
Comment on: Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?

February 25, 2011

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 - Look at long spans of history in estimating shock distributions, or, better, recognize that shock distributions vary over time.
 - More generally, recognize and account for parameter uncertainty.
 - Don't use the internal probability structure of a model that is dominated in fit to characterize uncertainty about the model's forecasts or conditional policy projections.

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 - Del Negro/Schorfheide?

Diagnostics at a deeper level

- Is there economics, as opposed to just stochastic specification, missing from these models that would have helped us before the crisis in anticipating it, or at least recognizing its possibility?
- Is there economics missing that might be important in guiding policy going forward?
- Is there an identifiable direction in which we should we be improving our modeling methods?

Fiscal modeling

- Fiscal policy. Still. I've been making this criticism of central bank policy models, and FRBUS in particular, for more than 10 years. Fiscal policy *is* relevant to projecting inflation, especially when large swings in expectations about future fiscal policy are possible. This seems to be our current situation.
- The problem is not just that policy behavior is not modeled. We need to be recognizing the wealth effects of marketable government debt, and also of expected future tax burdens and possible changes in social insurance.
- We should also recognize that people do not put 100% probability on the event that the Fed can keep inflation near target "no matter what". This would make fiscal developments directly impact inflation expectations, even with the monetary policy reaction function fixed.

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- The last sentence in the paper: “And fourth[!], we did not take into account fiscal policy actions that may step in when the economy is constrained by the ZLB” .

Financial frictions

- Liquidity services of non-money, counterparty risk. That this is an important omission has only become starkly obvious more recently, so that it was not yet in these models on 2007 is unsurprising.
- But as a diagnostic, I'd like to see some non-structural modeling aimed at checking whether the errors made by these models might have been smaller if they had included observable indicators of financial stress that we have been leaving out of our models.

Modeling methods: rare events

- We need to insist that probability models integrate uncertainty about poorly identified, but important, objects with uncertainty about “parameters” the data tell us a lot about.
- Using long samples can help, But going back to 1920 would only have told you that big collapses do happen, not, from data alone, what the probability of such events is, much less exactly what the next collapse will look like.
- Rare events do not have objective probability distributions we can all agree on. That does not imply we should ignore uncertainty about them when exercising models to understand uncertainty.

- The SW model was estimated in a Bayesian framework, but did not try explicitly to integrate rare-event probabilities. We should be doing this and making it a part of standard policy-projection use of such models.

Are we at the zero bound?

- 25 basis points is a low rate, but it could be zero, or even slightly negative.
- It does not make sense to assume that the impact of rate changes in basis point units is the same at these very low rates as at historically normal rates.
- Even if the short to long rate transmission factor is stable (as the paper assumes at one point), the proportional change on long rates of a given short rate change, and hence the effect on market values of long bonds, is much larger when rates are very low.

Aside: Why not zero interest on reserves?

- A counterargument I have heard is that a zero or negative reserve rate would devastate the money market mutual fund industry.
- I'm not sure this is true. People might well be willing to pay service fees for the convenience of MMMF deposits and to accept that occasionally the value of their shares could "break the buck".
- Even if it is true, would moving funds from institutions that will invest them in short government or corporate bonds to banks, that might lend them out, be a bad thing?

Another modeling gap

- We have little data we can use to estimate the effects of interest rate changes in the neighborhood of the ZLB.
- But this suggests we should be doing more systematic exploration of monetary and fiscal policy effects in the neighborhood of the ZLB — tracing the boundaries of our ignorance, rather than just extrapolating models fit to normal periods.

What exactly was surprising?

- The paper suggests that the behavior of output and interest rates has been surprising, but the behavior of prices has not.
- This is a misleading way to put it, and the paper falls short of fully characterizing the surprise.
- Output did fall by a surprisingly large amount. *Conditional* on this drop, the fact that inflation has fallen so little is probably quite surprising to these models. We would like to see at least a 2-d probability region for the joint behavior of output and inflation in understanding what has been surprising.

Which components of the models were “surprised”?

- For at least some of the models, the paper has re-estimated using data running into 2010. What components of the models changed most sharply, and how?
- We know that residual variance estimates changed. But was it the Phillips curve? The monetary policy reaction function?

Policy options

- The paper includes a guess at the effects of Fed balance sheet expansion via buying long debt with reserves.
- But why not consider the effect of an announced, permanent, change in the inflation target — which in the light of our revised probabilities of ZLB events might seem to be an attractive permanent change in policy?

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- But why not consider the effect of an announced, permanent, change in the inflation target — which in the light of our revised probabilities of ZLB events might seem to be an attractive permanent change in policy?
- It is of some interest, of course, to analyze a policy that is actually being implemented that many doubt will have important effects. But policies that have not been implemented that might be more effective should also be on the table.

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- They are probability intervals for yet-unobserved actual random data.
- Most economists seem not to really understand the difference, sadly, but that is not an excuse for perpetuating sloppy language. It’s important because recognizing that confidence intervals are not relevant to forecast evaluation sometimes makes people realize the limitations of frequentist inference.

Assumptions in the stochastic simulations

- Why no policy shocks in stochastic simulations of the structural models? Surely this will tend to shrink their already too narrow probability bands.
- Why rational expectations instead of VAR-based expectations in evaluation the effects of quantitative easing? This kind of historically unprecedented, temporary, policy shift would seem to be exactly where rational expectations is less appealing.

Conclusion

- Some of these comments are unfair, in that they talk about a broad agenda for evaluating the performance of and revising our policy models.
- The paper really aims to show us how a variety of models tracked through the crisis, and using the structural models to estimate the effects of the ZLB.
- Toward these objectives, it is a reasonable first step.