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Monetary policy and asset prices $\stackrel{\text{tr}}{\sim}$

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Abstract

The first part of this paper surveys the literature on asset prices and monetary policy. We then consider the appropriate policy response to two types of shocks that are associated with how asset prices affect the economy. The first set of shocks are the ones whose primary impact lies in the future. These shocks affect the economy and asset prices through expectations of future growth. The second set are shocks to net worth which directly impact the ability of firms to borrow and for consumers to lend. \bigcirc 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

With large movements in asset prices in the United States and Japan apparently coinciding with large swings in growth rates, many commentators have recently called for monetary policy makers to respond to asset price volatility. Policy makers, at least in the United States, appear to have taken notice. The collapse of the equity markets is undoubtably part of the motivation for the recent reductions in the

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federal funds rate, just as a concern over "irrational exuberance" which provided some motivation for the relatively tight policy of the preceding few years.

The first part of this paper provides an overview of the literature on asset prices and monetary policy. Three general arguments are considered: asset prices belong in a measure of the price level, asset prices forecast inflation, and there are structural links between asset prices and consumption and investment.

Our summation of the literature is that the first argument is impractical, the second unfounded, and that the third, while important, does not alone provide a basis for basing policy on asset prices. Concerning the first, whether or not the price of future consumption belongs in an appropriately defined price index, assets such as the stock market do not proxy well for these futures prices. As for the second, we show that asset prices have little forecasting power beyond output and consumption. Finally, the third argument is theoretically correct, but because asset price movements tend to be positively correlated with movements in output and inflation, policies based on these variables subsume most of the gains from reacting to asset prices.

After surveying the literature, we perform a number of experiments of our own. We consider two situations in which asset prices are likely to have a big impact on the economy. The first concerns shocks that have their main impact in the future. We have in mind situations like the recent revolution in information technology in which current productivity gains become magnified by dreams of a "new economy" and the resulting potential for future growth. We consider the effects of a "future loaded" technology shock in three different models: a real business cycle model, a new Keynesian model with Calvo-style price rigidity and a model with a financial accelerator. The RBC model provides the fictionless benchmark. The other two reflect different distortions.

Interestingly, simulations of the models behave very differently. In the RBC model, the expected increase in productivity causes consumption to rise and labor to substitute to the future. The initial fall in labor supply causes output to fall and investment is initially crowded out by consumption. In this model, asset prices actually fall in anticipation of the productivity boom. This result appears to be quite robust to changes in the parameter values. When prices and interest rates are sticky, the latter due to the policy of the central bank, a rise in expected inflation causes the real interest rate to fall and output to expand. As a result asset prices rise greatly. If in addition, there is a financial friction so that borrowing depends on the value of collateral, then the initial boom is even larger. These two models tend to push output, inflation and asset prices in the opposite direction of the RBC model.

In the end, however, we do not find that these differences provide an argument including asset prices in monetary policy rules. Instead, choosing an interest rate rule that is reactive to inflation eliminates the differences between the models. The reason is that optimism and the resulting asset boom causes output, inflation and investment to all rise. A policy of increasing the real interest rate brings them all back down together.

The second type of experiment that we consider are shocks to the net worth of entrepreneurs. The motivation for considering these shocks are the problems that

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