## **Proposal for co-work in the spring 2012 seminar on** "The financial crisis and its macroeconomic repercussions"

In the last couple of years medium-sized New Keynesian Dynamic Stochastic General Equilibrium models (NK-DSGE models) have become popular in the literature. Large versions are currently being developed at especially central banks around the world. As opposed to the well-known econometric models (like ADAM in Denmark) they are based on micro-foundations and optimizing agents thus avoiding the Lucas critique.

A state of the art example is Smets and Wouters (2007) who try to explain business cycle fluctuations using a shock-impulse paradigm where:

- The shocks are shocks to technology, price and wage markups, spending etc.
- The rigidities are sticky prices and wages, adjustment costs, variable rate utilization, habit formation in consumption etc.

The models cannot be solved analytically, but can be analyzed by numerical simulation. My idea is to take the model in Galí,, Smets, and Wouters (2011) and analyze its empirical capabilities in relation to stylized facts of business cycle fluctuations (see for example Stock and Watson (1999)). I.e. stuff like

- Can the model explain the volatility, persistence and co-movements of GDP components, employment, interest rates, and inflation?
- Is the required price and wage stickiness plausible?
- Can the model explain involuntary unemployment in a plausible way?
- Can we give economic intuition for the required shocks?

I am already working with these problems for my dissertation, so I have some knowledge beforehand. I am also familiar with the technicalities of the Dynare routine in MATLAB (www.dynare.org) which we can use for the numerical simulations. Central articles are:

- Blanchard, O. J., & Gali, J. (2008). Labor markets and monetary policy: A new-keynesian model with unemployment.
- Christiano, L. J., Trabandt, M., & Walentin, K. (2010). Involuntary unemployment and the business cycle.
- Galí, J., Smets, F., & Wouters, R. (2011). Unemployment in an estimated New Keynesian model
- Gertler, M., Sala, L., & Trigari, A. (2008). An Estimated Monetary DSGE Model with Unemployment and Staggered Nominal Wage Bargaining. *Journal of Money, Credit and Banking*, 40(8), 1713-1764.
- Smets, F., & Wouters, R. (2003). An Estimated Dynamic Stochastic General Equilibrium Model of the Euro Area. *Journal of the European Economic Association*, *1*(5), 1123-1175.
- Smets, F., & Wouters, R. (2007). Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach. *American Economic Review*, 97(3), 586-606. doi:10.1257/aer.97.3.586
- Stock, J. H., & Watson, M. W. (1999). Business cycle fluctuations in US macrieconomic time series. In J. Taylo & M. Woodford (Eds.), *Handbook of Macroeconomics, Volume 1* (pp. 3-64).

Please contact me if you could be interested in working with me on something like this.

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