

Report on Economics Discussion Paper 2013-24
“Financial Stress, Regime Switching and Macrodynamics: Theory and
Empirics for the US, EU and Non-EU Countries” by Pu Chen and Willi
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Summary

In the current paper the authors investigate both theoretically and empirically the interaction between financial stress and the macroeconomy.

At the theoretical level, the authors set up a stylized macroeconomic framework which models the interaction between consumption (determined in an intertemporal utility optimizing manner), the capital and the debt stock in the economy. The authors present two variants of their theoretical model: In the first variant, the interest rate is not significantly affected by the leverage level of the economy, while in the second variant not only the interest rate on debt is a nonlinear function of the economy’s debt level: aggregate consumption and investment are non-linear functions of the interest rate on debt too, with the former rapidly increasing, and the latter rapidly decreasing in the debt level primarily due to the activation of credit constraints. These two model variants (to be considered as a representation of the same economy under two different regimes) are meant to reflect the asymmetric behavior of the economy in times of high and low financial stress.

Concerning the empirical part of the paper, the authors estimate the interaction between the cyclical component of the financial stress index (FSI) obtained through the Hodrick-Prescott filter, and the growth rate of the industrial production index, using the former variable also as the threshold variable in a Threshold Vector-Autoregression model.

In general terms, the current paper is clearly written, and treats a topic highly relevant for the current economic situation. From the theoretical perspective, the paper innovatively uses the NMPC algorithm to solve the forward-looking model variants discussed in

the paper. Some readers may object that not all the equations in the model are explicitly derived from a utility or profit maximization problem. Personally, I am not particularly disturbed by the use of such a framework, since I believe in the ongoing relevance of ad-hoc theoretical models designed specifically for the analysis of a particular issue. In this context I think that the two model variants discussed in the paper deliver interesting insights on the dynamic interaction between financial and real variables despite the fact that not every single model component is derived from optimization.

I have some minor further comments and suggestions which I will list in detail below, but by and large I will recommend this paper for publication at *E-conomics*.

Comments and Suggestions

- In order to keep the argument of the paper as straight-forward as possible, I would described directly the model given by eqs. (4) - (6), instead of first introducing the model given by eqs. (1) - (3).
- Since the application of the NMPC approach is still not widely used in macroeconomics, it would be helpful for the understanding of the dynamics of the model if the authors could briefly discuss the functioning of this algorithm.
- There are some works mentioned in the text which are not however in the list of references such as Mendoza and Semmler (2012).
- The labels in the axes of Fig. 3 are too small.
- The comparison between the MRVAR and a Markov-Switching model is an interesting exercise which indeed seems to further empirical support for the MRVAR results discussed in the main text. The discussion of the MS-VAR models for the U.S. and Germany is not sufficiently detailed, and seems to be unnecessary for the argument of the paper.
- Is there a specific reason for presenting the accumulated impulse-response functions, and not the standard ones?