

Comment on David and Veronesi

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- ▶ A good idea: That volatility can rise because we enter a period where a transition to a different dynamic structure for asset yields and macro variables, so that observed data starts to be important not only for what it implies about “within state” dynamics, but also for its implications for what state — i.e. what dynamic structure — we are in.

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- ▶ Not only a good idea. There’s also a serious effort to connect the theory to a fairly rich array of data.
- ▶ A great deal of cleverness can be found in the Appendix.

So what can a discussant do?

1. Ask for improvements that are much too hard to introduce without writing a new paper.
2. Make some picky points about econometrics.

Six states? Everyone knows what they are?

- ▶ The paper notes that in earlier work by one or both authors only four states were used.
- ▶ The reason for more in this paper is that new variables are introduced, but also because the extra states are important for matching the most recent data, not available in the previous work.
- ▶ Of course there are not just six possible dynamic regimes and of course the parameters of possible regimes are not known with certainty.
- ▶ If we are to use this model, or type of model, in a context where out of sample prediction matters, this is a serious limitation. Not that there is any easy answer as to how to allow for indefinite numbers of states and/or uncertainty about state parameters.

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- ▶ The test is “passed”, but passing at 7% might make us uneasy.
- ▶ Answer 2: The model’s “predicted” prices and volatilities track actual data pretty well, except for a few unusual episodes
- ▶ The predicted values show up as very important in regressions of actual values predicted values and other variables that have been used to predict these variables.

The “fit” of the predictions is not really informing us about model fit

- ▶ The model's predicted prices at t , e.g., are the econometrician's estimate of the model's investors' valuations based on information at t .
- ▶ The *investor* uses information only up to time t in forming his valuations.
- ▶ The *econometrician* has less information than the investor.
- ▶ Therefore the econometrician will use observed data after time t to guide his estimates of what the investor knew at time t .

How to make a real comparison of predictive power?

Perhaps this is impractical: Refit the entire model at each t , make pseudo-out-of-sample forecasts, compare to other models, e.g. BVAR's

We have a likelihood. Why is SMM necessary?

- ▶ The likelihood is generated from the model's implied distribution for Q (price level) and E (earnings).
- ▶ But then additional observables are added, and we don't use the model to generate distributions for them.
- ▶ The model does imply error in the predicted prices and volatilities, but we don't use the model's implications for the error distributions.
- ▶ If we did so, posterior odds on the model and alternatives like BVAR's could be found directly.

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- ▶ As it stands, probably this doesn't work, because there are fewer independent dimensions of driving processes than there are observed variables.
- ▶ Ideally, introduce more sources of driving randomness, nonsingular model distribution for prices.
- ▶ Not very practical.

Really picky

- ▶ Why the two-step reduction in number of elements in transition probability matrix? Why not use a prior?
- ▶ Four quarter moving average of earnings? Time aggregation accounted for?