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Dear Marek

I have now reviewed the PhD thesis that Ms. Anna Pestova is planning to submit for defense. The thesis is entitled "Essays in Applied Macroeconomics" and consists in four chapters based on three co-authored papers and a solo paper. For good order, I put my own summary of the chapters after the signature, in an appendix to this report.

Let me stress from the beginning that, in my view, the thesis is very well done and engaging, and it satisfies the formal and content requirements for a PhD thesis in economics. I have also seen Anna presenting and very effectively convincing her audiences of the points she makes in some of these papers. Hence, I do recommend the dissertation for a defense, already in its current format, and I congratulate Anna for having done an excellent job.

For the aim of the thesis defense, I would only (optionally) recommend to re-draft a bit the fourth chapter, which is promising but currently missing a punchline. The part based on the structural model to justify the sign restrictions is not well developed, so I would either drop it for now (but it would be important for the sake of pushing the paper toward publication, at a later stage) or to de-emphasize it. In general, I would focus more on the empirical results and be possibly less negative on the recursive identification scheme, for the sake of the PhD thesis. An alternative, less appealing but still fine, would be to take the chapter as a "surprising" endorsement of the seemingly simple-minded recursive identification scheme.

All the rest of my comments should not be considered for the PhD defense, but as suggestions that Anna may want to take into consideration at a later stage, to increase the chances of publishing her papers. I have organized the comments in two parts. First, I have some general comments, which refer to more than one paper/chapter (and I will not repeat these comments for the individual chapters). Then, I have a set of slightly more detailed comments which refer to each paper in isolation.

Let me also conclude this introductory part by saying that the first three papers, duly revised, could be sent to journals publishing applied macroeconomic analysis such as the American Economic Journal: Macro, the Journal of Monetary Economics, the Journal of Money, Credit and the Journal of Applied Econometrics. In my view, the paper which is the closest to publication is the third, on the assessment of sanctions on the Russian economy and on Russian households and firms.

GENERAL COMMENTS

In several papers in the thesis, Anna uses flat priors in the Bayesian estimation of relatively large and complicated multi-variate time-series models. Anna repeatedly (and, in my view, rightfully) highlights how Bayesian techniques may help to overcome the so called "curse of dimensionality". It is then a contradiction, in my view, to use flat priors to estimate the medium- to large-scale models in her papers. Indeed, the literature stresses that, the more complicated/sophisticated the models, the more shrinkage (i.e. informativeness of the priors) is required to address the curse of dimensionality.

I am somewhat worried that some of the changes in sign over the medium- to long-run horizons of the impulse responses in Anna's work (which is the basis of some of the paper conclusions) may be at least partly related to such estimation choice. Indeed, large multi-variate models with persistent time-series, estimated with flat priors, may give rise to an excessive weight given to the model deterministic component which, in turn, may strongly affect the model results, especially in their medium to long run properties. I encourage Anna, in the next iterations of her papers, to verify the robustness of the empirical results to choices of the prior distributions which are more in line with the state-of-the-art Bayesian estimation of VAR models. Recent work is also highlighting how the issues with deterministic components can affect variance decompositions.

As a drafting suggestion, I found that the papers are a bit excessive in two related directions. First, there are frequent surveys of the literature, besides those in the introduction, which break the flow of the arguments and distract the reader. I would encourage Anna to place such surveys mainly in the introduction or, possibly, in a related literature section (typically after the introduction) and reduce the frequency of such surveys in other parts of the papers. Second, such surveys are also typically discussing how the results of Anna's papers relate to other papers. Often it sounds as if the results in Anna's papers are only confirming other work, and I do not think that this is the case. Other related work can be referenced much more in passing in the empirical section of the paper, and the introduction (or the related literature section) should give the reader the key to understand the additional contribution of Anna's work.

DETAILED COMMENTS

Chapter 1: "Bank credit and the risk of recession: the role of business cycle shocks"
- More justification should be given to the practice of running the regressions on the components of credit which are exclusively driven by the demand shock. The authors argue that this a way to identify a specific channel, but this is not too clear to me. I think that such empirical claim should be better substantiated, maybe with simulated data from a known DGP (say, using data from a DSGE model).
- The authors state that there are theories which support both the short- and the medium-term part of their impulse response functions. However, I have the impression that the same theories would not be able to explain the entirety of the impulse response functions. In other words, these

theories are often, or always, in conflict when looking at the same horizon of the IRFs. Isn't there a way to interpret the entirety of the results in a unified framework?
- The shocks may also change the interaction terms in the local linear projections.

Chapter 2: "Credit supply shocks and household defaults"
- Here I would like more explanations on how you proxy the different channels you are testing, in empirical terms. Why do you choose certain variables and not others, and what is the mapping with the theoretical channels?

Chapter 3: "The price of war: macroeconomic and cross-sectional effects of sanctions in Russia"
- It is not too clear what the two different measures of shocks are capturing. Either you make it more convincing, with more explanations and evidence, or better to take the two measures as two alternatives for robustness, and produce the results as ranges or combination.
- Why don't you consider narrative identification, based on the small number of spikes in the event study? Could that be the complement to the other identification method, which would also eliminate the issue stressed in the previous bullet point?
- The in-sample/out-of-sample terminology you use when computing the counterfactuals is very confusing. It would be good to explain better what you know and what you don't when you do the different counterfactuals, and avoid that terminology altogether.
- I am not sure what to make of the sub-section on "Accounting for endogenous monetary policy responses". Strictly speaking, you do not need to have an explicit interest rate to account for endogenous monetary policy. The monetary policy rule may already be accounted for in your model, it might have been "substituted out", and incorporated in the model dynamics nonetheless. Indeed, despite the fact that monetary policy is thought to be relevant, you still have no change in the model when you add the interest rate. This sub-section, to me, is only showing that the interest rate is not an omitted variable in your baseline specification.

Chapter 4: "Country spread shocks, sudden stops, and business cycle fluctuations in emerging economies"
- Why do you take the log of interest rates, which are already defined in percentage values?
- I think that this chapter does not have a punchline. For now, you might write it by having a very limited aim: effectively say that the apparently "inappropriate" Choleski ordering is more robust than one could think. However, to be more interesting, the paper has to be developed toward a more "positive" direction. What you are trying now is a good direction, but of course results have to be more convincing.
- Is the size of the models large enough? The first line of criticism for the existing empirical applications is whether the models are not suffering from omitted variable bias. In that case, even having the right identification restrictions may not be enough to capture the effects of structural shocks.

Kind Regards

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APPENDIX: SUMMARY OF THE CHAPTERS

Chapter 1: "Bank credit and the risk of recession: the role of business cycle shocks"

This chapter shows, in a quarterly panel of 25 advanced and emerging countries, that credit expansions may be a mixed blessing: generally a recession is likely to follow an early boom. This is particularly true when demand shocks explain the credit expansion preceding the recession and the boom-bust cycle is magnified in regime of real estate booms.

Chapter 2: "Credit supply shocks and household defaults"

This chapter estimates the responses of household default measures in US states which are differently hit by exogenous credit supply booms. The differences in the outcomes between "treated states" (very much affected by the credit supply shock) and the "non-treated states" (less affected by the credit supply shock) elucidate on the effect of credit shocks on household default. The main finding is that the exogenous credit booms of the 80's did not cause much increase in household default, while the credit booms of the early 2000's were conducive to an economically significant rise in household defaults.

Chapter 3: "The price of war: macroeconomic and cross-sectional effects of sanctions in Russia"

This paper estimates the effects on economic and financial sanctions on Russia by looking at their aggregate implications for the Russian economy and at their distributional implications for Russian households and firms. The analysis on aggregated data shows that the third and more recent wave of sanctions had a much stronger negative effect on the Russian economy than the 2014 and the 2017 waves. Interestingly, the sanctions are seen to hit rich households earlier and more intensely, although eventually they also hit poorer households (presumably when the effect of government supports fades away). For what concerns firms, large and relatively unproductive firms were generally hit the most.

Chapter 4: "Country spread shocks, sudden stops, and business cycle fluctuations in emerging economies"

This paper studies the role of shocks to the spread between the interest rate paid by domestic borrowers for foreign lending versus the world interest rate, in a panel of emerging economies. The shocks are identified by means of sign restrictions. However, the sign restrictions seem to be neither particularly empirically compelling, nor theoretically justified. The author proposes a set of alternative models which could give better sign restrictions. This chapter is the least developed and is the one which would require more work to be put in shape for a journal submission.