sample/Finite Sample Inference, Wald/LM and LR tests and GMM estimation etc at the level of Greene, Hamilton or Hayashi will be assumed. An intuitive and clear exposition of basic ideas is: Wooldridge, J, Introductory Econometrics, (any Recent Edition).