Why Central Banks Should Burst Bubbles\textsuperscript{1}

by

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1. Introduction

Should monetary policy respond to asset prices and asset bubbles? This is a highly controversial issue, both from an academic research point of view and, more importantly, from a policy perspective. There is broad evidence that asset bubbles do occur from time to time, and that such bubbles may lead to economic distortions as well as financial and real economy instability. Thus, many authors argue that optimal monetary policy requires monetary policy authorities to react to such bubbles over and above the effects that such bubbles have on current output growth, aggregate spending and expected inflation. Others are of the view that monetary policy should not react to asset prices or bubbles beyond the effect that such asset price movements directly have on inflation, aggregate spending and economic growth. In this paper, I will present the arguments in favor of the view that monetary policy should react to asset prices and asset bubbles; In the process, I will also discuss and refute the arguments against the use of monetary policy to address bubbles.

This is not just an academic issue: twice in the past ten years the Fed has had to decide how to respond to sharp rises in the price of key assets. Considering recent U.S. economic history, it is obvious, in hindsight, that some of the surge in stock prices in the mid-late 1990s was excessive and beyond what was warranted by economic fundamentals. U.S. Fed Chairman Alan Greenspan warned against “irrational exuberance” in stock markets as early as the fall of 1996 but then, apart from a half-baked attempt to increase the Fed Funds rate by 25bps in the spring of 1997, the Fed did not further react to this asset bubble. And, while it was not certain in 1996 that such a stock market bubble was underway, by 1998-1999 the evidence for such a bubble was quite clear and overwhelming but the Fed chose not to react to it. Similarly, the Fed has explicitly resisted the idea of adjusting monetary policy in the face of regional housing bubbles that have developed in the last few years in a broad enough swath of the country to have a big impact on the overall economy. Recently, Greenspan and other Fed officials have expressed greater concern about such a housing bubble and its effects on the national savings rate and the U.S. current account balance (Greenspan (2005a), Kohn (2005)). But the Chairman of the Fed has remained very skeptical as to whether the Fed should be reacting to such bubbles.3

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2 “Nearer term, the housing boom will inevitably simmer down. As part of that process, house turnover will decline from currently historic levels, while home price increases will slow and prices could even decrease. As a consequence, home equity extraction will ease and with it some of the strength in personal consumption expenditures. The estimates of how much differ widely. The surprisingly high correlation between increases in home equity extraction and the current account deficit suggests that an end to the housing boom could induce a significant rise in the personal saving rate, a decline in imports, and a corresponding improvement in the current account deficit.” (Greenspan (2005a))

3 “Debates on the relative merits of asset price targeting also will continue and possibly intensify in the years ahead. The configuration of asset prices is already an integral part of our evaluation of the large array of forces that influence financial stability and economic growth. But given our current state of knowledge, I find it difficult to envision central banks successfully targeting asset prices any time soon. However, I certainly do not rule out that future work could improve our understanding of asset price behavior, and with it, the conduct of monetary policy.” (Greenspan (2005b))
Indeed, Greenspan (1999, 2002, 2004, 2005a, 2005b) as well as other current and former Fed officials (Bernanke (2002, 2004), Bernanke and Gertler (1999, 2001), Kohn (2004, 2005), Ferguson (2005)) have articulated – over the last few years – a series of arguments against the view of targeting asset prices in the conduct of monetary policy. And they have used these arguments to explain or justify why the Fed did not react to the “irrational exuberance” of the late 1990s in spite of the fact that the bubble eventually burst in 2000; as is well known, this crashing bubble and the ensuing investment bust was the major reason behind the economic recession of 2001. They have instead argued that the Fed should “mop up after”, i.e. react to bursting bubbles to prevent them from causing economic and financial damage after they crash.\footnote{See Blinder and Reies (2005) for a discussion of monetary policy and bubbles that is supportive of the “mop up after” approach taken by the Fed. See Rudebusch (2005) for a somewhat different view from the Fed on asset bubbles and monetary policy. See also the recent speech by New York Fed President Tim Geithner (Geithner (2006); he presents a view of the role of asset prices in monetary policy that appears to be meaningfully different in a number of dimensions from the views expressed by Greenspan and Bernanke. For a deconstruction of the Geithner views, see Roubini (2006).} This view implies an asymmetric response to bubbles: no reaction to them on the way up but aggressive monetary easing when bubbles burst to contain the collateral damage of crashing bubbles.

In this paper, we will analyze and refute such arguments against asset price targeting by monetary policy; we will argue instead that the arguments in favor of such targeting are several, strong and robust. In general, we find that monetary policy should react to asset prices and should try to “prick” or “burst” asset bubbles. Bubbles that are growing excessively large lead to economic and investment distortions that are dangerous and likely to eventually trigger bubble bursts whose real and financial consequences are severe. Thus, optimal monetary policy should preemptively deal with asset bubbles rather than just mop up the mess that they cause after they burst.

2. Arguments in favor of using monetary policy to target asset prices and asset bubbles

In presenting the arguments in favor of asset price and asset bubble targeting by monetary policy, we will also consider the arguments against such targeting in order to dissect the logic of those arguments and rebut them.\footnote{Other studies supporting an active role of monetary policy in targeting asset prices and/or bubbles include International Monetary Fund (2000), Bordo and Jeanne (2002), Borio and Lowe (2002), Cecchetti, Genberg, Lipsky, and Wadhawan (2000), Cecchetti, Genberg, and Wadhwan (2002), Dupor (2002), Filardo (2000, 2001, 2004, 2005).}

*Argument 1. Analytical models suggest that optimal monetary policy rules imply targeting of asset prices on top of inflation and growth in the monetary policy reaction function.*

Before we discuss the complex policy and empirical details of monetary policy targeting of asset prices, a good starting point is to consider what the analytical economic literature
tells us about this matter. Should asset prices enter into the monetary policy reaction function of a monetary authority that cares about minimizing the deviations of output and inflation from their targets? As usual, the answer to this question depends in part on the model that one uses but, interestingly, analytical models generally suggest that asset prices should enter directly in the reaction function of an optimizing monetary authority, above and beyond the direct effects that such asset prices have on expected inflation and current growth.

The first seminal study of monetary targeting of asset prices (Bernanke and Gertler (1999)) considered the case of exogenous deterministic bubbles. Note that in this study the policy reaction function of the monetary authorities is not “optimal”, i.e. the size of the coefficient of interest rates on expected inflation and other variables – output and stock prices - is not chosen optimally, but is rather chosen in an ad hoc way. This study found that if the Taylor rule is aggressive enough (a coefficient of two on the reaction of interest rates to expected inflation), a monetary policy that targets only expected inflation dominates one that includes stock prices – again in a ad hoc way - in its reaction function. More importantly, if the policy reaction is accommodative (i.e. a coefficient that is barely above one in the reaction function on expected inflation); adding stock prices to the reaction function has destabilizing effects, i.e. the variance of inflation and output is larger when asset prices are targeted.

Cecchetti, Genberg, Lipsky, and Wadhwani (2000) challenged this result by showing that, in the context of exogenous deterministic bubbles, looking at a wider range of monetary policy reaction functions - where the weights on inflation, growth and stock price bubbles are chosen with goals of choosing optimally the interest rate policy reaction - leads to the opposite result: optimal monetary policy would target inflation and growth as well as asset bubbles. Bernanke and Gertler (2001) countered that the results of Cecchetti et al. were not robust if one considered “stochastic” bubbles and cases where, in addition to a stochastic component of the bubble, there is also a real economic shock – i.e. a productivity shock – that may be driving the fundamental, as opposed to the non-fundamental, component of asset prices. The results of Bernanke and Gertler (2001) are obtained, again, in the context of non-optimizing monetary policy rules.

Cecchetti, Genberg, and Wadhwani (2002) correctly counter-argued – while not proving the argument formally – that the Bernanke and Gertler results depended on not using an optimal policy reaction where the output gap, as well as asset prices, enter into the monetary policy reaction function of the authorities: if asset prices are used – as alternatives rather than complements - of the output gap in the monetary reaction function, welfare results of such a rule would be inferior to the case where all the relevant variables enter in the monetary reaction function.

The term “exogenous bubbles” refers to bubbles where the bubble component of asset prices cannot be potentially affected – i.e. pricked – by monetary policy. Deterministic bubbles refers to cases where bubble is modeled with no uncertainty, i.e. the time periods during which the bubble continues and the time at which the bubble burst are known to all with probability one.
It was then Filardo (2001, 2004) who formally showed that, in the context of stochastic exogenous bubbles, the optimal monetary policy rule implies that asset prices generally enter into the reaction function of the monetary authority: when there is a positive bubble, monetary policy would be tighter than under a simple Taylor rule, while when the bubble bursts optimal monetary policy is easier than the Taylor rule, i.e. the optimal policy requires leaning against the bubble. The results of Filardo imply that the Bernanke and Gertler (2001) conclusions do not hold when one considers optimal policy rules: in general, the optimal interest rate rule reacts to inflation, output and the asset price. Thus, the general result from the analytical literature is that asset prices and asset bubbles will enter into the optimal monetary policy reaction function. Monetary policy should “lean against the wind,” being tighter than a standard Taylor rule would suggest, when a bubble is rising, and being looser than a Taylor rule would suggest when a bubble is bursting. So, at least conceptually and analytically, economic theory supports the idea of a monetary targeting of asset prices and asset bubbles.

**Argument 2. Optimal monetary policy should react to asset prices even when there is uncertainty about the existence and extent of an asset bubble.**

Economic theory also suggests that uncertainty about bubbles is not a reason to ignore them and not react to them: in general, optimal monetary policy will react to asset prices and bubbles even if there is uncertainty about the latter. This point is important, as a typical argument against monetary policy targeting of bubbles is that there is always uncertainty as to whether there is a bubble in the first place and the size of such a bubble. That is, how should we respond to a bubble if we are not even sure that there is one (see Greenspan (2004), Bernanke (2002, 2004), Kohn (2004), Ferguson (2005) for such argument)? In a variant of this argument, some argue that the Fed may not be a better judge than markets about the existence of a bubble. And some (Garber (2000)) go as far as challenging the whole concept of an asset bubble, arguing that swings in asset prices are strictly driven by economic fundamentals. Indeed, as the relation between current and expected economic fundamentals and asset prices is difficult to model and measure, it is often hard to assess whether a change in asset prices is justified by changing economic fundamentals or whether such an asset price movement has a bubble (i.e. non-fundamental) component.

Formally, Bernanke and Gertler (2001) have argued that, in the presence of asset prices that may be partly due to fundamentals (supply shocks) and in part due to non-fundamentals (bubbles), a monetary policy that disregards asset prices is superior to one that does target asset prices. Again, this result is obtained in a model where the monetary policy rule is not set optimally. As shown by Filardo (2001, 2004), in a generalization of a standard economic argument that uncertainty does not qualitatively change the nature of optimal policy decisions, the introduction of uncertainty about the fundamental and non-fundamental components of the asset price does not change the result that optimal monetary policy should react to asset prices. Formally, if the fundamental and non-fundamental components of asset prices are known, optimal policy reacts to both components but with different coefficients. But even if monetary authorities cannot
separate with certainty the two components of an asset price, the optimal policy response implies reacting to the overall asset price (as opposed to reacting separately to its two fundamental and non-fundamental components). Thus, optimal policy will react to asset prices even when there is uncertainty about the bubble component of them.

More generally, the uncertainty argument about the existence and size of a bubble – one of the two leading arguments presented by Bernanke (2002) to argue against monetary policy targeting of asset prices – is a very weak argument on which to base a view against monetary policy targeting of asset prices. All economic policy decisions are based on some degree of uncertainty – uncertainty about the data (observation uncertainty), uncertainty about the parameters of the right economic model (parameter uncertainty) and, even, uncertainty as to whether certain economic variables matter for economic activity (model/paradigm uncertainty). As far as data observation uncertainty goes, knowing about the existence and size of asset bubbles is not easy, but it is also not easy to estimate the output gap when there are radical changes in the economic structure (as in the productivity boom of the late 1990s in the U.S.) or to estimate expected inflation. The fact that it was hard to estimate the output gap or changes in the NAIRU and the inflation process in the mid-late 1990s did not prevent Greenspan, Bernanke and the other Fed governors from doing their best to find the best forecast of these changing variables. The Fed did not drop inflation or output from the Taylor rule because it was hard to estimate output gaps and expected inflation in a rapidly changing economic structure. So, the argument that uncertainty about a bubble implies that one should not react to it is both conceptually flawed – as any standard optimal stochastic model suggests – and empirically weak: monetary policy is always implemented under conditions of data uncertainty.

It is of course true and correct that, the greater is the uncertainty about the realizations of a particular variable – as measured by the variance of such variable – the less the optimal policy will react to that variable. Indeed, as shown by Filardo (2004), the greater is the uncertainty about the asset bubble the lower will be the coefficient on the asset price in the optimal monetary reaction function. But this coefficient will never be equal to zero even in the presence of uncertainty. Thus, the uncertainty argument for dismissing a monetary policy targeting of asset prices is flawed: while greater uncertainty over the size of asset bubbles would imply a more muted response to them, a “no response” policy is not optimal or rational. And indeed, while at the time when Alan Greenspan gave a public alarm over “irrational exuberance” there were already strong signs of a stock price bubble, it was certainly even more evident in 1999-2000 that such a bubble was out of hand: by those later years the S&P and the Nasdaq were sharply above their levels at the time of Greenspan’s “irrational exuberance” warning: Thus, one could have comfortably assessed that a tech stock bubble was underway.

**Argument 3. Uncertainty as to whether bubbles affect the economy does not reverse the result that monetary policy should react to asset bubbles.**

Bubbles clearly impact the economy, though the precise magnitude of this effect may be uncertain. The fact that they have an impact on the economy – on the way up and on the
way down – is why monetary policy needs to take them into account.\(^7\) But some have argued that bubbles do not have an economic impact on real or financial variables (growth, inflation/deflation) and do not cause any serious and lasting damage (Posen (2003, 2004)). So monetary policy should not react to asset prices if bubbles have no damaging effects. A variant of this argument is that monetary policy is neither necessary nor sufficient to cause bubbles (Posen (2004)).

The argument that bubbles do not have costs and are unrelated to monetary policy is based on a selective reading of the evidence on their source, impact and effects. First, note that Posen’s observation that only one third (17 out of 48) of cases of sustained monetary easing have lead to property or equity booms does not invalidate the point that monetary easing can be a cause of asset bubbles. The fact that some episodes of sharp monetary easing do not lead to a bubble is irrelevant: if monetary easing follows a sharp recession (as do most cases of easing), one would not expect that necessarily to lead to a bubble. Similarly, the fact that only one third of asset price boom episodes were preceded or accompanied by a monetary easing is also irrelevant: the issue is not whether easy money causes a bubble, as sometimes, bubbles can be triggered by financial rather than monetary factors. The relevant issue is whether, whatever the bubbles are caused by, monetary policy should react to a bubble.

Next, the argument that bursting bubbles do not cause significant economic damage is also incorrect. For one thing, if a bursting bubble systematically leads – as possibly appropriate – to a sharp monetary easing to prevent the systemic and real effects of the crash, the observation that many crashes are not costly is irrelevant. In fact, without such an aggressive policy response (that may have other costs to be considered below), the economic impact of a crash would have been severe. Indeed most of the authors who believe that monetary policy should not react to rising bubbles also believe – including Posen, Greenspan and Bernanke - that monetary policy should sharply react to crashing bubbles, as such bubble bursting would otherwise be highly costly. So, arguing that bubbles do not seem costly in practice – after policy has reacted to them – does not imply that they are not very costly in principle. And arguing that bubbles are not costly, but that not reacting to bursting bubbles would be costly, is similarly illogical.

Moreover, the argument that rising bubbles that eventually burst are not costly does not seem to be supported by the evidence on advanced and emerging economies. A number of studies (IMF (2000, 2003), Bordo and Jeanne (2002), Borio and Lowe (2002), Bordo (2003), Helbling and Bayoumi (2003)) suggest that credit booms and busts and asset price booms and busts can have severe financial and economic consequences. Moreover,

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\(^7\) Even authors that argue against monetary policy targeting of asset prices – Bernanke, Gertler, Ferguson, Kohn, etc. - tend to acknowledge the analytical channels (wealth effects and credit constraints effects on consumption and investment) that link asset bubbles to real and financial variables. Most recently, Greenspan referred to the link between housing prices, private savings and the current account, a pretty clear evidence of the impact of the recent U.S. housing boom on the real economy. And there is a general consensus among many that monetary policy should care about the broader goal of financial stability.
a decade of experience with financial crises in emerging market economies\textsuperscript{8} shows that many of these crises are preceded by asset bubbles, credit booms, investment booms and large and growing external current account imbalances that eventually become unsustainable. In many episodes, such bubbles and imbalances lead to severe economic and financial crises that have sharp impacts on economic growth. Thus, there is prima facie evidence that asset bubbles, whether caused by a prior monetary easing or not, can have severe real and financial consequences. And the argument that bubbles should be dealt with through good ex-ante supervision and regulation of the financial system is again too easy: while some crises are due to poor financial regulation, it is also the case that bubbles can occur regardless of the quality of financial market supervision and regulation, as in the case of the U.S. tech bubble of the 1990s and the housing bubble of the last few years. Thus, as a bubble emerges, the open issue remains one of whether monetary policy should react to it or not.

Moreover, economic theory also suggests that uncertainty about whether bubbles affect the economy or not does not imply that monetary policy should not react to asset bubbles. As intuition suggests (and Filardo (2005) formally shows), such uncertainty as to whether asset bubbles do affect the economy or not only implies that the optimal response of monetary policy to such bubbles will be more subdued than in a case where there is less uncertainty about such effects. The optimal response is dampened but it is not zero. Thus, again, this as well as other forms of uncertainty about bubbles and their effects are not good justification for a “no policy response”.

\textit{Argument 4. Monetary authorities should attempt to carefully “prick” a bubble.}

The analytical issue of “pricking” or “bursting” a bubble is more complex than, and different from, the question of targeting bubbles. In one case, monetary policy tightening would be actively pursued to “prick” or burst a rising bubble while in the other case monetary policy would react to a bubble even if such action may not directly affect the bubble itself. While in practice, there may be little difference between targeting a bubble and pricking a bubble (as in both cases monetary policy reacts to an asset bubble), from an analytical point of view the two questions are different. Early models of bubbles considered exogenous bubbles where the bubble component of asset prices cannot be potentially affected – i.e. pricked – by monetary policy. That is, when a bubble is exogenous, the probability of the bubble continuing and its size are not affected by monetary policy. In this case, policy reacts to the asset prices only as a way to minimize the cost that such an exogenous bubble may have on the economy. Instead, in the case of an endogenous bubble one considers the possibility that the probability that the bubble will continue and its size depend on monetary policy: i.e., the higher are the interest rates, the greater is the probability that the bubble will burst. In the case of “endogenous” bubbles, the issue of “pricking” the bubble thus becomes relevant as a policy issue. The case of endogenous bubbles has been recently considered in the analytical literature (see Filardo (2003, 2005)). The main result is quite general: as long as monetary policy can affect the bubble (i.e., the bubble is endogenous), the optimal monetary policy response is

\textsuperscript{8} See Kawai, Newfarmer and Schmukler (2001). See also the exhaustive study of emerging market crises by Roubini and Setser (2004).
that interest rate policy will attempt to affect the behavior of the bubble; so, it is optimal to attempt to “prick” the bubble. So, at least conceptually, there is no logical argument against the view that monetary policy should be reacting to bubbles as way to reduce the likelihood of their occurrence. The relevant empirical issue, one we consider next, is whether actual attempts to target or prick bubbles would require such a large movement in interest rates that a severe and undesirable economic contraction may ensue.

Argument 5. A monetary policy that reacts to asset bubbles does not need to lead to severe economic contraction. It may instead appropriately control a bubble that may become damaging if left to grow without control.

There are both analytical arguments and empirical evidence to support the view that bubbles can be carefully affected or pricked without triggering a wide economic contraction or severe financial distress; asset bubbles can be preempted in the same way that monetary policy can preemptively deal with inflationary pressures. But both Greenspan (2004) and Bernanke (2002) have argued that, in order to prick a bubble, the monetary policy response would need to be too strong and draconian, a very sharp increase in interest rates. Then, such sharp monetary tightening would surely lead to a recession and create greater damage than the potential damage that the bubble was generating.

In this view, central banks are unable to gently prick a bubble. In the words of Greenspan (2004): “The notion that a well-timed incremental tightening could have been calibrated to prevent the late 1990s bubble while preserving economic stability is almost surely an illusion.” Or in the words of Bernanke (2004): “bubbles can normally be arrested only by an increase in interest rates sharp enough to materially slow the whole economy. In short, we cannot practice ‘safe popping’, at least not with the blunt tool of monetary policy. The problem of safe popping applies with double force to the aggressive bubble-popping strategy. A truly vigorous attempt by a central bank to rein in a supposed speculative bubble may well succeed but only at the risk of throttling a legitimate economic boom or, worse, throwing the whole economy into depression.”

A variant of the same argument is that, during a rising bubble, investors expect very high returns from the increase in asset prices, sometimes as high as 100% plus per year. Therefore, a modest increase in short term interest rates – say 100-200 basis points – would have limited or no impact on irrationally exuberant investors.9

Finally, critics of bubble pricking, such as Bernanke, have presented the example of the 1929 stock market crash, where allegedly an attempt to prick the perceived asset bubble before the crash led to the collapse of the stock market in late 1929. They have also argued that several episodes of monetary tightening in the U.S. did not prevent assets bubbles from emerging after such tightening occurred.

9 In the words of Blinder and Reies (2005): “Put yourself in Greenspan’s shoes in, say, November 1998…Was there any reason to believe that a modest increase in short-term interest rates (say, taking the 75 basis points back) would deter intrepid investors in high-flying tech stocks – many of whom were expecting 100% annual returns?”
The above arguments against “bursting” bubbles have, however, little logical and empirical basis. In any asset bubble, there are elements of a credit boom, reaching for yield, increasing leverage and increasing and excessive risk-taking by investors. All these economic and investment decisions of investors do depend on the level of interest rates and how tight monetary policy is. The Fed believes that the monetary policy impact on bubbles is severely discontinuous: no effect at all if interest rates are increased by several hundreds basis points, and collapse after interest rates have been increased above a very high threshold. But this view has little basis for it. Indeed, policy-determined short term interest rates affect both credit conditions and the economic decisions about consumption and investment that, in turn, affect asset prices. Thus, monetary policy can credibly affect the business cycle through its effects on interest rates, credit conditions, investment and consumption. This means that it can also have a meaningful and continuous, not discontinuous, effect on the asset prices that do depend on such monetary policy and interest rates. In simple terms, the Fed view that monetary policy cannot deal with asset bubble as it would do either too little or too much is mistaken.

Indeed, a variety of pre-emptive monetary policy actions can help to prevent bubbles from getting excessively out of control. In the case of the tech bubble of the late 1990s, Greenspan first warned against “irrational exuberance,” but then he became the leading “cheerleader” of the New Economy. There were many good reasons to be optimistic about the increase in long-run productivity that the IT revolution of the 1990s had induced. But the usually sour and cautious chairman of the Fed could have taken a more subdued public attitude towards the New Economy rather than becoming its most vocal official supporter. Moreover, the monetary easing following the LTCM crisis was probably excessive. It could have been reversed earlier and faster, by the end of 1998, when the liquidity seizure in U.S. capital markets faded. And a more active use of margin requirements might have, at the margin, affected investors’ willingness to borrow and be highly leveraged in their purchases of tech stocks. It is true that investors were expecting high returns from the tech bubble and were behaving in a irrationally exuberant fashion. But, a less “irrationally exuberant” Greenspan, an earlier and more assertive Fed policy tightening and the use of other instruments to control leverage could have had an effect on the 1990s bubble. Arguing that none of these actions would have had an effect on the tech bubble is simply inconsistent with the known effects of monetary policy on financial and real economic decisions.

Moreover, the recent experience in the U.K., Australia and New Zealand suggests that it is possible to react to bubbles via a moderate and gradual monetary policy tightening without causing a financial and economic crash.

In the U.K., concerns about a housing bubble that was getting out of hand led the Bank of England to increase interest rates in 2003-2004. Short rates were increased by 125bps between November 2003 and August 2004, pushing them up to 4.75%. This monetary tightening was successful in slowing down the housing boom and leading to a gradual fall in housing prices. U.K. economic growth did somehow slow down following this tightening, as it was desired and expected by the monetary authorities. But this did not
lead to a financial meltdown or a severe recession. Actually, after a few quarters of slower economic growth, the U.K. showed signs of a growth revival in the summer of 2005.

An even more successful example of pricking a housing bubble is that of Australia in 2003-2005. There, the monetary authorities became seriously concerned about the risks of a housing bubble that had gotten out of control in 2002 (with Sydney house prices increasing as much as 50% in H2:2002). The monetary tightening started in 2003, and by the spring of 2005 short term interest rates in Australia were at a four-year high. The monetary tightening succeeded in stopping the housing bubble without having severe effects on growth or asset markets. If anything, the reduced risk of a collapse of housing, because of the preemptive monetary tightening, benefited asset prices. Indeed, the local stock market was up 10% in the summer of 2005 relative to its level at the start of the year. The soft landing of the economy was so successful that Australia has recently been referred to as a “nirvana” or “goldilocks” economy (see Pesek (2005)). Indeed, the growth had slowed down but has remained at a respectable rate after 14 years of continued expansion.

A similar story holds for the case of New Zealand, which also used monetary policy to address its housing bubble. From January 2004 until the summer of 2005, short term interest rates were increased seven times, to a level of 6.75% in order to cool down inflationary pressures and the housing bubble. New Zealand's economic growth may have slowed to 2.3 percent in 2005, from 4.8 percent in 2004, based on the latest forecasts. But this is hardly an economic or financial meltdown. If anything, markets expect that interest rates will be kept at these high levels as a way to prevent a renewed overheating of the housing market.

These three most recent episodes – U.K., Australia and New Zealand – prove that monetary policy can be very effective, if used wisely and moderately, in pricking asset and housing bubbles without leading to significant economic or financial damage. The examples provided by the “prick-the-bubble-crash-the-economy” pessimists such as Bernanke are all cases where the asset bubble policy management was botched. In Japan in the 1980s, the Bank of Japan first waited too long to deal with the housing and equity bubble. Then, once the bubble burst, it waited too long to ease monetary policy to deal with the real and financial effects of the crashed bubble. Similarly, the U.S. case of 1929 is a classic example of waiting too long to deal with a bubble and then waiting too long to deal with the economic and banking effects of the credit crunch that occurred once the bubble collapsed.

Thus, the U.S. Fed attitude seems a bit disingenuous. In the latest episode of the U.S. housing bubble, a series of Fed officials first altogether downplayed for a while the evidence that there was a bubble. Then Chairman Greenspan spoke about some “froth” in some housing markets. Next, by August of 2005 he started sounding serious alarms about the housing bubble (“nearer term, the housing boom will inevitably simmer down” and “history has not dealt kindly with the aftermath of protracted periods of low risk premiums”). But he continued with the refrain that “I find it difficult to envision central
banks successfully targeting asset prices any time soon” and thus doing little in practice to address this asset bubble. He indeed forgot to mention that at least three central banks – those in the U.K., Australia and New Zealand – had recently been willing to target asset prices, housing specifically, and they have done so quite successfully.

**Argument 6. It is inconsistent and non-optimal to argue that monetary policy should react to bursting bubbles but not to rising bubbles.**

There are many good reasons why, if monetary policy responds to bursting bubbles to control the collateral damage of crashing asset prices, it also needs to preemptively respond to rising bubbles. Greenspan and the Fed have argued that it is better to respond via monetary easing when a bubble has burst (“mop up after” the bubble). Mopping up after the bubble has burst is necessary as there is a risk of severe economic downturn or systemic risk from this bursting. In the words of Greenspan (2004), “Instead of trying to contain a putative bubble by drastic actions with largely unpredictable consequences, we chose, as we noted in our mid-1999 congressional testimony, to focus on policies ‘to mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion.’”

This Greenspan view implies that an asymmetric response to bubbles makes sense. While the Fed should not try to prick a bubble when the bubble is on its way up, it should instead try to contain the economic damage of a sharply bursting bubble, as a sharp fall in asset prices is dangerous and damaging to the economy.

While responding to crashing bubbles makes sense for many reasons, this Greenspan and Fed view fails to recognize that a more symmetric response to rising and bursting bubbles is more appropriate than an asymmetric response. Indeed, the Fed argument is odd, as it suggests an asymmetric response of monetary policy to bubbles: i.e. monetary policy should not react to rising bubbles, but should react to crashing bubbles. For several reasons, this asymmetric response does not make sense on logical and empirical grounds.

First, theory suggests that either the response should be symmetric (Filardo (2003, 2004, 2005)) or there should be no response at all (Bernanke and Gertler (1999, 2001)). Second, suppose that the Fed argument, that monetary policy cannot prevent a bubble from growing unless it is really heavy-handed in raising rates, is true. Then, why should monetary easing, unless it is also excessively aggressive in ways that may also be damaging, be able to contain the damage of a bursting bubble? Why should the effects of monetary policy be asymmetric – ineffective in the case of rising bubbles, and very effective in the case of bursting bubbles? There is no economic or analytical logic to this asymmetry.

Greenspan tried, in a remark at the 1999 Jackson Hole conference, to justify this asymmetric response of the Fed to assets bubbles and asset crashes. His argument goes as follows. The Fed does not have an asymmetric response to bubbles. If asset prices are rising gradually in bubble-like fashion, the Fed should not intervene. Similarly, if a bubble is deflating gradually, with a slow fall in asset prices, the Fed should not and

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10 See also Bernanke (2004), Kohn (2005) and Posen (2004) for similar arguments.
would not intervene. But the Fed does intervene when asset prices are falling very rapidly, as this sharp fall in asset prices risks being very damaging. So, in Greenspan’s apology, it is not the Fed that is asymmetric: markets are asymmetric, with bubbles building up slowly and bubbles crashing fast. So, Greenspan argued that the Fed looks as if it is asymmetric in its response only because markets are asymmetric (see also Kohn 2005 for a similar argument).

Let us dissect Greenspan’s apology for this asymmetric response to bubbles. One possible interpretation of Greenspan’s remark is that while it is hard to identify a rising asset price as a true bubble when prices are slowly moving up, it is easier to identify asset prices suddenly collapsing as a case of a bursting bubble. While it is correct that it is easier to spot a bursting bubble than a rising bubble, economic policy is about making sensible assessments of uncertain events. Greenspan, already in late 1996, had smelled a bubble when he spoke of “irrational exuberance.” While it was not totally clear in 1996 that there was an asset bubble in the stock market, by 1998 or 1999 or 2000 the existence of such a bubble was much more evident. Thus, by those later dates, the Chairman of the Fed must have been even more convinced that there was a bubble in tech stocks and in the overall stock market. Similarly, the evolution of Greenspan’s and other Fed officials’ pronouncements on the housing market suggest that, over time, the Fed could make a sensible probabilistic assessment that a housing bubble had indeed developed. Indeed, as housing prices kept on rising above levels justifiable by a range of fundamentals, this assessment of the existence of a housing bubble becomes easier. So, there is a reply to Greenspan’s logic that an asymmetric response is justified because it is easier to spot a bursting bubble than a rising one. The reply is the famous one of Justice Potter Steward about “obscenity.” A “smell” test (“I can tell when I see one…”), as well as a range of statistical and analytical tools, can allow the identification of rising bubbles with some degree of certainty.

A second interpretation of Greenspan’s argument is that a bursting bubble is much more damaging than a rising bubble because sharply falling asset prices are very dangerous – more so than a slowly rising bubble. If one takes this interpretation seriously, then logically the Fed should react to a rising bubble if the increase in the asset price were indeed very rapid. And there have been episodes of that sort in recent US history. For example, the Nasdaq went from a level of about 2000 at the beginning of 1999 to a level above 5000 by March 2000, a 150% increase in a matter of 15 months. This is a much more rapid percentage increase in asset prices than most falling asset price episodes. But, instead, Greenspan argued that the Fed could have not addressed such an asset bubble. And the consequences of this tech bubble and its eventual bust were severe. The collapse of the Nasdaq in 2000 was the major factor behind the 2001 recession, a recession that was mild only because the Fed response to it was very rapid and aggressive. And the costs of this bubble were more severe than the mere GDP numbers suggest: the entire tech sector went into a complete meltdown: and access to venture capital and other forms of financing for the tech and internet sectors altogether dried up for years. Thus, technological innovation in the tech sector was harmed for several years because the excesses of the 1990s led to overcapacity and an investment drought once the bubble
burst. Thus, the aftermath and consequences of the Fed failing to address a rapidly inflating bubble were severe.

A third interpretation of Greenspan’s argument is that monetary policy needs to provide lender of last resort support to financial markets when periods of liquidity seizure, following bursting bubbles, lead to the risk of a systemic crisis. Certainly, ensuring the orderly functioning of markets in episodes of liquidity stress is an important and valid role that a central bank should be playing. But, like any other form of insurance, such lender of last resort liquidity support may lead to moral hazard distortions. One does not want to exaggerate here the risks of moral hazard, as there is always a meaningful tradeoff between insurance and moral hazard. And the argument that dealing with the liquidity shortage of a bursting bubble may always lead to severe moral hazard (the so-called “Greenspan put” argument) is exaggerated. Indeed, it is a valid use of monetary policy to inject liquidity to address episodes of systemic risk.

But an asymmetric response to bubbles – not fighting a rising one while easing the effects of a bursting one - is certainly more likely to lead to some moral hazard distortions than a more symmetric response. Suppose that a central bank were to systematically allow asset bubbles to grow without doing anything about them, while promising to markets to ease liquidity every time a bubble crashes (as the Fed has repeatedly done for the last two decades). Then, the distortions to the incentives of investors may become serious. Therefore, exactly because liquidity insurance should be properly used in times when systemic risk is acute, it is necessary to avoid distorting investors’ incentives in good times. This means being willing to “pull the punch bowl away” when bubbles are making investors drunk and reckless. Those who are concerned about asset bubbles do not claim that monetary easing should not be used to address bursting bubbles because of moral hazard risk. They rather argue that a more symmetric response to rising and bursting bubbles is more likely to provide the appropriate incentives and balanced risk assessment by investors. These incentives to appropriately assessing two-sided financial risk may then prevent excessive bubbles from developing in the first place and continuing over time.

In practice, the above arguments mean that the Fed has been right in providing liquidity in the episodes where there has been a liquidity seizure. Cases like in 1987 when the stock market crashed; in 1998 after the Russia meltdown led to the near collapse of LTCM; in 2000 when the Y2K bug risked causing a liquidity squeeze in money markets; and in 2001 when the 9/11 tragedy put at risk the financial and payments system. But this willingness to provide lender of last resort support - that has been made explicit Fed policy by repeated Greenspan pronouncements - has not been accompanied by a willingness to control the onset of bubbles when they do occur. In the case of the late 1990s tech bubble and in the case of the most recent housing bubble, the Fed failed to try to control these rising bubbles. Instead, the Fed has been hiding behind the arguments that nothing can be done about rising bubbles and everything needs to be done to avoid the damage of bursting bubbles.
One additional risk of the Fed asymmetric policy approach to bubbles is that it risks to create a new bubble after the previous one has burst. It is true that there is no clear evidence that not pricking a rising bubble and easing policy to deal with a bursting one will necessarily lead to the emergence of another bubble (see Posen (2004) for such an argument). However, the Fed has addressed bubbles in the last two decades by providing liquidity in cases of bursting bubbles and systemic risk episodes as in 1987, 1998, 2000 and 2001. Instead, it decided not to try to prick two major inflating asset bubbles in the 1990s and in the last few years (high tech stocks in the 1990s and housing in recent times). This asymmetric Fed behavior may have created serious distortions in an excessively leveraged economy, where asset bubbles are now becoming more common. So, there may be indeed circumstantial evidence that dealing asymmetrically with bubbles causes more bubbles to emerge.

Finally, Greenspan’s statement that monetary policy would not respond to a gradually deflating bubble (one that does not suddenly burst) is not credible. One can suspect that the actual response of the Fed may end up being different in practice in such cases. First of all, one may observe that while asset price crashes are likely to occur in the case of financial assets (stocks, bonds, currencies), they are highly unlikely to occur in the case of real estate. Real estate bubbles do not burst with a bang: real estate prices are inertial and sluggish. The first sign of a real estate bust is the increase in the inventories of unsold real estate, not falling prices; only over time does the price inertia turn into slowly falling prices. But if the Fed argument that it would not respond to a slowly deflating asset bubble were true, the Fed would never respond to a protracted, slow but persistent and eventually damaging fall in housing prices. It would not respond even if such a fall were to lead housing prices below their fundamental values and cause widespread bankruptcies among households and firms in the real estate sector. However, that “no-response” policy would not be the appropriate policy reaction to a gradually falling housing bubble. The experience of Japan – where the Bank of Japan waited too long to deal with gradually falling real estate prices – suggests that one may also want to respond to gradually falling asset prices. So, the Greenspan argument that the Fed should respond to sharply falling asset prices, but not to gradually falling asset prices, is not analytically correct. Also, in practice, it is not obvious or credible to argue that the Fed would not respond to a gradually deflating housing bubble in the U.S. If such a bubble were likely to lead to a persistent but temporary fall in U.S. growth below its potential rate, it is more likely that in practice the Fed would respond to such falling housing bubble.

And indeed, the argument that the Fed would not respond to a gradually deflating asset bubble seems to be refuted by its response to the Nasdaq bubble fall in 2000-2001. The bursting of that bubble did not take the form of a market crash a’la 1987, when the stock market fell 20% plus in one day. The Nasdaq bubble bust took the form of a persistent and steady fall in tech stock prices from the spring of 2000 until the beginning of 2002. But the response of the Fed to this tech bust was one of an aggressive easing starting at the end of 2000. It is true that part of the easing was driven by the economic recession that the tech bust was causing., But the recession was in part needed to deal with the
excessive growth and the financial and investment excesses that the bubble had caused. Thus, not only was the Fed response asymmetric, but it was also asymmetric to a slowly falling bubble. Similarly, the concern about a “Greenspan put” is that Greenspan – or, at this point his successor – will respond to falling housing prices by inappropriately easing monetary policy. That is, the Fed may ease, rather than accept the fact that the U.S. economy will unfortunately need to grow for a while below potential in order to deal with the severe domestic and external imbalances that the fiscal deficits and housing bubble of the last few years have created.

In conclusion, responding to inflating bubbles - not just to bursting ones - could help avoid distorting economic and investment decisions. And it would work better than an asymmetric policy of responding to bursting bubbles (whether the bubble bursts slowly or rapidly), but not responding to rising bubbles. An asymmetric response may be a source of investment distortions that may lead to cycles of repeated and intensified asset bubbles and asset crashes in the U.S.

3. Concluding Remarks

In this paper, we have discussed the arguments in favor of and against monetary targeting of asset prices and asset bubbles. We have argued that there are many good arguments in favor of such targeting and that arguments against it are, in many dimensions, not robust. First, a wide range of analytical models suggests that optimal monetary policy should react to asset prices and exogenous asset bubbles (i.e., bubbles whose evolution does not depend on monetary policy), above and beyond reacting to deviation of growth and inflation from target. Second, uncertainty about the existence of a bubble does not undermine the arguments in favor of asset price targeting: like many other types of data uncertainty, uncertainty about the existence and size of an asset bubble only reduces the degree of response of optimal monetary policy to asset bubbles. Third, uncertainty about whether bubbles can have damaging effects on the economy is not a good argument against targeting of such bubbles, as: a) there is a wide body of evidence that such bubbles and their aftermath are costly; and b) uncertainty as to the economic effects of bubbles again only reduces the degree of optimal interest rate response, but does eliminate completely such a response. Fourth, analytical models also suggest that if a bubble is endogenous (i.e., its probability and size can be affected by monetary policy), optimal monetary policy requires attempting to affect the bubble (i.e. trying to “prick” or “burst” it). Fifth, the argument that trying to affect/prick a bubble would require such a large interest response that a severe recession would be triggered is found to be incorrect both in theory and practice. Conceptually, a moderate interest rate response can have an impact on bubbles and reduce the economic distortions caused by them. And empirically, the recent experience of the U.K., Australia and New Zealand shows that monetary authorities can successfully control bubbles with monetary tightening without causing severe recession or financial distress. Sixth, the Greenspan argument that the Fed should not react to rising bubbles but should be ready to ease in order to dampen the real costs of bursting bubbles (i.e., an asymmetric response to bubbles) is also found to be inefficient and, possibly, a source of moral hazard distortions. It is certainly warranted for a
monetary authority to react to bursting bubbles that may cause severe liquidity seizures, systemic risk and risk of large economic contraction. But to prevent such a response from creating distorted incentives, monetary policy authorities should also be willing to respond to rising bubbles. That is, while a symmetric response to rising and bursting bubbles is appropriate, an asymmetric response is conceptually flawed, liable to create distorted incentives, and likely to induce cycles of rising and crashing bubbles that may have damaging economic and financial effects.

This paper does not suggest an aggressive monetary policy approach to asset bubbles. The uncertainties about bubbles and the other factors discussed above suggest that monetary policy should respond to asset bubbles in a cautious and moderate matter. Thus, some of the arguments presented by Fed officials to justify their resistance to fighting rising bubbles have logic and legitimacy. While cautiousness is warranted, the Fed arguments, presented and repeated by Greenspan and other Fed officials, that there is no case for responding to asset bubbles, are found to be incorrect. We also argued that the Fed practice over the last two decades of not reacting to rising asset bubbles (the tech stock bubble of the late 1990s and the housing bubble of the last few years), while aggressively countering bursting bubbles and episodes of systemic risk (in 1987, 1998, 2000 and 2001-2003), has contributed to the asset bubbles and economic imbalances (low savings rate and large current account deficit) that make the U.S. economy highly vulnerable to investor shifts in assessment of risk and to negative developments in global economic conditions. That is why a Fed reassessment of its approach to asset bubbles is seriously warranted.

References


Bordo, M. (2003), Stock Market Crashes, Productivity, Boom Busts and Recessions: Some Historical Evidence, Rutgers University, unpublished manuscript.


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