Time Series Forecasting: How Much Prologue is the Past?

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2013 ECU Scholar-Teacher Awards and Symposium
“I would not wish the task of a macroeconomic time-series econometrician on a mangy dog. Especially not now.”

*Brad Delong, October 2008*

“With four parameters I can fit an elephant, and with five I can make him wiggle his trunk.”

*John von Neumann*
Patterns from the Past: 1980Q1-2007Q3

Real GDP and Trend Growth: 1980Q1-2007Q3

[Graph showing Real GDP and trend growth from 1980 to 2007.]
Returning to Trend? By 2020? Shift to Lower Trend?

Real GDP and Trend Growth: 1990Q1-2012Q4

Gap = $2.7 trillion
- Carry out an “out-of-sample” (OOS) forecasting experiment:

- Idea is to mimic what would have happened if, over time, a researcher had used a particular technique to produce forecast values for an economic variable of interest, e.g., real GDP.

- Only information that would have been available at a particular point in time is used to make the forecast.

  - For example, in trying to mimic producing a forecast for the first quarter of 2013, only information that would have been known as of the fourth quarter of 2012 would be used.

- Since “future” values are known when doing the experiment, accuracy of mimicked forecasts can be evaluated.
The Review of Economics and Statistics

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Forecasting Asymmetric Unemployment Rates

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MULTIVARIATE STAR ANALYSIS OF MONEY-OUTPUT RELATIONSHIP

PHILIP ROTHMAN
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DICK VAN DIJK AND PHILIP HANS FRANSES
Econometric Institute
and
Erasmus University Rotterdam
Out-of-sample forecasting of unemployment rates with pooled STVECM forecasts

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Oil and U.S. GDP: A Real-Time Out-of-Sample Examination

FRANCESCO RAVAZZOLO, PHILIP ROTHMAN

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Economics 6390: Research Paper

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Your paper will be based on a pseudo out-of-sample forecasting exercise for the time series you have been assigned.

Consider two scenarios:

A. Set the first in-sample period to 1947:Q2-1989:Q4, the second in-sample period to 1947:Q2-1990:Q1, ..., with the last in-sample period 1947:Q2-2010:Q4. Compute forecasts for $h = 1, 2, 3,$ and $4$. In this scenario, the ‘Great Recession’ is included.

B. Set the first in-sample period to 1947:Q2-1989:Q4, the second in-sample period to 1947:Q2-1990:Q1, ..., with the last in-sample period 1947:Q2-2006:Q4. Compute forecasts for $h = 1, 2, 3,$ and $4$. In this scenario, the ‘Great Recession’ is not included.
Actual and Forecast GDP Growth Rate, 1990.1-2007.3

- Actual
- Forecast
An empirical investigation of stock market behavior in the Middle East and North Africa

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Economics 3343: Course Project

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Due date/time: Thursday, May 9, 8am. A hard copy of the paper needs to be submitted upon your arrival for the Final Exam.

Topical Focus

Your project will be based upon analysis of a set of estimated regression models motivated by what is known as the Capital Asset Pricing Model (CAPM). I have provided a Brief Introduction to the CAPM and Factor Models, with an emphasis on some key econometric issues; you are STRONGLY ENCOURAGED to read through and ‘digest’ that material ASAP. The remainder of this document assumes you indeed are sufficiently familiar/comfortable with that material.
I have carried out and published many OOS forecasting studies:

- In our MS program’s capstone research course, I lead my students through such exercises.

I have published CAPM research:

- The research project in Economics 3343 (WI), which most of our majors take, is based on the CAPM.