

Three Essays on Empirical Macroeconomics and Financial Markets

Abstract

This dissertation consists of three essays on empirical macroeconomics and financial markets in the United States. Although they can be considered as three independent surveys, their findings are connected with each other in some way. For example, all three essays support a point of view that in empirical research, carefully investigating any abnormal changes in the data is important and sometimes can be a breakthrough. The first essay investigates the incorrect calculation of nonborrowed reserves and finds that it should account for the unclear indication of the Federal Reserve's monetary policy. The second essay finds that the repurchase agreement rates (repo rates) can better forecast monetary policy by ignoring recent abnormal data. This finding further supports the first essay's point of view that good quality data is very important for the clear indications of the Federal Reserve's monetary policy. The third essay finds that 3-month Treasury bill rates were not sensitive to the discount rate changes during the "Great Recession", since the discount rate was above the federal funds rate during that period of time, which never occurred before in the U.S. history and caused the discount window borrowing to lose its function.

The first essay investigates the no-borrowed reserves calculations and finds that the accounting method for calculating nonborrowed reserves has recently changed with an inaccurate result. This paper tries different ways to correct nonborrowed reserves and explores the implications of monetary policy. These experiments show the robustness of the well-structured semi-VAR model developed by Bernanke and Mihov (1995), since in this model, bad data never works as well as good data; doctored data never works as well as real data. Furthermore, this paper finds that the best indicator of monetary policy is still the federal funds rate. The inaccurate nonborrowed reserves calculation is at least one of the reasons which accounts for the unclear indications of the Federal Reserve's monetary policy during the recent financial crisis.

The second essay tests the forecasting ability of the repo rates for monetary policy over the recent two decades and explores whether repo rates have more significant forecasting power than Treasury bill rates. Since the recent financial crises created so much abnormal data, which may influence the forecasting result, this paper will also compare the forecasting ability between various repo rates and Treasury bill rates by ignoring the recent data. As a result, the forecasting performances are improved, just as expected. In fact, this paper finds the use of 3-month repo rates for forecasting federal funds rates is extremely strong. Furthermore, this paper will test and compare the forecasting ability of the government, agency and mortgage repo rates and explore whether any of these three repo rates can be considered as a better riskless rate than Treasury bill rates.

The third essay explores the market response to the discount rate changes during the recent U.S. recessions and finds that the response of market rates to discount rate changes varied during the recent two recessions. The different responses of market rates to discount rate changes are due to the various economic and policy circumstances that the market was facing. This conclusion is consistent with Thornton's finding (1998). Thornton (1998) found that the different market responses to the discount rate changes mainly depend on the information content that people believed contained in the announcements of the discount rate changes. It's interesting to point out that during the "Great Recession", market rates were not sensitive to discount rate changes. The underlying reason was the discount rates were above the federal

funds rates during the “Great Recession”. In other words, the discount window borrowing has lost its function to provide adequate funds to the economy during the recession.