

# BANK OF KOREA POLICY AND THE ASSET BUBBLE PROBLEM

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Central banks have two responsibilities: (1) stabilize the value of the currency and (2) maintain public confidence in deposit money by limiting systemic risk. The first responsibility is primary, ongoing, and the exclusive responsibility of the central bank. Price stability allows market participants to anchor price expectations, and it minimizes differences between actual and expected inflation rates as participants in the market establish economic contracts. Monetary policy cannot change the long-run real performance of the economy but can influence the economy in the short run; however, central banks need to exercise caution in trying to achieve short-run effects on employment and output. Lags in the effect of monetary policy are likely to introduce instability, and the long-run goal of price stability becomes less attainable the more the central bank focuses on short-run issues.

The need for the second responsibility is lessened, but not eliminated, with success in achieving the first responsibility. Unlike price stability, limiting systemic risk in the financial system is a shared responsibility. Monetary policy as a provider of lender-of-last-resort services is part of a complex set of regulatory and supervisory policies designed to limit systemic risk and maintain public confidence in deposit money.

Central banks in recent years have been forced to confront these two responsibilities as they attempt to achieve price stability while financial systems are in transition from administered structures to more open and competitive structures. The financial transition has not been smooth in most countries, as policies designed to enhance portfolio diversification conflict with policies based on the old financial regime designed to limit risk and limit bank failures.

During the past three decades central banks many times have had to deal with troubled financial systems as they try to achieve price stability at the same time. These two issues often are in conflict, and the existence of a single instrument—monetary policy—

to deal with two conflicting goals generates a dilemma for the central bank. Indeed, one of the most difficult types of systemic risk facing central bank policy is the occurrence of asset inflation or an asset bubble. This type of systemic risk has been a major problem for both Japan and the United States and is becoming an increasing worry of the Bank of Korea (BOK).

In the past few years, real housing prices in Korea have significantly increased, suggesting to some that Korea is experiencing a housing bubble capable of evolving into the type of housing bubble that brought Japan's economy to near collapse in the 1990s. The BOK is committed to price stability; in fact, it has a formal inflation target framework to emphasize this commitment. At the same time, the BOK is increasingly focusing monetary policy on slowing down the increase in housing prices by reducing the flow of credit supporting rising house prices.

This paper discusses several aspects of asset bubbles from the perspective of Korea, Japan, and the broader community of countries in order to provide a background for the current policy dilemma facing the BOK. That is, to what extent should the increase in housing prices influence monetary policy? This paper discusses asset bubbles in general, provides comparative information on Korea's housing-price concerns in an international context, describes and evaluates whether Korea could experience Japan-type asset inflation, and discusses and recommends policy options for the BOK.

The paper concludes that increases in housing prices in Korea are likely not sustainable, that a downward adjustment is more likely than not, but that the problem is not near a magnitude that requires aggressive monetary policy at this time. Instead, the BOK would do well to "lean against" the potential housing bubble. This appears to be the policy currently being implemented.

## What Is Asset Inflation?

Asset inflation—also called an asset bubble—refers to increases in the real price of an asset, usually equities or real estate, that cannot be justified by economic fundamentals. That is, today's price increasingly becomes a function of expected prices tomorrow; today's price is relatively independent of current economic fundamentals because "everyone" knows prices will continue to increase. Asset bubbles are also popularly known as the "bigger fool" model of asset pricing because someone, somewhere realizes that the price paid for the asset today cannot be rationalized by economic fundamentals. This prescient person also anticipates further price increases because bigger fools are willing to pay even more in the near future simply because the bigger fools also expect prices to increase. Bubbles are a form of market failure.

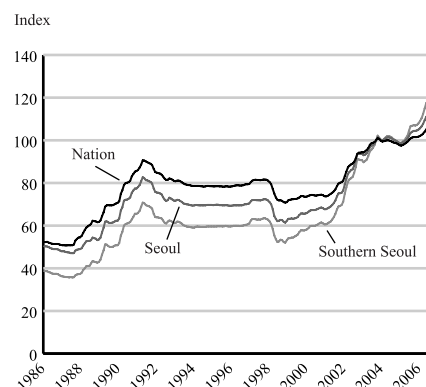
Interest in asset bubbles has been ongoing since at least 1841 with the publication of Mackay's *Extraordinary Popular Delusions and the Madness of Crowds*.<sup>1</sup> Markets are capable of irrational behavior, and, at times, herd behavior driven by psychological factors can drive up asset prices beyond economic fundamentals with significant adverse effects on the economy when prices fall. All bubbles end in a burst.

In the past few years, Korea's housing market has exhibited characteristics of an asset bubble. Housing and apartment prices nationwide have increased approximately 50 to 84 percent, respectively, over the past five years, while housing and apartment prices have increased more in Seoul. Relative to an inflation rate of 2–3 percent, these nominal price increases represent a meaningful increase in the real price of housing in Korea.

**Figure 1** and **Figure 2** indicate the purchase price index for housing and apartments for the nation, Seoul, and southern Seoul compiled by Kookmin Bank from January 1986 to December 2006. The recent increase

in prices is evident in the data; however, this is not the first time housing prices have increased significantly. In the latter part of the 1980s, housing prices also recorded significant increases for several years and then leveled off throughout much of the 1990s.

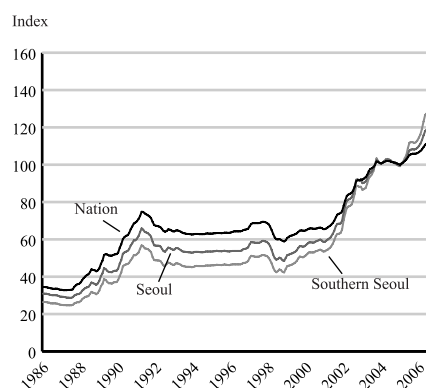
**Figure 1: Housing Purchase Price Index, January 1986–December 2006**



Source: Housing Price Index (Seoul: Kookmin Bank, various years).

Notes: Housing includes residential apartments. September 2003 = 100.

**Figure 2: Apartment Purchase Price Index, January 1986–December 2006**



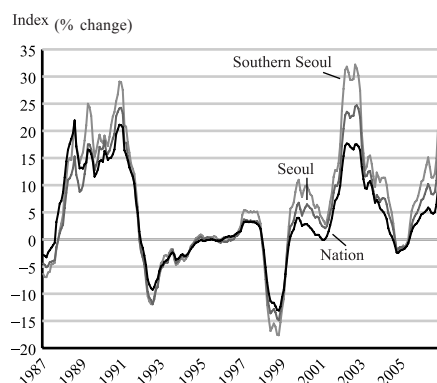
Source: Housing Price Index (Seoul: Kookmin Bank, various years).

Note: September 2003 = 100.

1. Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* (1841; repr., New York: Harmony Books, 1980). Charles P. Kindleberger, *Manias, Panics, and Crashes: A History of Financial Crises*, 3rd ed. (New York: Wiley, 1996) and Robert J. Shiller, *Irrational Exuberance*, 2nd ed. (Princeton: Princeton University Press, 2005) represent updated versions of Mackay's work; the basic points of the modern authors remain the same as Mackay's.

Figure 2 and *Figure 3* indicate the annual percentage changes in each month compared with the same month in the preceding year from January 1987 to December 2006. The recent acceleration in housing prices is not significantly different from what it was in the latter part of the 1980s.

**Figure 3: Percentage Changes in the Housing Purchase Price Index, January 1987–December 2006**



Source: Housing Price Index (Seoul: Kookmin Bank, various years).  
Notes: Housing includes residential apartments. Computed between the same month of each year.

*Table 1* puts the housing price increases in perspective by indicating the average annual increase and standard deviation for the nation, Seoul, and southern Seoul. On average, prices have increased more for apartments than for houses. Although the average 6–16 percent annual increase is high over the five-year period, there is much variation around the mean.

The BOK has expressed concern over the rapid increase in housing prices, which partly accounts for the Bank's shift toward tighter monetary policy since late 2005.<sup>2</sup> After a policy of ease that saw the targeted call rate decline from 4.25 percent as of May 2003 to 3.25 percent as of November 2003 and remain at 3.25 percent until October 2005, the BOK raised the targeted call rate in several steps to 4.50 percent as of August 2006. The 11 January 2007 announcement of

**Table 1: Housing and Apartment Prices, January 2001–December 2006**

Location of housing	Average annual percentage increase	Standard deviation
Housing		
Nation	6.31	5.99
Seoul	9.15	7.59
Southern Seoul	12.37	9.56
Apartments		
Nation	9.50	7.70
Seoul	13.01	10.28
Southern Seoul	16.17	11.79

Source: Housing Price Index (Seoul: Kookmin Bank, various years).

Note: Housing includes residential apartments.

the Monetary Policy Committee indicated that the BOK would maintain the call rate at 4.50 percent partly because of a slowdown in the increase in housing prices. In addition to a shift toward tighter monetary policy, the government has imposed loan-to-value ratio limits (60 percent) on housing loans, raised taxes on the holding and transfer of houses, and adopted other regulatory and supervisory policies to limit the speculation that is driving up house prices.

### **Can Bubbles Be Rational?**

The above discussion emphasizes irrational behavior on the part of market participants; however, this type of market behavior needs to be considered in the context of two concepts. First, not all spectacular changes in the price of an asset constitute a bubble, and, second, some economists believe that a bubble can be reconciled with rational market behavior.

Regarding the first concept, consider the case of excessive monetary growth and hyperinflation. The German hyperinflation after World War I saw prices increase at dramatic rates, but these bubble prices could be explained by the Reichsbank's willingness to accelerate monetary growth and the market's expectation that the central bank would continue to ac-

2. Bank of Korea, "Monetary Policy Report, September 2006," 27 November 2006; Bank of Korea, "Financial Stability Report, October 2006," 26 December 2006; [www.bok.or.kr/eng/index.jsp](http://www.bok.or.kr/eng/index.jsp).

celerate monetary growth.<sup>3</sup> In this case there is no irrational bubble because the bubble can be explained by the link between the price level and the money supply; that is, the link becomes the “fundamental,” or structural, determinant. Market participants were perfectly rational to conclude that the price level would also accelerate as a systematic response to monetary acceleration. This is clearly not the type of asset inflation discussed above and of concern to the BOK. The BOK is not likely to accelerate monetary growth in contradiction of its inflation target. In fact, since October 2005, BOK policy has been directed toward restraining credit and monetary growth.

Regarding the second concept, it is technically possible in standard rational-expectations models to argue that asset bubbles are the outcome of rational behavior on the part of market participants. These so-called rational bubble models, however, cannot reasonably provide a plausible description of real events. In fact, the so-called rational bubble is a misplaced concept and diverts attention from the irrational dynamic of an asset bubble; one writer commented: “Did the Good Lord teach people how to solve difference and differential equations but forget to imbue them with the insight to impose the relevant boundary conditions? That’s not rationality—it’s lunacy.”<sup>4</sup>

### ***Korea’s Inflation in Housing Prices in Historical and International Perspective***

The Organization for Economic Cooperation and Development (OECD) has been a major repository for housing-price data for the 18 OECD countries. Korea became the 18th OECD country in 1986. A recent OECD study examined trends in real housing prices for the 18 OECD countries; data for 17 of the countries start in 1970, and data for Korea start in 1986.<sup>5</sup> The study provides a broad perspective of housing-price behavior as well as a historical and cross-coun-

try perspective by which to evaluate Korea’s recent experience.

The data for the 17 OECD countries starting from 1970 suggest five observations:

- Real housing prices have exhibited an upward trend since 1970 except in Switzerland, Germany, and Japan, which exhibited no definite upward trend. In fact, these three countries have exhibited a downward trend in real prices since 1990.
- Current increases in real housing prices starting in the mid-1990s are unprecedented in terms of the magnitude, duration, and lack of correlation with the business cycle. In a number of countries, the size of the increase in real housing prices exceeds previous upward cycles, and the duration of the increase exceeds the duration of previous upward cycles. Real housing prices before the mid-1990s were correlated with the business cycle; however, most recent increases have taken place while the general economy has slowed or declined.
- Housing-price increases are becoming more correlated across OECD countries, suggesting a common set of influences such as financial liberalization, innovations in the mortgage and consumer credit market, price stability, and relatively low real interest rates.
- Real housing prices have gone through downward cycles of significant size and duration. This runs counter to the commonly held view that housing prices always increase. Although the trend in real housing prices has been upward in the OECD countries since 1970, there have been significant movements above and below the trend. Shiller emphasizes this same point in his review of housing prices in the United States since 1890,<sup>6</sup> and he concludes that there is no apparent trend and that most of the

3. Phillip Cagan, “The Monetary Dynamics of Hyperinflation,” in *Studies in the Quantity Theory of Money*, ed. Milton Friedman, 25–117 (Chicago: University of Chicago Press, 1956).

4. Michael Mussa, “Asset Prices and Monetary Policy,” in *Asset Price Bubbles: Implications for Monetary, Regulatory, and International Policies*, ed. William C. Hunter, George G. Kaufman, and Michael Pomerleano (Cambridge, Mass.: MIT Press, 2003).

5. OECD, “Recent House Price Developments: The Role of Fundamentals,” *OECD Economic Outlook*, no. 78, December 2005, [www.oecd.org/dataoecd/41/56/35756053.pdf](http://www.oecd.org/dataoecd/41/56/35756053.pdf).

6. Shiller, *Irrational Exuberance*, 20.

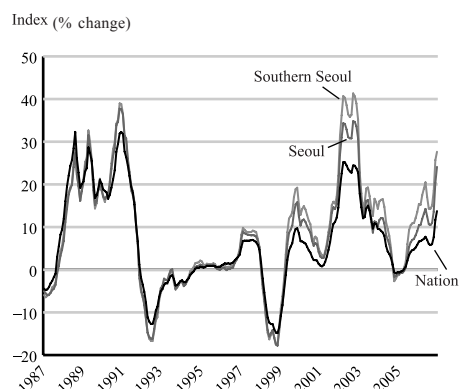
real price increase (66 percent from 1890 to 2004) occurred after World War II. Shiller suggests that the view that real housing prices always increase has become an urban legend, much as the view that stocks always outperform bonds. Both views lack a reasonable statistical foundation.

- The OECD review concluded that, although housing prices have increased since the mid-1990s, only a small number of countries were judged as of 2004 to be overvalued on a nationwide basis as based on various economic fundamentals such as cost of housing and demand for housing. These countries are the United Kingdom, Ireland, the Netherlands, and Spain.

The shorter data period for Korea precluded the same detailed OECD analysis; however, there is sufficient information in the report about Korea to draw some comparative perspective. Real housing prices in Korea trended upward from 1986 to 1991, then trended downward to approximately 2001, and then upward to 2004–05.<sup>7</sup> The trends in Korea compared with the other OECD countries suggest that house prices in Korea have not increased at the same rates or the same magnitude. In addition, the ratio of price to household income in Korea trended downward until 2000 and then trended upward; however, the upward trend is not as pronounced as in other OECD countries, nor is the ratio as large.

The price-to-income ratio measures the affordability of housing. It appears that, although Korea needs to be concerned about the recent run-up in house prices, the issue is not as serious as it is for other OECD countries. Nonetheless, housing prices have increased significantly (Figures 1–4), and, although special physical, regulatory, and demographic factors in Korea contribute to the increase in real housing prices, the 6–16 percent average annual increases in the price of housing are not sustainable. Korea may experience a downward cycle in the near future in the form of declines in the nominal price of housing.

**Figure 4: Percentage Changes in Apartment Purchase Price Index, January 1987–December 2006**



Source: Housing Price Index (Seoul: Kookmin Bank, various years).

Note: Computed between the same month of each year.

### ***Minsky and the Taxonomy for Asset Bubbles***

Asset bubbles are a special aspect of the study of business cycles that has been ongoing since business cycles were first identified and discussed in the early nineteenth century. More than any other writer, Minsky has provided a general framework or taxonomy of the asset bubble,<sup>8</sup> even to the point where Minsky's taxonomy provides the framework for a chat-room discussion at [www.askaboutmoney.com/showthread.php?t=24601](http://www.askaboutmoney.com/showthread.php?t=24601) of the high real estate prices in New York.

Minsky's framework of an asset bubble can be decomposed into five phases: displacement, monetary accommodation, irrational exuberance, speculative excess, and revulsion or liquidation.

**Displacement.** The displacement phase represents a macroeconomic shock or change in background conditions that changes economic fundamentals and hence expected profits of some sector of the economy, which, in turn, generate an increase in the

7. OECD, "Recent House Price Developments," 194.

8. Hyman P. Minsky, "The Financial Instability Hypothesis: Capitalistic Processes and the Behavior of the Economy," in *Financial Crises: Theory, History and Policy*, ed. Charles P. Kindleberger and Jean-Pierre Laffargue (New York: Cambridge University Press, 1982).



real price of an asset. The displacement shock can be nonmonetary or monetary. Nonmonetary causes can include increased foreign direct investment, new business structures, financial or real sector liberalization, and new international or domestic markets. Monetary shocks can result from central-bank policy or financial innovations that support expanded use of credit. The distinction between nonmonetary and monetary shocks is not always clear, especially in the past few decades when financial liberalization and central-bank policy have often interacted with each other. Whatever the source of the shock, however, the shock fundamentally changes expected profit in a sector of the economy and the expected real price of assets associated with that sector.

**Monetary accommodation.** Accommodative monetary policy becomes an important foundation of asset inflation irrespective of the source of the displacement shock. The logic of this phase is based on the relationship between spending and monetary forces. Any increase in spending that affects a significant sector of the economy can occur only with increases in either the money supply or the velocity or turnover rate of money. Velocity is related to the demand function for money, and research on the demand function for money suggests that velocity is not likely to increase significantly to support any asset bubble; hence, monetary accommodation becomes a necessary accompanying condition for asset inflation.

**Irrational exuberance.** Irrational expectations or euphoria supported by accommodative monetary policy turn the initial increase in real asset prices into a bubble as market participants shift their expectations function of future price increases from being determined by economic fundamentals to being based on the most recent price history. That is, today's asset price is a function of tomorrow's expected price, holding economic fundamentals constant. This is nothing more than the bigger-fool theory of asset pricing mentioned above.

This is the most interesting phase of the asset bubble because it represents widespread irrational market

behavior, thus making it difficult for economists to understand fully. Individuals collectively and individually rationalize on the basis of increasingly meager information why tomorrow's price will be higher than today's price. Psychology and group interaction models, especially Shiller's overview of how market participants collectively become caught up in the euphoria of the asset inflation,<sup>9</sup> become an important component of understanding this phase of the asset inflation. As this phase continues, speculators who have no interest in the asset become an increasingly important part of the process driving up prices. This is one reason why policymakers are so interested in the degree to which speculation drives up prices as they attempt to determine whether price increases have reached the bubble phase.

**Speculative excess.** The speculative excess phase represents the last part of the asset inflation. At this point, asset prices increase at rapid rates, and whatever connection they had to economic fundamentals during the euphoria phase is completely removed. The bigger-fool theory now becomes the dominant asset-pricing model, and speculation becomes rampant. Kindleberger noted in 1996 that "there is nothing so disturbing to one's well-being and judgment as to see a friend get rich."<sup>10</sup> This thinking provides incentives for increasing numbers of market participants to become involved in buying and selling the asset and driving up prices without understanding the underlying economic fundamentals or, more appropriately, the lack thereof. This stage has great potential for fraud, and it signals that the collapse of asset prices is near.

**Revulsion or liquidation.** Revulsion or liquidation is the burst-of-the-bubble phase. This is a short but critical period in the cycle, when market participants suddenly realize asset prices are overvalued. Large numbers of market participants attempt to sell at reduced prices. Many of the same conditions that supported expectations of increasing prices now work in the other direction, generating widespread expectations of further price declines that, in turn, become self-reinforcing. Generally, the revulsion phase is much shorter than the expansion phase.

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9. Shiller, *Irrational Exuberance*.

10. Kindleberger, *Manias, Panics, and Crashes*, 13.

The revulsion phase can be precipitated by failures of corporations or financial institutions connected with the asset as well as scandals involving insider trading, misrepresentation of financial information, and government involvement in the misrepresentation. However, the end of the asset inflation more often than not is brought about by a shift to tighter monetary policy as central banks become increasingly concerned about asset prices. This, in turn, reduces the flow of credit supporting asset inflation and increases the likelihood of failures that in turn reveal the lack of a relationship between asset prices and economic fundamentals.

### ***Japan's Bubble and the Bursting of the Bubble Economy***

The most dramatic bubble and burst of the bubble in recent history and in terms of capitalization—in fact, probably one of the most dramatic in the past century—was in Japan. Japan's bubble economy started slowly in the early 1980s, shifted into full bubble phase after 1985, reached its peak in 1990–91, and burst in the 1990s. Although the Japanese economy began a slow and weak recovery in 2003, equity and real estate prices remain far below their peaks in 1990. The Nikkei at the start of 1985 was about 12,500 and reached almost 40,000 on the last day of trading in 1989—a 220 percent increase. The Nikkei today—early 2007—is about 18,000; that is, it has not yet reached even half of its peak in nominal terms. The price index for urban land for six metropolitan cities was about 30 in 1985 and about 112 in 1990—a 273 percent increase. Urban land prices were still declining in 2005 and appear to have reached a bottom in 2006. They are less than 50 percent of the peak values in 1990–91.

Japan's experience is unprecedented in the postwar period in terms of the magnitude of the rise and fall of equity and real estate prices, the extent to which they influenced the entire economy, and the influence the bubble and the burst of the bubble economy have had on Japanese economic and political institutions. In fact, Japan ranks as one of the more significant examples of economic, financial, and political distress in economic history resulting from asset inflation and collapse. Japan's experience has drawn not only Korea's attention and concern but much of the world's concern over asset bubbles.

Korea's recent housing-price increases are not as dramatic as those experienced in other developed economies since the mid-1990s, and the asset inflation in these other OECD countries pales in comparison with the increase in real estate prices experienced by Japan in the 1980s. Nonetheless, Korean authorities need to understand what happened in Japan in order to assess the potential in Korea of a Japan-type asset bubble in housing prices and as a guide to public policy. The events in Japan can be understood in the context of Minsky's taxonomy.

The displacement phase in Japan started in the late 1970s and continued into the early 1980s. Japan's emergence as the second-largest economy in the world; the world's largest creditor nation by 1985; possessor of growing trade surpluses; and an example of impressive macroeconomic stability in the context of a second set of oil price shocks in 1979–80, internationalization, and financial liberalization contributed to expected high profits. In hindsight these economic fundamentals were not as solid as appeared at the time because Japan's financial liberalization process was fundamentally flawed. The attempt to remain wedded to the old financial regime, which was based on mutual support, limiting risk, and nontransparency, while permitting enhanced asset diversification in both the financial and real sector, rendered Japan's economy an accident waiting to happen. That accident was the collapse of asset prices in 1990–91 and is responsible for Japan's lost decade of the 1990s and slow recovery up to the time of this writing.

The Bank of Japan (BOJ) provided monetary accommodation after 1985 in an effort to limit yen appreciation. The BOJ rationalized this policy even though it increased the supply of credit and money because the inflation rate remained low. The increased flow of credit and money provided liquidity to a flawed financial system, making it easy to channel the liquidity to support corporate expansion and hence increase equity prices and to support real estate credit and hence increase real estate prices. The combination of easy monetary policy and a flawed financial system provided the main foundation for the irrational-exuberance phase.

The irrational-exuberance phase commenced around 1986 or 1987 when real estate and equity prices began to increase at double-digit rates until the peak.

Japan was not special in terms of the driving forces, summarized by Shiller,<sup>11</sup> that ranged from “new era thinking” to “Japan will dominate the world’s economy” projections that increasingly were used to support asset prices that could not be explained by economic fundamentals. In the late 1990s, scholars were able to identify a number of reasons why Japan’s equity and real estate were overvalued.<sup>12</sup> The bigger-fool theory came into prominence.

The irrational-exuberance phase was also supported in Japan by special relationships among equity prices, real estate prices, bank capital, and bank lending. Banks held significant amounts of equities as part of the bank-firm relationship, and after 1988 part of the capital gains on these equities could be counted toward meeting the Bank for International Settlements capital asset requirements. Any increase in equity prices thus increased bank capital, which in turn provided a basis for increased bank credit. Real estate was the most common form of collateral required by banks; hence, increased real estate prices provided a basis for increased bank credit. Increased bank credit supported increased corporate spending and earnings and hence provided the basis for increased equity and real estate prices.

The speculative-excess phase was characterized not only by rising real estate and equity prices that could not even remotely be explained by fundamentals but also by rising asset prices that grew at unsustainable rates as the belief that Japan’s new era had arrived. Luxuries such as art objects, gold club memberships, and classic cars were included in double-digit price increases. The Japanese extended their speculative spending to real estate in New York, California, and especially Hawaii and were paying prices that could not be rationalized on the basis of fundamentals in those places.

The revulsion phase was largely due to the BOJ’s decision in May 1989 to shift fairly dramatically to a

tight monetary policy. This cold-turkey approach burst the bubble. The flaws in the liberalization process and a series of policy failures on the part of the BOJ and the Ministry of Finance brought about an unprecedented period of stagnation, recession, disinflation, and deflation in the 1990s.

Thus Japan’s economy experienced expansion, easy monetary policy, asset inflation, collapse of asset prices, and almost 15 years of economic, financial, and political distress. Is Korea a candidate for the same experience? This is unlikely for three reasons.

First, the experience of Japan itself has warned Korean authorities of what is possible. Japan’s experience combined with Korea’s experience during the Asian financial crisis of 1997 has made Korea less likely to fall into the new-era thinking that supported rapid increases in asset prices in Japan. Thus, Korean authorities are more vigilant and willing to take steps to reduce the chance of a bubble.

Second, the extent of the asset bubble and the consequences of its collapse in Japan were intimately tied to the fundamentally flawed financial liberalization process and the close relationships among bank capital, bank credit, real estate prices, and equity prices. This is not the case in Korea. Korea has already gone through a major restructuring as it has dealt with troubled financial institutions and nonperforming loans. Korean bank credit is not directly tied to real estate or equity prices as it was in Japan. As a result, Korea’s financial system is more stable, and regulatory authorities have a better handle on limiting systemic risk than was the case in Japan in the 1980s.

Third, asset inflation in Korea is confined to housing and not equities or any other meaningful asset. Even housing prices in Korea have not increased as much as they have since the mid-1990s in other developed countries, and they are nowhere near the rates of increase experienced by Japan in the late 1980s.

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11. Shiller, *Irrational Exuberance*.

12. Thomas F. Cargill, Michael M. Hutchison, and Takatoshi Ito, *The Political Economy of Japanese Monetary Policy* (Cambridge, Mass.: MIT Press, 1997).



## Problems and Options for BOK Policy

BOK policy can be understood using a widely accepted monetary policy framework consisting of five components.<sup>13</sup> With this framework in mind, options, issues, and recommendations can be offered for the BOK.

First, the primary goal of central-bank policy is to maintain price inflation at a low positive level over the medium term defined by an implicit or explicit inflation target. Price inflation is most frequently measured by the consumer price index (CPI). Second, the central bank targets a short-term interest rate to establish the link between central-bank policy and the price level. Third, the forecast of future price inflation relies primarily on a gaps-driven approach. That is, gaps in the product and labor markets are used to gauge the degree of pressure on the rate of inflation. Fourth, asset prices are important only to the extent that they exert pressure on relevant gaps and, hence, on subsequent inflation. Fifth, the foreign exchange value of the domestic currency is allowed to float with little, if any, degree of intervention by the monetary authority.

This framework provides a reasonable description of BOK policy as well as that of many central banks. What implications does it have for the current dilemma facing the BOK? Several perspectives can be offered to guide BOK policy. Should the BOK formally consider asset prices like housing in its inflation-target framework? Is the BOK susceptible to the general asymmetric response central banks have toward asset prices, and, if so, how can this contribute to asset inflation? Should the BOK consider a preemptive strike against the potential of a housing bubble and, if so, to what degree?

### *Role of Asset Prices in Price Stability*

The five-part framework assigns little importance to asset prices unless they affect the overall rate of in-

flation by changing the gaps between potential gross domestic product (GDP) and actual GDP or between natural unemployment and actual unemployment. This may be too narrow a view of price stability, however. Some argue that the definition of the price level should be broadened to capture not only the current cost of purchasing claims to consumption but also the current cost of purchasing claims to future consumption. Because asset prices measure the cost of future consumption, there might be a theoretical rationale for their inclusion in the overall price level that central banks target.

Introducing asset prices into the price index encounters serious practical challenges. In particular, the CPI becomes more volatile. Nonetheless, it is worth the effort of the BOK to start constructing overall price indices containing key asset prices, such as housing, and using the extended price measures to gauge the stance of inflation alongside the standard CPI measures. Simple ways of dealing with volatility in the CPI component of asset prices have been suggested; this could be accomplished by using weights of the different components in the price index based on the variance of the rate of change in the price of each good.<sup>14</sup>

### *It's Easier to Bring Out the Punchbowl Than to Take It Away*

Central banks frequently exhibit an asymmetric response to asset price deviations from fundamentals. Asset price bubbles are supported by monetary easing that imposes few costs on the economy in the short run, but shifting to tighter policy to end the asset price increase is more difficult because the tight policy does impose short-term costs on the economy. In the view of many central bankers, the key task of the central bank is to take away the punchbowl before the party gets out of hand. This is difficult, and, despite formal independence or inflation targets, central banks find it more difficult to shift from easy to tight policy. It should be kept in mind that former

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13. William R. White, "Is Price Stability Enough?" *BIS Working Papers*, no. 205, April 2006, [www.bis.org/publ/work205.pdf](http://www.bis.org/publ/work205.pdf).

14. Mark A. Wynne, "Core Inflation: A Review of Some Conceptual Issues," *European Central Bank Working Paper*, no. 5, May 1999, [www.ecb.int/pub/pdf/scpwps/ecbwp005.pdf](http://www.ecb.int/pub/pdf/scpwps/ecbwp005.pdf).

chairman of the Board of Governors of the Federal Reserve Greenspan did not follow up with tight monetary policy after he made his famous “irrational exuberance” speech in late 1996.

Recognition by the market of the central bank’s asymmetric response to asset prices generates a moral-hazard problem. Market participants perceive an implicit insurance against a crash because of the reluctance of the central bank to end the asset inflation. It pays to overload the portfolio with risk because excessive risk taking is rewarded if easing is known to be the standard response of the monetary authority when confronted with the risk of an asset price bust. An unwillingness to tighten in response to asset inflation contributes to exacerbating the moral-hazard problem. Of course, at some point the central bank takes away the punchbowl; however, the expectation of the asymmetric response provides a driving force behind asset price inflation.

Clearly the BOK is attempting to convince the market that it will not provide this type of insurance. Nonetheless, some feel that the BOK is making too much of an issue and is in danger of reducing overall growth because of its concern over housing prices. The BOK is not immune to the asymmetric response pattern and needs to keep that in mind.

### *Preemptive Monetary Policy*

The decision to tighten preemptively is not easy because bubbles are difficult to identify *ex ante* and because the bluntness of monetary policy creates collateral damage for the rest of the economy. This is an old dilemma facing central banks, and in most cases central banks wait too long before taking action. Three prominent examples of this comprise the Federal Reserve in the late 1920s and in the late 1990s, and the BOJ in the late 1980s. These three examples show how difficult it is to determine when an asset bubble is in place and the extent of the collateral damage likely to occur once the central bank decides to tighten.

Unfortunately no detection method can be designed to support a preemptive shift toward tight policy; however, this does not relieve the central bank from doing its best to limit asset inflation and make sure that the collapse of asset prices does not adversely affect the public’s confidence in deposit money. The

following three-part checklist should help the BOK determine whether to pursue preemptive action and, if so, how much.

### *Preemptive Checklist*

**Importance in the economy.** In general it is preferable for the central bank not to take significant action against asset price increase if the class of assets is narrow, represents a small part of the public’s portfolio, and is not correlated with other assets, and if the rest of the economy is stable. On both accounts the Federal Reserve in the 1990s and the BOJ in the 1980s should have considered tighter policy sooner. While general economic activity in both countries appeared stable, the stock market bubble in the late 1990s in the United States and the stock and real estate bubble in Japan in the late 1980s justified a more restrictive monetary policy. Whether this would have prevented the asset inflation is debatable, but most likely the asset inflation would not have reached the proportions it did if tighter policy had been taken earlier, especially in Japan.

The role of housing in aggregate demand, the role of housing in the public’s hold of wealth, and the influence that housing has on other components of spending all suggest the BOK should take some preemptive action. That is, the current policy of raising the call rate, accompanied by public statements and other government actions to reduce the flow of credit into housing, appears to be the correct policy. The downside of this policy is the danger that the preemptive action will slow the economy and perhaps cause a recession; however, the risk of an asset bubble currently is greater.

**Importance in the financial system.** What are the financial spillover effects of a bust in those asset prices? Are financial institutions, including pension funds, becoming heavily dependent on supplying credit to support the asset price increase? What impact would a collapse of asset prices have on the quality of the balance sheets of financial institutions? This was not so much an issue in the United States in the late 1990s, but it was a major issue in Japan in the 1980s.

In Korea’s case, financial institutions appear to be increasingly sensitive to developments in the housing market. The BOK is correct to raise concern about

the increasing shift of portfolios to housing credit. A sharp decline in housing prices will weaken balance sheets of financial institutions as default rates increase and the value of collateral declines. It is not at all clear that Korea's banking system has fully recovered from the Asian financial crisis, and the rapid decline of housing prices would expose Korea's banks to risks that have not been experienced since 1997–98.

Thus, the BOK is correct to take some preemptive action; however, there is a limit to what monetary policy can accomplish. Financial regulation and supervision should play at least as important a role in limiting systemic risk. Again, these types of policies are being pursued.

**Evidence of irrational exuberance.** Every major asset price bust has been preceded by “market-cheerleading.”<sup>15</sup> To track these developments, policymakers may want to consider a “newspaper headlines count” index that could serve as an early-warning indicator. At a minimum, policymakers should keep track of these developments as they unfold, keeping in mind that market sentiment, emotions, and manias are endemic characteristics of financial markets. If you ignore them, you do so at your peril. Policymakers should not be dogmatic in their beliefs of the universality of economic agents’ rationality.

In the case of Korea, the increasing role of speculators in driving up housing prices is an indicator that housing-price inflation has the potential for a bubble. Anecdotal evidence suggests that about 25–35 percent of the activity in the housing market is due to market participants who have no intention of using the asset but who purchase the asset to “flip” it over in a short period of time. This is a sure sign of trouble. Another sure sign of trouble is the number of times so-called experts need to explain why the increase in asset prices is not a bubble but in fact is based on some new-era economic fundamental or some unique demographic factor driving up house prices.

## Concluding Comment and Recommendation

So, what should the BOK do, given that housing plays an important role in the economy, that housing credit is a major component of the portfolios of financial institutions and other lenders, and that there is some evidence of irrational exuberance? The BOK has two options. The first is to do nothing, and the second is essentially what the BOK has decided to pursue.

The do-nothing option is supported by economists who conclude that “inflation-targeting central banks need not respond to asset prices, except insofar as they affect the inflation forecast.”<sup>16</sup> They reach this conclusion on the basis of a standard dynamic neo-Keynesian model in which monitoring credit by lenders is costly, asset price increases lead to further increases in credit, and the economy is subject to random shocks to asset prices in the form of an asset bubble. This type of framework, while theoretically interesting, is model specific and ignores the general responsibility of the BOK to contribute to limiting systemic risk.

A preferable approach is to lean against the bubble, but not too much. When housing prices started to increase significantly above the inflation rate, the BOK was correct to shift to tighter policy. The real problems are how far to go with tighter policy and recognizing that central banks are not capable of maintaining perfect stability. Asset bubbles will occur on occasion, and central banks need to keep from accommodating further asset price increases with easy policy and then being forced to shift to a cold-turkey policy at a late date when it becomes obvious the party has gotten out of hand.

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15. Kindleberger, *Manias, Panics, and Crashes*; Shiller, *Irrational Exuberance*.

16. Ben S. Bernanke and Mark Gertler, “Should Central Banks Respond to Movements in Asset Prices?” *American Economic Review* 91, no. 2 (May 2001): 253–57.