

UNIVERSITY OF TORONTO
Rotman School of Management

Winter 2016
RSM3032
Empirical Methods

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Office Hours: by appointment

This course is intended to (1) introduce students to a number of substantive and, in some cases, specialized topics in the broadly defined area of empirical research in finance; and (2) familiarize students with the connections among the theory underlying the research, the nature of the research question addressed, and the method used to address the research question. Topics to be covered include financial assets returns characteristics, GMM estimation and applications, predictability of financial assets returns, tests of market efficiency, and empirical tests of asset pricing models. There is an extensive reading list of published and unpublished research papers.

Course Materials:

There is one required textbook for this course:

Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, 1997, *The Econometrics of Financial Markets*, 1st edition, Princeton, New Jersey (CLM).

Four optional texts, which serve both as background materials and references are recommended:

Fama, F. Eugene, 1976, *Foundations of Finance*, Basic Books, New York.

John H. Cochrane, 2005, *Asset Pricing*, revised edition, Princeton University Press, Princeton.

Judge, George G., W. E. Griffiths, R. Carter Hill, Helmut Lütkepohl, and Tsoung-Chao Lee, 1985, *Theory and Practice of Econometrics*, 2nd edition, Wiley, New York.

Davidson, Russell, and James G. Mackinnon, 1993, *Estimation and Inference in Econometrics*, 1st edition, Oxford University Press, New York.

Course Requirements and Grading:

The work required consists of (1) showing up, reading the papers, and participating in class discussions, (2) doing weekly computer-intensive problem sets, (3) writing a term paper, which does not have to be long, but must contain original idea instead of simply replicating published results with a new dataset. There are no examinations. Proposal of the term paper has to be turned in before March 10, 2016. If the proposal is approved, you have until the end of June, 2016 to turn in the paper. The assignments count for 50% and the term paper counts for the other 50% of the course grade. You are encouraged to work in groups on the problem sets. You should, however, independently write up your own assignment. When you turn in your homework assignments, you have to include the key (not all) computer output and programs which support your answers. Familiarity with some statistical and

mathematical packages would be necessary but you can choose the one that you feel most comfortable with (as long as you can get the job done). If you are going to work on a PC/Mac and you are not already familiar with any packages, I would strongly recommend you to learn Matlab.

The approximate lecture schedule for the course is:

<u>TOPIC</u>	<u>Date</u>
Financial Assets Returns Theoretical and empirical characterization of returns, problems and issues in computing returns.	Jan. 14
Biases in Returns Market microstructure biases in individual securities and portfolio returns. Survivorship bias.	Jan. 21
Generalized Method of Moments Theory of generalized method of moments (GMM) estimator. Asymptotic distribution of estimators; specification tests and hypothesis tests.	Jan. 28
Mean-Variance Frontier Mean-variance mathematics, estimation and inference of tangency portfolio and efficient frontier.	Feb. 4
Predictability of Returns — Short Horizon Rejection of random walk hypothesis using daily and weekly return data.	Feb. 11
Predictability of Returns — Intermediate and Long Horizon Rejection of random walk using monthly/quarterly return data; evaluation of momentum based trading strategies and contrarian portfolio strategy.	Feb. 18
Predictability of Returns — Instrumental Variables Rejection of random walk hypothesis using other financial and economic variables and related econometrics issues.	Feb. 25
Empirical Tests of Asset Pricing Models — Time Series Approach Univariate and multivariate time series tests of Sharpe-Lintner and Black CAPM and multi-factor models. Roll's critique.	Mar. 3
Empirical Tests of Asset Pricing Models — Cross-Sectional Approach Fama-MacBeth cross-sectional regression test of the CAPM and multi-factor models.	Mar. 10
Stochastic Discount Factors Stochastic discount factor approach of tests of asset pricing models. Hansen-Jagannathan bound and Hansen-Jagannathan distance.	Mar. 17
Misspecified Asset Pricing Models Dealing with misspecified asset pricing models. Evaluation and comparison of asset pricing models.	Mar. 24
Tests of Market Efficiency Efficient capital market hypothesis and its implications. Anomalies in empirical asset pricing.	Mar. 31