Remarks by Governor Donald L. Kohn

Monetary policy and asset prices

At "Monetary Policy: A Journey from Theory to Practice," a European Central Bank Colloquium held in honor of Otmar Issing, Frankfurt, Germany
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I am honored to participate in this tribute to Otmar Issing. I have known and admired Otmar for some time. It has been a source of great pride that he has considered me a worthy intellectual sparing partner over the years. From the hiking trails of Jackson Hole to the restaurants of Frankfurt and at many conferences in between, we have challenged each other to state our assumptions, examine the evidence, and adjust our conclusions accordingly. I have derived enormous benefit from that give-and-take--a sentiment, I am sure, that many others in this room share.

I can think of no better way to celebrate the signal contributions of this leading force in the world of monetary policymaking than to address an issue of great importance to central banks, and one that has drawn considerable public attention and comment of late--namely, the proper role of asset prices in the determination of monetary policy. Otmar and I have debated this issue on many occasions, and these discussions--together with recent research carried out at the European Central Bank, the Bank for International Settlements, and elsewhere--have been both challenging and stimulating. The preparation of this talk has afforded me a welcome opportunity to reexamine my thinking on this subject. So, today, I will review the arguments and the evidence as I see them and draw out the conclusions to which I am currently led.

At the outset, let me stress that I will be expressing my own opinions, which are not necessarily shared by my colleagues on the Federal Open Market Committee.[1]

Two Strategies for Dealing with Market Bubbles

Most fluctuations in stock prices, real estate values, and other asset prices pose no particular challenge to central banks, as they are just some of the usual factors influencing the outlook for real activity and inflation. But many argue that pronounced booms and busts in asset markets are another matter, especially if actual valuations appear to be misaligned with fundamentals. What should a central bank do when it suspects it faces a major speculative event--one that might be large enough to threaten economic stability when it unwinds? To help frame the discussion, I will focus on two different strategies that have been proposed for dealing with market bubbles.

The first approach--which I will label the **conventional strategy**--calls for central banks to focus exclusively on the stability of prices and economic activity over the next several years. Under this policy, a central bank responds to stock prices, home values, and other asset prices only insofar as they have implications for future output and inflation over the medium term. Importantly, the strategy eschews any attempt to influence the speculative component of asset prices, treating any perceived mis-pricing as, rightly or wrongly, an essentially exogenous process. Following this strategy does not imply that policymakers ignore the expected future evolution of speculative activity. If policymakers suspect that a bubble is likely, say, to expand for a time before collapsing, the implications of that possibility for future output and inflation need to be folded into their deliberations. Practically speaking, however, I

view our ability to act on such suspicions as limited given how little we know about the dynamics of speculative episodes.

Despite its approach to perceived speculative activity, the conventional strategy does recognize that monetary policy has an important influence on asset prices--indeed, this influence is at the heart of the transmission of policy decisions to real activity and inflation. It occurs through standard arbitrage channels, such as the link between interest rates and the discount factor used to value expected future earnings.

The second strategy, by comparison, is more activist and attempts to damp speculative activity directly. It was described at length in "Asset Price Bubbles and Monetary Policy," an article published by the ECB last year. I quote from the article: "This approach amounts to a cautious policy of 'leaning against the wind' of an incipient bubble. The central bank would adopt a somewhat tighter policy stance in the face of an inflating asset market than it would otherwise allow if confronted with a similar macroeconomic outlook under more normal market conditions. . . . It would thus possibly tolerate a certain deviation from its price stability objective in the shorter term in exchange for enhanced prospects of preserving price and economic stability in the future."[2] I am labeling this second approach **extra action**, as it calls for steps that would not be taken in ordinary circumstances.[3]

Compared with the first approach, the extra-action strategy responds to a perceived speculative boom with tighter monetary policy--and thus lower output and inflation in the near term--with the expectation of significantly mitigating the potential fallout from a possible future bursting of the bubble. Thus, the strategy seeks to trade off the near-certainty of worse macroeconomic performance today for the chance of disproportionally better performance in the future, on the theory that the repercussions of a major market correction could be highly nonlinear. But the extra-action proposal is by no means a bold call for central banks to prick market bubbles. As the ECB article stresses, such an attempt would be extremely dangerous given the risk that a concerted effort at stamping out a speculative boom would lead to outsized interest rate hikes and recession. Rather, the extra-action strategy is intended only to provide some limited insurance against the possibility of highly adverse events occurring down the road.

Common Ground

I will be talking at length about the differences between the two strategies, but I must stress up front how much they have in common. Both policies aim to achieve the same general objectives of monetary policy, using the same broad analytic framework. Most central banks, I believe, share these basic features of monetary policymaking, notwithstanding important differences in their official mandates and the nature of their economies.

At the risk of considerable oversimplification, policymakers can be described as seeking to set policy over time so as to minimize the present value of future deviations of output from potential and inflation from a desired level. Of course, we may not be prepared to write down a specific loss function and say, "There, that's what I'm minimizing." But our deliberative processes and our actions seem broadly consistent with that characterization of the general problem. This statement is true whether our institutions have a specific mandate to keep inflation low and stable and

output close to potential, as in the United States, or whether our mandate is defined primarily in terms of stabilizing inflation, as in the euro area. Stabilizing output complements maintaining price stability in the medium to long run, and often in the short run as well.

We also can agree that asset prices play critical and complicated roles in determining real activity and inflation--roles that may be changing over time because an increasing share of wealth is market-determined and easily liquified. Movements in stock prices and real estate values affect household wealth and thus consumer spending. Changes in bond prices, stock prices, and exchange rates imply movements in the cost of capital and relative prices that influence investment and foreign trade; exchange rate movements also directly affect the prices of goods and services. Finally, asset prices can affect the value of collateral and thus the provision of credit, thereby influencing aggregate spending. In cases of sharply falling market valuations, these adverse credit-channel effects may even be exacerbated by the deteriorating health of banks and other financial institutions. In sum, asset prices influence the economy in complex and subtle ways over potentially extended periods of time.

Finally, I think it fair to say that most central banks, faced with only a limited understanding of asset prices and their interactions with the full economy, engage in a form of risk management when dealing with market booms and busts. In part, they do this because any particular policy under consideration is never associated with a single forecast for the future paths of output and inflation but, instead, with a large set of possible scenarios with differing odds of coming to pass. While no one uses formal Bayesian methods to solve this difficult problem, I think most policymakers do engage in at least an informal weighing of the various possibilities and their implications when setting policy.

Three Conditions for Extra Action to Lead to Better Outcomes

Now let me turn from areas of agreement to more contentious issues, ones that have a strong bearing on the relative merits of the two strategies. As the ECB article notes, extra action is often seen as a type of insurance. And as with any insurance policy, before you buy you have to ask whether the expected benefits outweigh the costs. As I see it, extra action pays only if three tough conditions are met. First, policymakers must be able to identify bubbles in a timely fashion with reasonable confidence. Second, there must be a fairly high probability that a modestly tighter policy will help to check the further expansion of speculative activity. And finally, the expected improvement in future economic performance that would result from a less expansive bubble must be sizable. You may be thinking that, in stating the three conditions, I have slanted the case with such phrases as "reasonable confidence" and "fairly high probability." But stick with me, and I hope to persuade you that these probabilistic qualifiers are needed to judge the merits of extra action.

For the moment, let me set aside the first condition and assume that central banks can distinguish an emerging bubble from improving fundamentals at an early stage. What about the other two conditions? Should we presume that a limited application of restrictive policy would materially restrain the speculative boom and make its eventual unwinding less disruptive for the overall economy?

Consider the U.S. stock market boom of the mid-to-late 1990s. The boom was fueled by a sustained acceleration of productivity and an accompanying rise in corporate profits--fundamental changes that justified a major rise in equity prices. How high those prices should have risen was difficult to judge in real time because no one, not investors or central bankers, could be sure how fast profits would grow in the future. In the event, share prices increased more than was justified by improved fundamentals. But overly optimistic expectations for long-run earnings growth were not being driven by easy money, and I see no reason to believe that an extra 50 or even 100 basis points on the funds rate would have had much of a damping effect on investor beliefs in the potential profitability of emerging technologies. At present, we just do not have any empirical evidence of a link between interest rates and corporate equity valuation *errors*, as opposed to standard arbitrage effects.

In general, we have a very poor understanding of the forces driving speculative bubbles and the role played by monetary policy. In fact, we cannot rule out perverse effects.[4] Again, consider the U.S. experience of the late 1990s. When the FOMC tightened in 1999 and early 2000, the trajectory of stock prices actually steepened, and equity premiums fell--perhaps because investors became more confident that good macroeconomic performance would be sustained. Since mid-2004, we have seen a marked decline in bond-term premiums, even as the funds rate has risen steadily. These episodes illustrate that risk premiums often move in mysterious ways, and we should not count on the ability of monetary policy to nudge them in the intended direction.

Perhaps housing markets differ from equity and bond markets. For example, homeowners, who may have a less sophisticated understanding of the economy than professional investors, might mistakenly view a one-time rise in home prices--resulting, say, from a decline in interest rates--as evidence of a more persistent upward trend. If so, a monetary easing directed at stabilizing output and inflation might, conceivably, drive up real estate values by more than fundamentals alone would merit. Still, you would expect any mis-pricing from these sources to be reversed over time as interest rates returned to normal. In any event, empirical evidence on this issue is scanty. More broadly, further research into the causal connections, if any, between monetary policy and bubbles would seem to be needed before we would know enough to be able to act on such linkages with much confidence.[5]

However, let us suppose a situation arises in which we are convinced that tighter policy would check the future expansion of an emerging speculative bubble. Even then, with the second condition now met, the third condition might not hold: The expected improvement in future macroeconomic performance from moderating the bubble's expansion may not be enough to more than offset the up-front costs of extra action. To explain this statement, I note again that extra action with *near-certainty* weakens the economy and reduces inflation before the bubble bursts in exchange for the *chance* of better macroeconomic performance in the future.

Admittedly, if the worst-outcome scenario associated with an unchecked bubble is judged sufficiently dire and if the scenario is not seen as too improbable, then a risk-averse policymaker might regard the expected return from extra action insurance as worth its upfront cost. However, our confidence in such an assessment would seem to

hinge on believing that the effects of market corrections could be markedly nonlinear. Proponents of extra action often cite an increased risk of severe financial distress as a potential source of such effects. However, without the onset of deflation, how large is this risk? In recent history, the health of the U.S. financial system remained solid after the collapse of the high-tech boom, despite the bankruptcy of dozens of telecom and dot-com firms, the loss of more than $8 trillion in stock market wealth, and stress in the nonfinancial corporate sector. Moreover, the financial sectors of most other developed economies also weathered the worldwide drop in corporate equity values fairly well.

Of course, the nonlinear risks associated with a collapsing bubble may depend on the initial health of the financial system, and under some circumstances we could be worried about the potential for significant financial distress to accompany the bursting of a bubble, should that bubble expand further. Even in such cases, however, I wonder whether good prudential supervision in advance and prompt action to clean up any lingering structural problems afterward would not be better ways to deal with this possibility. Certainly, closer oversight of banking systems during the 1980s, including the United States, would have left many economies in a stronger position during the early 1990s. This lesson has been absorbed by supervisory authorities around the world, as evidenced by our successful efforts to strengthen bank capital and our financial systems.

I do agree that market corrections can have profoundly adverse consequences if they lead to deflation, as illustrated by the United States after the 1929 stock market crash and the more recent experience of Japan. But it does not follow that conventional monetary policy cannot adequately deal with the threat of deflation by expeditiously mopping up after the bubble collapses. In Japan, deflation could probably have been avoided if the initial monetary response to the slump in real estate and stock market values had been more aggressive; in addition, macroeconomic performance would have been better if the government had dealt more promptly with the structural problems of the banking sector.[6] As for the Great Depression, the Federal Reserve actually worsened the situation by allowing the money supply to contract sharply in 1930 and 1931, after unwisely attempting to prick the stock market bubble in the first place. Rather than demonstrating the need for preemptive extra action to restrain emerging bubbles, these examples are object lessons concerning the wisdom of central banks' easing promptly and aggressively following market slumps when inflation is already low, so as to head off the threat posed by the zero lower bound. By doing so, policymakers should be able to avoid the severe nonlinear dynamics of deflation.

Proponents of extra action often argue that it should reduce the risk of hitting the zero bound, but we should recognize that under some circumstances extra action may actually exacerbate the problem. To see this, suppose that a speculative bubble has emerged and that a central bank, operating under a conventional strategy, has raised interest rates to keep the projected output gap closed and expected inflation at its desired level before the bubble bursts. Now the central bank contemplates taking extra action. In a low-inflation environment, such a step would be a bad idea if, after averaging across all the possible outcomes weighted by their likelihoods, the predicted moderation in the bubble from tighter policy is small. In this case, the expected weakening in real activity after the bubble bursts would be only marginally

less severe under extra action, but inflation would be substantially lower because the extra action policy would have generated persistent economic slack beforehand. With inflation having already started out at a low level, such a decline would be extremely dangerous because the zero bound would now be much more likely to constrain monetary policy after the bubble bursts. Under these conditions, extra action would therefore worsen expected economic performance, not improve it.

Another purported benefit of extra action is that, by raising the cost of capital to firms and households, it helps reduce overinvestment fostered during speculative booms, thereby making it easier for the economy to recover after the bubble collapses. However, we should be careful not to exaggerate the macroeconomic importance of such capital mis-allocation. True, the U.S. high-tech boom led to overinvestment in some sectors, wasting resources and creating lingering difficulties while capital overhangs were eliminated. But it is hard to see much of a cost in terms of diminished aggregate productivity, given the robust growth of output per hour over the past few years.

Furthermore, even if tighter monetary policy would have damped the enthusiasm for dot-com firms in the late 1990s, higher interest rates would have also led to less housing and less business investment outside the high-tech sector, where valuations were not obviously out of line with fundamentals. Thus, mitigating capital misallocation in one sector would have created capital misallocations elsewhere, making the assessment of the net gain from extra action difficult. And, as I have been pointing out, extra action would have idled some capital entirely for a time as economic activity fell short of its level consistent with stable inflation.

Now I would like to return to the first condition, the one I sidestepped a few minutes ago--the question of identifying market bubbles in a timely fashion. The ECB article stressed that such identification is a tricky proposition because not all the fundamental factors driving asset prices are directly observable, as the productivity acceleration and stock market boom of the 1990s illustrate. For this reason, any judgment by a central bank that stocks or homes are overpriced is inherently highly uncertain.

Under extra action, mistakenly identifying a bubble has significant costs. By acting to mitigate a nonexistent problem, the central bank reduces real economic activity and inflation below their desired levels to no purpose. Admittedly, policymakers, once they recognize their mistake, would presumably want the economy to run hotter for a time to restore the previous rate of inflation and would thereby make up for the initial output losses. But coming to the realization that the original assessment was mistaken and that asset prices were in line with fundamentals is likely to take some time. And the mistaken call would have reduced welfare by needlessly inducing fluctuations in the macroeconomy.

Timing is also an issue. Let us suppose that the evidence is so compelling that policymakers become fairly confident that valuations are excessively rich. Unfortunately, I suspect that this call would often come so late in the day that, given the lags in the monetary transmission mechanism and uncertainty about the duration of bubbles, raising interest rates might actually risk exacerbating instability. The market correction could occur with policy in a tighter position but before extra action had enough time to materially influence speculative activity.

Notwithstanding the controversial aspects of identifying bubbles, policymakers may still want to warn the public about the possibility of asset price misalignments when the evidence merits. Such talk might do some good by prompting investors to stop and rethink their assumptions. And talk by itself should not do much lasting harm even if valuations turn out to be justified--provided, however, that words are not seen as precursors to action under circumstances in which conventional policy would still be the best approach.

To wrap up this critique, I summarize as follows: If we can identify bubbles quickly and accurately, are reasonably confident that tighter policy would materially check their expansion, and believe that severe market corrections have significant non-linear adverse effects on the economy, then extra action may well be merited. But if even one of these tough conditions is not met, then extra action would be more likely to lead to worse macroeconomic performance over time than that achievable with conventional policies that deal expeditiously with the effects of the unwinding of the bubbles when they occur. For my part, I am dubious that any central banker knows enough about the economy to overcome these hurdles. However, I would not want to rule out the possibility that in some circumstances, or perhaps at some point in the future when our understanding of asset markets and the economy has increased, such a course of action would be appropriate.

Asymmetries and Moral Hazard

Proponents of extra action have their own bones to pick with the conventional strategy, especially as it relates to the alleged asymmetric nature of the policy's response to asset market booms and busts. In particular, the claim is often made that, based on the FOMC's actions over the past twenty years, the Fed actively works to support the economy in an event of a sharp decline in asset markets but does little or nothing to restrain markets when prices are rising, thereby creating moral hazard problems.

This argument strikes me as a misreading of history. U.S. monetary policy has responded symmetrically to the implications of asset-price movements for actual and projected developments in output and inflation, consistent with its mandate. The most convincing evidence for this statement can be found in the results: Interest rates have been consistent with underlying inflation remaining reasonably stable for some time now, accompanied by relatively mild fluctuations in real activity.[7]

Conventional policy as practiced by the Federal Reserve has not insulated investors from downside risk. Whatever might have once been thought about the existence of a "Greenspan put," stock market investors could not have endured the experience of the last five years in the United States and concluded that they were hedged on the downside by asymmetric monetary policy. Nor, for that matter, should they have concluded that the Federal Reserve does not act on the upside: If asset prices had been more closely aligned with fundamentals in the late 1990s, our policy would almost certainly have been easier, all else equal, because aggregate demand would have been weaker and hence inflation pressures even more muted than they were. The same considerations apply to homeowners: All else being equal, interest rates are higher now than they would be were real estate valuations less lofty; and if real estate prices begin to erode, homeowners should not expect to see all the gains of recent years

preserved by monetary policy actions. Our actions will continue to be keyed to macroeconomic stability, not the stability of asset prices themselves.

Ironically, one can argue that extra action may pose a more significant risk of moral hazard. It is one thing for policymakers to raise questions about the relationship of asset prices to fundamentals and another for a central bank to take action to influence valuations in the direction of some "appropriate" level. How does this strategy play out if a central bank takes extra action and speculative activity continues unabated or even intensifies? Do policymakers raise rates even further above levels consistent with conventional policy and, if so, at what consequences for the economy? And what is the risk that, in taking such steps, a central bank would be seen by investors as taking on partial responsibility for asset prices? If so, would the pressure on central banks to support asset prices in market downturns increase?

Conclusion

My remarks today have been intended as a salute to Otmar and to all the valuable contributions he has made over the years to my thinking and to that of policymakers around the world. Otmar, you have taught me much about intellectual rigor in support of central bank contributions to economic welfare--and about friendship. Weighing the relative merits of extra action and conventional policy is not easy and requires a nuanced interpretation of the arguments and the evidence, as well as some hard thinking. Otmar and his colleagues have done this in advancing the case for extra action, and by so doing they have given me a good intellectual workout--and Otmar, I thank you for that. I hope my response has provided a good workout in return. I look forward to continuing the debate and especially the friendship for many years to come.

Footnote

1. David Reifschneider, of the Federal Reserve Board's staff, contributed substantially to the preparation of these remarks

2. European Central Bank (2005), "Asset Price Bubbles and Monetary Policy" (1.7 MB PDF), *Monthly Bulletin* (April), p. 58.

3. The article's label for this strategy--leaning against the wind--has been used for many years to describe the standard behavior of central banks. Given this history, I think that using the term *extra action* is less confusing.

4. From a theoretical standpoint, the "rational bubble" literature demonstrates how a rise in interest rates might lead rational agents to boost the growth rate of asset prices during a speculative episode.

5. Recently, ECB staff economists Carsten Detken and Frank Smets have taken a laudable first step at addressing this issue in a paper that establishes some of the basic empirical facts about the correlations among interest rates, money, credit, asset prices, financial distress, and macroeconomic performance. See Carsten Detken and Frank

Smets (2004) "Asset Price Booms and Monetary Policy" (882 KB PDF), European Central Bank Working Paper Series 364, (Frankfurt: ECB, May).

6. See Alan G. Ahearne, Joseph E. Gagnon, Jane Haltmaier, and Steven B. Kamin (2002), "Preventing Deflation: Lessons from Japan's Experience in the 1990s," International Finance Discussion Paper Series 2002-729 (Washington: Board of Governors of the Federal Reserve System, June).

7. As evidence of asymmetry, observers often cite Claudio E.V. Borio and Philip Lowe (2004), "Securing Sustainable Price Stability: Should Credit Come Back from the Wilderness?" Bank of International Settlements Working Paper 157 (Basel: BIS, July). The authors purport to show that the federal funds rate was unusually low during the headwinds period of the early 1990s but not correspondingly high before the onset of the 1990 recession. But their assessment is made in relation to the Taylor rule, which is not a particularly good description of monetary policy during this period of opportunistic disinflation. In the event, inflation in the United States came down steadily over the first half of the 1990s, accompanied by significant economic slack--results that seem to belie the claim that policy was overly easy.