

FD 504: ADVANCED FINANCIAL ECONOMETRICS

Course Objectives:

This course provides a comprehensive introduction to financial econometric concepts and techniques. It covers financial time Series econometrics, regression models with cross-sectional financial data, Asset price volatility models, simultaneous-equation models in financial time series, and economic forecasting.

Learning Outcomes:

- The course will help the student to
- Understanding of financial econometric concepts and techniques
- Interpretation of regression models with cross-sectional financial data
- Understanding of Asset price volatility models
- Understanding of simultaneous-equation models in financial time series, and economic forecasting.

Course Contents:

Unit I

(3 weeks)

Financial time Series econometrics: Stationary stochastic processes, nonstationary Stochastic Processes, unit root stochastic processes, trend Stationary and difference Stationary stochastic processes. Tests of stationarity- graphical analysis and autocorrelation function (ACF) and correlogram statistical significance of autocorrelation coefficients. The unit root test - the augmented dickey-fuller (ADF) test. Transforming nonstationary financial time series – difference stationary processes and trend-Stationary process. Cointegration: regression of a unit root financial time series on another unit root financial time series, testing for cointegration and Cointegration and Error Correction Mechanism (ECM).

References:

Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw Hill. [Chapter 21 and 22]

Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw Hill.[Chapter 13 and 14]

ADVANCED FINANCIAL ECONOMETRICS

Unit II

(3 weeks)

Regression models with cross-sectional financial data: The logit and Probit models, multinomial regression models, Ordinal regression models, and Limited dependent variable regression models.

References:

Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw Hill. [Chapter 15-17]

Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw Hill.[Chapter 8-11]

Unit III

(4 weeks)

Asset price volatility: The ARCH and GARCH models. Extensions of the ARCH model. Simultaneous-equation models in financial time series: The nature of simultaneous-equation models, simultaneous-equation models, simultaneous-equation bias, inconsistency of OLS estimators. A test of simultaneity, tests for exogeneity. Simultaneous-Equation Methods - approaches to estimation, recursive models and ordinary least squares, estimation of a just identified equation, the method of indirect least squares (ILS), estimation of an overidentified equation: the method of two-stage least squares (2SLS)

References:

Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw Hill. [Chapter 17 – 20]

Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw Hill. [13 and 15]

Unit IV

(2 weeks)

Economic forecasting: Forecasting with regression models. The Box–Jenkins methodology: ARIMA modeling. An ARMA model of companies daily closing prices. Vector autoregression (VAR), Testing causality using VAR: The Granger causality test

References:

Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw Hill. [Chapter 22]

Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw Hill. [Chapter 16]

Recommendation Computer Package to be Used: Use of software like E Views, R and STATA solving real life problems.

Text Books:

1. Christopher Dougherty. Introductory Econometrics. Oxford University Press.

ADVANCED FINANCIAL ECONOMETRICS

2. Gujarati, N. Damodar. Basic Econometrics. New Delhi: McGraw Hill.
3. Gujarati, N. Damodar. Econometrics by Examples. New Delhi: McGraw Hill.

Additional Readings:

1. Pindyck, Robert S. and Daniel L. Rubinfeld Econometric Models and Economic Forecasts. Singapore: McGraw Hill.
2. Ramanathan, Ramu (2002). Introductory Econometrics with Applications (5th ed.). Thomson South Western

Teaching Learning Process:

Class room lecture, Case study discussion, Numerical Problem solving, Class presentation on the assigned topic by students individually or in group, Workshop, Tutorials, Role play

Assessment Method

1. Internal evaluation of 25% marks
 - a. Attendance 5% marks
 - b. Two internal evaluations by the teacher with 10% marks each out of which one must be a class test and other may be another test or home assignment or presentation. Faculty may take more than two assignments and (or) tests but total will be only 20% marks.
2. End term University Exam of 75% marks

Key words: Autocorrelation, Error Correction Mechanism, ARCH, GARCH, OLS, Vector auto-regression,