

Bullet Points for Day 19

Comparing GARCH Family Members

The large number of models in the GARCH family may give one an uneasy feeling. With so many alternatives, how can one make a reasonable choice? Some criteria for choosing among models are “fitness for use,” “simulated verisimilitude”, and “surrogate fitness.” All of these require more judgement than some automated criterion like AIC, BIC, or adjusted R^2 .

Still there is an “approximate bottom line”: In general one has a hard time doing substantially better than GARCH(1,1). Still, if the leverage effect is suspected, one does well to take the next step to EGARCH or TGARCH.

- Discussion of in-coming Homework
- More on GARCH structure
 1. The Wold Representation: GARCH(1,1) as ARCH(∞)
 2. Ergodicity and the Unconditional Variance
- Relationships within the GARCH extended family
 1. News Impact Curve
 2. Reality of the “leverage effect”
- Reminder: “What is volatility?”
- Confronting the ZOO
 1. Non-nestedness makes comparison problematical
 2. “Fitness for Use”
 3. Volatility Forecasting as an idealized “Use”
- Review of Two Papers
 1. The 330 Models of Hansen and Lund
 2. The 8 GARCH(1,1) models of Wilhelmsson
 - (a) Vanilla ARCH really is often among the worst
 - (b) Vanilla GARCH is never too bad
 - (c) Dependence on underlying asset: currency vs stock, etc.
- Discussion of out-going Homework No. 9 — the last HW.

QUOTE OF THE DAY

“Imitate, assimilate, and innovate.” — Clark Terry’s advice to up-coming jazz musicians, but good advice to anyone at any time in any field.