

Robust and prudent optimal macroeconomic policy rules in the models with parameter uncertainty

The consequences of the recent financial crisis of 2008-2011 have been dramatic for many national economies and financial markets. As a result, many countries have been forced to recapitalize the financial sector. It is widely believed that the effects of the financial crisis were magnified by an excessive increase in the systemic risk.

The systemic risk rests on the unpredictable impact of the financial system on the national economy. It can occur simultaneously in many sectors of the economy or financial market segments, e. g. across entrepreneurs via aggregate default risk or within markets in the form of "price bubbles", consisting of an unbalanced increase or decrease in prices of goods. In the course of the recent crisis many researchers blamed supervisors for ineffective and delayed responses to emerging threats to the financial system. This has led in recent years to reforms in the functioning model of supervisory institutions. One of the most important changes in the EU is the creation of The European System of Financial Supervision with the European Systemic Risk Board. The purpose of this institution is to provide macroprudential oversight of the financial system. At the same time, since the last financial crisis we have witnessed a tremendous increase in the importance of macroeconomic instruments aimed at limiting systemic risk in the economy and maintaining financial stability. The Basel Committee on the Global Financial System recommends a loan-to-value ratio as one of the macroprudential tools that can act on the economy in a countercyclical manner. In addition, macroprudential instruments include other instruments, such as on the asset side - the debt-to-income ratio, liquidity-based instruments - including liquidity requirements and, finally, capital-based tools such as capital buffers and capital requirements.

One of the main challenges of the theory of macroeconomic policy is to analyse how the new macroprudential instruments interact with each other and with the standard monetary policy rules, and to evaluate their effectiveness. In addition, the following questions still seem to be relevant and up-to-date.

- To what extent should price-output-stability-oriented monetary policy rules take into account financial stability objectives?
- How should monetary and prudential policies be optimally combined to reduce macroeconomic volatility, improve social welfare, and reduce the probability of financial crises?

In this project, we address the above-listed questions by introducing medium scale models of the Polish economy with optimal macroprudential and monetary authorities. We apply a rigorous normative welfare-based approach to study the interaction between optimal macroprudential rules and the optimal monetary instrument. We derive alternative macroeconomic policies, which take into account not only the stability of output and prices but also the size of financial shocks, the level of risk aversion of the policymaker, and parameter uncertainty.