

DSE I: MDF 605: FINANCIAL TIME SERIES 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

1. Understanding of financial econometric concepts and techniques
2. Interpretation of regression models with cross-sectional financial data
3. Understanding of Asset price volatility models
4. Understanding of simultaneous-equation models in financial time series, and economic forecasting.

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]

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.

FINANCIAL TIME SERIES ECONOMETRICS

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

(3 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

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

FINANCIAL TIME SERIES ECONOMETRICS

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 and Learning Method:

This course will be taught using a mix of the following tools:

1. Relevant Case studies
2. Explanation of econometric tools using software like R and Stata.
3. Relevant and important research articles from academic linked journals in the domain of Management such as Harvard Business Review,

Assessment Method:

The total assessment of the course is for 100 marks and would be split as follows:

- D. Semester end exam = 75 marks
- E. Attendance = 5 marks
- F. Internal = 20 marks (5 - class participation; 5 - term paper; 10 - class presentation)

Keywords:

Financial Econometric, regression models with cross-sectional financial data, Asset price volatility, simultaneous-equation, economic forecasting.