

FE542 Advanced Financial Time Series Analysis

Fall 2014, 2nd Half 8-Week Session, Fri. 14:30~17:20

Instructor Prof. Park, Dae-Keun

Office Hour By appointments

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Prerequisite

- FE502 Statistical Analysis for Finance
- FE532 Financial Time Series Analysis

Course description

The goal of this course is to provide students advanced knowledge and skills for analyzing multivariate time-series and volatility in financial market. Econometric and time series theories including State Space model, VAR model, Cointegration test, VECM, ARCH/GARCH model, and MLE/GMM are introduced with their applications. Upon the completion of this course, students are expected to have advanced quantitative skills for financial time series analyses.

Textbook

- **Introductory Econometrics for Finance** by Chris Brooks, 2nd Edition, Cambridge University Press, 2008.

References

- **Statistical Methods for Forecasting** by B. Abraham and J. Ledolter, 1st or 2nd Edition, Wiley-Interscience, 1983 or 2005.
- **Time Series Analysis: Forecasting and Control** by G. E. P. Box, G. M. Jenkins, and G. C. Reinsel, 3rd Edition, Prentice Hall, 1994.
- **Time Series Analysis** by J. D. Hamilton, 1st Edition, Princeton University Press, 1994.

Topics and Schedules

Week	Date	Topic
1	10/31	Review of Univariate ARIMA models
		State Space model
2	11/07	Relationship between ARIMA and State Space model
		(Practice) State Space: Trend-Cycle Decomposition
3	11/14	VAR model
		ARIMA with Structural Break
4	11/21	Granger Causality and Impulse Response
		(Practice) VAR: Oil and Stock Prices
5	11/28	Spurious Regression and Cointegration
		VECM
6	12/05	(Practice) Cointegration and VECM: Oil and Stock Prices
		ARCH and GARCH model
7	12/12	(Practice) ARCH and GARCH: Exchange Rates and S&P500 Index
		MLE and GMM
8	12/19	(Practice) MLE and GMM: CKLS model
		Final Exam

*** All students should do homework after each topic. Refer to the attached homework set.**

Evaluation

Final Exam (80%) + Homework Assignment (15%) + Class Participation (5%)