STAT 6104 Financial Time Series

Chapter 0 - Course Outline

Agenda

Teachers

- Instructor: Dr.YAU Chun Yip
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  - Office: Lady Shaw Building 110

- Tutor: Ms. Li Chunxue
  - Email : 1155029133@link.cuhk.edu.hk
  - Office: Lady Shaw Building 130

- Whatsapp Group: Join the group by sending a Whatsapp message to 5607 4545.

Agenda

Prerequisites

Background in mathematics and statistics

- Calculation of mean, variance, covariance
- Confidence interval and hypothesis testing
- Basic R programming
  - Download: http://cran.r-project.org/bin/windows/base/
  - Tutorial: http://r-statistics.net/r-tutorial.html

Prerequisites

Essential Math/Stat Skills

1. $1 + x + x^2 + x^3 + \cdots = (1 - x)^{-1}$

2. $\mathsf{E}\left(\sum\limits_{t=1}^{n} a_t X_t\right) = \sum\limits_{t=1}^{n} a_t \mu_t,$ where $\mu_t = \mathsf{E}(X_t)$

3. $\mathsf{Cov}\left(\sum\limits_{t=1}^{n} a_t X_t, \sum\limits_{s=1}^{n} b_s X_s\right) = \sum\limits_{t=1}^{n} \sum\limits_{s=1}^{n} a_t b_s \mathsf{Cov}(X_t, X_s)$

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Book and Notes

Lecture Slide

- Uploaded in CUHK Blackboard system.
  blackboard.cuhk.edu.hk

Textbook

- Chan, Ngai-hang (2010).
  Time Series: Applications to Finance with Rand S-Plus (2nd Ed.).John Wiley & Sons
- Most of the materials in the lecture slides follow from this book
- Textbook's website: (datasets download)
  http://www.sta.cuhk.edu.hk/NHCHAN/TSBook2nd/dataset.html

Book and Notes

Reference book

- Cowpertwait, P.S.P and Metcalfe, A.V . (2009) Introductory Time Series with R (Use R!). Springer.
- Tsay, R.S. (2010) Analysis of Financial Time Series 3rd edition. Wiley.
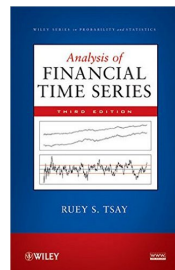

Figure: Textbook

Figure: Reference book

Figure: Reference book

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Other learning materials

Regular assignments

- About 4-5 assignments in total
- Hand in class
- Discuss the result of your analyses. Never turn in raw computer outputs or spread sheet files
- LATE assignment will NOT be graded

Exercises

- Posted approximately every other week (solutions provided)
- What for?
    - Consolidating concepts
    - Help to do assignments
    - Training for Midterm/Final
- No need to hand in, work hard yourself!

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Grading

- Regular assignments (30%)
- Mid term exam (30%) 26/2 Tuesday
- Final exam (40%) 30/4 Tuesday