

Asset Price Volatility and Monetary Policy

Mark Gertler

“...central banks should not try to target asset prices, but instead should keep the focus of monetary policy on offsetting inflationary and deflationary pressures.”

What role should monetary policy play in response to movements in the stock market? This has been an issue of concern ever since the Dow Jones Industrial Index hit 6500 nearly five years ago, prompting Alan Greenspan’s famous “irrational exuberance” speech. As the market has grown, so has this concern. It has perhaps reached a fever pitch after the recent meltdown of the Nasdaq, in conjunction with the retreat of the broad stock market indices and the overall slowdown in growth of the real economy.

In addition, while Federal Reserve monetary policy has generally received positive reviews, many in the press and the business community, as well as some professional economists, have repeatedly chastised the Federal Reserve for not raising interest rates sufficiently in the past to prick what they are sure has been a highly charged asset bubble

In several recent papers with Ben Bernanke I have addressed the general issue: how should central bankers respond to asset price volatility? We conclude that central banks should not try to target asset prices, but instead should focus monetary policy on offsetting inflationary and deflationary pressures. They should make use of asset prices mainly to the extent they help to signal underlying inflationary or deflationary pressures, and as part of a broad set of

indicators of the overall state of the economy.

In practice, the approach we advocate is very similar in spirit to the general monetary policy strategy that the Federal Reserve has pursued under Alan Greenspan’s tenure (see Clarida, Gali and Gertler, 2001). Before turning to the issue of asset price volatility, it is useful to describe this overall policy strategy in some detail. Under this scenario, the central bank takes an active approach toward control of inflation by adjusting the short-term nominal interest rate more than one for one in response to movements in expected movements in inflation.¹ Doing so causes the real short-term interest rate, and hence aggregate spending, to adjust so as to stabilize both inflation and the real economy.

This kind of policy has two virtues: First, by tightly constraining inflation, a central bank avoids the need to engineer a painful disinflation of the types that occurred in the major OECD countries in the mid 1970s and early 1980s. The policy is also helpful on the down side, requiring a central bank to ease monetary constraint aggressively when deflationary pressures become a threat. Second, since a central bank can never be certain about the precise sources of disturbances of the economy, focus on inflationary or deflationary pressures generally leads a central bank to adjust interest rates in a desirable manner.

For example, the technology boom that began in the mid 1990s ignited a surge in the growth rate of output largely driven by productivity improvements. The net effect was substantial growth with little inflation. The absence of inflationary pressures led the Fed correctly, not to raise short-

term interest rates and, instead, to accommodate this supply-driven growth. Though in its early stages the technology boom was hard to detect, the absence of inflationary pressures was a strong indicator suggesting that favorable productivity movements were at work. In contrast, the appearance of inflationary pressures early in 2000 suggested that aggregate demand was finally creeping above aggregate supply, inducing the Fed to tighten. More recently (i.e., as of this writing) downward revisions of inflation forecasts have induced the Fed to reduce rates. Again, because of its focus on inflationary and deflationary pressures, policy is moving in the right direction.

Bernanke and I argue that this general policy framework is also appropriate for asset price volatility. A central bank confronting asset price volatility faces two immediate and rather vexing problems. First, it cannot be certain whether movements in asset prices reflect shifts in true fundamental values or, instead, indicate an unsustainable bubble. The problem is analogous to the difficulty of disentangling the source of movements in output –whether they reflect variation in potential output (owing, e.g., to productivity shocks) or are instead attributable to shifts in demand, with potential output unchanged. However, the problem of disentangling sources of asset price volatility is incredibly more difficult than that of ascertaining the nature of output volatility. Among other things, the range of estimates of fundamental stock prices, for example, far exceeds that of potential output.

The second key problem is that a central bank cannot pretend to know the interaction between monetary policy and the market psychology underlying any nonfundamental movements in

asset prices. The danger is that, as historical experience suggests, attempts to target asset prices (particularly a highly uncertain estimate of the true fundamental price) can have disastrous effects. The collapse of the U.S. stock market during the Great Depression and, also, the Japanese stock market during the late 1980s and early 1990s, are good examples of the dangerous side effects of monetary policy that focuses on the stock market.

It follows that any strategy aimed at asset price volatility must recognize the central bank's relative ignorance about (i) what true fundamental asset prices should be and (ii) how psychology will respond to policy actions aimed at the market. For these reasons, Bernanke and I conclude that the general strategy making the goal of monetary policy stabilization of inflation, as outlined earlier, is the best way to deal with asset price volatility. Intuitively, this approach leads the central bank to adjust interest rates in the right direction in response to asset prices movements, just as it does with output movements, and without the central bank having to get into the business of trying to detect whether fundamentals or psychology are driving the market. The policy implicitly leads the central bank to accommodate rises in stock prices associated with increased productivity (since inflation does not increase under these circumstances) and to offset purely speculative increases and decreases in stock prices that affect demand and are thus manifested as inflationary or deflationary pressures. To confirm the virtue of this approach, one need only consider the alternative: Had the Federal Reserve been targeting the stock market in 1996 it would have run the risk of seriously curtailing the subsequent productivity boom.

Further, by not targeting asset prices directly, further, the dangers of unpredictable responses of market psychology are minimized, again taking a cue from historical experience. It is also our view that the more credibly the central bank can commit itself to stabilization of the fundamentals of the real economy the less likely are panic driven financial crises.

To provide some concrete evidence that by focusing on inflation a central bank can significantly mitigate the undesirable side of asset price volatility we simulated the sequence of events in a small scale macroeconomic model, comparing the effects of different policy rules. The model we use is essentially an extension of some earlier models provided by in Bernanke, Gertler, and Simon Gilchrist (2000). Broadly, the model is a standard dynamic new Keynesian model, augmented in two ways. First, it incorporates information friction in credit markets by means of the assumption that monitoring of borrowers by lenders is costly. This credit-market friction gives the model a “financial accelerator”, a mechanism by which endogenous changes in borrowers’ balance sheets enhance the effects of externally generated crises. For example, in our model a boom in stock prices raises output not only via conventional wealth effects on consumption, but also by increasing the net worth of potential borrowers. As borrowers become wealthier and, thus, more able to finance themselves, the expected burdens of external finance decline, further increasing investment and output. In contrast, asset price collapses, cause a decline in consumption via their effect on wealth, as well as a decline in investment attributable to the resulting financial distress.

In our first paper, Bernanke and Gertler (1999), we considered how different policy rules might fare in the face of a boom-and-bust cycle in asset prices. We found that an aggressive inflation-targeting policy rule¹ substantially stabilizes both output and inflation in a scenario in which a bubble in stock prices slowly develops and then unexpectedly and abruptly collapses. We show that the same policy rule is robust in the sense that it works well if, instead, abrupt technological changes drive stock prices. As we have emphasized, this policy of targeting inflation has the central bank automatically accommodate productivity gains that drive up stock prices, while offsetting purely non-fundamental asset price variation whose primary effects are through aggregate demand.

Even in the case where a stock bubble is the source of disturbance, if one uses a sensible measurement procedure, we found little if any additional gains if an independent response of central bank policy to the level of asset prices is permitted. In some instances there was considerable harm from doing so.

The exercise in our first paper allowed us to analyze how our proposed rule worked in a worst-case scenario, one involving an asset price bubble. However, the more conventional approach to policy evaluation is to assess the expected losses resulting from alternative policy rules, considering the entire range of economic shocks and their probability distribution, not just taking the most unfavorable outcomes into account. This is the approach taken in our second paper, Bernanke and Gertler

¹ In our simulations, one in which the coefficient relating the instrument interest rate to expected inflation is 2.0.

(2000). We conduct stochastic simulations of the same model we used earlier to evaluate the expected performance of alternative policy rules. Here we also make the realistic assumption that the economy is subject to a range of different types of shocks and that the central bank is not able to identify these shocks perfectly. To presume otherwise, that the central bank knows exactly when a bubble arises, is not sensible in our view.

Although the policy evaluation approach is different from that in our previous paper, the results of these simulations are complementary to what we found earlier: We find again that an aggressive inflation-targeting rule stabilizes output and inflation when asset prices are volatile, whether the volatility stems from bubbles or technological shocks; and that, given an aggressive response to inflation, there is no significant additional benefit to responding to asset prices, assuming a reasonable metric for evaluation, and there is also the possibility of considerable harm from such an approach.

A limitation of our approach, as well as that in most of the recent literature, is that the non-fundamental component of stock prices has generally been treated as exogenous—as contributed by external developments. Our own view is that the macroeconomic stability associated with focus of monetary policy on inflation is likely to reduce the incidence of panic-driven financial distress that can destabilize the economy, but this hypothesis clearly deserves further research.

References:

Bernanke, Ben and Gertler, Mark. “Monetary Policy and Asset Volatility.” Federal Reserve Bank of Kansas City, Economic Review, Fourth Quarter 1999, 84(4), pp. 17-52.

Bernanke, Ben and Gertler, Mark. “How Should Central Bankers Respond to Asset Prices,” American Economic Review Papers and Proceedings, May 2001.

Bernanke, Ben, Gertler, Mark, and Gilchrist, Simon. “The Financial Accelerator in a Quantitative Business Cycle Framework,” in J. Taylor and M. Woodford, eds., Handbook of Macroeconomics. Amsterdam: North-Holland, 2000, chapter 21.

Clarida, Richard, Jordi Gali and Mark Gertler, “Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory,” Quarterly Journal of Economics, February, 2000.

1. One qualification is that the central bank should also adjust the short-term interest rate in response to movements in the natural real rate of interest (i.e., the rate that is consistent with full capacity output).