Discussion of "Why do non linear models provide poor macroeconomic forecasts?"

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Frankfurt, ECB May 2012
This paper starts from the observation that macro theory (DSGE) predicts non-linear relationships, but empirical macro is linear.

to investigate the size of the returns to non-linearity in an univariate framework.

Conclusions: most of the series are identified as non-linear by tests, however non-linear models do not outperform linear benchmark, gains from non-linearity are small while losses are large.
• gains from non-linearity could emerge in a multivariate context, when financial and real variables are jointly modelled
• non-linearity in financial variables should be function of the horizon at which returns are defined
• Non-linearity could be exploited for DSGE model evaluation
• Which Model Evaluation?
The different co-movement between financial and real variables
The different co-movement between financial and real variables

Cross-sectional dispersion

Log of per capita output differential with Germany

Yield spreads on German Bund

Cross-sectional dispersion

Cross-sectional mean
On the different nature of returns at different frequencies

- High frequency returns are dominated by noise, (conditional) first moments of their distribution are unpredictable while higher moments are. The main source of non-linearity among them are probably interdependence and contagion. (Multivariate GARCH or Stochastic Volatility Models)

- Low frequency returns are much more related to information than high frequency returns, they are predictable and moments higher than the first ones are rather stable over time. The main source of non-linearity is in their co-movement.
DSGE model evaluation has been conducted using a VAR as a benchmark: the DSGE-VAR tradition.

Is the VAR the correct benchmark when the original model is non-linear?

How do linearized DSGE-VAR perform against a non-linear benchmark?
Models can be wrong for many reasons

- Being wrong because of not predicting shocks is very different from being wrong for not getting the transmission mechanism right
- The importance of non-linearities should emerge when we investigate how models perform conditional on shocks