ECOM073
Topics in Financial Econometrics
2023-24

Liudas Giraitis

Students:

School of Economics and Finance

WELCOME!

Contact details

Office hour: Friday 2-4 pm (zoom)
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For all MSc's:

MSc Banking and Finance
MSc Behavioural Finance
MSc Investment Banking
MSc Investment and Finance
Others

Everyone can take this module, enjoy it and do well.
Clear concepts, work with data in tutorials, only basic math
Econometrics is not a prerequisite!

Objectives

Working with data you will develop
Ideas
Understanding
Curiosity
Quantitative skills, data modelling skills

Course Structure Week 1 -10

QMPLUS: you will find there
Lecture notes handouts,
problem set solutions, tutorial

1) **Lecture notes 1-10(handouts)**
2) **Teaching material used in Lectures**
3) **Mini problems -quiz:** (not compulsory)
   solve/upload/get feddback

4) **Tutorial Problem set solutions**

Assessments:

Midterm test (20% of final mark) ~ 27 March
Final exam (80% of final mark) May 2023

QMPLUS overview

Live lecture: Wednesday 9:00- 11:00 am (Liudas Giraitis)
Room: Bancroft: 3.26

Tutorial: Thursday 11:00-12:00 am (Claudio Vallar)
Room: **QB 212 PC lab**

Lecture notes (handout) – on QMPLUS
Problem sets and Solutions – on QMPLUS
Quiz: try/submit -not compulsory

Books/learning material

---Lecture Notes 1-10 [!] (provided)

Textbooks

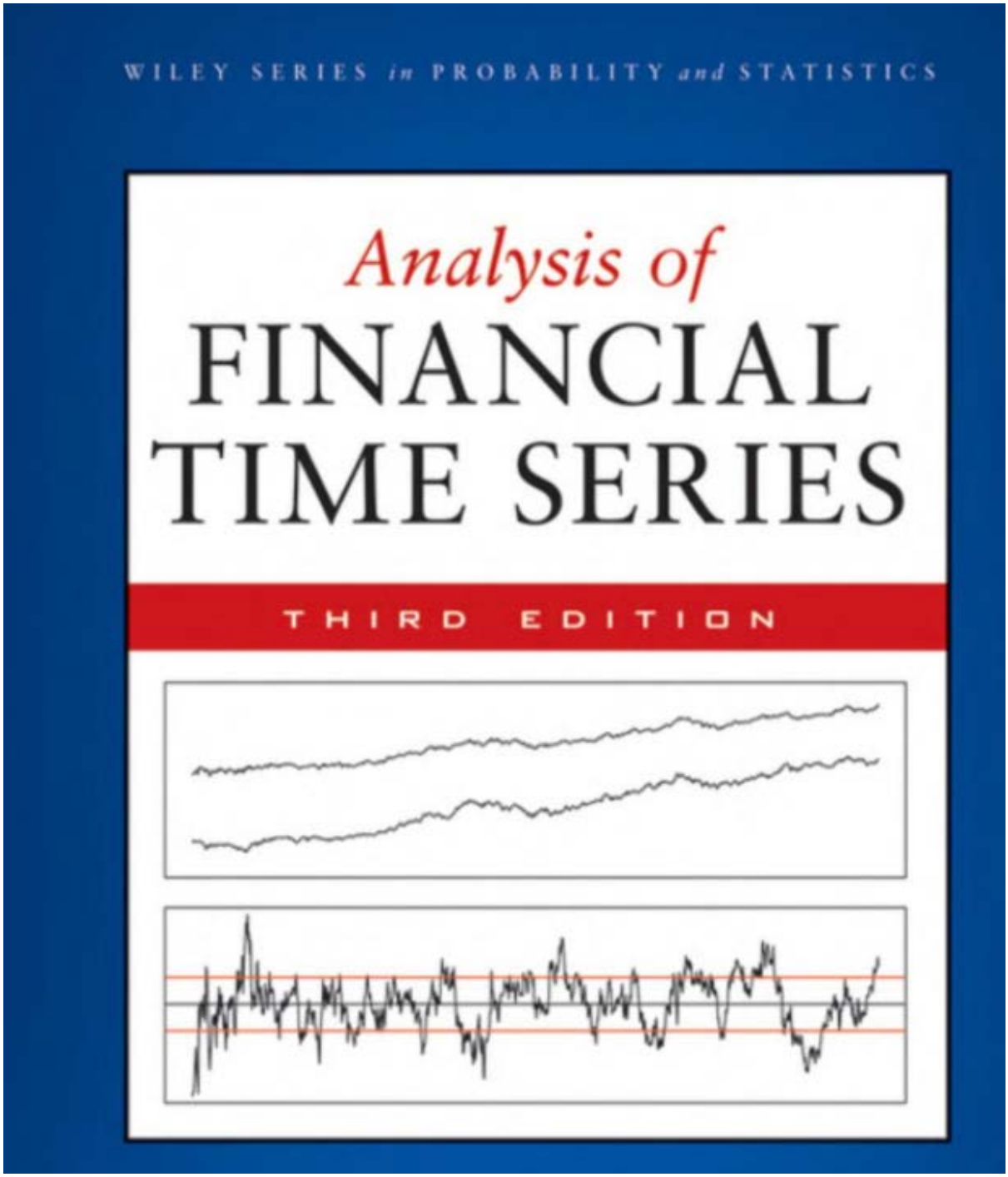
Main texts:

1) Ruey S. Tsay

Analysis of Financial Time Series [!]

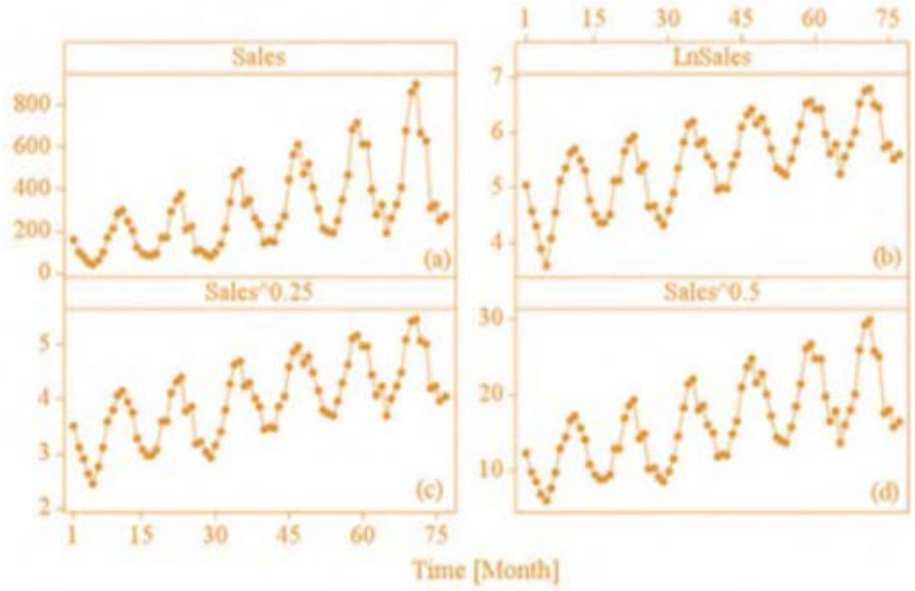
2) Murat Kulahci and Soren Bisgaard

Time Series Analysis and Forecasting by Example



Introduction to Time Series and Forecasting
By Peter J. Brockwell, Richard A. Davis

Wiley Series in Probability and Statistics



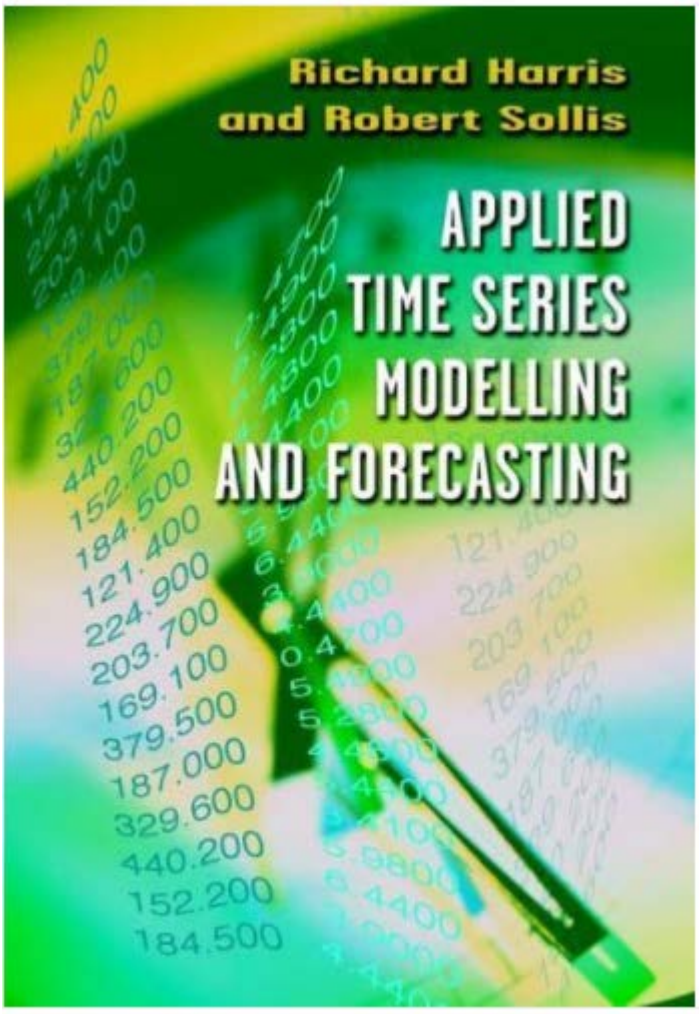
Time Series Analysis and Forecasting by Example

Søren Bisgaard and Murat Kulahci

Dissertation/ Applications

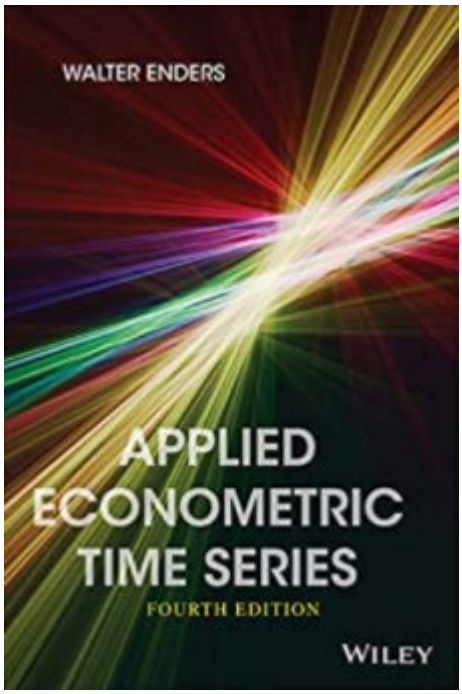
Applied Time Series Modelling and Forecasting

Richard I. D. Harris (author), R. Sollis (author)



Applied Econometric Time Series, 4th Edition (Wiley Series in Probability and Statistics) 4th Edition, Kindle Edition

by Walter Enders



Software

Claudio's Tutorial:

Theoretical analysis/ problem solving illustrated by practical examples on EVIEWs

Content

Starting point

What is a time series?

a) Series of numbers ?

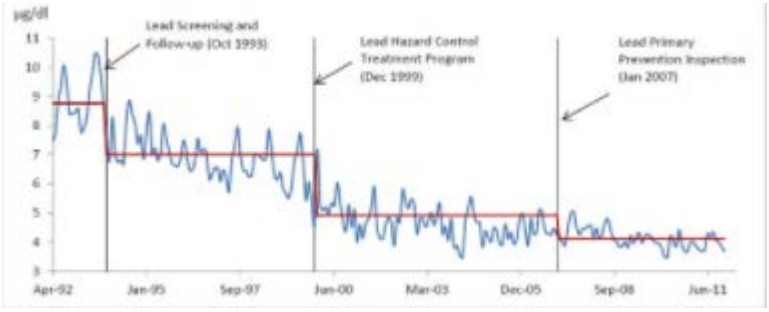
Time-Series Data

Country	Year	Variable 1
USA	1988	45.19
	1989	23.05
	1990	29.69
	1991	53.56
	1992	19.47
	1993	91.50
	1994	24.85
	1995	53.52
	1996	85.98
	1997	87.50
	1998	68.01
	1999	89.58
	2000	36.88

Describe patterns

a) Random numbers, b) positive trend c) just numbers

b) Plot?



Discussion: Describe patters

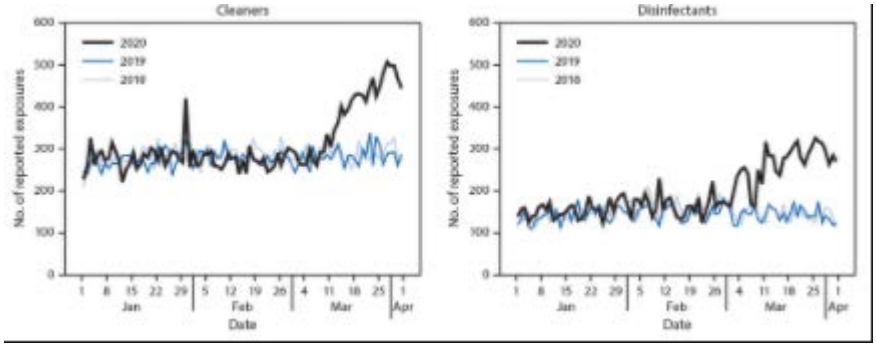
Past - Presence - Future

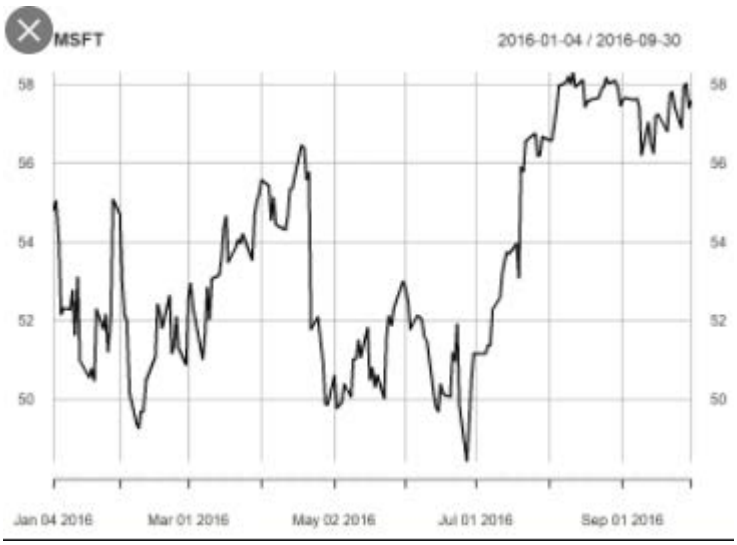
TIME

Eyeballing

looking at a set of **data** making estimates without statistical calculations.

---can be done by looking at "raw" **data**
---much easier if the **data** presented in graphical form.





Dependence in the data: the past

-- Explains the present

-- Predicts the future

Historical data analysis

Modelling:

Random Observations are explained by a Model

$X_t = a\,t$ (physics)

$X_t = a\,t + e_t$ (economics)

We study:

--Types of models

--Model selection

--Model fit to the data

Model describes data/ allows to generate data!

Prediction of the future from the past

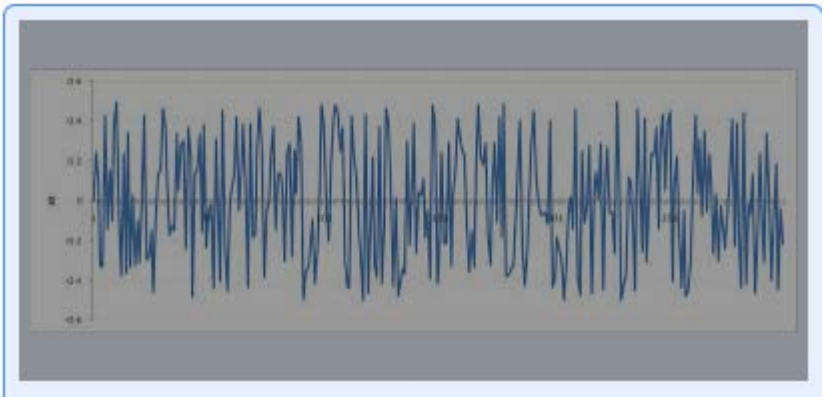
Important/used widely:

A Corner shop in Hoxton

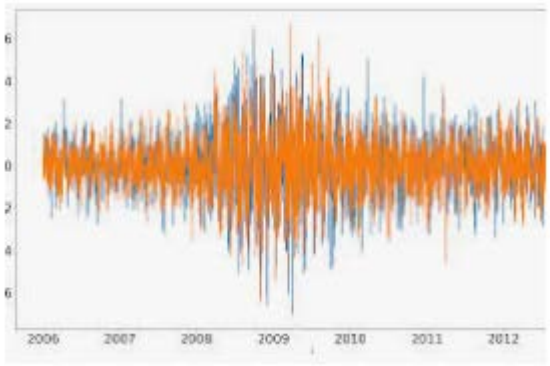
Bank of England

Concepts

Stationary time series

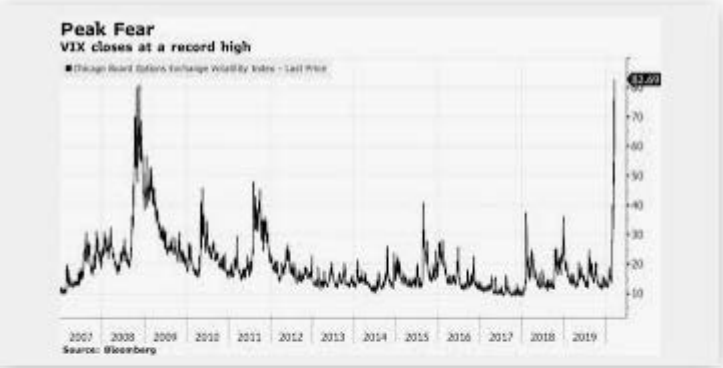


Non-Stationary time series

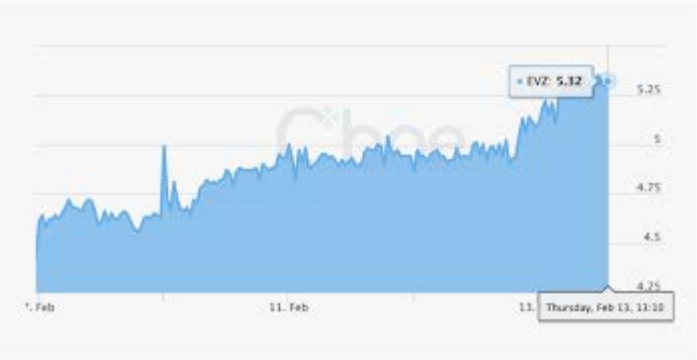


Discussion: Why this series is non-stationary?

Volatility of financial markets



Stock Market Volatility Tops Financial ...
bloomberg.com



Financial Markets as COVID-19 Surges
finextra.com

Historical Volatility: A Timeline of ...
dailyfx.com