How Bad was Lehman Shock?: Estimating a DSGE model with Firm and Bank Balance Sheets in a Data-Rich Environment

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Abstract

Recent financial crisis in the U.S. which was precipitated by so-called 'Lehman Shock' has clearly exemplified that a deterioration of the balance sheet condition, especially those of the financial sector, can cause a deep and long-lasting recession of the economy. In modeling Lehman Shock, this paper embeds both corporate sector and banking sector balance sheets to the stylized DSGE model. We follow Bernanke, Gertler, and Gilchrist (1999) in embedding the corporate sector balance sheet, while we follow Gertler and Kiyotaki (2010) in embedding the banking sector balance sheet to the model. In our empirical analysis, we focus on the identification and estimation of the banking sector net worth shock, which is regarded as a proxy for Lehman Shock in this paper. In order to assess the impact of Lehman Shock reliably, we estimate the model using Data-Rich estimation method proposed by Boivin and Giannoni (2006). According to our preliminary estimation results, Lehman Shock turned out to be the worst banking sector net worth shock in past 25 years. However, the shock seems to have been successfully countered by TARP and the recessionary effect directly caused by Lehman Shock seems to be over.

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