SUBJECTIVE EXPECTATION, ASSET PRICE, AND MACRO ECONOMY

Abstract

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The purpose of this dissertation is to study asset prices and macro economies from the point of view of the imperfect financial market. It would be a consensus that agents' knowledge of financial markets and economies is not perfect and their expectation formations are not fully rational or model-consistent in reality. I study how introducing subjective beliefs which deviate from objective expectations can provide better explanations of asset price behaviors. In addition, I investigate the linkages between the fundamental sides of economies including business cycles or policy management, and asset prices given these beliefs.

The first chapter covers the bond market. It studies long-term interest rates under subjective beliefs and their impacts on business cycles. In the ultra-low interest rate environment after the financial crisis, it has been often pointed out that the ``search for yield'' behavior of financial institutions might have been intensifying interest rate decreases. One hypothesis to explain search for yield is that banks try to buy longer-term bonds even when they recognize negative term premiums in long-term rates because they myopically care about current portfolio income, not just expected holding-period returns. I study the potential impacts of this behavior on U.S. business cycles and long-term bond's ex-post term premiums. I find that in an economy in which banks are exposed to the value-at-risk constraint, the existence of these myopic banks provides realistic moments of ex-post term premiums. In addition, their existence could generate higher output persistence under a productivity shock compared to an economy without them. This is because the difference between a myopic long-term bond pricing and a realized deposit rate path affects banks' net worth.

The second chapter covers stock market. The main purpose of this chapter is to understand how the stance of monetary policy affects stock price volatility in a New Keynesian model with investors who have subjective beliefs about stock price growth. I assume that investors construct subjective beliefs about expected capital gains by Bayesian learning from observed growth rates of stock prices. I design the model so that effects of the existence of subjective households are minimal, i.e., it affects only stock prices. I find that higher monetary policy persistence increases stock price volatilities under the interest rate shock because the subjective beliefs imply myopic pricing in which near-term pricing kernels (or real interest rates) and near-term dividends matter. This result contrasts with stock pricing under the rational expectation, in which future discounted dividends matter.

The third chapter is an enhanced version of the second chapter by introducing heterogeneity. It investigates how the stance of monetary policy affects stock price volatilities in an economy where two types of households with subjective and objective beliefs about expected capital gains of stock prices exist. I assume that investors construct subjective beliefs about expected capital gains by Bayesian learning from observed growth

rates of stock prices. In a model only with homogenous subjective beliefs, the effect of the interest rate on stock price tends to be unrealistically strong. Instead, assuming heterogeneity by including investors with both subjective and objective beliefs improves the fit of theoretical moments to the data and especially helps to explain stock price volatility under a conventional size of interest rate shocks. This quantitative improvement of stock price reactions responding to interest rate shocks allows me to conduct realistic analysis about how the stance of monetary policy affects stock price volatilities. Strong inertia of monetary policy rule does not simply reduce stock price volatility. Its effect depends on what shocks economy are experiencing. When monetary policy is persistent, stock price volatilities magnify under an unexpected interest rate shock. On the other hand, when the productivity shock occurs, persistent monetary policy reduces them. What are important for stock price stability are not only sizes of changes of policy rates, but also the type of structural shocks and monetary policy rules behind them.