

Opponent's Report on Dissertation Thesis

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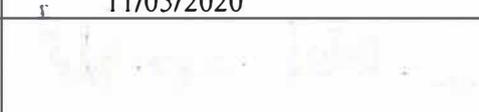
Author:	Aleš Maršál
Advisor:	Prof. Roman Horváth Ph.D.
Title of the Thesis:	Asset prices and macroeconomics: towards a unified macro-finance framework
Type of Defense:	DEFENSE
Date of Pre-Defense	March 4, 2020
Opponent:	István Kónya Ph.D.

Address the following questions in your report, please:

- a) Can you recognize an original contribution of the author?
- b) Is the thesis based on relevant references?
- c) Is the thesis defensible at your home institution or another respected institution where you gave lectures?
- d) Do the results of the thesis allow their publication in a respected economic journal?
- e) Are there any additional major comments on what should be improved?
- f) What is your overall assessment of the thesis? (a) I recommend the thesis for defense without substantial changes, (b) the thesis can be defended after revision indicated in my comments, (c) not-defensible in this form.

(Note: The report should be at least 2 pages long.)

My earlier substantive comments – written for the pre-defense – were all addressed by the candidate in the final version of the thesis. **Therefore, I recommend the thesis for defense without changes at this point.**

Date:	11/05/2020
Opponent's Signature:	
Opponent's Affiliation:	István Kónya Ph.D. Central European University

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Asset prices and macroeconomics: towards a unified macro-finance framework

Review

István Kónya

Summary

The three chapters of the thesis describe three macroeconomic models, all of which can be categorized as dynamic, stochastic, general equilibrium (DSGE) or New Keynesian. The models are loosely connected through two themes: the first is the term structure of interest rates (the yield curve), and the other is fiscal policy. The first and second papers study the yield curve, while the second and the third papers study fiscal policy. The second paper, therefore, can be considered as a bridge between the other two.

The models build on specific papers in the literature, and contain interesting and relevant extensions to existing work. They mostly ask whether reasonable changes and/or generalizations lead to different conclusions than the original articles. The answer is typically yes, at least in a quantitative sense. After a brief introduction in the first chapter, the thesis details the three models in subsequent chapters.

The second chapter builds on work by Rudebusch and Swanson (2012), who extend the baseline New Keynesian framework so that it can fit the positive slope of the yield curve. The key ingredients are Epstein-Zin preferences and shocks to the interest rate target of the central bank. The dissertation introduces trend inflation into this model, and documents puzzling predictions about price setting and price dispersion. It also offers various ways to “fix” the model, such as inflation indexation or Rotemberg price setting.

The third chapter studies the impact of different types of government spending on the term structure of interest rates. Perhaps the most important contribution is the analytical (in a second-order approximation sense) of the term premium and its main components. Another contribution is to distinguish different types of government spending: wasteful, productivity enhancing and utility enhancing. It is a bit difficult to summarize the results, which are mostly of the quantitative nature.

The final, fourth chapter focuses on fiscal policy, and the size of the “multiplier”, during

normal times and at the zero lower bound (ZLB) of nominal interest rates. The chapter extends the relevant literature by introducing firm-specific labor and decreasing returns to scale. Depending on the slope of the Phillips curve, these modifications lead to a lower multiplier, especially when the model is solved non-linearly.

Main comments

Let me start by stating that the thesis easily satisfies the international standards for a high quality dissertation. My general comments are therefore mostly non-technical and are more about the form than the content. In the next section I offer detailed comments for each chapter separately.

My first comment concerns the general “theme” of the thesis. Reading the first chapter (which serves as an introduction) gives the reader the idea that the thesis is about asset prices. This is true only for the second model, and there is a marginal connection in case of the first. The third model has essentially nothing to do with asset prices. This is not a problem with the content, to me it is perfectly ok for a thesis to collect three different papers that are only marginally related. I suggest, however, to either choose a different theme, or just broaden it sufficiently (“there essays in monetary economics”).

Second, and perhaps most seriously, I find it a bit odd that all chapters are co-authored. Moreover, there is always at least one senior co-author. On the one hand, it is a mostly welcome development in Economics that most papers are multiple authored these days, and that it is now the norm for graduate students to become co-authors early on. That said, the purpose of a thesis is to demonstrate the capacity for serious, independent research. At Central European University (CEU) there used to be an informal (but usually enforced) requirement that there should be at least one single-authored chapter in a dissertation. In the absence of such a requirement, I would like to see a statement at the beginning of the dissertation that delineates the contribution of the various authors. In particular, it should be clear that the candidate’s role was fundamental in at least one, and preferably all chapters. I do not doubt that this is in fact the case, but it is not about my personal beliefs.

Third, I do not like that the main model setup and derivation is relegated to Appendices in all three chapters. This may be fine for a central bank working paper that wants to get to the policy issues as fast as possible. But a thesis should be reasonably self-contained. Even if the core model comes from outside and can be found in a published article, it is not reasonable to assume the general reader knows that model well. With this structure it is difficult to follow either the model derivations, or the intuition and results drawn from the equations. I would much prefer if at least the basic model is

derived in detail in the text, and the reader knows exactly where the key equations are coming from. Long proofs and less important derivation can go to the Appendix. This may very well make the thesis even longer, but I guess there could be cuts at other parts if length is an issue.

Finally and less importantly, while the English is generally very good, there are still quite a few typos. One is the persistent use of “king” instead of “kind”, which unfortunately the spellchecker will not find. I suggest a thorough re-reading to clean up the remaining mistakes.

Detailed comments

Chapter 1

- On page 5, I do not understand the statement “*overproduction* implied by the inefficient allocation of resources among firms leads to aggregate *output losses*” (emphases added).

Chapter 2

The chapter is motivated to a large extent by the success of the baseline Rudebusch and Swanson (2012) model in explaining the yield curve. The chapter then sets out to challenge an underlying assumption of the RS model. But as far as I understand the argument has very little to do with asset pricing. I believe that the main point of the chapter, that in the presence of trend inflation Calvo pricing has counterfactual implications for price dispersion, would apply to the baseline New Keynesian model as well. This is something that the author(s) acknowledge themselves when they include a different NK model in the Appendix.

The basic intuition is that (i) trend inflation makes some prices far away from the “right” one, and (ii) when firms are able to adjust their prices, they overdo it in the other direction. In this light, inflation indexation is an obvious fix, since it prevents firms from lagging too far behind trend inflation. Rotemberg pricing works because firms are always able to adjust prices, and the assumed trend inflation is low. Overall, I do not see the importance of using a “macro finance” model, but I can be convinced otherwise.

- As I said above, I would like to see the model presented in section 2.2 and not in the Appendix.
- Cross-references sometime refer to a different paper version, e.g. Table 4.2 on page 20.

- If the emphasis on the term structure remains, there should be a detailed explanation of how long-term bonds are priced in a model with a one-period bond only.
- It seems that the trend-inflation version uses the calibration of the baseline model with zero inflation. A fairer comparison would be with a recalibrated model. I could imagine, for example, that with trend inflation a lower Calvo parameter would help the model fit price dispersion. There is a robustness check to handle this issue, but a serious recalibration would be more convincing.
- Would it be feasible to estimate the model versions? I am not sure if the price dispersion predictions need a second or third order approximation - explain.
- I like the discussion on approximation errors - I guess that comes from the symmetry imposed by a local method. Would it be possible to solve a simple version (say without EZ preferences) fully non-linearly?

Chapter 3

This chapter is the longest and most technical. Also, it is here where the two main themes - the yield curve and fiscal policy - come together in a nice package.

- Lump-sum taxation is a strong assumption. Would results change with distortionary taxes calibrated to the US economy?
- I find it a bit strange that eq. (3.1) is written with the (expectation of) the pricing kernel instead of the price of the bond. In general, I would welcome a more detailed discussion on how financial assets are priced in this incomplete markets economy.
- Public capital (G_t) is introduced as a production externality. Would it be possible to assume that the government chooses public investment optimally? Also, you need to assume that $\theta + \theta_s < 1$ to avoid endogenous growth.
- Is trend inflation calibrated to be zero? If yes, this is a bit strange in light of the previous chapter.
- I am not convinced why it makes sense to work with the flow of public capital investment instead of the stock. If there are technical reasons, state those clearly.
- The assumption of additively separable public expenditure is not innocuous. Provide a brief discussion.

- Does the model actually match the term structure of interest rates? While the main interest is the impact of government spending, it would be nice to see that the baseline model does a good job here.
- I am not sure that Appendix 3B is needed, this is basically an additional chapter.

Chapter 4

- As I noted in my general comments, I would much prefer to see the full model derivation in the main text. Although the log-linear system is reasonably well-known, it would be much easier to see the role of the different assumptions if we can see the underlying model equations.
- I am not sure what “firm-specific” labor is. Firm-specific capital means that firms invest and accumulate their own capital stock. The analogy does not really work for labor. Should we think about a search-and-matching framework? Or firm-specific human capital? Or adjustment costs to labor? Provide at least a discussion.
- I am not an expert in ZLB models, but I am puzzled by the log-linear approach. Do we need to ignore the endogenous probability of regime switch to solve the linearized system? Or do we use something like the OccBin package? Again, please provide a discussion for the general reader.
- I find it strange that tax cuts lead to output decline. Wage rigidity would probably overturn this.
- Given that a non-linear solution is available, wouldn't it make sense to use that as the main (or only) approach? Also, the number of grid points seems very low. If I understand, at any given exercise you have one endogenous and one exogenous state. This should allow for a much finer grid, especially around the occasionally binding constraint.

Recommendations

Although I made a number of comments, most of them should be viewed as optional. The only exception is a statement about the contribution of the candidate to the various chapters. I am happy to discuss the additional comments in person.